Intellectual Capital Reporting in Malaysian Companies: A Multidimensional Analysis

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ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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CO-AUTHORED WORKS

This thesis represents four papers produced and presented/published during the three years PhD term. All co-authors have approved the inclusion of the joint work in this PhD thesis.

Paper 1 – Paper presented at Auckland Region Accounting (ARA) Conference on 27 November 2009

Title: Assessing quantity and quality: The case of intellectual capital reporting in Malaysia

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ABSTRACT

This Doctor of Philosophy (PhD) research examines the status of intellectual capital (IC) reporting in Malaysian companies' annual reports with a view to contributing to the understanding of IC reporting practices and the state of knowledge-based economy initiatives in Malaysia.

The literature review provides evidence of the increasing interest in IC as part of companies' value drivers, and shows the growing concern about how much IC information has been reported by companies. Numerous researchers have investigated IC reporting, but the review shows that there is a lack of reporting research conducted in developing countries like Malaysia, inconsistency in the application of content analysis, and lack of research that focuses on quality of IC reporting and types of IC management activities reported by companies. Therefore, to advance the research on IC reporting, research on Malaysian companies was conducted by analysing the extent of IC reporting, the quality of IC reporting, and the types of IC management activities reported in the 2008 annual reports of 30 largest Malaysian public listed companies. The analysis was also conducted with the aim of refining the research methodology used in IC reporting studies by discussing and illustrating challenges and issues associated with the use of IC indices and content analysis methodology. This research introduces proactive legitimacy theory as the theoretical foundation, which can be used to explain and comprehend company disclosure policies on IC.

The findings of this research show that external capital is the most reported IC category and exhibits the highest level of quality in reporting as measured through forms and locations of disclosures. Analysis of the 30 Malaysian companies shows that IC information has been reported using all forms of disclosure, namely,

narratives, numbers, and visual images, and in all five sections of the annual reports with narratives and sections referred to as *others* as the most popular choice for reporting IC. The analysis also shows that there is a lack of structure in the reporting of IC information, with very little IC information showing a resources-activities-effects relationship. The findings support the proposition that Malaysian companies, particularly those from knowledge-based industries, are proactively reporting IC information to legitimise their operation in an environment where the concept of the KBE has been incorporated into the government's economic plan. This research also provides evidence that the IC index developed in the research can be extended to act as a policy measure of Malaysian government initiatives towards transforming Malaysia into a KBE. However, while the results suggest that there is progress towards developing a KBE and a knowledge-based nation, there are areas in which Malaysian companies are lacking, such as innovation and research and development.

ABBREVIATIONS

ACCA   Association of Chartered Certified Accountants

ADB   Asian Development Bank

ANOVA   Analysis of Variance

ASEAN   Association of South East Asian Nations

BOD   Board of Directors

CSR   Corporate Social Responsibility

DMSTI   Danish Ministry of Science, Technology, and Innovation

EPU   Economic Planning Unit

EU   European Union

FASB   Financial Accounting Standards Board

FRS   Financial Reporting Standards

GCR   Global Competitiveness Report

GDP   Gross Domestic Product

GLCs   Government-linked Companies

IAS   International Accounting Standards

IASB   International Accounting Standards Board

IC   Intellectual Capital

ICT   Information and Communication Technology

IFAC   International Federation of Accountants

IFRS   International Financial Reporting Standards

IP   Intellectual Property

IT   Information Technology

K-based   Knowledge-based

KDI   Knowledge-based Economy Development Index

KBE	Knowledge-based Economy
MASB	Malaysian Accounting Standards Board
MCCG	Malaysian Code on Corporate Governance
MERITUM	MEasuRing Intangibles To Understand and improve innovation Management
MIDA	Malaysian Investment Development Authority
MSC	Multimedia Super Corridor
NEM	New Economic Model
NITA	National Information Technology Agenda
OECD	Organisation for Economic Co-operation and Development
OPP3	Third Outline Perspective Plan
R&D	Research and Development
S&P	Standard & Poor
S&T	Science and Technology
SC	Malaysian Securities Commission
SER	Social and Environmental Reporting
SMAC	Society of Management Accountants of Canada
SMEs	Small and Medium Sized Enterprises
SRIs	Strategic Reform Initiatives
STs	Strategic Thrusts
UK	United Kingdom
US	United States

CHAPTER 1: INTRODUCTION

1.1   Introduction

This chapter provides an introduction to intellectual capital (IC) reporting and to this Doctor of Philosophy (PhD) research. Section 1.2 provides an overview on IC and IC reporting. Section 1.3 explains the objectives of and motivation behind this research, while Section 1.4 provides an overview of the subsequent chapters. The last section briefly summarises this chapter.

1.2   Overview of IC and IC reporting

The last decade has seen the concept of knowledge assets being embedded in companies and is driven mainly by some countries' initiatives to transform themselves into knowledge-based (K-based) economies. The Organisation for Economic Co-operation and Development (OECD) defines the knowledge-based economy (KBE) as "an economy that is directly based on the production, distribution, and use of knowledge and information" (OECD, 1996, p. 7). With the shifts towards KBEs that have been made by developed nations, developing nations are also progressing to close the knowledge gap. Countries like Malaysia, for instance, have introduced several economic plans like the Knowledge-based Economy Master Plan (Master Plan) launched in 2002,which encourages the involvement of the private sector in IC investment. The Master Plan has put forward seven strategic thrusts (STs) that generally focus on four key elements as critical factors to help transform Malaysia into an industrialised nation, i.e. to have knowledge and skilled human capital, to have adequate support for education and training infrastructure, to develop a research and development (R&D) capability, and to develop a strong base for science and technology (S&T).

As knowledge and information are set to be among the factors that drive countries' economies, it is expected that the same factors could contribute to the decrease or increase of companies' value. This idea is supported by Ballow, Burgman, and Molnar's 2004 study on the market-to-book ratio of Standard and Poor's (S&P) 500 companies in the United States (US). About 20 years prior to the year the research was conducted, traditional accounting based assets composed about 80 percent of those companies' market value. By March 2003 the ratio had flipped to a break point, as the amount of market value explained through traditional accounting assets had shrunk to only about 15 percent. This raised the question of what made up the remainder of the market value. Ballow et al. (2004) conclude that the change is due to the growing proportion of assets that goes beyond the traditional accounting assets and defined as IC. Grouping the assets under the term IC seems to be the popular option, as IC is argued to have the ability to contribute to a better understanding of knowledge assets and provides a more operative conceptualizing of knowledge (Marr, Schiuma, & Neely, 2004).

With the dramatic increase in the number of companies relying on IC and the impact it has on companies' business environment, practices, and value, it is expected that the type of information that the companies use to manage their business will be different. This will affect companies' external reporting practices, since every company is governed by the principle of accountability that in return is "underpinned by the principle of inclusivity i.e. accountability to all stakeholder groups" (Cooper & Owen, 2007, p. 650). It is the right of all stakeholders to receive all information pertaining to the company, including its IC, and the duty of the company to supply it, even though it is not required by the statutory bodies. However, given the limitation of the current financial reporting system that focuses mainly on traditional accounting

assets, a change first needs to be made if the reporting system is to maintain its relevance (Elliott, 1992).

Traditional financial reporting does not allow most IC assets to be recorded in the company's balance sheet because the accepted recognition criteria are not met (Beattie & Pratt, 2002). The International Accounting Standards Board (IASB), in its Conceptual Framework for Financial Reporting 2010 — F 4.4 (a), requires assets to be recognised on the balance sheet when it is probable that the future economic benefits will flow to the entity and the asset has a cost or value that can be measured reliably (Deloitte Touche Tohmatsu [Deloitte], 2011). Most IC assets, however, do not meet these criteria particularly on the ability to be reliably measured.

Another option that IC has to earn a place in a company's balance sheet is to fulfil the criteria set under International Accounting Standards (IAS) 38.8 - Intangible assets that refers to identifiable non-monetary assets with no physical substance (Ng, 1999). Unfortunately, all intangible assets under IAS 38, whether purchased or self-created, must pass basic recognition criteria before they are fit to be recorded in the balance sheet, and that includes the ability to be measured reliably (Ng, 1999). While some IC assets like patents and copyrights are able to meet these criteria, IC itself covers a wider range of assets that are also important sources of future benefits such as human capital and processes. Given the role of such assets in creating companies' value, concealing this information should not be an option as it will bring adverse economic consequences (Beattie & Pratt, 2002). There will be a large mismatch between management and users' access to information, which means companies that have a high reliance on IC will face a higher cost of capital (Botosan, 1997) as well as higher risk of having insider gains (Lev, 2001).

With a formal guideline yet to be proposed by standard setters and the demand for IC information increasing, most companies have opted to voluntarily disclose this

information. Some companies, especially the Nordic companies, have gone much further by preparing separate IC reports as supplements to the traditional financial report. For other companies that choose to disclose IC information through normal channels of reporting such as their annual reports, it is up to the readers to extract whatever IC messages are needed (Courtis, 2000).

Given that by its nature IC is not easily measurable, the preferred form for communicating IC information has been through three interrelated elements — narratives, visualization, and numbers (Mouritsen, Larsen, & Bukh, 2001a). Together, the three forms of communication form a "grand story" of an empowered individual, of the coming of information technology (IT) and the knowledge society, and of long-term relationships with customers and partners (Mouritsen, Larsen, & Bukh, 2001b, p. 400). From a communication perspective, the narrative is provided through textual material, visuals are provided using charts and photos, and numerical information is provided using numbers (non-fiscal) and monetary value (fiscal) (Abeysekera, 2011, p. 323). The three communication strategies connect the knowledge management activities to a storyline by using numbers to convey the seriousness of management to hold them accountable for disclosed resources, visualization to construct a certain "wholeness" in the organisation of the numbers, and narrative to provide legitimacy through forming the IC statement (Mouritsen et al., 2001a, p. 749).

In summary, the shift in countries' initiatives to transform themselves into K-based nations has urged companies to change their focus from tangible to intangible assets. This in turn triggers the debate for a change in the traditional financial reporting system to a reporting system that recognises K-based assets represented mainly by employees' capabilities and by information systems. While the shift may have yet to happen, there has been a burgeoning amount of IC research conducted

providing the foundation needed to guide the transformation process. The next section examines the factors that motivate the author to conduct this research.

1.3   Motivations and objectives of this research

This research sets out to achieve three main objectives:

i.   Objective 1: To analyse the extent of IC reporting, the quality of IC reporting, and types of IC management activities reported by Malaysian companies.

ii.   Objective 2: To develop an IC index that can be used to measure the extent of IC reporting among Malaysian companies and as a potential policy measure of Malaysian government initiatives towards becoming a KBE.

iii.   Objective 3: To refine the application of content analysis through a multidimensional coding framework and discuss methodological issues and the process of conducting content analysis.

The following paragraphs in this section describe the factors leading to the three main objectives.

First, given the growing awareness of IC reporting, there are, however, very few studies carried out in developing countries (and in particular Malaysia) on how much IC information has been reported by companies. It is important to highlight that in 2002 Malaysia embarked on an ambitious journey to recognise the importance of knowledge by launching the Master Plan, which outlines various strategies to accelerate the transformation of Malaysia into a KBE. It aims to achieve sustainable economic growth in an environment where Malaysia can no longer rely on investment in capital or physical assets. Rather, growth must be driven by productivity and innovation, supported by effective management of both tangible and intangible

resources, i.e. IC (Economic Planning Unit [EPU], 2011a). However, the few studies conducted on the extent of IC reporting in Malaysia (for example, Goh & Lim, 2004; Yau, Chun, & Balaraman, 2009) provide little or no attempt to directly relate their findings to Malaysian K-based initiatives. Furthermore, both studies conducted by Goh and Lim (2004) and Yau et al. (2009) have been largely one dimensional, as they focus more on quantity or the extent of IC reporting. The analysis can be further extended to provide a much richer analysis by providing an analysis of quality of IC reporting and the reporting of types of IC management activities carried out by the Malaysian companies.

This research will therefore seek to fill this gap by looking at the extent of IC reporting, the quality of IC information being reported, and the types of IC management activities disclosed in the top 30 public listed Malaysian companies' (hereafter referred to as *the 30 companies*) annual reports. This research provides insight into the state of IC reporting in Malaysia. At an applied level, the research findings promise to be of great interest to Malaysian regulators such as the Malaysian Securities Commission (SC) in relation to what has been reported by the 30 companies, and which can be used to further enhance the way annual reports are prepared. Most importantly, the findings will provide an assessment of the level of success of Malaysian government initiatives in transforming Malaysia into a KBE, and eventually an industrialised nation.

Second, stemming from the increasing importance of IC reporting and the fact that researchers and analysts have not yet reached unanimous agreement on the definition of IC and its components (Schneider & Samkin, 2008), it has become another motivation of this research to develop an alternative IC disclosure index for assessing IC reporting. Until now, researchers have developed various frameworks to facilitate the measurement of IC, but there has been no widespread acceptance of these

frameworks. Kaufmann and Schneider (2004) claim this is due to those frameworks being too qualitative, broad or general, and the objectives remain ambiguous. Furthermore, there is also no clear explanation of why many of the attributes (variables) are included in the respective frameworks, and, more fundamentally, what constitutes IC is not clearly defined — what currently exists is an assortment of terminologies that provide more or less the same meaning (Choong, 2008).

Therefore, it is the objective of this research to contribute to the existing IC literature by providing a discussion on the development of an IC index in IC reporting studies through the identification of what constitutes IC and how it is measured, and ultimately to develop an alternative IC index to measure the extent of reporting among companies, particularly Malaysian companies. At an applied level, the aim is also to have an index that can be extended as a potential policy measure to assess the success of government policy and initiatives towards a KBE. Furthermore, with the growing concern for companies to enhance their way of preparing annual reports to truly reflect the real value of a company, the setting up of an IC index is considered a step in the right direction.

Third, undertaking this research involved applying content analysis methodology. This research, therefore, is set to make a timely contribution to the international literature on the refinement of content analysis. The difference in the levels of complexity in utilising content analysis has opened up a discussion on specific methodological issues in IC reporting studies by researchers such as Beattie and Thomson (2007), Steenkamp and Northcott (2007), and Steenkamp (2007). Motivated by the debate in prior studies on the utilisation of content analysis in IC reporting studies, and, most importantly, Beattie and Thomson's (2007) suggestion of making the methods themselves the focus of academic debate, the present research sets out to refine the usage of content analysis in IC reporting studies.

While the past three studies (Beattie &Thomson, 2007; Steenkamp, 2007; Steenkamp & Northcott, 2007) have provided a good platform for a discussion on content analysis and IC, this research shows that content analysis, particularly in IC disclosure studies, can be extended to incorporate other dimensions of IC disclosure, with all forms of disclosure i.e. narratives, numbers, and visual images incorporated in the analysis. Therefore, it is the aim of this research to introduce a multidimensional coding framework to measure IC reporting among companies from different perspectives — namely the extent, quality, and types of IC management activities. In addition, following the proposition made by Beattie and Thomson (2007), it also aims to provide a detailed illustration of the coding process, and a discussion on any potential methodological issues arising during the content analysis process.

In summary, this research sought to ascertain the state of IC reporting in Malaysia by looking at the extent, quality, and types of IC management activities. The findings will provide an assessment on the progress of Malaysian government initiatives towards a KBE. Further, this research aims to develop an IC index that is customised to the Malaysian business environment and can be extended as a potential policy measure for the government's K-based initiatives. Lastly, it is the aim of this research to refine the usage of content analysis (particularly in the area of IC reporting research) by developing a multidimensional coding framework, and this research provides a discussion and illustration of the process. The next section outlines each of the subsequent chapters of this thesis.

1.4   Overview of subsequent chapters

Chapter 2 provides a review of the literature that discusses accounting for IC, particularly the identification and reporting of IC. It provides a discussion on the rise of IC accounting and a review of IC terminology, definitions, and reporting

frameworks. It then provides a discussion on the characteristics of IC reporting studies. Finally, it identifies several research gaps in the literature and provides a list of research questions that lead to the three objectives of this research.

Chapter 3 describes the forces surrounding IC reporting in Malaysia. It starts with a discussion on the role of the Malaysian government in shaping IC reporting among the 30 companies. In this context it describes government initiatives to change and improve the Malaysian economy with public listed companies as one of the key players. It then proceeds with a discussion on the reporting environment of Malaysian public listed companies. A review is also being made of the three main players in the reporting environment, i.e. the Malaysian SC, the Malaysian stock exchange (Bursa Malaysia), and the Malaysian Accounting Standards Board (MASB).

Chapter 4 is the first of two chapters on research methodology. Chapter 4 is devoted to the discussion of the development of the IC index as an important element for IC researchers (and in particular for this research) to measure the state of IC reporting among companies. The chapter starts with a discussion on the objectives of having a disclosure index and proceeds to discuss the development of a new index by identifying categories, items, and indicators of IC. At the end of this chapter a preliminary index to be used in the content analysis process is developed. From there, a discussion is made of some of the potential issues that researchers need to consider prior to the application of the index in the content analysis process. One of the important issues in the discussion is the need to extend the index to analyse types of IC management activities.

Chapter 5 is the second chapter on research methodology. This chapter starts by discussing issues pertaining to the use of content analysis. From there, a multidimensional coding framework is proposed to be used as part of the content analysis process. From there, choices are made regarding the unit of analysis to be

used, how extent of reporting is to be counted, the types of quality measures to be used, the type of analysis of types of IC management activities to be used, and which reliability test is to be used. The chapter ends with the choice of sampling unit to be used.

Chapter 6 discusses the theoretical framework for this research, namely proactive legitimacy theory as a mechanism for understanding IC disclosures. This chapter starts with an overview of legitimacy theory and then establishes the link between legitimacy theory and IC reporting. The chapter then documents the link between proactive legitimacy theory and this research. It then proceeds with a discussion of additional analyses as mechanisms that could provide closer examination of how proactive legitimacy theory supports the proposition that IC disclosures differ between the various types of publicly listed industries, as well as between different types of ownership.

Chapter 7 provides an illustration of the process involved in analysing IC information in companies' annual reports. This is accompanied by a discussion on issues encountered and the solutions chosen by the coder throughout the process. With the results of the analysis as support, this chapter describes the issues that the coder faced in utilising the predetermined index. It will then proceed with a discussion of the issues in measuring the extent of IC information, and illustrates the process of utilising the recording, counting, and context units. Finally, it describes the process of, and issues associated with, analysing the types of IC management activities and the quality of IC reporting.

Chapter 8 provides a discussion of the results of content analysis conducted on the 2008 annual reports of the 30 companies. This chapter is divided into three main sections. It starts with a discussion of the results regarding the extent of IC reporting, including a discussion on how the results compare to previous IC reporting studies.

Next, it discusses the results from the perspective of management activities, analysing how well Malaysian companies presented their IC information within the context of IC as resources, activities, and effects. This chapter ends with a discussion on the quality of the IC information presented as measured through the form of disclosure and location of the information.

Chapter 9 provides a discussion of how the extent of IC reporting among the 30 companies reflects the state of Malaysian government initiatives towards a KBE. It then discusses the results of the extent of IC reporting from the perspective of the Master Plan launched in the year 2002. The discussion provides further evidence on how companies' IC reporting can be explained using proactive legitimacy theory. Finally, the results and discussion are presented on the one-way analysis of variance (ANOVA) tests conducted, which further support the use of proactive legitimacy theory.

This thesis ends with Chapter 10, which provides a brief overview of the contents of this research and evaluates its contribution to the existing literature on the subject. It begins with a brief summary on the motivation behind the study and summarises the research objectives outlined in Chapter 1. It then summarises the research methodology and results. One of the most important parts of this chapter is the discussion on the contribution of this research in the wider context of IC reporting and the K-based initiatives implemented by the Malaysian government. Finally, this thesis ends with a discussion of the limitations faced throughout the research process and suggestions for possible directions of future research.

1.5   Chapter summary

This chapter provides an introduction to this research by describing the motivation for, and objectives of, the research. It also provides an overview on the subsequent nine

chapters of this thesis. The next chapter will provide a review on the literature related to IC, which leads to the identification of research gaps and the questions developed for the purposes of this research.

CHAPTER 2:   LITERATURE REVIEW OF IC STUDIES

2.1   Introduction

This chapter provides a review of the IC literature that discusses accounting for IC, particularly the identification and reporting of IC. This review is divided into four sections. Section 2.2 explores the rise of IC accounting; section 2.3 is where the literature on terminology, definitions, and reporting frameworks of IC are reviewed; section 2.4 discusses the characteristics of IC reporting studies; and section 2.5 identifies the research gaps found in the review and develops the research questions that this research attempts to answer. Section 2.6 summarises the chapter.

2.2   The rise of IC accounting

The concept of IC was first advanced in 1969 by an economist, John Kenneth Galbraith, who claimed that the world owed a lot to IC over the previous few decades (Bontis, 2001). This claim is supported by the rise of the *new economy* identified by the OECD, and is driven by the increasing importance of information and knowledge (Petty & Guthrie, 2000). According to the OECD report, *Scoreboard 2001 — Towards a Knowledge-based Economy*, in this *new economy*, any country that has knowledge intensive activities will be the winners of future wealth creation (Edvinsson & Bounfour, 2004). This explains the change in investment pattern in countries like the US and Sweden. Based on research conducted by Professor Bauch Lev at Stern University, New York, by 1990 the investment pattern in the US and Sweden had changed from mostly tangible goods to dominantly intangibles such as education, competencies, and information technology software (Edvinsson, 2000). Furthermore, it is estimated that on average more than 10 percent of OECD countries' gross domestic product (GDP) goes towards intangible assets or IC (Edvinsson, 2000).

This new situation provides an indication that there will be a change in companies' structure from traditional scale-based manufacturing that relies mainly on tangible assets, to new innovation-oriented activities based mainly on IC such as human capital and knowledge (Bismuth & Tojo, 2008). In Bontis (2001) study, Arthur Andersen revealed some very interesting results from an international survey conducted on a total of 368 companies from European, North American, and Asian companies. The results showed that the majority of respondents believed IC reporting would increase in the future, even though it would still be done on a voluntarily basis, and most admitted that knowledge measurement would improve their company's performance (Bontis, 2001). This evidence supports the assertion that IC is becoming instrumental in the determination of companies' value, and consequently national economic performance.

However, with this development emerges a new paradox —that investing in IC could lead to a short-term deterioration of profit, which in turn reduces the book value of a company —particularly those investments that are visible on the company's balance sheets, such as investment in IT (Edvinsson, 1997). This will probably hamper the development of IC reporting, but ignoring the investment in IC might be out of question since most IC items are for long-term benefits. Therefore, for a company that has a major proportion of its investment stream going into intangible assets, as suggested by Edvinsson (1997), there is a need to move to a new level of accounting —particularly a new reporting system that can incorporate this new investment momentum.

Apart from the need for a new accounting system that can cope with companies' new investment structure, a new system is also crucial to prevent further corporate collapse. According to Abeysekera (2008a), the relevance of traditional financial reporting has diminished over the years due to its limitations in preventing

accounting scandals and corporate collapse in recent years. As stated in Abeysekera (2003), IC is of increasing importance due to its potential to explain many of the differences between companies' market value and book value, which might not be able to be explained by the traditional accounting system— particularly the financial reporting system (Petty & Guthrie, 2000). This issue is potentially a factor in much of the corporate collapse in recent years. Therefore, what is needed is the construction of a new accounting system that enables the non-financial, qualitative items of IC to be measured alongside traditional, quantifiable, financial data (Johanson, Martensson, & Skoog, 1999).

Furthermore, the shift of companies' investment in IC has also been observed by users of accounting information, which further accentuates the importance of IC reporting (Abeysekera, 2006). Denmark is an example of one country that in 1998 had already launched a project to look into intellectual capital accounting, with the aim of transforming Denmark from an industry-based to a KBE (Edvinsson & Bounfour, 2004). One of the initiatives developed by the Danish government is the introduction of an IC statements guideline that can help companies to report their IC information (Edvinsson & Bounfour, 2004). Nonetheless, despite this effort by the Danish government, the concept of IC is still in its infancy for certain countries, particularly developing countries, and even accounting regulators are yet to make a decision on how to account for IC.

2.3   Terminologies, definitions, and reporting framework of IC

2.3.1   Terminologies

The term *IC* is not an exclusive term used by all researchers in the area of IC. Various researchers have included, but not confined themselves to, other terms — such as *intangible assets, knowledge assets, intellectual property*, and *immaterial values,* even

though every term carries more or less the same meaning (Choong, 2008). Steenkamp (2007) concludes that the usage of different terms has resulted from research from a variety of disciplines. For instance, the term *intangible assets* is normally used in accounting literature, economists usually use the term *knowledge assets*, and the term *intellectual capital* seems to have originated from human resource literature, and management and legal literature (Lev, 2001). On the other hand, Choong (2008) concludes that the difference in terms is dependent on the culture. For example, researchers or bodies in countries that do not adopt the United Kingdom (UK)/ US-based accounting system (for example Germany and France) normally use the term *immaterial value* as opposed to *intellectual capital* (Choong, 2008). Interestingly, however, Choong (2008) provides evidence that regardless of which term is being used by researchers, the way those items are defined generally leads to the same characteristics of IC, i.e. non-monetary items, without physical appearance, and that can add value to the company. Therefore, it is safe to assume that whatever reasons lead to the usage of different terms, the reasons are not crucial since the difference between those terms is trivial. This would explain why those terms are used interchangeably and sometimes ambiguously (Steenkamp, 2007). In this research, the term *intellectual capital* or *IC* will be used as much as possible. However, as discussed in Steenkamp (2007), other terms may be used, particularly when referring to other studies.

2.3.2 Definitions

Similar to IC terminologies, the literature on IC offers a number of different definitions of IC itself, which makes it difficult to provide a precise definition (Blair & Wallman, 2001). Choong (2008) concludes that the most popular way to explain IC is provided by non-accounting researchers (for example, Edvinsson & Malone, 1997;

Mouritsen et al., 2001a; Sveiby, 1997a), where IC is defined as the difference between a company's market value and its book value. In fact, the significant gap between the two has attracted much research analysing the hidden value that is ignored by traditional financial reporting (for example, Ballow et al., 2004; Nakamura, 2003; Salamudin, Bakar, Ibrahim, & Haji Hassan, 2010). Market value is calculated based on an estimation of what the buyer would pay to a seller for any piece of property, while book value is the shareholders' equity shown in the balance sheet, which is a reflection of the company's assets, less liabilities (Cheng, Lin, Hsiao, & Lin, 2008).

The study conducted by Lev (2001) on the US S&P 500 companies over the period of 1977–2001, has documented that market-to-book ratios have increased from slightly above 1 to over 5 — denoting that 80 percent of companies' market value has not been reflected in companies' traditional balance sheets. One of the assumptions made is that the traditional balance sheet has accounted for all physical capital (through assets and liabilities), therefore any difference between a company's book value and its market value should be due to IC (Mouritsen et al., 2001b). A much more recent study conducted by Salamudin et al. (2010) on Malaysian companies has concluded that while book value is still dominant for companies' valuations, there seems to be an increasing interest in intangible assets as one of the important variables.

It could be argued, however, that if IC is considered to be the unaccounted capital that influences companies' market values, then if a company's market share decreases, the company's IC should diminish as well (Abeysekera, 2008b). This would mean that IC does not necessarily increase a company's value, whereas any company's asset is expected to bring future benefit to a company. As a result, it could be debatable whether or not to include the term *value creation* in the definition of IC, as it does not meet the definition of IC value creation as provided, for example, by

Mouritsen, Larsen, and Bukh (2001b). Mouritsen et al. (2001b) argued that the value creation of IC is the story of how companies' resources are transformed or improved to generate value. Furthermore, the difference between book and market value is also so broad that any fluctuation in market value does not necessarily result from IC (Striukova, Unerman, & Guthrie, 2008). Often the fluctuation of a company's value is due to reasons that have very little to do with the company's operation, such as changes in market sentiment or changes in countries' political systems (Garcia-Ayuso, 2003). In addition, it can be assumed that benefits from IC are not necessarily immediately identifiable, but rather accrue over a long-term period. This means the reflection will not be on the company's current market value, but instead on its future market value.

From an accounting point of view, the above definition is arguable as the difference between book and market value represents the accounting goodwill which is also known as *intangible assets*. However, even though goodwill is an intangible asset, and in this case is equivalent to IC, Choong (2008) concludes that it is not acceptable to assume IC is represented solely by goodwill as researchers have never fully explained its meaning. Critics believe defining goodwill as the difference between a company's book value and its market value is too loose and represents the failure of the current accounting model to correctly recognise intangibles (Skinner, 2008). Moreover, from the standard setter perspective, even though there is no specific definition outlined for IC, IAS 38 of the IASB has provided a definition of intangible assets. *Intangible assets* under IAS 38 are defined as an identifiable non-monetary asset without physical substance, controlled by companies as a result of past events, and from which future economic benefits are expected (Deloitte, 2011).The range of items that are possible to fall under intangible assets are patents, computer software, customer lists, and customer–supplier relationships.

Although the IAS 38's list can be considered IC, and is similar to those definitions advocated by the non-accounting group (Choong, 2008), since IAS 38 only recognises identifiable intangible assets, the list of items is expected to be limited (as compared to what is expected by the non-accounting group). This on-going disagreement on what IC should be highlights the need for further debate, with the aim of arriving at a definition that everyone can agree on. Alternatively, as it is difficult to come up with an IC definition on which everyone will agree, the literature on the categorisation of IC (see for example Brooking, 1997; Stewart, 1997; Sveiby, 1997a) suggests that to *categorise* IC may be a more appropriate approach as it is less stringent than providing a definition.

2.3.3   IC frameworks

Petty and Guthrie (2000) propose that one of the most workable definitions of IC is the one provided by the OECD describing IC as "the economic value of two categories of intangible assets of a company i.e. organisational (structure) capital and human capital" (OECD cited in Petty & Guthrie, 2000, p.158). This definition, however, has two main points that differentiate it from other categorisation frameworks used to explain IC. First, most IC frameworks (discussed later in this section and Chapter 4) assume three categories of IC that generally categorise IC into external capital, internal capital, and human capital. This is interpreted by some researchers as due to the difference in acknowledging management method for structural capital and human capital (Tan, Plowman, & Hancock, 2008). Note that despite this difference, the OECD definition is supported by a number of IC studies that have divided IC into three categories, such as Edvinsson (1997), Edvinsson and Malone (1997), and Roos, Roos, and Dragonetti (1997) (Schneider & Samkin, 2008). Second, according to Petty and Guthrie (2000), rather than treating intangible assets as

synonymous to IC, the OECD's definition has made an appropriate distinction between these two terms by locating IC as a subset of intangible assets. Therefore, there is the possibility of some intangible nature, such as a company's reputation, being accounted for that could not be part of the company's IC, as reputation may be a by-product of the judicious use of company's IC, but it is not part of IC per se (Petty & Guthrie, 2000).

Apart from the OECD definition, a range of IC frameworks have been proposed to encourage companies to report their IC information. Even though these frameworks also propose categorisation of IC instead of a systematic definition of IC, this approach has offered the opportunity to systematically organise a set of items into several possible classes or groups (Choong, 2008). This research identifies three main IC frameworks that provide three different categorisations of IC:

(1) The Intangible Assets Monitor (Sveiby, 1997a; Sveiby, 1997b)

(2) The Scandia Navigator (Edvinsson, 1997)

(3) The Technology Broker Framework (Brooking, 1996)

Choong (2008) claims Sveiby (1997a, 1997b) is the first from a non-accounting perspective to propose the classification of IC under a framework called *The Intangible Assets Monitor*. One of the most interesting quotes coming from Sveiby (1997b) is:

> The combination of a manufacturing perspective and a financial focus prevents managers from seeing the new, largely intangible, world that is emerging. If we measure the new with the tools of the old, we will not see the new. Our common sense will prevent us. (p. 74)

Sveiby (1997b) then proposes a new tool to measure the new and "invisible" part of the balance sheet that can be classified as a family of three: (1) Employee or people competence; (2) Internal or organisational structure; and (3) External or customer structure. This classification suggests that all asset structures, whether tangible

physical products or intangible relations, are the result of human action and depend ultimately on people to survive (Sveiby, 1997b), and that non-financial measures can provide a means of complementing financial measures (Huang, Luther, & Tayles, 2007). In brief, employee competence denotes employees' capacity to act in a wide variety of situations, internal structure represents everything created by employees that is generally owned by the company, and external structure includes a company's relationship with external parties like customers and suppliers (Sveiby,1997b).

A few major studies on IC have adopted Sveiby's three categorisations of employee, internal, and external capital, with different ways of interpreting each of the categories (Choong, 2008). Guthrie and Petty's year 2000 study on IC is one of the most prominent that has adopted Sveiby's framework. However, Guthrie and Petty (2000) modify Sveiby's framework from a structure based IC into capital based IC, which means all IC items are classified into three groups of capital, namely internal capital (instead of internal structure), external capital (instead of external structure), and human capital (instead of employee or people competence).This framework is then adopted by more recent IC studies like Guthrie, Petty, and Ricceri (2006), Abeysekera (2007), and Yi and Davey (2010).

The Scandia Navigator was developed by Scandia AFS (a subsidiary of the Skandia insurance company) headed by Leif Edvinsson, Director of Intellectual Capital, (Edvinsson, 1997). This IC framework incorporates two elements: (1) a theoretical framework for public reporting of intangible assets brought forward by a group of members from several Swedish knowledge companies called the Konrad Group, and (2) The Balance Score Card introduced by Kaplan and Norton (1993) (Sveiby, 1997b). According to this framework, a company's value is created due to the interaction between people (human capital) and the company's organisational structural capital, and when added together are equivalent to IC (Edvinsson &

Bounfour, 2004). *Human capital* represents the combined knowledge, skill, and ability of a company's employees to meet the task at hand, while *structural capital* includes any organisational capability that supports employees' productivity (for example software and databases) or anything that gets left behind at the office when employees go home (Bontis, 2001). Interestingly, unlike Sveiby's framework, customer capital is not treated as one separate category, but is considered as one of the expansions from structural capital. *Customer capital*, under this framework, represents the relationship developed by employees with key customers (Bontis, 2001).

Finally, the Technology Broker Framework introduced by Brooking (1996) provides IC categorisation from the assets perspective. In her book on IC, Brooking (1996) states that a company's market value is determined by two elements: tangible and intangible assets. The framework for intangible assets, or IC, has the following categories:

(1) Market assets (consisting of service or product brands, backlog, customer loyalty, etc.)

(2) Intellectual property assets (patents, know-how, trade secrets, etc.)

(3) Human-centered assets (education, work related knowledge, vocational qualification, etc.)

(4) Infrastructure assets (management philosophy, corporate culture, networking systems, etc.) (Abdolmohammadi, 2005, p. 399)

This framework has also been used by IC researchers over the years (Abdolmohammadi, 2005). Abdolmohammadi (2005), for instance, claimed that Guthrie and his colleagues have revised Brooking's framework to conduct an IC study on Australian companies, and that the most refined revision is presented in the year 2003 of their study. However, the most significant contribution of Brooking's framework is said to come from its introduction of a diagnostic process, using the

Technology Broker Framework, to audit the strength of a company's IC, and then offers a toolbox to assign value to the IC (Bontis, 2001).This approach is said to provide a practical contribution to the business society (Bontis, 2001).

Apart from the three major frameworks discussed earlier, from the accounting standard setting perspective, a few attempts have been made — not to create IC frameworks — but to create a framework for intangible assets. One of the frameworks is introduced by the Financial Accounting Standards Board (FASB), where intangible assets are categorised into seven categories for financial reporting, i.e. technology, customer, market, workforce, contract, organisation, and statutory-based assets (Choong, 2008). According to Kaufmann and Schneider (2004), the FASB approach is useful as it provides a clearer description of items, which could minimise overlapping of items between categories, and even provides examples of events leading to the creation of intangible assets, which make the categorisation more concrete and complete when applied in the business context.

Nonetheless, even if the FASB approach is said to be concrete, the issue remains as to whether this framework is better than the other available frameworks offered by non-accounting standard setters. Furthermore, there is still inconsistency and overlapping of classes between some of the frameworks, which means there is still no agreed classification scheme across studies of IC (Choong, 2008) from both accounting and non-accounting perspectives. Given the broad nature of IC's definition, a concrete IC framework is crucial to guide companies in preparing reports on IC and giving stakeholders access to the reporting of companies' IC. Further discussion on IC frameworks is available in Chapter 4, which includes the process involved in developing an IC index for the purpose of this research.

Table 1: A summary of IC reporting studies

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
Guthrie & Petty (2000)	Australia	Top 20 listed companies	Annual reports	Professional IC framework (IFAC, 1998; SMAC, 1998; Sveiby (1997))	Content analysis	IC framework	Not specified	No	No
Brennan (2001)	Ireland	11 listed companies	Annual reports	Guthrie et al. (1999)	Content analysis	IC framework	Not specified	No	Yes
Williams (2001)	UK	Across 31 companies	Annual reports	Not specified	Not specified	Disclosure index	Not specified	No	Yes
Bozzolan et al. (2003)	Italy	30 companies	Annual reports	Guthrie & Petty (2000)	Content analysis	Sentences	Not specified	No	Yes
Bontis (2003)	Canada	Across 10,000 companies	Annual reports	Not specified	Content analysis	Terms	No	No	No

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
April et al. (2003)	South Africa	20 largest publicly listed companies	Annual reports	Guthrie et al. (1999)	Content analysis	IC framework	No	No	Yes
Goh & Lim (2004)	Malaysia	Top 20 publicly listed companies	Annual reports	Sveiby (1997); Guthrie & Petty (2000)	Content analysis	IC framework	Not specified	No	No
Abeyse-kera & Guthrie (2005)	Sri Lanka	Top 30 listed companies	Annual reports	Guthrie & Petty (2000)	Content analysis	Sentences/lines	No	Yes	No
Abdol-moha-mmadi (2005)	US	58 of Fortune 500 companies	Annual reports	Guthrie et al. (2003)	Content analysis	Terms	No	No	Yes
Vandama-ele et al. (2005)	Nether-lands, Sweden, & UK	180 listed companies	Annual reports	Guthrie et al. (2000)	Content analysis	Sentences	Yes	No	No

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
Garcia-Meca & Martinez (2005)	Spain	Across 257	Report to financial analyst	Bukh et al. (2001); Cooke (1989); Sveiby (1997); Ernst & Young (2000); FASB (2001)	Content analysis	Disclosure index	No	Yes	No
Bukh et al. (2005)	Denmark	68 IPOs	IPO prospect uses	Guthrie & Petty (2000); DATI (2001); Sveiby (1997)	Content analysis	Disclosure index	Not specified	No	Yes
Vergau-wen & Alem (2005)	France, Germany & The Nether-lands	Across 89 companies	Annual reports	Bontis (2002)	Content analysis	Terms	No	No	No
Guthrie et al. (2006)	Australia & Hong Kong	1998: 20 largest Australian companies 2002:50 Australian and 100	Annual reports	IFAC (1998); SMAC (1998); Sveiby (1997)	Content analysis	Sentences	No	No	Yes

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
		Hong Kong-based companies							
Schneider & Samkin (2008)	New Zealand	82 local government	Annual reports	Bozzolan et al. (2003); Brennan (2001); Guthrie & Petty (2000); Wong & Gardner (2005)	Content analysis	Sentences	No	Yes	NA
Abeyse-kera (2007)	Sri Lanka	Top 30 listed companies	Annual reports	Guthrie & Petty (2000)	Content analysis	IC framework	Not specified	No	No
Sujan & Abeyse-kera (2007)	Australia	Top 20 listed companies	Annual reports	Guthrie et al. (1999)	Content analysis	IC framework	No	No	Yes
Vergau-wen et al. (2007)	Sweden, UK,& Denmark	60 largest companies	Annual reports	Bontis (2002); Guthrie & Petty (2000)	Content analysis	Term	No	No	No

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
Abeyse-kera (2008a)	Singa-pore (taken from Cheng et al. 2002) & Sri Lanka	Top 20 listed Sri Lankan companies	Annual reports	Not specified (Guthrie & Petty(2000) was used for the Singapore study)	Content analysis	IC framework	No	No	No
Jing et al. (2008)	UK	Across 100 companies	Annual reports	Sveiby (1997)	Content analysis	Phrases & words	Yes	Yes	Yes
Oliveras et al. (2008)	Spain	12 listed companies	Annual reports	Guthrie & Petty (2000)	Content analysis	Terms	No	No	Yes
Sonnier (2008)	US	141 & 143 selected from 2 industries	Part I of Form 10-K	Develop the author's own resource based view IC model	Content analysis	Term	No	No	Yes

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
Striukova et al. (2008)	UK	15 companies of different sizes	All*	Guthrie & Petty (2000) & Guthrie et al. (2004)	Content analysis	IC framework	No	No	Yes
Bruggen et al. (2009)	Australia	125 publicly listed companies	Annual report	Bontis (2003); Vergauwen & Alem (2005)	Content analysis	Words	Not specified	No	Yes
Yau et al. (2009)	Malaysia	Top 30 &bottom 30publicly listed companies	Annual reports	Guthrie & Petty (2000)	Content analysis	Sentence	No	Yes	No
Campbell & Abdul Rahman (2010)	Marks & Spencer, UK	1	Annual reports	Guthrie & Petty (2000)	Content analysis	Theme	No	Yes	No

Authors	Country	Sample	Media analysed	Basis of IC index	Method	Unit of analysis	Visual images analysed	Quality tested	Industries tested
Yi & Davey (2010)	China (Main-land)	49 dual-listed companies	Annual reports	Abeysekera, (2007); Bozzolan et al. (2003); Guthrie & Petty (2000);Wong & Gardner (2005)	Content analysis	Sentence	No	Yes	No
Branco et al. (2011)	Portugal	24 listed companies	Web pages & annual reports	Guthrie & Petty (2000)	Content analysis	Theme	Not specified	No	Yes

Key: FASB, Financial Accounting Standards Board; DATI; Danish Agency for Trade & Industry; IC, intellectual capital; IFAC, International Federation of Accountants; IPO, initial public offering; SMAC, Society of Management Accountants of Canada; UK, United Kingdom; US, United States.

*All: Analyst presentations, annual reports, CSR reports, interim reports, preliminary reports, web pages, and other types of reports not falling into any of previous categories.

2.4   IC reporting studies

While there is a debate on the definition of IC, there seems to be less debate on how to define IC reporting. Note that in IC studies, the terms *IC reporting* and *IC disclosure* have been used synonymously. Abeysekera and Guthrie (2002) in Abeysekera (2006, p. 63) define IC reporting as a "report intended to meet the information needs common to users who are unable to command the preparation of reports about IC tailored so as to satisfy, specifically, all of their information needs."

Even though there are fewer attempts in defining IC reporting, several researchers acknowledge that studies on IC reporting have become more important now compared to the past due to the rise of the new economy or the shift of dominant industry from manufacturing based to service based (Abeysekera, 2006). This explains why there is an increasing number of studies investigating IC reporting practices among companies. Studies on IC reporting date back before the 21st century, but for this research 28 recent studies on IC reporting are reviewed, and characteristics of each study are summarised in Table 1. This summary facilitates a better comparison between IC studies.

2.4.1   Types of documents

Column 4 of Table 1 (media analysed) shows the types of documents used by these studies in measuring the extent of companies' IC reporting, and it is safe to conclude that previous studies on IC reporting have predominantly analysed IC information in companies' annual reports. The main reason could be due to the nature of annual reports as they are widely distributed, which makes them easily retrievable, and they are regularly produced by companies (Campbell, 2000). Other types of documents available are separate statements on IC, analyst reports, and websites. Studies

conducted by Branco, Delgado, Sousa, and Sa' (2011), and Striukova et al.(2008), however, have gone beyond the individual annual report. Striukova et al. (2008), for example, have gone much further by analysing a whole range of corporate reports. Their basis is that in today's business environment, companies have been using a variety of reports to communicate with their stakeholders (Unerman, 2000) and focusing on only one type of report will risk losing a considerable amount of IC information (Striukova et al., 2008). On the other hand, Striukova et al. (2008) also contend that if each type of report presents a similar balance between different elements of IC, then an analysis on one, or more than one, report, should not be misleading. Interestingly, the study has found that 36 percent of IC information is reported on .html-type web pages, followed by annual reports (32 percent). The remaining percentages are distributed between other types of documents. This is supported by a study by Branco et al. (2011) that found more IC information (particularly the internal and external capital) on companies' websites, in comparison with their annual reports.

Even though the result supports the proposition by Striukova et al. (2008) that analysing IC reporting in annual reports as a proxy for overall companies' reporting of IC appears to be problematic, there is still an important fact that it is compulsory for companies, particularly publicly listed companies, to produce audited annual reports. This means any information being disclosed in the annual report is more reliable, and its importance should not be undervalued. Furthermore, even though IC information can be distributed to other types of report, if IC is perceived as important for a company's operation, or is perceived as important by the stakeholders, the annual report should be the best place to analyse IC information — as companies commonly signal what is important in their annual reports (April, Bosma, & Deglon, 2003).

2.4.2   Basis of IC frameworks

Prior to discussing the utilisation of the IC framework, it is important to highlight that the terms *IC framework* and *IC index* have been used interchangeably in this research. The reason is mainly related to the different terms used by different authors. For the purpose of this research the term *IC index* is the preferred term and will be used to refer to the index developed in this study. The term *IC framework* is used only when discussing previous studies, depending on which term is used by each author.

In analysing companies' IC reporting, most of the studies listed in Table 1 have either used Sveiby's Intellectual Assets Monitor model (for example, Garcia-Meca & Martinez, 2005; Guthrie et al., 2005; Jing, Pike, & Haniffa, 2008), or the IC index provided in Guthrie's papers (Guthrie, Petty, Ferrier, & Wells, 1999; Guthrie & Petty, 2000), that mainly originated from Sveiby's framework (for example, Bozzolan, Favotto, & Ricceri, 2003; Brennan, 2001; Bukh, Nielson, Gormsen, & Mouritsen, 2005). Even though Sveiby's framework is commonly associated with the three categories of IC (namely human, external, and internal capital), the majority of the studies have divided the three IC categories into a more structured list of IC items. Guthrie and Petty (2000), for example, have used Sveiby's (1997a, 1997b) contemporary classification scheme to categorise their list of IC items, but the list represents a modification of IC frameworks derived from the International Federation of Accountants (IFAC) (1998) and the Society of Management Accountants (SMAC) (1998). While some studies dated after this seem content to adopt Guthrie's framework (for example, Goh & Lim, 2004; Yau et al., 2009; Brennan, 2001), others have taken the initiative to modify the existing frameworks. This is done either through combining several frameworks (for example, Vergauwen, Bollen, & Oirbens, 2007; Bruggen, Vergauwen, & Dao, 2009), or modifying the existing frameworks to

suit the criteria of their sample companies or the objective of the research (Campbell & Abdul Rahman, 2010; Schneider & Samkin, 2008; Striukova et al., 2008).

The primary reason for having a framework that is, at least initially, based on a previously developed framework, is to preserve the comparability of the studies with previous studies (Campbell & Abdul Rahman, 2010). In a study such as Schneider and Samkin (2008), for example, it is necessary to modify the previously designed index that was based on the private sector to ensure their index would be more applicable to local government authority annual reports. The same action has also been taken by Striukova et al. (2008), who amended the existing index to ensure the index reflects the UK business IC context. It is also argued that the process of amending the index is imperative to increase the reliability of the definition of the content analysis categories and elements (Krippendorf, 2004). However, these modifications have left future researchers with a set of IC frameworks that might or might not be suitable for all companies in different business environments.

2.4.3 Content analysis

The usage of content analysis as the main research methodology supports the need to have a much narrow elements of IC item within any IC index. Content analysis is a method that has been widely employed in IC reporting studies and is verified by consulting Table 1. With the exception of William's (2001) study, which does not explicitly claim the usage of content analysis, all studies in Table 1 have chosen content analysis as a method to measure the extent of companies' IC reporting. Content analysis is defined by Guthrie, Petty, Yongvanich, and Ricceri (2004, p. 287) as "a method of codifying the text of writing into various groups or categories based on selected criteria". Similar to the usage of an IC framework, where there is still no

universally accepted framework; codification and quantification processes in conducting content analysis also appear to involve different levels of complexity.

The difference in the levels of complexity has opened up a discussion on specific methodological issues in IC reporting studies by researchers such as Beattie and Thomson (2007), Steenkamp and Northcott (2007) and Steenkamp (2007). Beattie and Thomson (2007), for example, highlight six specific issues such as concept boundaries and unit of analysis through the use of an illustrative example. An interesting point to note from the usage of content analysis by studies in Table 1 is that only two studies (Jing et al., 2008; Vandemaele, Vergauwen, & Smits, 2005) have explicitly stated the inclusion of graphical information in their content analysis. All of the other studies listed in Table 1 have either purposely ignored any images found on companies' documents (for example, Schneider & Samkin, 2008; Yi & Davey, 2010) or avoid making any remarks on the inclusion of images in the analysis (see Column 8, "Visual images analysed").

On the other hand, the link between a company's visual images, particularly pictures, and IC has been at the centre of discussion by several researchers. Davison (2010) and Davison (2011), for example, discuss the use of visual images as an alternative communication channel, particularly for companies' IC in annual reports and other business media. As an illustration, Davison (2010) provides evidence of how often apparently simple photographic portraits of business elites are actually carefully constructed by the company to communicate three forms of IC, i.e. the intellectual knowledge, the symbolic intangible assets of brands and other organisational capital, and the company's social assets. It is also empirically proven that the circulation of images in the company's annual report is "not empty window dressing but devices that help enact the firms' activities in different ways" (Justesen & Mouritsen, 2009, p. 988).

The lack of interest by authors of IC reporting studies to include images in their analysis may be due to the absence of guidelines that could help to minimise the quantification and subjectivity issues involved. Applying content analysis to visual images possesses its own challenge, possibly greater than when analysing narratives and numbers. A researcher needs to find a method to quantify the impact of pictures, and the subjectivity involved in determining the intended message of that picture has complicated the debate on the methods a researcher should use to determine what weight of disclosure a picture should carry (Guthrie et al., 2004). Therefore, it is a welcome sight to see some IC researchers such as Steenkamp and Northcott (2007) and Steenkamp (2007) propose guidelines on the application of content analysis for images. Their efforts provide a good basis for more discussion on how to incorporate visual images in the study of content analysis and will eventually encourage more IC reporting studies that include all forms of disclosure, i.e. narrative, numbers, and images.

Another important point, as far as content analysis is concerned, is the types of units of analysis employed by each study (Column 7).The choice of unit of analysis could potentially be a crucial issue, as each unit of analysis will result in a different level of extent of reporting. For example, counting the number of sentences could result in a lower amount of IC information as compared to counting the number of words. This in turn will affect the comparability of the studies. Reviewing the 28 studies in Table 1, the most popular choice is to search a list of related terminology derived from the IC framework (for example, Abeysekera, 2008b; Jing et al., 2008; Williams, 2001). In other studies, the preferences are to search for terms or words (for example, Sonnier, 2008; Vergauwen & Alem, 2005) and sentences (for example, Abeysekera & Guthrie, 2005; Yi & Davey, 2010). It can be argued that the usage of terms searched and the IC frameworks represent the same procedure. This might be

true, as searching for IC terms requires the usage of IC frameworks. The difference could simply be attributed to the researchers' choice of words when their methodological section is written.

In more recent studies, IC researchers have started to introduce the concept of IC themes into the IC reporting studies (Campbell & Abdul Rahman, 2010; Branco et al. 2011). While there might be similarities between IC themes and the usage of IC frameworks as units of analysis, and they are possibly even the same, IC theme is described as offering a more meaningful analysis as it looks for a cluster of words that has a different meaning from each other connotation, but when taken together refers to some theme or issue (Weber, 1990, p. 37). Once again, it appears there is still no resolution, and possibly never will be due to researchers' preferences on what is the best unit of analysis for IC reporting studies. Other than that, the use of the term *unit of analysis* has also been taken for granted to represent both the coding and the quantification stages. In most cases, although it has not been explicitly stated, it can be interpreted that previous IC researchers were keen to use the same unit of analysis for both stages. This might be true particularly for studies that use electronic databases to perform their content analysis (for example, Bontis, 2003; Sonnier, 2008; Vergauwen et al., 2007). In Vergauwen et al. (2007, p. 1169), for example, companies' annual reports were screened for IC terms and every time there was a hit, "it was then counted as one recording unit and therefore received a score of one".

On the other hand, studies such as Abeysekera and Guthrie (2005) appear to differentiate their coding and quantification processes by using the index to code IC information in the companies' annual reports and using the number of lines to count the frequency of IC occurrence. A detailed discussion on the different usages of unit of analysis can be seen in Jing et al. (2008). Jing et al. (2008) appear to differentiate the coding, count, and the context unit in their study. Based on the illustration given,

the study used phrases or what is commonly referred as *theme* to code their IC information, while words are used to count the volume of IC. The two processes were conducted on a selection of sentences containing IC information that appear to be the context unit of the study. Nonetheless, despite the diversity in the usage of unit of analysis being an unavoidable issue due to researchers' preferences, a much clearer differentiation between the coding and quantification processes could help future researchers to better determine their unit of analysis. Steenkamp (2007) and Steenkamp and Northcott (2007) are the only two studies found by this researcher that have initiated a good discussion on the difference between coding, quantification, and the least discussed process, the choice of context unit.

2.4.4 Summary of findings

Column 2 and 3 of Table 1 summarise the countries and sample size for the reviewed IC reporting studies. Almost all of these studies focus on publicly listed companies (except for Schneider and Samkin (2008) who conducted a study on the local government sector in New Zealand). The chosen sample size varies from only one company (Campbell & Abdul Rahman, 2010) to large/top companies (Abeysekera, 2007; Bozzolan et al., 2003; Guthrie & Petty, 2000) to 10,000 publicly listed companies (Bontis, 2003). The decision made by some studies to focus only on top or large companies is done mainly to control the size effect of the findings (Guthrie & Petty, 2000) and could be due to the expectation that large companies are expected to be more advanced in reporting information because of stakeholders' higher expectations. The 28 country/company studies can then be grouped into three: (1) studies that focus only on one country (for example, April et al., 2003; Bruggen et al., 2009; Goh & Lim, 2004); (2) studies that intend to compare IC reporting performance between countries (for example, Abeysekera, 2008b; Vergauwen & Alem, 2005); (3)

studies that look at IC reporting performance of the same countries or company over several years (for example, Campbell & Abdul Rahman, 2010; Vandamaele et al., 2005; Williams, 2001).

Overall, three main conclusions can be derived from the findings of these 28 IC reporting studies. First, results from most of the studies show there is an increasing trend of IC reporting among companies, indicating companies' growing concern about the importance of IC, particularly between the end of 20th century and the beginning of the 21st century. For instance, in Williams (2001), from 1996 to the year 2000, the quantity of IC reporting among UK companies increased from a mean of 0.2363 (1996) to 0.3709 (2000). The study by Guthrie et al. (2006) on Australian companies has also shown a different result as compared to the study conducted in 1998. There is an increase in internal capital reporting and external capital reporting from 30 percent and 40 percent respectively, in 1998, to 41 percent and 49 percent in 2006's study. However, this is not the case for human capital as the reporting has decreased substantially from 30 percent to only 10 percent.

This is supported by another study conducted by Sujan and Abeysekera (2007) that shows a reduction in human capital reporting among Australian companies to 21 percent. More investigation needs to be done, but one of the possible reasons for this decrease could be due to the change in labour laws that give employers more freedom to hire and fire employees, leading to a reduction in interest in winning employees' loyalty (Sujan & Abeysekera, 2007). A later study by Campbell and Abdul Rahman (2010) has taken the initiative to extend the period of study to a 31 year period. The analysis was conducted only on Marks & Spencer's annual report due to the authors' concern that exogenous factors had the potential to change companies' reporting. Nonetheless, their findings support previous studies' revelations that there is an increasing longitudinal trend of IC reporting. The evidence shows that relational

capital or external capital is substantially responsible for this ascendant shape of IC reporting.

Second, results from most of these IC reporting studies have led to a conclusion that there are differences in IC reporting practices among countries. Most of the comparisons have been made between developed countries, with three studies focused on countries that are the member states of the European Union (EU) (for example, Vandamaela et al., 2005; Vergauwen & Alem, 2005; Vergauwen et al., 2007). For example, a study conducted by Vandemaela et al. (2005) chose the Netherlands, Sweden, and the UK as their sample countries, based on the reasoning that those were the countries rated by Bounfour (2003) as demonstrating high levels of IC performance. Their studies revealed that Swedish companies reported significantly more IC (at the 5 percent level) in their annual reports, as compared to the Dutch and UK companies. This result is also consistent with the leading role taken by Sweden in the debate on IC management, measurement, and disclosure.

The same conclusion can be found in the Abeysekera (2007) study, where differences have been identified between Sri Lankan and Australian companies. Abeysekera's (2007) study is among the small number of studies that has taken the initiative to compare the level of IC reporting between a developed nation (Singapore) and a developing nation (Sri Lanka). The study reveals that the two countries show an increasing trend of IC reporting, with Singapore generally showing a much more significant level of increase in overall IC reporting. It is argued that the difference between these two countries' IC reporting is attributable to economic, social, and political factors (Abeysekera, 2007). For example, Singaporean companies have shown a significant increase in their human capital reporting, as opposed to the Sri Lankan companies, which have shown a decreasing trend. The author proposes that

the shortage of land and resources in Singapore could have made human assets critical to Singapore's economic success, leading to a higher level of human capital reporting.

Lastly, most of the studies have shown mixed results, with almost half of the studies listed in Table 1 conclude that external capital has been the most commonly reported IC category. This is proven in most types of IC reporting studies regardless of whether they are longitudinal studies (for example, Abeysekera & Guthrie, 2005; Campbell & Abdul Rahman, 2010; Oliveras, Gowthorpe, Karperskaya, & Perramon, 2008), comparisons between countries (for example, Guthrie et al. 2006; Vergauwen et al., 2007, Vandemela et al., 2005), or country specific studies (for example, Abeysekera, 2007; April et al., 2003; Bozzolan et al., 2003; Goh & Lim, 2004; Guthrie & Petty, 2000; Striukova et al., 2008; Sujan & Abeysekera, 2007; Yi & Davey, 2010). To illustrate, studies by Bozzolan et al. (2003) and Striukova et al. (2008) have revealed an external capital reporting level of 49 percent and 61.08 percent respectively. An explanation for this higher level of reporting, as compared to other types of IC, could be due to the globalisation and liberalisation of trade, leading to more intense competition between companies (Sujan & Abeysekera, 2007). This has forced companies to value the importance of external relationships.

The next most reported IC reporting category is the internal category, which can be seen in studies such as Bruggen et al. (2009), Schneider and Samkin (2008), and Yau et al. (2009). In addition, there are also studies that present mixed results between the three categories. Abeysekera (2008b), for example, shows external reporting as the most reported category for Sri Lankan companies, while Singaporean companies favoured the reporting of human capital. Findings by Branco et al. (2011) concluded that human capital was the most reported information in the annual reports of Portuguese companies, while the Internet showed a higher level of external capital disclosure. Branco et al. (2011, p. 49) claims that as "annual reports are directed at

investors and human resources are an important resource, it is natural for investors to be interested in it". On the other hand, as web pages are generally aimed at the general public, it is natural to find a higher level of external reporting for companies as compared to human capital (Branco et al., 2011).

2.4.5 Studies by country

Another interesting finding from column 2 of Table 1 is that most of the studies (21 out of 28 countries) concentrate on high income countries (according to the World Bank list) or developed countries (according to the Human Development Index). The remaining seven studies have been conducted on South Africa (April et al., 2003), Malaysia (Goh & Lim, 2004; Yau et al., 2009), Sri Lanka (Abeysekera, 2007; Abeysekera, 2008b; Abeysekera & Guthrie, 2005), and China (Mainland) (Yi & Davey, 2010), all of which fall under the *developing countries* category. Therefore, it is safe to conclude that there is a dearth of studies on developing countries or low/middle income countries, which leads to a gap between IC literature on developed countries and developing countries. IC studies on developing countries could be of interest with the growing importance of globalisation, which leads to a relatively free flow of capital between countries. In turn, investors' interests have moved to developing countries (Abeysekera, 2007). Malaysia, in particular, has embarked on a new economic development plan where cheap labour is no longer a competitive advantage (as found in countries like Vietnam), leading to a new type of investment, i.e. in human knowledge, which is expected to create high value-added production and give Malaysia a competitive advantage in the new KBE (Goh & Lim, 2004).

The study conducted by Goh and Lim (2004) has provided a good starting point for further studies on the extent of IC reporting among Malaysian companies. However, while the findings of this study are consistent with most of the other IC

studies conducted on developed countries, a more recent study conducted by Yau et al. (2009) has shown a conflicting result with internal capital as the most extensively disclosed IC category. This difference could be attributed to the fact that the latter study focused on the top 30 and the bottom 30 companies, while Goh and Lim only concentrated on the top 20. Furthermore, the surge in the number of Malaysian companies that embarked on business re-engineering and restructuring after the 1998 financial crisis could have explained the extensive disclosure of internal capital (Yau et al., 2009).

Given the limited number of studies conducted in Malaysia, a more comprehensive study on IC reporting could be made to support previous findings by applying a more comprehensive research methodology. For example, both previous studies have been less explicit in discussing the link between the extent of Malaysian companies' IC reporting and Malaysian initiatives to become a KBE and K-based nation. Furthermore, both studies have ignored the usage of visual images that could potentially alter the outcome of the study. Note that apart from the study conducted by Goh and Lim (2004) and Yau et al. (2009), there are other IC studies conducted on Malaysian companies (for example, Bontis, Keow, & Richardson, 2000; Ousama, Fatima, & Hafiz Majdi, 2011; Salamudin et al., 2010; Tayles, Pike, & Sofian, 2007; Ting & Ling, 2009). A summary of those studies has not been included in Table 1 mainly because their studies focus more on either looking at the relationship of IC value and companies' financial performance (Salamudin et al., 2010; Ting & Ling, 2009), investigating IC performance in Malaysia through a survey (Bontis et al. 2000), or looking at users' or preparers' perception of IC (Ousama et al., 2011; Tayles et al., 2007).

2.4.6 Industry effect

The last two columns of Table 1 list two types of additional tests that have been, or could have, been included in the IC reporting studies — quality of reporting and industry effects. The majority of the studies have acknowledged types of industries as part of their analysis, even though not all of them have included industry type in their analysis of findings (for example, April et al., 2003; Guthrie & Petty, 2000). Note, however, the classification of industries varies starting from a very broad industry classification (for example, high-tech versus traditional sector in Sonnier, 2008) to a more specific industry classification (for example, eight classifications in Oliveras et al., 2008). Generally, it can be concluded that different types of industry lead to different levels of disclosure, and a more detailed analysis shows that results from some of the studies are consistent with each other.

For instance, a study conducted by Sonnier (2008) derives the same conclusion as Bruggen et al. (2008) that high-technology industries are among the industries that have aggressively provided IC information. This is also consistent with a study conducted by Bukh et al. (2005) that shows high-technology based companies having a significantly higher level of reporting (31.7 percent) as compared to low-technology based companies (16.4 percent). Interestingly, however, there is a slight inconsistency between studies that classified their sample companies into either K-based or non-K-based industries. While the classification seems to be logical due to the growing interest in KBEs, the result, however, appears to be less consistent. For example, Sujan and Abeysekera (2007) reveal that K-based companies reported significantly higher IC content as compared to other companies. On the other hand, a recent study conducted by Branco et al. (2011) concludes that while industry affiliation seems to be an important determinant in the case of IC reporting on the Internet, it is less supportive in the case of annual reports. Branco et al. (2011) claim this inconsistency

could possibly be caused by the fact that Portuguese companies have a higher level of bank finance and so have other ways of obtaining IC information besides annual reports. This leads to a less significant difference in total IC reporting between the two types of industries.

2.4.7 Quality of reporting

The application of content analysis in IC reporting studies has so far focused on analysing the quantity of reporting, interpreted in this research as extent of reporting (for example, Bontis, 2003; De Pablos, 2005; Oliveras et al., 2008). Recently, as seen in Table 1, there seems to be an increasing number of IC studies that have started to specifically make allowance in the analysis for quality of IC reporting (for example, Campbell & Abdul Rahman, 2010; Yi & David, 2010; Schneider & Samkin, 2008). Generally the three studies have incorporated the nature of IC information (narrative or quantitative/financial) as their quality measure, with Yi and David (2010) using exactly the same measure as Schneider and Samkin (2008). Campbell and Abdul Rahman (2010) have gone much further by adding another type of quality measure, i.e. level of factuality or judgment conveyed by the information.

There are also IC studies (for example, Guthrie & Petty, 2000; Guthrie et al., 2006; Vandemaele et al., 2005) that have not been so direct in measuring quality, but have incorporated ordinal measures to allow specific IC items to be assessed based on the nature of the information, i.e. qualitative and quantitative. As for studies that opt for a simple binary coding scheme whereby only the presence or absence of an item is recorded (for example, Abdolmohammadi, 2005; Bontis, 2003; Oliveras et al., 2008; Vergauwen & Alem, 2005), this normally indicates that the researchers are only interested in looking at quantity of disclosure. This research acknowledges that quantity or extent of disclosure only represents one dimension of quality and that an

assessment of disclosure quality cannot be based purely on this association (Beattie, McInnes, & Fearnley, 2004). Quantity only considers how much information is disclosed, while quality can offer a much richer representation of information being disclosed (Beretta & Bozzolan, 2008).

2.4.8 Types of IC management activities

As far as this research is concerned, most previous IC reporting studies (including all studies listed in Table 1) have not conducted analysis on the types of IC management activities available in companies' annual reports. This could be attributed to the fact that the concept is previously discussed in a special report on IC and not in the annual reports (for example, Bukh et al., 2001; Mouritsen et al., 2001a; Mouritsen, Larsen, Bukh, & Johansen, 2001c). However, this does not make the IC information available in annual reports less significant. Mouritsen et al. (2001c) claim that the commonly used IC framework normally associated with the three way model of internal, external, and human capital, does not provide information on any management agenda and does not provide any effect on the indicators. All it does is "merely" help when identifying the knowledge information and make up the numbers (Mouritsen et al. 2001c). Although this framework is what has been used by most IC reporting studies, the result is actually very restrictive, showing each IC indicator as one dimension.

Mouritsen et al. (2001c) propose a categorisation of IC information into three IC management activities, i.e. resources, activities, and effects. These three generally indicate what knowledge resources the company has, what the company done with them, and the result of that action. With the growing concern that the traditional model of accounting "is now failing to keep up with the revolution taking place in business" (Edvinsson & Malone, 1997, p.1), these concepts could potentially be a stepping stone to a better structure of IC information. Producing a separate statement on IC may have

been a very long way to go, particularly for developing nations, and the best measure at this stage is possibly to have companies structure their IC information in a manner that is easily understandable by the stakeholder. Therefore, analysing annual reports for information containing the three types of IC management activities will provide indications on what has been done by the company and the effects of the actions taken. Furthermore, even with the popularity of the IC concept, it is not at all certain that the IC information found in annual reportsis actually being developed with awareness on the part of the company. This additional analysis will help to strengthen the perspective regarding the importance of companies' initiatives in managing their IC.

2.5 Identifying information gaps and research questions

The preceding review on IC literature shows there is increasing interest in the reporting of IC, with a variety of IC frameworks that have been developed to measure the extent of IC reporting in a variety of countries. This has led to an increasing number of IC reporting studies, with annual reports being used as the main source of data and content analysis as the method of investigating the level of IC reporting practices. Most importantly, this review has identified three significant gaps leading to a set of research questions that can be linked to the three research objectives listed in Chapter 1:

i.   First, there appears to be lack of agreement on what constitutes the IC framework. This raises the question of which IC framework researchers should use to assess the extent of IC reporting among companies? (Objective 2) With Malaysian initiatives towards becoming a KBE, is there the possibility to create an index that can be used not only to assess IC

reporting, but also to assess the progress of government policy or initiatives? (Objective 2)

ii.   Second, there has been limited number of research that analyse the level of IC reporting in developing countries, particularly Malaysia. The analyses conducted by existing literature on Malaysian's IC reporting have also been limited to analysing the extent or quantity of IC reporting, with little attention on assessing the quality of reporting or the types of IC management activities reported by Malaysian companies. Therefore, what is the current extent of IC reporting in developing countries like Malaysia? (Objective 1)What is the quality of IC reporting and the extent of companies' initiatives to mobilize their IC? (Objective 1) Have companies conducted any activity to enhance their IC management, and, if yes, is there any effect? (Objective 1) Is the state of reporting different depending on the type of industry? (Objective 1)

iii.   Lastly, in the application of content analysis, the process of analysing IC information itself has not included discussion on how information is being captured, and, in particular, the use of visual images has been ignored in the analyses. This leads to a question on how the content analysis can be further refined to ensure better comparability between future studies? (Objective 3) How can visual images be incorporated into the content analysis? (Objective 3) How can content analysis be used to conduct a multidimensional analysis looking at extent, quality, and types of IC management activities available in companies' reports? (Objective 1 and Objective 3)

These are the questions that this research will endeavour to answer. Therefore, for the purpose of this research, an IC reporting index is developed by taking into

consideration all previous IC frameworks or indices. Similarly, content analysis will be employed to analyse the 2008 annual reports of the 30 companies. However, one of the most significant differences between this research and most other IC reporting studies is that a more comprehensive content analysis method will be applied through the usage of a multidimensional coding framework. This coding framework will take into consideration all forms of disclosures, including visual images, and analyse different dimensions of IC reporting, i.e. extent of reporting, quality of reporting, and types of IC management activities. Research design will be explained in detail in Chapter 5.

2.6   Chapter summary

This chapter provides a review on IC literature that highlights the rise of IC accounting and the differences in IC terminologies, definitions, and frameworks. Most importantly, the review provides a summary and discussion on the characteristics of previous IC reporting studies. The chapter ends with the identification of research gaps and questions that can be linked to the three research objectives listed in Chapter 1. The next chapter (Chapter 3) presents a discussion on the forces shaping IC reporting in Malaysian publicly listed companies.

CHAPTER 3:   FORCES SHAPING MALAYSIAN IC REPORTING

3.1   Introduction

This chapter outlines the forces surrounding IC reporting in Malaysia. The sections are arranged as follows: Section 3.2 discusses the role of the Malaysian government in shaping IC reporting among Malaysian publicly listed companies. In this context it describes government initiatives to change and improve the Malaysian economy, with publicly listed companies as one of the key players. Section 3.3 discusses the reporting environment of Malaysian publicly listed companies and its role in shaping IC reporting among these companies. It will review the SC, Bursa Malaysia, and accounting regulation in Malaysia. Section 3.4 provides a summary of Chapter 3.

3.2   The role of the Malaysian government

Shapira, Youtie, Yogeesvaran, and Jaafar (2006) highlight Malaysia as a country that has transformed itself from being long dependent on agriculture and mining, to an industrialising economy where in 2005 manufacturing and services accounted for 32 percent and 57 percent (respectively) of the country's GDP. However, since the introduction of "Vision 2020" in 1991 by former Malaysian prime minister, The Honourable Tun Dr Mahathir Mohamad, transitioning to an industrialised production economy is not the end objective of policymakers. Vision 2020 is a 30-year plan to push Malaysia towards achieving a level on par with developed nations in terms of economic performance and technological capability (Mustapha & Abdullah, 2004). With Malaysia's competitive advantage in manufacturing being challenged by lower-cost developing countries, it will have to further accelerate its efforts to move forward and the focus has changed to becoming an industrialised KBE.

The Malaysian government has started to formulate several national plans to help it achieve its Vision 2020 goals, starting with the Second Outline Perspective Plan (OPP2;1991-2000) that outlines policies and strategies for the first phase of Vision 2020 (EPU, 2011a). Next, the Malaysian government formulated a plan to shift the Malaysian economy to a KBE resulting in the Third Outline Perspective Plan (OPP3) that outlines Malaysian economic development from 2001 to 2010 (EPU, 2011b). This is consistent with the developments being made in developed countries that are forging with their focus on knowledge, and information and communication technologies (ICT). With the intention of the Malaysian government to be on par with other developed nations, it is not unexpected that knowledge has been recognised as one of the key thrusts needed for Malaysia to be competitive. The decision by the Malaysian policymakers to intensify their efforts to increase the productivity arising from high knowledge content and efficiency is a strategic move (Mahathir, 2001). This will not only help Malaysia to stay ahead of other developing countries, but also to catch up with the more developed countries.

The foundation of a KBE was already starting to be formulated in the mid-1990s with the setting up of the National IT Agenda (NITA) and the Multimedia Super Corridor (MSC) (Mustapha & Abdullah, 2004). NITA provides the country with a three-pronged strategy aimed at developing a knowledge society through building and developing appropriate IT structure, the creation and development of IT-based applications, and human development efforts (Mustapha & Abdullah, 2004). MSC, on the other hand, represents tangible evidence of the country's commitment to the KBE by setting up a 50 x 15 kilometre wide corridor near Kuala Lumpur, the capital of Malaysia, providing an ideal IT and multimedia environment for knowledge workers, technopreneurs, and multimedia and high-technology industries (Mahathir, 2001).

At the beginning of the year 2000, the Malaysian government accelerated its efforts in building a KBE by making this one of the key thrusts in the OPP3. Recently, under the current Prime Minister, The Honorarable Dato' Sri Mohd Najib Tun Razak, Malaysia has crafted another framework named the New Economic Model (NEM) to be achieved through eight Strategic Reform Initiatives (SRIs) that will propel Malaysia to being an advanced nation in line with the goals set forth in Vision 2020. As expected, one of the SRIs being set up is to build a knowledge base and infrastructure that requires continuous innovation and growth in productivity with significant technological advancement and entrepreneurial spirit among industrial, agricultural, and service sectors (EPU, 2011d). The following subsections provide a discussion on both economic plans.

3.2.1 Identifying Malaysian k-based initiatives

3.2.1.1 What has been done —the OPP3

Under the KBE, while traditional factors of production such as capital and raw materials remain important, IT and human capital are the key factors driving growth, and provide the basis to remain competitive. IT will act as the enabling tool while human capital acts as the nucleus by providing the capacity to create, innovate, generate, and exploit new ideas as well as applying technology and exercising superior entrepreneurial skills (EPU, 2011b). The main players in this economy will be the public and private sectors. The public sector will provide the enabling and supporting environment while the private sector will be the engine of growth (EPU, 2011b). At the early stages of OPP3, the Malaysian government developed a KBE Development Index (KDI) to assess Malaysia's readiness to become a KBE. The assessment has compared Malaysia's position relative to 21 other countries, which are mainly developed countries. Detail of the KDI is provided in Appendix 1.

While the KDI provides an indication of what the Malaysian government considers the most relevant factors to drive the KBE are, it does not provide measures in relation to the private sector, considering the private sector is the key player for KBE (apart from the last indicator - business expenditure on R&D per capita). Nonetheless, this index does provide an indication of the crucial areas that the government will be using to compare Malaysia with other countries, particularly developed nations. On the other hand, Evers (2003) has commented that the indicators used make little sense when comparison is made with developed nations. For example, in the year 2000, the result of an assessment showed that Malaysia's KBE is more advanced than other Association of South East Asian Nations (ASEAN) countries such as Indonesia. However, when comparing Malaysia with developed countries like the US and other OECD countries, the knowledge gap seems to be widening instead of closing, as though Malaysia has done nothing to close the gap.

In reality, Malaysia does have a large, highly skilled workforce, and a good system of public and private higher education (Evers, 2003). Evers (2003) claims the problem is partly created by the index itself, as government officials and experts have constructed the index in such a way that local knowledge factors are undervalued and global ones are overvalued. As the KDI does not provide a good measurement basis for private sector companies and the OPP3 itself only directly provides one subsection relating to what the private sector is expected to do in this KBE, this research has taken the initiative to utilise the Master Plan launched in 2002. This Master Plan provides a strategic framework that outlines the changes to the basis of the Malaysian economy through seven Strategic Thrusts (STs) and 136 recommendations to accelerate the transformation process (EPU, 2011c). Table 2 provides a list of STs and their respective recommendations that are of concerned to private sector companies. Each ST is accompanied by a list of recommendations perceived by the author of this

research as relevant to the private sector companies. For the purpose of this research each recommendation is assigned a number indicating the thrust and recommendation number it refers to. For example, number 1.24 means it represents ST 1 and recommendation number 24 in the Master Plan.

Table 2: List of STs and Recommendations under the Master Plan

STs	Recommendations

ST1: Developing K-based human resources	[1.24] Encourage private conglomerates or the public sector to foster ties with private institutions
	[1.37] Conduct a strategic review of skill training
	  - Review human resource management to motivate and develop innovative skills and knowledge
	  - Develop in-house training program
	[1.40] Promote ICT training for working adults and non-specialists
	[1.41] Impart key enabling skills to all students and workers.
	[1.44] Increase training/retraining opportunities for the marginalized through "bridging courses"
	[1.48] Forge partnerships between government, business, and education and training providers
	[1.56] Create learning friendly environments throughout the nation
	  - This includes designing a learning-friendly design of workplace
	[1.58] Foster the development of scientific and technological literacy through lifelong learning and education
	[1.59] Promote trade union involvement in lifelong learning
	[1.60] Provide incentives to individuals and organisations that support learning and re-skilling
	[1.61] Grant automatic work permits and right of abode to top-level foreign talents (government action that can benefit private sectors)

ST2: Setting up the institutions to drive the K-economy based.	Not applicable.
ST3: Ensuring the incentives and infostructure for the	[3.1] Build infostructure for technology absorption capability [3.2] Strengthen the science and technology infostructure [3.3] Build the infostructure for innovation and technology

STs	Recommendations
KBE.	diffusion [3.4]Strengthen the institutional and research infostructure. [3.5] Establish infostructure for emerging technologies/K-based industries [3.6] Establish the infostructure for ICT [3.7] Build the infostructure for human resources [3.8] Build the infostructure for knowledge creation and diffusion [3.9] Build the infostructure for knowledge management. [3.10] Build the infostructure for telcommunications [3.11] Build the infostructure for ICT [3.12] Set up infostructure for networking [3.15] Grant incentives for drafting of corporate KBE Master Plans [3.16] Grant incentives for lifelong learning package [3.20] Provide incentives for intellectual capital [3.24] Enhance financing facilities through financial grants
ST4: Building the science and technology capacity for the K-economy	[4.1] Exploit opportunities to intensify the K-content in various economic activities, for example agricultural, manufacturing, and services. Ensure the vigorous development of ICT industries [4.2] Give high priority to the promotion and financing of R&D [4.3] Develop a strategic technology road map
ST5: Private sector spearheading the KBE.	[5.1] Hold dialogues, seminars and workshops to raise level of understanding and commitment to the KBE [5.4] Establish private sector organisations for research and development [5.5] Establish an organisation to represent knowledge workers in the private sector [5.8] Restructure organisation of firms to meet the needs of the KBE
ST6: Fast forwarding the public sector into a K-based civil service.	[6.8] Strengthen capacity for policy analysis and R&D
ST7: Bridging the knowledge and digital divide	[7.1] Put in place better data collection and feedback mechanisms [7.2] Fully investigate the gender divide [7.3] Instil passion for knowledge and learning [7.5] Provide educational assistance for the disadvantaged and the needy [7.6] Dramatically increase the number of residential schools for the disadvantaged and the needy amongst Malaysian students

STs	Recommendations
	[7.10] Enhance access: establish community telecentres throughout the nation
	[7.11] Enhance access: launch Malaysian Community Computer Bank Programme
	[7.12] Enhance access: launch programs for senior citizens and the disabled
	[7.13] Launch E-Volunteer Corps
	[7.14] Implement gender-dedicated programs
	[7.15] Develop local content

Key: ST, Strategic Thrust; K-based, knowledge-based; KBE, Knowledge-based economy; ICT, information and communication technology; R&D, research and development

Note: Decimal numbers represent ST and recommendation number from the Knowledge-based Economy Master Plan, e.g. 1.24 represents ST 1 and recommendation number 24.

As the Master Plan prescribes the critical areas in the KBE that need to be addressed by the private sectors under the OPP3, this research sought to embed the above measures into the analysis of IC reporting. The process involves extending the IC index to include the recommendations outlined in the Master Plan and is discussed in Chapter 6. In addition, it is also crucial to look at the future of the KBE in Malaysia. The best way to look at this is by analysing the NEM, launched in 2010.

3.2.1.2 What lies ahead — the NEM

On the 30th of March 2010, the Malaysian government introduced the NEM. The NEM report reveals the key principles that the government believes should act as a guide in the quest of transforming Malaysia from a middle income to an advanced nation by 2020. Unlike OPP3, which has been more open in its references to transforming Malaysia into a KBE, the NEM report is more subtle in using the term *knowledge*. In fact, the term *K-based economy* is not used once in the report. One of the possible explanations could be that Malaysia is now under a different prime minister, and strategically the new prime minister will try to come out with new ideas, bringing something fresh to national policy and planning.

The NEM is created under three main principles that will drive Malaysian economic progress, namely: creating a high income nation; committing to sustainability, particularly regarding the environment and precious natural resources; and inclusiveness, where no one is left behind in contributing to and sharing the national wealth (EPU, 2011d). Nonetheless, any discussion on economic planning cannot be divorced from a discussion on knowledge. Economic thinkers have highlighted the importance of knowledge dependent factors such as skills and know-how in helping businesses to compete and create competitive advantage, and even advanced nations still consider intangible knowledge input as important in the output of goods and services (Shapira et al., 2006). Therefore, despite fact that the term *KBE* has not been mentioned in the model, several knowledge dependent factors are still identified as playing a significant role in the NEM, and have been included as part of the SRIs — a list of initiatives that are fundamental in achieving the NEM.

From a total of eight SRIs, this research identifies several possible policy measures that could have impact on the private sector's IC. Those measures are listed in Table 3. Note that SRI 4 is excluded as it is related to the objective of strengthening Malaysian public sector.

Table 3: A list of SRIs under the NEM

SRIs		Possible policy measures that are related to companies' IC
SRI 1: Re-energising the private sector.	1.1-	Remove distortions in regulation and licensing, including replacement of Approved Permit system with a negative list of imports.
	1.2-	Introduce a 'Single-Window' licensing process through e-government portals to include local and state governments.
	1.3-	Economy-wide broadband roll-out
	1.4-	Encourage GLC partnerships with private-sector companies.
SRI 2: Developing a quality workforce	2.1-	Encourage R&D collaboration between institutes of higher learning and industry.

SRIs		Possible policy measures that are related to companies' IC
and reducing dependency on foreign labour.	2.1-	Upgrade skills of the bottom segment of the Malaysian labour force through continuing education and training.
	2.2-	Industry to partner with government in encouraging Continuous Employment Training (CET).
	2.3-	Allow wage levels to be reflective of the skill level.
	2.4-	Revise legal and institutional framework to facilitate hiring and firing.
	2.5-	Raise pay through productivity gains, not regulation of wages.
	2.6-	Enforce equal labour standards for local and foreign labour.
SRI 3: Creating a competitive domestic economy.	3.1-	Revamp the seed and venture capital funds to support budding entrepreneurs.
	3.1-	Simplify bankruptcy laws pertaining to companies and individuals to promote vibrant entrepreneurship.
	3.2-	Provide financial and technical support for SMEs and micro-businesses to move them up the value chain.
SRI 5: Transparent and market-friendly affirmative action.	5.1-	Emphasise equitable and fair opportunities for employment, health, and education and access to business opportunities.
SRI 6: Building the knowledge base and infrastructure.	6.1-	Ease entry and exit of firms as well as highly skilled workers.
	6.2-	Revamp the seed and venture capital funds to support budding entrepreneurs.
	6.3-	Simplify bankruptcy laws pertaining to companies and individuals to promote vibrant entrepreneurship.
	6.4-	Harness Web-based expertise and industry networks.
	6.5-	Improve access to specialized skills.
	6.6-	Ensure protection of intellectual property rights.
	6.7-	Incentivise firms to embrace technology and move up the value chain.
	6.8-	Foster R&D links between the institutions of higher learning and the private sector.
SRI 7: Enhancing the sources of growth.	7.1-	Focus on palm oil related downstream industries to develop indigenous technology and innovation or acquire technology to meet new market demands.
	7.2-	Encourage upstream technological innovation to develop higher yielding fresh fruit bunches.
	7.3-	Promote climate change mitigating products and services, e.g. recyclables.

SRIs	Possible policy measures that are related to companies' IC	
	7.4-	Promote products and services that comply with Islamic tenets, e.g. finance and pharmaceutical.
	7.5-	Integrate education services with industrial development, for example, a centre of engineering excellence in the electric and electronic cluster.
	7.6-	Move into alternative energy generation as well as energy saving products and services.
	7.7-	Adopt an open innovation system to acquire technology and expand networks.
	7.8-	Develop industries that support sustainable development such as the use of traditional plants and herbs for modern applications.
SRI 8: Ensuring sustainability of growth	8.1-	Encourage all sectors to embrace "green technology" in production and processes.
	8.2-	Reduce carbon footprint in line with government commitment.
	8.3-	Enforce clean air and water standards in utilising natural resources, i.e. pollution mitigation.
	8.4-	Develop banking capacity to assess credit approvals for green investment using non-collateral based criteria.
	8.5-	Liberalize entry of foreign experts specializing in financial analysis of viability of green technology projects.
	8.6-	Support green technology investment with greater emphasis on venture capital funds.

Key: SRI, strategic reform initiative; GLC, Government-linked Companies, R&D, research & development; SMEs, small and medium sized enterprises.

3.2.2 Policy implications of Malaysian publicly listed companies' IC

With the existence of these two economic plans (Master Plan and the NEM), the most critical elements identified by the government to transform Malaysia into a developed nation are clear. The four critical elements are: to have knowledge and skilled human capital; to have adequate support for education and training infrastructure; to develop an R&D capability, and to develop a strong S&T base. It is also apparent that the government is expecting the private sector to play an active role by investing in these four elements. If companies do invest in these elements that are mainly based on knowledge, it will give them ownership of particular capabilities (Prahalad & Hamel,

1990) that lead to the existence of knowledge assets. Once the knowledge assets have been embedded in the company and have brought value to the company, the company must now look for ways to manage and measure these assets. Grouping the knowledge assets under the term IC is said to be an option as IC has the ability to contribute to a better understanding of knowledge assets and provide a more operative conceptualization of knowledge (Marr et al., 2004).

Even though there is no direct reference to the four elements being compiled under one term called IC, both government plans — and particularly the Master Plan — acknowledge the existence of IC and that its components represent a portfolio of organised knowledge. As an illustration, under ST3 (3.6) of the Master Plan; IC has been recognised as the most valuable asset for economic growth, and the plan advocates that it should be nurtured further. There is no clearly defined framework available in the Master Plan to explain what IC is, but the IC structure is fairly similar to the Skandia navigator pioneered by Edvinsson (1997). In the Master Plan, the component of IC is divided into two: human capital and structural capital. Structural capital comprises the hardware, software databases, manuals, organisational structures, patents, trademarks, copyrights, organisational capability, quality of information technology, proprietary databases, organisational concepts, and documents. IC is then further extended to include activities related to customer relations and organisational capital. Finally, organisational capital is broken down into two more capitals: innovation and process capital.

The four critical elements identified as the core in creation of the KBE are elements that are considered as internal to most companies, particularly publicly listed companies. It is expected that every listed company will have employees and will invest in knowledge or skilled workers, and necessary infrastructure should be created to facilitate lifelong learning. The same argument can be applied to S&T and R&D.

While all companies might not have an R&D department, almost all publicly listed companies have the resources needed for an IT department. Therefore, if they do invest in human capital, S&T, and R&D, it is not only because of government pressure, but also because it can strengthen the internal capabilities that eventually contribute to companies' productivity and value. As far as IC is concerned, those elements are mainly related to companies' internal capital and human capital. There are, however, other key elements that are not internal to a company, but investing in those external elements can help to build up a company's image.

To illustrate, one of the key principles under the NEM is sustainability, which leads to several policy measures (see items 7.1, 7.6, 7.8, 8.1, 8.2, 8.3, and 8.8 of Table 3) that are created mainly to help preserve the natural environment. Despite its "externality" factor, the Malaysian government believes the private sector is the cornerstone of sustainability, and that is why the NEM is encouraging companies to internalise the externalities. For certain private sector organisations, this is crucial if the survival of the company depends greatly on natural resources. The energy sector, for example, depends highly on the diminishing supply of petroleum and natural gas, introducing vulnerability to price volatility. In this case, it is vital for energy companies to take sustainability initiatives by investing in new and renewable resources, such as solar or biomass.

For other sectors, however, the impact might not be so direct, and efforts must be made to internalise the sustainability initiatives. This is where companies are encouraged to introduce or implement measures such as adopting green technology in the production process or implementing a culture of sustainability throughout the company. Some companies, on the other hand, might choose not to internalise the externalities but instead offer support through collaboration or sponsorship programs. Even though this will not enhance these companies' internal capital, it can help to

boost their external capital. The Master Plan has also outlined several recommendations (for example, recommendations 7.5, 7.10, 7.11, and 7.12) that require public sector involvement in helping the community, particularly the disadvantaged, senior citizens, and the disabled. While the involvement may not affect a company internally, these are examples of involvement that could potentially add value to the company's reputation and eventually its external capital.

In summary, Malaysia is one of the developing countries that have started an ambitious journey to transform the country into an industrialised nation. It has put forward several economic models including the Master Plan and, more recently, the NEM. Both plans have been identified as having either an indirect or direct effect on companies' operation, with the former making an explicit call on the importance of companies' IC. In this research, the focus will be on the Master Plan as it was launched in 2002, giving publicly listed companies ample opportunity to act accordingly. The next section provides a discussion on the reporting environment of Malaysian publicly listed companies.

3.3   The reporting environment of Malaysian publicly listed companies

Studies conducted by Gan (2001) and Ousama et al. (2011) analysed the perception of Malaysian companies on the importance of IC. Gan (2001), for example, concluded that the level of IC awareness among Malaysian companies' managers was very encouraging, with the result showing that managers from the banking and manufacturing sectors of Malaysian companies perceived human capital information as being highly useful. A more recent study conducted by Ousama et al. (2011) reveals that perceptions of the usefulness of IC information from the preparers and users were statistically significant. Therefore, it is suggested that regulatory authorities in Malaysia such as the MASB and Bursa Malaysia should focus their attention on

enhancing their disclosure practices of IC by prioritising information related firstly to external capital and followed by internal and human capital (Ousama et al., 2011).

Given the increasing awareness of Malaysian companies of the importance of IC and the potential that IC is already being incorporated within companies' daily operations, it is interesting to see the current state of reporting regulation in Malaysia, particularly surrounding IC information. Bontis et al. (2000) claim that:

> Most Malaysian industries are still — for the most part — using traditional financial accounting and performance measurement methods which were developed centuries ago for an environment of arm's length transactions using primarily tangible assets such as building and equipment. (p. 85 - 86)

Therefore, with the new development towards achieving a KBE, what is needed is possibly a new reporting model that can accommodate the K-based initiatives (Bontis et al., 2000).

The current state of reporting for Malaysian publicly listed companies is governed by three main bodies:

i.   Malaysian Securities Commissions (SC)—the SC was established under the Securities Commission Act 1993, and is a statutory body that reports to the Minister of Finance, Malaysia. The SC has direct responsibility for supervising and monitoring the activities of market institutions, including exchanges and clearing houses, as well as all persons licensed under the Capital Markets and Services Act 2007. Underpinning these functions is the ultimate aim of protecting investors (Malaysian Investment Development Authority [MIDA], 2011).

ii. Bursa Malaysia— Bursa Malaysia is today one of the largest stock exchanges in Asia, with just under 1,000 listed companies offering a wide range of investment choices to the world. Companies are either listed on the Bursa Malaysia Securities Berhad Main Market, or the ACE Market for

innovative entrepreneurs seeking to list their fledgling companies (MIDA, 2011). It is the duty of Bursa Malaysia to ensure a fair and orderly market in the trading of securities and derivatives. The SC, being the regulatory oversight body, supervises and monitors Bursa Malaysia with regards to its listing, trading, clearing, settlement, and depository operations, to ensure Bursa Malaysia performs its regulatory duties and obligations in an effective manner.

iii. Malaysian Accounting Standards Board (MASB) - the MASB is an independent standard setting body established under the Financial Reporting Act 1997. MASB sets financial reporting standards and statements of principles for financial reporting in Malaysia. Bursa Malaysia and the SC require mandatory compliance with the approved standards published by the MASB, which is guided by standards adopted from the International Financial Reporting Standards (IFRS) (Mohd Saleh, Abdul Rahman, & Hassan, 2009).

As far as IC reporting in publicly listed companies is concerned, and to the knowledge of this present research, there has been no specific IC guideline provided by these three bodies. The closest guideline to IC being created by the SC and Bursa Malaysia is the *Sustainability Reporting Guidelines for Malaysian Companies* and the Bursa Malaysia corporate social responsibility (CSR) framework.

The sustainability guideline was designed by the Association of Chartered Certified Accountants (ACCA) and is seconded by the SC. Despite it being not explicitly directed for IC reporting, the guideline does acknowledge that the growing importance of intangibles is one of the keys to become a responsible business. Companies operating today place a greater value on their reputation and their brand(s) and being associated with causing degradation to the environment or substandard

labour practices can cause acute harm to a company's reputation and brand value, potentially provoking consumer boycotts of products or public demonstrations (ACCA, 2005, p. 7). Bursa Malaysia's CSR framework, on the other hand, is a set of guidelines for Malaysian publicly listed companies to help them in the practice of CSR. It looks at four main focal points of CSR, i.e. the environment, the workplace, the community, and the marketplace, all of which can be incorporated as part of the IC reporting framework.

Although the two guidelines focus on sustainability, particularly CSR, the same guidelines should also be relevant for IC. It is important to note here that there seems to be clashes of items in the CSR and IC indices, introducing a vague line between these two areas. Several studies such as Barnett (2007) and McWilliams, Siegal, and Wright (2006) have shown that IC has an important role in relation to companies' CSR, and both aspects actually interact in influencing companies' value. For example, in the case of human capital, companies' capabilities to be involved in social responsibility activities (part of CSR), such as health and safety programs, will promote greater employee engagement (Passetti, Tenucci, Cinquini, & Frey, 2009). This in turn will help to increase the value of the companies' human capital, which is part of IC. Therefore, it is not a surprise if the two guidelines are used by companies to prepare their sustainability information, and the same information can be used to evaluate the extent of companies' IC reporting.

As far as the MASB is concerned, only the *Financial Reporting Standard* (FRS) *138 — Intangible Assets*, published by this body, can be argued as directly and currently related to IC. However, it has been argued that even this standard does not sufficiently capture most IC items (Ousama et al., 2011). FRS 138.12 defines *intangible asset* as an identifiable non-monetary asset without physical substance (Ng, 1999). Although the FRS 138 definition has been commonly accepted and practically

implemented in Malaysian statutes, its definition is still confined within the limited scope of reporting intangible assets such as purchased goodwill and patent (Salamudin et al., 2010). IC, on the other hand, also includes human capital and K-based intangible processes, which is consistent with what has been proposed in the Malaysian government's Master Plan.

In summary, there is little evidence of regulation surrounding IC reporting for Malaysian publicly listed companies. Therefore, with more work needed on companies' IC reporting practices, and with a number of K-based initiatives proposed by the government, development of an IC index could provide a possible answer to both companies' need for IC reporting and as a potential measure of policy efficacy for regulators.

3.4   Chapter summary

This chapter outlines the Malaysian government's initiatives to nurture Malaysia towards becoming a KBE and put Malaysia's economy on par with other developed nations. This development has sparked interest in the importance of IC incorporation in companies' daily operation. Despite its potential contributions to the value creation of a country's economy, IC is given little regard in the current accounting system and in traditional financial statements (de Pablos, 2003; Abeysekera & Guthrie, 2005), and only certain IC components, such as goodwill, are recognised (Abeysekera & Guthrie, 2005). These findings suggest the need to have a proper guideline; not only for companies to report their IC activities in a structured manner, but also for regulators to measure the extent of actions taken by companies to support Malaysian government initiatives. These are among the objectives set out by this research. The next two chapters provide a discussion on the research design of this thesis. The first part, Chapter 4, describes the process of developing the preliminary IC index.

CHAPTER 4:   RESEARCH METHODOLOGY — DEVELOPMENT OF THE IC DISCLOSURE INDEX

4.1   Introduction

This research recognises that there is a need for a disclosure index that can guide companies in structuring their non-financial reports, particularly regarding IC. The index will be an important tool for IC researchers and in particular for this present research, to measure the different dimensions of IC reporting among companies, as well as to provide a potential policy measure for government KBE initiatives. Thus, this chapter is devoted to discussion on the development of such an index. Section 4.2 discusses the objectives of having a disclosure index. Section 4.3 will start the discussion on the development of the index by identifying categories of IC. Section 4.4 will identify all IC items and the indicators for each IC category, while Section 4.5 describes some issues with applying the IC index in content analysis studies. Section 4.6 discusses the incorporation of types of IC management activities in the usage of IC index and Section 4.7 provides a summary of this chapter.

4.2   The objective of an IC disclosure index

According to Coy, Tower, & Dixon (1993, p. 122), a disclosure index is defined as:

> A qualitative based instrument designed to measure a series of items, which, when aggregated, gives a surrogate score indicative of the level of disclosure in the specific context for which the index was devised. (p.122)

Based on this definition, it can be said that a disclosure index is used by researchers as a device to measure the underlying variable of companies' disclosures. This research tool has been used from the 1960s to the present and its survival over time lies in its ability to provide users, particularly researchers, with the expected answer to their hypotheses, in many cases (Marston & Shrives, 1991). A disclosure index serves

several purposes. An example of the most common use of an index is that it can be used to rate, rank, and benchmark corporate reports (Jones & Alabaster, 1999). Various parties such as the accounting profession and regulatory bodies have introduced awards to recognise excellence in reporting, and the level of excellence is measured through the development of disclosure indices. This effort will encourage companies to improve the quality of information reported. In the context of social science research, the aim of having an index is to show the level of disclosure in a set of companies' accounts. The analysis can normally be further divided into three categories (Marston & Shrives, 1991). First, the items in the index can be designed to analyse a company's compliance with mandatory requirements set by regulators. Second, the index can be used to show the company's level of voluntary disclosure as used by most researchers in the area of social and environmental reporting. Lastly, an index can include a mixture of items required by regulation and also voluntary items if that suits the purpose of the research project.

The disclosure index in this current research will be used to measure the comprehensiveness of IC information being disclosed in companies' annual reports and accounts, regardless of whether it is a required disclosure or voluntary disclosure. As IC reporting is still at the voluntary stage, it is assumed that companies will only provide more information on their IC (in excess of the required disclosure laid down by statute, professional regulation, and listing requirements of the stock exchange) when companies' perceptions of the benefits arising outweigh the costs. Therefore, to analyse the comprehensiveness of IC information being disclosed in companies' annual reports, it is logical to include both mandatory and voluntary information that contain information on IC.

The usage of an IC disclosure index will also ensure that this research concentrates more on what should be reported rather than what is being reported. If

the focus is more on what is being reported, the result of the research will be mainly based on qualitative description, and will be very subjective. The use of a disclosure index, on the other hand, results in a more precise, more accurate description, and more effective usage of theory (Jones & Alabaster, 1999). This will improve comprehension, and more importantly, the comparability of the information with other companies' information. Moreover, the attentiveness given to what the companies should report is consistent with the concept of accountability and transparency of accounting information.

Good quality of reporting is governed by the principle of accountability, which in turn is "underpinned by the principle of inclusivity i.e. accountability to all stakeholder groups" (Cooper & Owen, 2007, p. 650). Influential guidelines like *AccountAbility AA1000* and the *Global Reporting Initiative (GRI)* have been developed to promote institutional reform sufficient to heighten companies' accountability. For example, AccountAbility AA1000 (1999) suggests that accountability is directly addressed by inclusivity that concerns itself with:

> The reflection at all stages of the social and ethical accounting, auditing and reporting process over time of the aspirations and needs of all stakeholder groups — those groups who affect and / or are affected by the organisation and its activities. Stakeholder views are obtained through an engagement process that allows them to be expressed without fear or restriction. Inclusivity requires the consideration of 'voiceless' stakeholders including future generations and the environment. (p. 22)

Therefore, under the accountability concept, one of the concerns for companies' reporting is the right of all stakeholders to receive all information pertaining to the company, including its IC, and the duty of the company to supply it, even though it is not required by the statutory bodies.

Furthermore, with the emergence of the knowledge society and the new economy, where IC rather than physical capital is seen as the pivotal factor underlying companies' value creation, there has been discussion in recent years on whether or not

the existing accounting standards guidelines are appropriate in relation to transparency (Nielson & Madson, 2009). This is what has been proposed by studies in the area of social and environmental reporting (SER) that advocate for an increase in companies' transparency to the whole society. However, Nielson and Madson (2009) argue that, even though SER literature seems to consider transparency as a question addressing accountability to society, some of the guidelines being developed, like GRI, show a lack of concern regarding usefulness of information, as they focus more on disclosing as much as possible to as many stakeholders as possible.

The creation of an IC index, on the other hand, will help to advocate another level of companies' transparency by uncovering the intrinsic value and the growth potential of a company — as IC is one of the facilitators for management of future plans for value creation (Eccles, Herz, Keegan & Philips, 2001). Therefore, disclosure of information, for example that relates to employees' knowledge and companies' relationships with stakeholders such as suppliers and customers, will not only ensure companies' transparency but also provide information on their internal efficiency and mobilization of IC, as part of the companies' value creation process. Through sharing this information, a tendency will emerge that highlights the importance of not just disclosing more and more information, but rather provides users with the appropriate information to help their decision making process (Nielson & Madson, 2009).

Generally, the construction of the IC disclosure index in this research comprises a three-step model:

   i.   Determining the objectives of the index

  ii.   Identifying appropriate IC categories

 iii.   Identifying IC disclosure items and indicators

The explanation of the first step is subsumed earlier in this section, therefore, the remaining sections are limited to explanation and discussion of the last two steps.

While this IC disclosure index may have wider applications, particularly in IC studies, the researcher acknowledges that, as in Coy and Dixon (2004), any researcher interested in applying this index need to be cautioned, as "disclosure indices are ephemeral in nature and can measure annual reports only in terms of the standards and expectations of stakeholders when there are constructed" (Coy & Dixon, 2004 p. 85). As changes occur in the business environment and also in the expectations of the society, there will be arguments for modifying the index to increase companies' accountability and transparency. Furthermore, this index is also developed with the Malaysian business environment as the main focus, which could also call for some precautious when applying the generic principle of index construction.

4.3   Identifying categories of IC

Edvinsson (2002) claims that the root of today's IC movement lies in the mid-1980s work of Professor Karl-Erik Sveiby through his project in Sweden called *Conrad Groups*. This has grown into a world community that attempts to measure IC. However, as illustrated in the literature review section, because of the difficulty in coming out with the exact definition of IC, researchers believe that it would be more appropriate to categorise IC, as categorisation is less stringent that definition (Choong, 2008). This perception has led to the construction of IC frameworks that involve a hierarchy of nested concepts starting with high-level categories such as human, structural, and relational capital down to multiple lower-level categories (Beattie & Thomson, 2007). A number of IC frameworks developed for the purpose of understanding IC have categorised the IC items so that IC can be managed and measured (Brennan & Connell, 2000). Some of the major frameworks are summarised in Table 4.

Table 4: List of IC frameworks

Developed by	Framework	Categorisation
Sveiby (1997a, 1997b)	The Intangible Assets Monitor	Employee competence Internal structure External structure
Edvinsson & Malone (1997)	Skandia Value Scheme	Human capital Structural capital
Brooking (1996)	The Intellectual Capital Method	Market assets Intellectual property assets Human centred assets Infrastructure assets
Roos et al.(1997)	IC-Index	Human capital Structural capital
Kaplan & Norton (1992)	The Balanced Scorecard	Financial perspective Customer perspective Internal business perspective Innovation and learning perspective
Stewart (1997)	Categorisation of intellectual capital	Human capital Structural capital Customer capital
Danish Ministry of Science, Technology, and Innovation (2003)	IC statements − The New Guideline	Employees Customers Processes Technologies
MERITUM(2002)	Guidelines for Managing and Reporting on Intangibles	Human capital Structural capital Relational capital

Key: IC, Intellectual Capital; MERITUM, MEasuRing Intangibles To Understand and improve innovation and Management.

By evaluating the state of IC measurement fields, this research recognises that emerging IC frameworks come from the ground-breaking works of people like Karl-Erik Sveiby (Sveiby, 1997a, 1997b), Leif Edvinsson (Edvinsson & Malone, 1997), Thomas Stewart (Stewart, 1997), Robert Kaplan and David Norton (Kaplan & Norton, 1992), and Annie Brooking (Brooking, 1996). The remainder of this section will

provide a discussion on the categories proposed by all of these frameworks before a decision is made on the most suitable IC categorisation for this current research.

A comparison between these frameworks reveals some interesting findings. First, looking solely at the definition for each IC category used by most of these frameworks, it can be concluded that most of them are using almost the same IC categorisation. The most popular categories can be called a three way categorisation — human, external, and internal — with different ways of presenting them. For example, looking at Stewart's (1997) framework, which is said to be the mainstay of this three-way categorisation (Mouritsen et al., 2001c) and Sveiby's (1997a, 1997b) IC frameworks, several similarities can be found. Stewart (1997) uses the term *human capital* to refer to the capacity of individuals to provide solutions for their customers. Sveiby (1997b), on the other hand, uses the term *employee competence* to refer to the same situation, but has been more specific by referring to the capacity of employees, instead of individuals, to act in a wide variety of situations. Under Stewart (1997), *structural capital* is defined as knowledge that "does not go home at night" and belongs to the organisation as a whole. Sveiby (1997b) once again uses a different term, *internal structure*, that carries almost the same meaning, but the expression has been extended slightly as compared to Stewart (1997). Under Sveiby (1997b), *internal structure* is defined as anything that is created by an employee which is generally owned by the company. It can also refer to anything that the company acquires from outside. Lastly, the term *customer capital* in Stewart (1997) is described as the value of the relationships between the company and its clients. Sveiby (1997b) provides the same meaning, but under different terms. In Sveiby (1997b), *customer capital* is replaced by *external structure* and as expected comprises company relationships with others.

The second conclusion derived from this comparison is that a certain framework, like the one introduced by Edvinsson and Malone (1997), can actually be linked to the three ways of categorising IC, even though it only has two IC categories. The Scandia value scheme categorises IC into several branches starting with two main branches, *human capital* and *structural capital.* The description for the human capital category, as expected, is similar to the previous definition of human capital used by Stewart (1997) or by Sveiby (1997b). According to this framework, *human capital* is defined as the combined knowledge, skills, innovativeness, and ability of the companies' employees to meet the task at hand. However, the term *structural capital* carries a different meaning under this framework as compared to *structural capital* or *internal capital* used by Stewart (1997) and Sveiby (1997b), respectively. *Structural capital* in Edvinsson and Malone's (1997) framework is viewed as a more general concept as it includes all of a company's capabilities to support employees' productivity. Later on, the difference can easily be reconciled when they further sub-categorised structural capital to include customer capital, which exists outside the company (similar to the concept of customer capital or external structure in both Stewart's (1997) and Sveiby's (1997b) frameworks) and organisational capital, which is created internally by the company (similar to structural capital or internal structure in Stewart's (1997) and Sveiby's (1997a, 1997b) frameworks, respectively).

Third, some of the frameworks have shown differences between each other on how IC is perceived, which leads to differences in categorising IC. For example, Petty and Guthrie (2000) identify several major differences between the intangible asset monitor of Sveiby (1997a, 1997b) and the balanced scorecard of Kaplan and Norton (1992). Although both frameworks have categorised IC into three subcategories and perceive non-financial measures as a means to contemplate financial measures, Kaplan and Norton (1992) attempt to link the non-financial and financial factors in a

more obvious and explicit manner (Petty & Guthrie, 2000). This could explain the existence of the fourth category, financial perspective, in the balanced scorecard framework. Brooking (1996) also proposes different IC categorisations resulting from differences in how she views the purpose of creating the IC framework. Brooking (1996) presents a methodology for auditing IC items that generally do not appear in traditional financial statements. The IC audit suggested by Brooking (1997) has an asset or stock focus that leads to categorisation of IC based on four types of assets — market assets, intellectual property assets, human centred assets, and infrastructure assets.

Finally, the ground-breaking works done by earlier researchers like Sveiby (1997a, 1997b) and Edvinsson (1997) have led to the creation of other IC frameworks that offer more or less the same type of IC categorisation. For example, the IC index developed by Roos et al. (1997) is said to act as the extension of the Scandia Navigator of Edvinsson (1997) (Kankahalli & Tan, 2004). This explains the division of IC into two main categories, i.e. human and structural capital, similar to the Scandia Navigator. The main difference between these two frameworks is that the IC index attempts to consolidate all the different individual IC indicators into a single index and correlate the changes in IC with changes in the market value (Roos et al., 1997), while the Scandia Navigator does not. Bontis (2001) claims the IC index is an example of a *second generation* of IC practices.

Recently, building on the same ground-breaking works, there are more IC frameworks being developed addressing the issue of how to report IC in practice. The most popular examples are the Danish Guideline (2003) and the MERITUM Guidelines (2002). The latter recommends classifying actions and indicators into three IC categories: human capital, structural capital, and relational capital, that can be linked to the three-way categorisation discussed earlier. The Danish Guideline, on the

other hand, adopts a more flexible approach, suggesting that actions and indicators be classified into employees, customers, processes, and technology, but leaving the door open for the company to decide. The suggested categories, however, are related to what has been discussed in earlier frameworks which again revolve around three main areas, i.e. human (employees), internal (processes and technology), and external (customers).

Based on the above discussion, it is logical to conclude that IC is the product of an interaction between three different types of company intangibles: human resources, organisational resources, and relational resources, as identified in Roos (2005). Mouritsen et al. (2001c) assert that to understand a company's intellectual resources or IC, one needs to look beyond the company's present performance and towards the company's ability to produce good performances for the coming years, and the three way categorisation suggests the ability to do this (Mouritsen et al., 2001c). Mouritsen et al. (2001c) supports this idea by quoting the following proposition by Stewart (1997):

> [m]oney talks, but it does not think, machines perform, often better than any human being can, but do not invent…[The] primary purpose of human capital is innovation — whether of new products and services, or of improving in business processes. Structural capital is knowledge that does not go home at night… [I]t belongs to the organisation as a whole. It can be reproduced and shared… [like] technologies, inventions, data, publications … [and] strategy and culture, structures and systems, organisational routines and procedures (Stewart, 1997, p. 108-109). Like human capital, the firm cannot own customer capital. Yet it is crucial because it is the value of its franchise, its ongoing relationships with thepeople or organisations to which it sells… [like] market share, customer retention and defection rates, and per customer profitability.(p. 143)

This proposition suggests the importance of the three IC categories as functional entities within an organisation, and suggests that they also complement each other. As illustrated in Bukh, Larsen, and Mouritsen (2001), people work through technology,

customers get services from people, and information technology circulates around both customers and employees.

Therefore, for the purpose of this research the IC index will be classified using the three way categorisation, a version derived mainly from Stewart (1997) and Sveiby (1997a, 1997b). Note that the same categorisation has been used in most IC reporting research (for example, Guthrie & Petty, 2000; Abeysekera & Guthrie, 2005; Guthrie, Petty, & Ricceri, 2006) referring mainly to the framework developed by Sveiby (1997a, 1997b). Although the exact terms differ between Sveiby and Stewart, it has been concluded in the earlier discussion that they are referring to the same thing. For this reason, this present research will be using the terms *internal capital*, *external capital,* and *human capital* to represent the three categories of IC. These three categories are defined in Table 5.

It is important to point out that while this categorisation is used in depicting different areas of IC, they cannot be constructed easily as bottom line indicators. This explains why each category has an open-ended definition explained mostly using examples rather than mathematical logic, as in the case of the double-entry bookkeeping system (Bukh et a.l, 2001). Sveiby (1997b, p. 150) states this clearly: "the measurement system that I propose does not present a full and comprehensive picture of a company's intangible assets; such a system is not possible." Each category of IC, therefore, will have to be applied individually to every situation, and this is where the next stage of index creation comes in, i.e. identifying IC lower level categories, and indicators for each category. This will be discussed in the next section.

Table 5: IC categories and their explanations

Categories of IC	Explanation
Internal capital	Is defined as knowledge that stays within the company at the end of the working day. It comprises the organisational routines, procedures, systems, cultures, databases, etc. Examples are organisational flexibility, documentation services, the existence of a knowledge centre, the general use of information technologies, organisational learning capacity, etc. Some of them may be legally protected and become intellectual property rights, legally owned by the company under separate title.
External capital	Is defined as all resources linked to the external relationships of the company with customers, suppliers or R&D partners. It comprises that part of human and internal capital involved with the company's relations with stakeholders (investors, creditors, customers, suppliers, etc.) plus the perceptions that they hold about the company. Examples of this category are company image, customers' loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities, environmental activities, etc.
Human capital	Is defined as the knowledge that employees take with them when they leave the company. It includes the knowledge, skills, experiences and abilities of people. Some of this knowledge is unique to the individual, some may be generic. Examples are innovation capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

Source: Adoapted from MEasuRing Intangibles To Understand and improve innovation Management (MERITUM, 2002, p. 13)
Key: R&D, research & development

4.4   Identifying IC items and IC indicators

Coy and Dixon (2004) suggest two possible methods that an index constructor can use to identify items in the index, depending on the state of annual reporting by the sector of interest. The suggested methods (Coy & Dixon, 2004, p. 85) are as follows:

   i.   If the reporting is well established and the report audience is mature, well defined and knowledgeable, then report items may be identified by seeking suggestions and opinions from members of that audience. This approach

has the advantage that report users' opinions may be captured without the risk of influencing those opinions by provision of a prompt list or similar.

ii.   Where there is no knowledgeable report audience, persons constructing an index may have little choice but to draw on literature sources for potential items, or even only for theories from which to deduce potential items.

At the time this research is being conducted, it is acknowledged that in Malaysia the number of K-based opportunities and workers are expected to increase with the incorporation of OPP3. The results of several studies (for example, Goh & Lim, 2004; Salleh & Selamat, 2007) conducted on IC management and reporting among Malaysian companies have shown that Malaysian companies do practice IC management, and more Malaysian companies seem to follow the trend of other countries of including IC information in their annual reports. However, comparing the development of IC management with CSR practice, CSR seems to have better establishment within the Malaysian business environment, with a framework already being set up by Bursa Malaysia. This framework provides a set of guidelines for Malaysian publicly listed companies to help them with the practice of CSR. In fact, with effect from 31 December 2007, as part of their listing requirements, all publicly listed companies are required to disclose their CSR activities or practices (and those of their subsidiaries) and if there are none, provide a statement to that effect. On the other hand, IC reporting is still in its infancy in Malaysia, with no such framework being developed, and if information on IC is disclosed, it is expected that it will be found throughout companies' annual reports, without special headings or special sections. For this reason, the conclusion has been made that well established IC reporting is yet to be found in Malaysia, which makes it difficult to seek suggestions or opinions from mature, well defined, and knowledgeable audiences. Therefore, the identification of IC items for this research will be drawn from literature sources.

Before a list of IC items is identified, it is best to make a distinction between the different levels of IC hierarchy. Beattie and Thomson (2007) have pointed out that one of the issues in some of the IC frameworks is that no distinction has been made between lower level categories and indicators relating to them. In this present research, three categories of IC have been identified. These categories are considered high-level categories, and the term *category* will be used to represent them. All IC items listed under each high-level category are considered as lower-level categories and will be known as *IC items* for the remainder of this research. The measurement used to identify IC items will be known as an *indicator*. For example, in the human capital category, an example of an IC item would be *employee measurement* which can be measured by looking at *number of employees* (indicator).

Another potential issue that needs to be raised is the identification of IC indicators, because not all IC items can be measured easily — particularly those that are not tangible. Items like patents and trademarks are easy to quantify, as measurement can start with calculating the number of patents and trademarks that the company owns. However, items like employee skills and employee attitude could pose a real challenge, as assessing this is very subjective. Robinson and Kleiner (1996) argued that if a direct measure is not available, particularly in the case of human capital, the use of an indicator of the existence of that item will need to be used. They have used skill of human capital as an example, i.e. if a direct measure of skill is not available, then the indicator that the skill exists will have to be used.

The concern with this method is that by showing the presence of IC items, it will be an indicator that IC is being created or maintained and not really measuring IC as a useful measure to looking at the effectiveness of having IC (Robinson & Kleiner, 1996). In response to this, keeping the context of the present research in mind, which is to assess the extent of IC reporting and not the effectiveness of IC, having indicators

that show the existence of IC items should be sufficient. However, it is acknowledged that the index can be extended to incorporate some measure of the effectiveness of IC management. This will be discussed at the end of this chapter. Prior to that discussion, it is important to first recognise various counts, ratios, and descriptions of IC items to be used as indicators that identify the existence of IC in companies' reports.

In identifying IC items and indicators for each IC category, a review on previous IC reporting literature, particularly the literature listed in Table 1, concludes that the majority of IC reporting studies (18 out of 28) listed in Table 1 have used frameworks either by Guthrie et al. (1999) or Guthrie and Petty (2000) (afterward known as Guthrie's framework) as a basis for their studies. The application has been either through a direct adoption (for example, Brennan, 2001; Goh & Lim, 2004; Yau et al., 2009), or with modification (for example, Campbell & Abdul Rahman; Steenkamp, 2007). Guthrie's framework is derived from several professional pronouncements on IC such as those from the International Federation of Accountants (IFAC) (1998) and the Society of Management Accountants of Canada (SMAC) (1998). The content categories and material used for the content analysis in Guthrie's research follows the contemporary categorisation scheme for intangibles involving Sveiby's IC framework, with the following three categories: internal, external, and employee competence. As Guthrie et al.'s research (in both 1999 and 2000) was conducted in Australia, they have modified the professional IC frameworks to achieve a better convergence with items likely to be reported by Australian companies. For instance, in the internal capital category they reduce the number of variables by recording measures of *design rights*, *trade secrets*, and *service marks* with *patents, copyrights*, and *trademarks* (Guthrie et al., 1999, p. 26).

It is noticeable that recently, however, instead of adopting Guthrie's framework, some researchers have started to modify Guthrie's framework by adding

more lower-level categories, and there are also efforts to create indicators for each lower-level category (for example, Abeysekera & Guthrie, 2005; Steenkamp, 2007; Abeysekera, 2008c; Campbell & Abdul Rahman, 2010). Other frameworks available are from Bontis (2003) and Oliveira et al. (2006). Bontis (2003) offers a list of 38 IC items, but no categorisation has been made into high-level categories, which is inconsistent with this present research. Oliveira et al. (2006) offer a list of IC items classified under three high-level categories based mainly on Stewart (1997), Sveiby (1997a, 1997b), and MERITUM (2002), while the IC items are a modification of those presented in Brooking (1997). While most of the items seen in this framework are available in the modified version of Guthrie's framework, there are some new IC items introduced in this framework. For example, under the external capital category, Oliveira et al. (2006) have added *competitors* and *investors* as part of its lower-level categories.

Nonetheless, as Guthrie's framework is the most commonly used framework for content analysis, and to help the comparability of this research with previous and possibly future studies, it will be used as the main reference — taking into consideration the modifications made by other researchers such as Steenkamp (2007), Abeysekera, (2008c), and Campbell & Abdul Rahman (2010), in addition to the framework developed by Oliveira et al. (2000). A list of IC items and indicators available in each of the study discussed above (Guthrie et al. 1999; Guthrie & Petty, 2000; Abeysekera & Guthrie, 2005; Steenkamp, 2007; Abeysekera, 2008c; Campbell & Abdul Rahman, 2010; Bontis, 2002; Oliveira et al., 2006) is available in Appendix 2.

It is also important to highlight that there are detailed guidelines designed at the national level such as the Danish Guidelines (Denmark) and MERITUM (EU). The Danish Guidelines provide nothing similar to what has been referred to as IC

items, and instead give examples of indicators that have been used by companies participating in development projects (Johanson, Koga, Skoog, & Henningsson, 2006). The MERITUM guideline avoids such a proposition, but does provide examples of IC items together with their possible indicators for pedagogical purposes (Johanson et al., 2006). Therefore, for the purpose of this research, these two country-level frameworks will only be used as additional references. The remaining paragraphs discuss IC items and indicators for each IC category.

4.4.1 Internal capital

As defined in Table 5, internal capital refers to knowledge that stays within the company at the end of the working day. It represents the support that the company provides to their employees to maximize their intellectual performance and the overall business performance (Bontis, 1999). Items under this category will include all systems and procedures that the company has at its disposal to help its employees reach their fullest potential. According to Bontis, Dragonetti, Jacobson, and Roos (1999) the scope of internal capital lies within the company, but external to the human capital nodes. *Node* in this context is defined by Bontis (1999) as:

> The work performed — either pure decision-making, innovative creativity, improvisation or some combination of the three — by a single member of the organisation or by parallel, functionally equivalent members who do not interact with one another as part of the productive process. (p. 445)

Guthrie and Petty (2000) have listed a broader version of IC items for the internal capital category, with 11 items being listed. More recent frameworks like Steenkamp (2007), Abeysekera (2008c), and Campbell and Abdul Rahman (2010) have used a modified version of the Guthrie framework by regrouping the items into 5 or 6 groups, with several additional IC items listed under each heading. In Campbell and Abdul Rahman (2010), each group is treated as the lower-level category (IC items) while the detailed list under each lower-level category is identified as

indicators. The other two frameworks, on the other hand, seem to consider the grouping as a way to organise the presentation of their IC items. This means the names for each group will act only as headings and are less important compared to the items listed under each group. Therefore, in contrast to Campbell and Abdul Rahman (2010), their IC items are those listed under each heading and there are no directly available indicators. Nonetheless, all of these frameworks have taken a consistent approach by offering adequate description of the content of each IC item. This is important as with the amount of subjectivity involved in defining IC, knowledge of the nature of the information included and/or excluded is necessary for others to judge from their own perspective whether they perceive that the disclosure should be counted as IC related or not.

A significant point that needs to be highlighted is that Guthrie and Petty (2000) and Abeysekera (2008c) have categorised financial relations under internal capital, while Steenkamp (2007), Campbell and Abdul Rahman (2010), and Oliveira et al. (2006) have reclassified this item as external capital. The reason given by Steenkamp (2007) is that for New Zealand based study, external capital offers a better fit for IC messages about financial relations. For this present research, as the scope of internal capital lies within the company, whilst the item *financial relations* is related to a company's relationship with its fund/service/product providers who are external to the company, it is more logical to set this item under external capital.

Campbell and Abdul Rahman (2010) have also added another IC item called *infrastructure assets* which is not available in the other frameworks. In this present research, this item will not be identified as infrastructure assets, as this refers to "those technologies, methodologies and processes that enable the organisation to function" (Bontis, 1999, p. 448), which will be listed separately as an IC item. Therefore, there is no need for another item called infrastructure assets. The list of IC items with the

suggested indicators for internal capital is presented in Table 6. Note that a new IC item has been added, i.e. research and development, as it is believed that most companies, particularly large companies, will have specific activities that concentrate on increasing the future knowledge of the company and improving current business practice, products or services. Furthermore, given the importance of the KBE in Malaysia, it is relevant to create a separate item for R&D. The operational definition or key concepts for each item are derived from various sources, mainly from Campbell and Abdul Rahman (2010) and Abeysekera (2008c), who derived meanings largely based on Brooking (1996).

Table 6: IC items and indicators for internal capital

	Internal capital	Possible indicators	Operational definition
1	Intellectual property	Patent Copyright Trademark	Patents — An exclusive right granted by the government that confers upon the creator of an invention the sole right to make, use, and sell that invention during the period of protection (Brooking, 1996, p. 36-37).
			Copyrights — Protection of creative or artistic works such as literature, drama, music, art, layout, and recording (Campbell & Abdul Rahman, 2010, p. 67). The work can be sold, distributed, or licensed to generate wealth (Brooking, 1996, p. 38).
			Trademark — A distinctive characteristic by which a person or thing becomes known (Campbell & Abdul Rahman, 2010, p. 67). In some cases it may be a non-registered trademark and the owner believes he or she is the only one using it. Since it is not registered the owner may or may not have the legal right to stop others from using it (Choy, 2001, p. 35).

	Internal capital	Possible indicators	Operational definition
2	Corporate culture	Vision Mission Code of conduct/practice Principles of operation	The pattern or arrangement (material or behavioural) which has been adopted by a company, group, or team as the accepted way of solving problems (Campbell & Abdul Rahman, 2010, p. 67).
3	Management philosophy	Create value to shareholders Company growth Protection of the environment Caring for society	How companies "think" about their employees, customers, environment, and community (referring to the generally held beliefs in the company, not to activities) (Campbell & Abdul Rahman, 2010, p. 67).
4	Management and technological process	Quality control/quality processes Performance appraisal Organisation structure Technological & production process	Systems, procedures, and technologies practiced or used by companies (Campbell & Abdul Rahman, 2010, p. 67).
5	Information and networking systems	Computer network, Database, Software & hardware	The system consisting of the network of all communication channels used within an organisation (Campbell & Abdul Rahman, 2010, p. 67). These also encompass enterprise-wide systems used by the company and designed to manage all major functions of the company including those manufactured by SAP, PeopleSoft, and JD Edwards, and general purpose database products targeted towards specific users including products offered by Oracle, Microsoft, and many others (Dewett & Jones, 2001, p. 313-314).
6	R&D	Policies on R&D Budget on R&D Output & success rate Project to date	Refers to future oriented, longer term activities in business practice, which can achieve higher levels of knowledge and improvement in business practice, allowing the organisation to exploit competitive advantages (Jing et al., 2008).

Key: SAP, Systems, Applications, and Products in Data Processing; R&D, research and development.

4.4.2 External capital

In Table 5, external capital is defined as all resources that link to the external relationships of the company. It represents the knowledge that flows from external sources into the company, and its scope lies external to the firm and external to the human capital nodes (Bontis, 1999).

As in internal capital, Guthrie and Petty (2000) have listed 9 items under external capital without doing any grouping. More recent frameworks like Steenkamp (2007), Abeysekera (2008c), and Campbell and Abdul Rahman (2010), that use the modified version of the Guthrie framework, have reclassified the items into 5 or 7 groups with several more IC items listed under each heading. Out of these three later frameworks, Steenkamp (2007) offers the highest number of groupings (7) while Campbell and Abdul Rahman (2010) create the longest list of possible indicators. A review on all of these frameworks reveals three significant points. First, Steenkamp (2007) and Campbell and Abdul Rahman (2010) have created a specific heading for customers, while Abeysekera (2008c) has listed this item under the heading *brand building*. For this research, it is acknowledged that customers play a vital role in the company success and it is worth creating a specific heading for this item, similar to Steenkamp (2007) and Campbell and Abdul Rahman (2010). Second, both Abeysekera (2008c) and Campbell and Abdul Rahman (2010) have listed *licensing agreement* and *franchising agreement* under the heading *business partnering*. Steenkamp (2007), however, has created a specific heading for these two items and another heading called *business collaboration,* with no explanation found on this action.

In constructing the present index, after considering the meaning behind the term *business partnering,* it is concluded that *licensing agreement* and *franchising*

agreement should be considered examples of indicators under the item *business partnering*. Lastly, Abeysekera (2008c) considers *market share* as a stand-alone IC item, while both Steenkamp (2007) and Campbell and Abdul Rahman (2010), have classified this item under the heading *brands*. In this present research, looking at the definition of market share, i.e. "the extent of market share held in relation to the total market share for a given product or service" (Ailawadi, Farris, & Parry, 1999 p. 20-22), it is more logical to classify this item under *brand building* because any information on products' market share is considered related to the brand name. The list of IC items with the suggested indicators for external capital is presented in Table 7.

Table 7: IC items and indicators of external capital

	External capital	Possible indicators	Operational definition
1	Financial relations	Relationships with shareholders, bankers, and other funders	These are the favourable relationships that the company has with investors, banks, and other financiers (Brooking, 1996 p. 80).
2	Brands	Brands Sub-brands Product awards Market share	Away of "powerfully reminding customers to buy products and services in preference to another firm. They can include service brands that speaks about its quality and reliability, or corporate brands that speak for the value in the market place in association with the name of the company"(Brooking 1996, pp. 20-21).
3	Customers	Customers identified Customer loyalty Customer trust Customer feedback Customer services Customer satisfaction Number of customers Customer segmentation	This refers to information and efforts made to create favourable relationships with the current buyers or potential buyers of companies' services or products

	External capital	Possible indicators	Operational definition
4	Corporate reputation	Company name Favourable contract CSR activities	Actions and activities that would position the company's reputation at a higher level (Campbell & Abdul Rahman, 2010 p. 67).
5	Business partnering	Business partnership Research collaboration Franchising agreement Licensing agreement Suppliers Government collaboration	A relationship between the company and an individual or group that is characterised by mutual cooperation and responsibilities in terms of business or social/environmental objectives (Campbell &Abdul Rahman, 2010 p. 67).
6	Distribution channels	Supply/distribution channel Delivery systems Marketing, advertising, and promotion activities	Appropriate mechanism of getting products and services into the market (Brooking 1996, p. 30).Also includes "the commercial process involved in promoting, selling and distributing products and services into market" (Campbell & Abdul Rahman, 2010 p. 68).

Key: CSR, Corporate Social Responsibility.

4.4.3 Human capital

As defined in Table 5, human capital is the knowledge that employees take with them when they leave the company. Abeysekera (2008c) defines human capital as a "combination of factors possessed by individuals and the collective workforce of a firm" (Abeysekera, 2008c, p. 18). Human capital seems to act as the most crucial element, as it is human capital that creates value by transforming the internal capital (Edvinsson & Malone, 1996). The scope of human capital is limited to the knowledge node of an employee, i.e. is internal to the mind of an employee (Bontis, 1999 p. 447), and any process that leads to the creation of that knowledge node.

Guthrie and Petty (2000) have identified seven IC items under human capital which are later modified by the three other frameworks. After reviewing the three

frameworks, Campbell and Abdul Rahman's (2010) framework on human capital is fairly similar to Steenkamp's (2008), while Abeysekera (2008c) provides few differences from the first two. The first difference is that Steenkamp (2007) and Campbell and Abdul Rahman (2010) have created a specific heading for employee education level, while Abeysekera (2008c) considers education level as part of employee measurement and only indicates the average education level of the employee. Given the nature of Malaysian annual reports, which rarely provide detailed information on employee education level, this present research will attempt to follow Abeysekera's approach. Second, Abeysekera (2008c) expects companies to disclose more quantifiable information for employee measurement by creating items such as *average professional experience* and *median age of employees* as part of IC items under the heading *employee measurements.* Following the same approach as Abeysekera (2008c), a more quantifiable list of human capital indicators is also used under the item employee measurements. Note that the other two frameworks also have fairly similar requirements, but fewer, and under a specific heading called *work-related knowledge.* Lastly, Abeysekera (2008c) has created a specific heading for *equity issues*, unlike Steenkamp (2007) and Campbell and Abdul Rahman (2010), who incorporate this item under employee measurements. Based on the perception that equal rights is an important and sensitive issue in today's environment, particularly for countries like Malaysia which has a variety of races practicing different types of religions, a specific heading will be made for equity issues in this present IC index.

Another point that needs to be considered is that Campbell and Abdul Rahman (2010) introduce another item, *innovation,* which is not available in the other two frameworks, but has been covered under the item *entrepreneurial skills*; an approach also chosen in this present research. This research has also created a separate item for companies' directors, with the assumption that if the Board of Directors (BOD)

information is identified together with other employee information, there is a possibility that the BOD's information will overshadow employee information. This decision is made mainly because part of the listing requirement in the Malaysian stock exchange is to report information regarding companies' BODs. Therefore, if both employee and BOD information is grouped under one heading, some items with regard to employees will be considered as disclosed, simply because companies are required to have BOD information. The list of IC items with the suggested indicators for external capital is presented in Table 8.

Table 8: IC items and indicators for human capital

	Human capital	Possible indicators	Operational definition or key concept
1	Employee related measurements	Employee numbers Years of service Value-added per employee Median age of employee Vocational qualification Know-how Employee morale and attitude Duties and responsibilities	Refers to employees' profiles and their business performance while working with the company.
2	BOD related measurements	Profile of directors	Refers to BOD's profile that includes level of education, age, professional qualifications, skills, experience and activities conducted to improve skills and knowledge of BOD.
3	Training and development	Continuing education offered to employees Career development Vocational development Training Recruitment/retention	Generally this refers to the act or process taken by a company, directly or indirectly, to impart skills to employees (Campbell & Abdul Rahman, 2010, p. 68), or increase employees' knowledge.

	Human capital	**Possible indicators**	**Operational definition or key concept**
4	Equity issues	Equity issues: race, gender, and religion Equity issues: Disabilities	Making sure that the workplace is free from all forms of unlawful discrimination and harassment, and that the company provides programs to assist women, the disabled, and racial, ethnic and ethno-religious minority groups, and others affected by a past of continuing discrimination in employment who are more likely to be unemployed and working in lower paid jobs (ODEOPE, 2002).
5	Employee relations	Union/club activities Employees thanked Employee opportunities to be involved with community	Employee relations may be defined as those policies and practices which are concerned with the management and regulation of relationships between those in the organisation, the individual staff members, and groups of staff within the working environment (Herbert, 2010).
6	Employee welfare	Post employment benefit Employees' short-term benefits Employees' share options and ownership plans Working environment	Refers to the benefits that employees receive, in addition to their paid salary.
7	Entrepreneurial skills	Employee innovation Entrepreneurial spirit	Innovativeness is the ability to build on previous knowledge and generate new knowledge (Roos et al., 1997, p. 40). Pertains to entrepreneurial spirit, innovativeness, proactive and reactive abilities, changeability (Guthrie & Petty, 2000)
8	Employee safety	Safety policy/procedures Quality of safety standards	Refers to employees' "freedom from danger or risks when employees are at work" (The Concise Oxford Dictionary, 1977, p. 994 in Abeysekera, 2008c).

Key: BOD, Board of Directors; ODEOPE, Office of the Director of Equal Opportunity in Public Employment.

4.5 The application of an IC index in content analysis studies

4.5.1 Issues in constructing an IC index

Almost all IC studies (for example, Guthrie & Petty, 2000; Bozzolan et al., 2003; Abdolmohammadi, 2005) have used a predetermined disclosure index to measure the extent of disclosure among companies. For the purpose of illustrating specific issues in relation to the application of an index in content analysis studies, this research has constructed its own IC index, as illustrated in Sections 4.3 and 4.4. The validity of the index is through IC categorisation that is grounded in previous IC literature. This section will focus only on identifying issues that researchers need to consider prior to the construction of an index, and not on the process of identifying and constructing items under the index, as this has already been discussed in the previous sections.

In constructing items for an IC index there are two issues that need to be considered. First, a fundamental distinction needs to be made between mandatory and voluntary disclosure. The items in the index can be designed to analyse companies' compliance with mandatory requirements set by regulators to show the company's voluntary disclosure level, as used by most researchers in the area of SER, or it can also be designed to include a mixture of items required by both regulation and voluntary items, if that suits the purpose of the research project. The choice will depend on the objective of the research. Most previous IC reporting studies have put more focus on voluntarily reporting (for example, Abeysekera & Guthrie, 2005; Oliveras et al., 2008; and Yi & Davey, 2010). As far as this research is concerned, only one study (Bontis, 2003) investigates mandatory disclosure, and that study only analysed IC information in the companies' financial statements and only two studies investigate full disclosure (for example, Abdolmohammadi, 2005; Vergauwen & Alem, 2005).

Most SER studies have adopted the view that companies will voluntarily disclose some information if they perceive their legitimacy to be in question and if they believe the society needs to know they have engaged in activities expected by the society (Guthrie et al., 2004). The same rationale can be used to explain the motivation of voluntary IC disclosure studies, as IC reporting itself is still at the voluntary stage. However, it is also important to note that some relevant IC items like intangible assets have been disclosed by companies due to their mandatory status. Therefore, to focus on voluntary disclosure might lead to IC information not being fully captured by some studies. This is why some studies have chosen to focus on full disclosure. Their objective is generally to investigate the disclosure of any IC information, regardless of where the information is located (Abdolmohammadi, 2005).

As briefly mentioned in previous sections, the disclosure index in this current research will be used to measure the comprehensiveness of IC information being disclosed in companies' annual reports and accounts, regardless of whether it is required disclosure or voluntary disclosure. As IC reporting is still at the voluntary stage, it is assumed that companies will only provide more information on their IC, in excess of the required disclosure laid down by statute, professional regulation and listing requirements of the stock exchange, when companies' perceptions of the benefits arising outweigh the costs. Therefore, to analyse the comprehensiveness of IC information being disclosed in companies' annual reports, it is logical to include both mandatory and voluntary information that contain IC. Furthermore, given that IC reporting is still in its infancy, it is important to mention that IC reporting does not necessarily mean new information needs to be formulated. Certain IC information has been commonly reported by companies and some has been mandatorily disclosed. Therefore, to include all IC information available in a company's report can provide

assurance to other companies that IC reporting is not a totally separate concept from what has been previously reported.

Second, a debate has risen over whether or not a weighting needs to be created for each IC category, item, and indicator in an index. Weightings can be obtained by conducting an attitude survey among relevant user groups asking about the importance of each indexed item (Beattie et al., 2004). Most IC disclosure studies (for example, Goh & Lim, 2004; April et al., 2003; Yi & Davey, 2010) have not discussed or considered this issue apart from a study conducted by Schneider and Samkin (2008) on IC disclosure by the New Zealand public sector. This study asked a panel of government stakeholders to assign weightings to each item in the IC index. There are several arguments surrounding the usage of weighting. Those that are not in favour of a weighted index argue that each item in an index is of equal importance and that "one class of user will attach different weights to an item . . .than another class" and that "the subjective weights of user groups will average each other out" (Cooke, 1989, p. 115).

Conversely, some researchers still prefer to weight their items, stressing the fact that certain items are still more important to others. The scoring of the items can be made on an ordinal level to capture the degree of importance, for example"0" denoting that the item should not be disclosed, to a maximum "X" score denoting that it is essential to disclose the item. Interestingly, it has been found that the weighted and un-weighted scores tend to give the same results if there is a large number of item (Beattie et al., 2004). For the purpose of this present research, it was decided to adopt an un-weighted index, treating all items equally, given that certain groups of stakeholders will be interested in certain types of IC and that to say only certain IC items are important would be unfair to another group of stakeholders. For example, employees will be interested in human capital information, while customers might be

interested in customer (under external capital) information. Therefore, to give human capital items a higher score would be unfair to customers.

4.5.2 The IC index as a definite measure, or not?

Developing an IC index is called a semi-objective approach, as the researchers have specified ex ante a list of items, and scrutinize the text for their presence (Beattie et al., 2004). For most IC disclosure studies, it is unclear whether the list developed in their IC index prior to conducting the research is definitive as there is no statement being made on a subsequent modification of their IC frameworks after completing their analysis (for example Goh & Lim, 2004; Schneider & Samkin, 2008; Yi & Davey, 2010). If this is not the case, this type of research is characterised as partial content analysis by Beattie et al. (2004), since the researcher will look for certain types of information and will ignore sections of the text that do not relate to the index.

This present research is conducted from the perspective that having a disclosure index is important as a basis to identify IC disclosures, but the list should not be definite. If it is definite then we are under the assumption that the list is unchangeable and applicable under all circumstances. In reality, the business world will always be changing and therefore the type of IC information will keep on changing. Therefore, in analysing disclosure, it is more appropriate to read the whole of an annual report so that relevant information which does not meet the original set of IC items and indicators can be added to the index, if applicable. According to Gray, Kouhy, and Lavers (1995) this is a common situation and should not be ignored by researchers.

However, applying the suggested procedure does come with several limitations. First, reading the entire text of annual reports means it has to be done manually. A general problem with manually reading the annual report is that it tends

to be time-consuming (Carley, 1993), which can inevitably restrict the sample size used in the analysis. Second, Guthrie et al. (2004, p. 288) warn that in conducting content analysis, the researcher needs to demonstrate the reliability of their instruments and/or the reliability of the data collected using those instruments to permit replicability and ensure valid inferences are drawn from the derived data. It is recognised that when the index is changeable, i.e. new items and indicators can be added, this will reduce the replicability of the index and reduce inter-coder reliability (Milne & Adler, 1999). Lastly, this procedure is not suitable for electronic content analysis, which has the benefit of achieving higher reliability, replicability, and objectivity (Oliveras et al., 2008). Electronic searches also eliminate mistakes arising from human subjectivity in coding (Oliveras et al., 2008), and using a large sample size will not be a problem.

On the other hand, it is important to draw attention to the fact that electronic searches have their own limitations. Electronic searches that rely on using keywords have the disadvantage of having less meaning, as the search is conducted without taking into consideration the context in which the word is used (Milne & Adler, 1999). Furthermore, for certain IC indicators like *company name*, using a keyword will be unlikely to identify what is needed by the researcher (Beattie & Thomson, 2007). Among IC studies that have applied electronic searches are Bontis (2003), Vergauwen and Alem (2005) and Oliveras et al. (2008). Oliveras et al. (2008) claim that every effort has been made to ensure their study has covered as many IC items as possible. However, the study acknowledges that when comparison was made with manual searching, computer searching tended to identify lower instances of IC items, which means search terms need to be expanded to encompass a broader range of sub-terms under each term (Oliveras et al., 2008).

While manual searching is not the perfect solution, for the purpose of this research manual search is believed to be the best option. Unlike SER, IC reporting is still in its infancy. For that reason, even though an IC index has been developed and the categorisation of IC is relatively solid, there are still possibilities to expand the list of IC items and indicators. Looking back at the index developed in Sections 4.3 and 4.4, indicators proposed for each IC item are listed as suggestions, which gives an indication that more indicators can be added, if relevant. Furthermore, the fact that the research will be conducted using annual reports, where IC information is presented without a proper structure and companies might not even know that what they are presenting is actually IC, there should always be a possibility for the index to be subsequently modified for future research.

Another important point that needs to be considered is that electronic searches will only limit the analysis to narrative information, which means any IC information found through use of visual images may have been ignored. Therefore, if visual images are included in the analysis, electronic search is less practical as compared to manual search. As visual images will play a crucial part in the multidimensional coding framework described later in Chapter 5, electronic searches will not be conducted. As far as reliability is concern, as manual search is said to be less reliable than electronic search, an appropriate reliability test can be conducted and is discussed in Chapter 5.

4.6   Designing an IC index that conceptualises IC management activities

So far, IC indices have managed to provide a basis to translate knowledge activities into a bundle of items and indicators that are divided into the three categories of IC. Mouritsen et al. (2001c) claim that having only a three way model is not enough as it does not provide information on any management agenda and does not prescribe any

effect of the indicators. All it does is "merely" helps identify the K-based information and report the amount of this information (Mouritsen et al. 2001c). Although this is what has been used by most IC disclosure studies (including all studies listed in Table 1), the result is actually very restrictive, showing each IC indicator as one dimension.

Mouritsen et al. (2001c) compare this type of IC model with conventional financial statements that not only present information on revenues, costs, assets, and liabilities, but also present their effect on profitability, liquidity, and solidity. The three way model, on the other hand, only assumes that all IC information has been presented as objects akin to revenues, costs, assets, and liabilities. This does not means that, in reality, IC information presented in annual reports is one dimensional. Given the growing narrative-style nature of corporate reports, it is highly probable that the information has been multidimensionally presented but has not been properly captured by IC researchers.

Mouritsen et al. (2001c) suggest a revised model of IC called an *IC accounting system*. The revised model has a vertical dimension that contains IC categories and a horizontal dimension where each IC category is divided into three possible types of management activities, i.e. resources, activities, and effects. The viability of the model is then illustrated using the IC statement of a Danish company, Software Engineering Ltd. Even though IC statements are rare and considered "new" forms of reporting systems, applying a multidimensional IC model is more practical as the whole statement is dedicated to IC. Similar models have been developed by the Danish Ministry of Science, Technology and Innovation (DMSTI) and by another project supported by the European Commission (EC). DMSTI introduce their *Intellectual Capital Statement — A New Guideline*, which was revised in 2003, to teach readers how to systematically read IC statements. The new model for analysis has incorporated three evaluation criteria — effects, activities, and resources — to help

facilitate companies responding to three questions about their knowledge management: What happens? What is done? What is created? (DMSTI, 2003). The EC supported the six-nation research project MERITUM, consisting of a fairly similar proposition — i.e. that an IC report model should consist of a set of indicators, a summary of resources and activities related to the indicators, and the vision that the company is trying to achieve (Bukh & Johansen, 2003).

Note that the previous two IC models have been intended for developed countries where efforts have already being made to encourage companies to start producing their own separate IC statements. However, for most developing countries including Malaysia, to expect companies to produce an IC statement might seem very ambitious. To date, very few Malaysian publicly listed companies have been producing a separate CSR report even though the concept of CSR has been discussed much earlier than IC. Therefore, at this initial stage, what is needed is an analysis model that can guide readers or researchers to collect all of the information that is probably available in companies' annual reports, given its mandatory status. This research therefore, will seek to advance the existing IC index to capture another dimension of IC information reported in companies' annual reports.

			Resources	Activities	Effects
			What is created?	*What is Done?*	*What happens?*
Internal capital	⇨ Items	⇨ Indicators			
External capital	⇨ Items	⇨ Indicators			
Human capital	⇨ Items	⇨ Indicators			
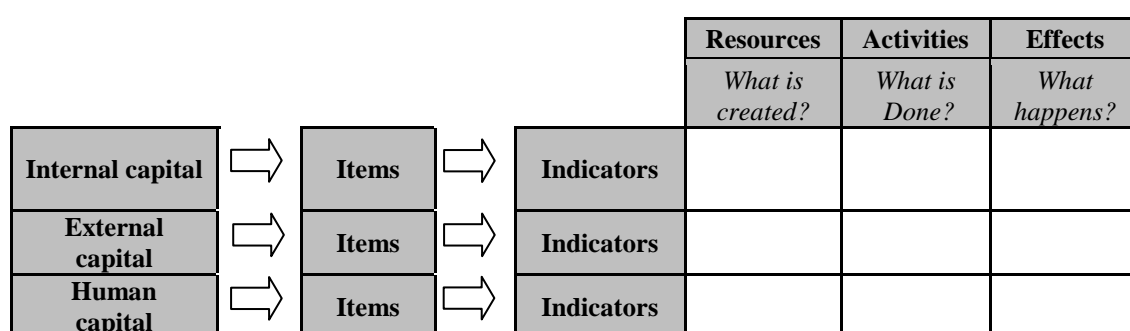
Figure 1: Analysis model for reading companies' reports on IC

On the basis of the previous discussion, the existing IC index is extended and presented in Figure 1. It presents an analysis model that researchers can use, in

addition to the existing IC index, to capture IC information available in companies' reports. The model has made a distinction between three types of IC management activities, namely *resources*, *activities*, and *effects* for each IC category. Not only will this model help to give a better picture of IC information, it also allows hypothesising on the direction and nature of interaction between various factors and thus serves as a guide to causal/predictive modelling, if needed (Shapira et al., 2006). For reference purposes, from now on these three extended categories will be called *IC management activities*.

Table 9: Similarity between financial statement and IC statement (Adapted from Thorleifsdottir & Claessen, 2006)

Financial statements	IC statements
What are the company's assets and liabilities?	What are the company's knowledge resources?
How has the company invested?	What has the company done to strengthen its knowledge resources?
What is the company's return on investment?	What are the effects/outcomes of the company's knowledge work?

So, how to use this analysis model? The IC index identifies IC categories, IC items, and possible IC indicators that can be used to measure the extent of IC disclosure in companies' annual reports. The main input to be used when reading the companies' reports will be the indicators. Once each indicator has been identified, a decision needs to be made on which management activities the indicators fall into, i.e. either resources, activities or effects. These three categories generally indicate what knowledge resources the company has, what the company has done with them, and the result of that action. Thorleifsdottir and Claessen (2006) provide a simple illustration on how this concept is fairly similar to financial information reported in traditional financial reporting. This is demonstrated in Table 9.

Resource indicators are about the IC enabler or the stock of relatively stable units (Mouritsen et al., 2001c), and this will typically relate to the three main categories of IC. For example, the human capital category will normally include resource indicators related to employees such as employee skills and employee leadership, while the internal capital category relates to resource indicators pertaining to technologies. As for external capital, resource indicators are normally represented by customers. Identifying resource indicators will help to answer questions such as, *How many?*, and, *What are the proportions?*, as well as showing how complex and varied knowledge resources are.

Analysing the activities indicators means readers or researchers obtain information about management's ability to upgrade, strengthen, or develop knowledge resources (Rimmel, Blom, Linstrii, & Persson, 2004). It will show what has been done in a company to change resources through activities such as providing training to employees (human capital), investment in improving technology (internal capital), and activities undertaken to attract more customers (external capital). Finally, the effect indicators address the following question: what are the outcomes from all activities being conducted? The answer will serve as a base to analyse if what has been set by the company when implementing knowledge activities has been achieved. Acknowledging the importance of analysing IC activities in a company to see how IC has been mobilised in companies' operation, this extended analysis is included in the multidimensional coding framework, discussed in Chapter 5.

4.7   Chapter summary

This chapter documents the process undertaken by this research to identify a preliminary index to be used as a guideline when conducting content analysis on Malaysian companies' annual reports. This index is considered preliminary since there

is still the possibility for it to be updated once the chosen annual reports have been analysed. This chapter also discusses some of the issues that researchers need to consider in applying IC indices in content analysis studies. This chapter ends with the introduction of analysis of types of IC management activities. This analysis extends the current use of IC indices and incorporates another dimension of IC analysis. The next step is to devise the scoring system for the index, which is discussed in Chapter 5.

CHAPTER 5: RESEARCH METHODOLOGY — CONTENT ANALYSIS AND THE MULTIDIMENSIONAL CODING FRAMEWORK

5.1 Introduction

In the process of designing the research methodology that is most appropriate for this thesis, this research identifies two main issues pertaining to the methodology applied in investigating the level of IC disclosure in companies' annual reports. The first issue is related to the use of the index discussed previously in Chapter 4, and the second issue pertains to the usage of content analysis, discussed in this chapter.

Almost all IC reporting studies (see the studies listed in Table 1) that intend to evaluate the extent of IC reporting in companies' annual reports have chosen content analysis as a general approach in applying the IC index. Content analysis has been a well-established method in the social sciences, and, as discussed in previous sections, it can be computer aided or human coded, with the former having the advantage of permitting the quantitative assessment to be more reliable (Beattie et al., 2004). From an analysis of the approaches used in conducting content analysis in IC disclosure studies, this research has identified six specific issues that need to be addressed by this research, and potentially any future IC research, prior to conducting content analysis. The issues are:

i. Data to be analysed — narratives, numbers, and images (Section 5.2)

ii. Unit of analysis — recording, counting, and context units (Section 5.3)

iii. Counting extent of IC reporting — presence/absence versus multiple disclosures (Section 5.4)

iv. The measurement of quality of IC reporting (Section 5.5)

v. Types of reliability tests (Section 5.7)

vi. Sampling unit (Section 5.8)

After addressing the measurement of quality of IC reporting (Section 5.5), a set of decision has been made on the approach that is best to suit the context of this research. This leads to Section 5.6 where the multidimensional coding framework is introduced to show steps taken to measure the extent of IC reporting, quality of IC reporting, and types of IC management activities. From there, a discussion on the reliability tests conducted is discussed in Section 5.7, while Section 5.8 documents the sampling unit for this research. It is important to highlight that what has been proposed in this chapter may not offer the best solutions for other researchers, but is perceived as best for this research. The main purpose is to provide transparency in the way the analysis is conducted so that a shared meaning can be developed and the methodology used can be better understood. Section 5.9 summarises the chapter and introduces the next chapter.

5.2   Data to be analysed — narratives, numbers, and visual images

Most previous IC disclosure studies have chosen to conduct their content analysis mainly on the narratives and numbers contained in annual reports, ignoring other form of communication used by companies, particularly visual images (for example, Garcia-Meca & Martinez, 2005; Vergauwen & Alem, 2005; Yi & Davey, 2010). Companies' annual reports, on the other hand, have moved from numbers oriented reports to a more complex style of reporting incorporating more use of narratives and visual images. This is due to the growing awareness of the multifaceted and complex role that annual reports play in conveying a particular message to the company's stakeholders, primarily its financial stakeholders, but the influence and impacts can be extended far beyond this group (McKinstry, 1996).Therefore, given the transformation taking place in the way companies present their annual reports, from a "dull financial document to a colourful marketing and public relations document" (Beattie, Dhanani,

& Jones, 2008, p. 181), it is becoming hard to ignore visual images while conducting research on companies' reporting practices.

When it comes to IC, the use of visual images has become even more significant, particularly in helping companies to build up their corporate image. For example, the front cover of an annual report normally contains an image, and the front cover is the first thing seen by clients and potential clients, by employees and potential recruits, by the general business world and the wider public; the covers of annual reports are therefore important sites of image construction (Davison, 2011). So far, studies on annual reports' disclosures have ignored visual images for several reasons. Guthrie et al. (2004), for example, have listed several important issues that researchers need to consider before venturing into analysing visual images. First, even though pictures might be used by management to impress stakeholders on their approach to certain issues, there are complications to do with the methods used to quantify the impact of pictures. Second, a picture may be worth a thousand words, and if there is no surrounding text, determining the intended message of the picture will be very subjective. This will complicate the debate on what weight the researcher should assign with regards the amount of disclosure to which the picture is equal (Guthrie et al., 2004).

Despite the fact that analysing images is complex and most probably more time consuming than analysing narratives and data, it is the perspective of this research that adding visual images to the information analysed will have the advantage of a richer level of analysis, as more information is included in the analysis. The result, therefore, will be more likely to represent what management intended to communicate to stakeholders in their annual reports. More recent IC studies such as Abeysekera (2011), Hooks, Steenkamp, and Stewart (2010), Steenkamp (2007), and Steenkamp and Hooks (2011) have started to acknowledge the importance of visual

images as part of company strategy in communicating IC information to stakeholders. However, so far, guidelines on how to utilise content analysis in capturing IC information from visual images are very limited.

As far as this research is concerned, only Steenkamp (2007) and Steenkamp and Hooks (2011) provides a fairly detailed discussion of how to capture IC information included in visual images through the use of content analysis, and should provide a good starting point for researchers interested in quantifying the amount of IC information disclosed through visual images. Due to the nature of the study conducted, other studies such as Abeysekera (2011) has been less transparent on how visual images is captured, while Hooks et al. (2010) focus more on exploring the opinions and understandings of annual report preparers and users of visual images. Another vital point to consider is that most of the literature on visual images focuses on photographs (see Davison, 2010; Davison, 2011; Hooks et al., 2010; Campbell, McPhail, & Slack, 2009; Preston, Wright, & Young, 1996). This could be due to photographs being more difficult to interpret as compared to graphs and a diagram, and that a study on the use of photographs would be very useful to users in analysing and understanding what a company is communicating. As for other forms of visual images, except for graphs that capture the interest of Vivien A. Beattie and Michael John Jones (for example, Beattie & Jones, 2000; Beattie & Jones, 2001; Beattie & Jones, 2002a; Beattie & Jones, 2002b), other types of visual images have received less attention.

Based on the above review, this research aims to analyse all forms of visual images, in addition to narratives and numbers. *Narratives* is interpreted as all information in annual reports presented in the form of text, *visual images* refers to images presented in the forms of photographs/pictures, tables, diagrams, graphs, and charts, while *numbers* include all monetary and non-monetary values.

5.3   Recording, counting, and context units

5.3.1   Discussion of issues

One of the key assumptions underlying all quantitative content analysis studies is that the quantity of disclosures signifies the importance of an issue (Gray et al., 1995; Krippendorf, 2004). However, one complication in identifying the quantification approach used in IC reporting studies is that many IC researchers have not been explicit about their unitising practices, which makes their discussion ambiguous and requires interpretation (Steenkamp & Northcott, 2007). Because of this limited guidance, it is necessary to refer to SER studies, in addition to the IC reporting studies, for more discussion on different types of unitising.

Gray et al. (1995) report that there is some debate around the unit of analysis in SER reporting, but the preferred units of analysis in written communications tend to be *words*, *sentences*, and *proportion of pages*. A review of several IC reporting studies has shown that, between the three methods, sentences is normally the preferred basis for coding (for example, Abeysekera & Guthrie, 2005; Bozzolan et al., 2003; Guthrie et al., 2006). Sentences were generally chosen as a basis for coding to overcome problems related to words or pages that can reduce reliability of the coding process. Hackston and Milne (1996) state that sentences can overcome the critical problem of proportion of pages such as differences between print size, column size, and page sizes that may differ between annual reports and lead to comparability issues. As for words, it normally leaves the researcher pondering which individual word represents the intended information that they are looking for. Nonetheless, the sentences unit also has its own weaknesses as sentences do not usually lend themselves to classification into a single category (Holsti, 1969), i.e. there is the issue of mutual exclusiveness.

Normally in this situation a decision needs to be made on which IC category presented in the sentence is more dominant.

Guthrie et al. (2004) then claim that *paragraphs* is another more appropriate method that should be used in SER and IC reporting studies, as compared to sentences, because it offers researchers a stronger basis on which to draw inferences. Yet again, paragraph can still pose a mutual exclusiveness issue that is possibly greater than sentences, as one paragraph normally contains more than one sentence, and to determine which IC is more dominant will become harder. Alternatively, a method favoured by this research, Beattie et al. (2004), Beattie and Thomson (2007), and Hoslti (1969) suggests the use of *phrase*, *clause* or *theme* (text unit) as the unit of analysis, as it enables meaning to be inferred from text of varying length, depending on where discussion of that particular item begins and ends. According to Weber (1990, p. 37), themes are not bound by grammatical units such as word, sentence or paragraph, but rather they refer to clusters of words with different meanings or connotations, that, taken together, refer to some theme or issue.

Beattie et al. (2004) and Beattie and Thomson (2007) have used the text unit as an approach to overcome the difficulty involved in determining which category is dominant when using sentence as a context unit. In their studies, in certain circumstances where sentences proved to be too large a unit, each was split into multiple units so that each text unit represented a single *piece of information*, or theme. In a recent IC disclosure study conducted by Campbell and Abdul Rahman (2010) that applies the same approach, there is no clear statement claiming sentence is the largest unit being used to apply the text unit. Instead, the authors claim the text unit will enable coders to break down a sentence or paragraph into its components, or text unit themes, before they are placed in the selected categories and then sub-

categories. Nonetheless, the authors have used a sentence as an example to illustrate their point on how a sentence can be divided into several text units.

Regardless of which method researchers choose, there are two issues that need to be considered before choosing the most practical unit of analysis for their research. First, most of the above methods (particularly words, sentences, and paragraphs) are appropriate for coding written text but not for visual images as they do not have the same nature as written texts (Steenkamp, 2007). The theme of text units, however, will be able to facilitate the inclusion of IC information provided in other forms besides sentences, such as tables and graphs (Beattie & Thomson, 2007). However, it may be difficult to determine the theme of a particular photograph unless there is a direct caption to which it is attached.

Second, most of the studies utilising content analysis have not been clear whether they are referring to the recording unit or the context unit. One of the studies that has clearly stated the difference between these two is Steenkamp and Northcott (2007) in their analysis of the 10 largest domestic companies listed on the New Zealand Stock Exchange. In this study, paragraphs are selected as the recording unit while sections of the annual report are used as the context units. Interestingly, reviewing several SER studies (for example, Hackston & Milne, 1996; Milne & Adler, 1999; Unerman, 2000), the concern is more on differentiating between coding and measurement unit. This could possibly explain why the concern has not been on differentiating recording unit and context unit. Other explanations for researchers not paying attention to the difference between recording/context unit and coding/measurement unit could be due to the objective of the study that focuses only on mere presence/absence of IC terms, ignoring the complexity of the information such as multiple disclosure and potential occurrence of the mutual exclusiveness issue. Nonetheless, if the latter is taken into consideration, which one is the correct

procedure: recording and context unit or coding and measurement unit? Is the difference just due to the usage of different terminologies? This research attempts to provide a platform for further discussion on this issue and subsequently straighten out the confusion. As far as this research is concerned, any research that is analysing the content of corporate reports should be able to apply a similar conclusion.

Carney (1972, p. 39) describes *recording units* as the "things to be counted", while Krippendorff (2004) illustrates them as the specific segments of content that are distinguished for separate description, recording, coding, and classification. There are many possibilities from which recording units can be selected, such as a character, a single word or symbol, sentences, themes, and items (Carney, 1972; Holsti, 1969). Krippendorff (2004) suggests that the choice should be made depending on the purpose of analysis. Context units, on the other hand, refer to "units of textual mater that set the limits on the information to be considered in the description of recording units" (Krippendorf, 2004, p. 101). Context units are crucial as they outline the scope of information that researchers or coders need to consult to establish the precise meaning of the recording unit (Steenkamp, 2007). The choice for context units depends on the size of the recording unit concerned (Carney, 1972) and logically the context units need to offer a larger scope than the recording units in order to adequately account for the recording units (Steenkamp, 2007). For example, if a word is the recording unit, the context unit may comprise a sentence or a paragraph. On the other hand, the choice of context unit will also affect the reliability and validity of the result. Larger context units may offer a more meaningful analysis that increase the validity of the results, but smaller context units provides a more feasible analysis, which increase the reliability of the result (Krippendorf, 2004).

As for coding and measurement units, Beattie and Thomson (2007) contend that *coding unit* refers to the unit of analysis providing the basis for the researcher to

determine whether or not it contains IC information. For example, if sentence is the coding unit, each sentence in the annual report would be analysed to determine if it provides an IC disclosure (or not) and if so to which IC category it relates. Once the content has been coded, the next step is to quantify the number of disclosure units (measurement units). Milne and Adler (1996), for example, claim most SER studies use sentences to code and words or *areas of page* to count the disclosures, but later declare using sentence as both coding and measurement seems to also provide more reliable and meaningful data for further analysis.

The main reason why some studies might choose different measurement units is to analyse the importance of items being disclosed. For example, using sentence as the measurement unit might pose problems since some companies might disclose the same IC information, but one might use several sentences to do so compared to another company that uses only one sentence. One way to solve this problem is to choose words as the measurement units — but then this creates the problem of determining which words are IC disclosures or not (Hackston & Milne, 1996). The question of how to determine unit of measurement seem to be a never ending issue, but Hackston and Milne (1996) suggest that a measurement error between various quantification techniques is likely to be quite negligible and makes little difference to subsequent analysis. This could be the reason why a more recent study by Beattie and Thomson (2007) has chosen to use the same basis for both coding and measurement, i.e. text units, or what is commonly referred to as *theme*.

Another issue concerning measurement unit is whether the term *measurement* should be treated as synonymous with the term *counting*. In studies such as Milne and Adler (1999) the two terms appear to be treated as the same, while Steenkamp (2007) proposes that the two terms should not be treated as the same. Quantities resulting from measures are descriptive in nature, such as measuring the size of a picture, whilst

quantity (resulting from counting) expresses the frequency of appearance (Steenkamp, 2007). When analysing the term *measurement unit,* commonly used in SER studies, it seems to be used to refer to counting the number of appearances. Therefore, in this research, it is deemed more appropriate to refer to the process of counting number of appearances as *counting unit* instead of *measurement unit*.

Recording/ coding unit
- Determine the recording/coding unit to be used to locate whether or not it contains IC information.
- This will form the basis to count the extent of IC information.
- Choice of recording/coding unit, e.g. words, sentences, pages, paragraphs, themes.

Context units:
- The scope of information that researchers or coders need to consult to establish the precise meaning of the recording unit.
- Choice – must be larger than the recording/coding unit

Counting unit
- Determine how IC information identified through recording/coding unit is going to be counted.
- The total number counted will represent the extent of IC information.
- Choice of counting unit, e.g. words, sentences, pages, parapraphs, and themes.

Extent of IC reporting

Figure 2: The process of determining recording/coding, counting, and context unit.

The question is whether or not there is a similarity between recording/context unit and coding/counting units? Based on the above illustration, this research concludes that determining a recording unit is similar to determining a coding unit and has been used interchangeably. Both concepts refer to the stage where researchers

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need to decide the basis they are going to use to identify whether the item is IC information or not. Therefore, recording or coding provides the basis for something to be counted, which leads to the next step, i.e. determining counting unit. These two steps will need to be done within the pre-determined context unit. In general, the whole process of determining recording, counting, and context unit is illustrated in Figure 2.

5.3.2 Choice of recording/coding, counting, and context unit

5.3.2.1 Recording/coding and counting unit

The first step is to determine recording/coding, counting, and context units to help identify IC information disclosed in companies' annual reports. As discussed, each form of disclosure (narratives, numbers, and visual images) is initially assessed to determine whether or not it contains IC information. While each unit of analysis (for example, words, sentences, paragraphs, pages, themes) has its own strengths and weaknesses, more recent disclosure studies seem to favour the usage of theme as their unit of analysis (for example, Beck, Campbell, & Shrives, 2010; Campbell & Abdul Rahman, 2010; Steenkamp, 2007). Even though the three studies do not clearly differentiate between recording and counting units, it is assumed that they are using themes for both recording and counting. Beck et al. (2010, p. 212-213) claim theme offers the advantage of coding the totality of narrative without the constraints of having to allocate meaning by word, sentence or paragraph, and that if a sub-category is reported in a small number of words, that is captured just as effectively as if it were an entire paragraph. For this research it has been decided that the recording as well the counting unit resolution will be at the theme level.

The same basis is used for both recording and counting the IC information, not only because previous studies have claimed the measurement error between various

quantification units is negligible, but also because a different counting unit will create further issues that can reduce the reliability of the content analysis. Choosing a counting unit smaller than recording unit (in this case it would be words) will increase the subjectivity of the process, as an additional decision needs to be made on which words in the theme belong to IC. On the other hand, choosing a counting unit which is larger than the recording unit, such as sentence or paragraphs, will lead to the issue of mutual exclusivity. If more than one IC theme is recorded in one sentence, a decision needs to be made on which theme is dominant. The dominant theme will be counted as one sentence. By doing this the coder will ignore previously recorded themes that represent the less dominant IC indicator. Therefore, to ensure all IC information disclosed in companies' annual reports is properly investigated, coded, and counted, quantifying the item using theme is seen to be a better option.

What is theme? Reviewing past literature on IC reporting that utilise theme as the unit of analysis, there has been no direct definition of theme provided. Steenkamp (2007) claims it is easier to define a theme by giving illustrations than by defining it in generalised, abstract terms. This research proposes a proper definition of theme, within the context of IC disclosure research, to assist future researchers interested in applying theme as part of their content analysis. There are several definitions of theme provided by previous studies, in other field of studies, such as Osborne, Stubbart, and Ramaprasad (2001) and Weber (1990). Osborne et al. (2001) look at narrative theme to measure management's intentions regarding competitive strategy, which provides a more specific theme definition in relation to their study. They define *theme* as a topical schema that categorises keywords into statistically related groups that reflect strategic ideas. Weber (1990, p.37), on the other hand, presents a more general illustration of theme as a cluster of words with different meaning or connotation that, taken together, refer to some theme.

The main idea from these two definitions is that theme consists of a group of keywords with underlying meaning that can be linked together into categories reflecting specific ideas. Applying the same definition to IC disclosure studies, this research defines theme as *a set of interrelated, meaningful keywords that can be grouped into IC indicators, IC sub-categories, and eventually IC categories, and can be used to reflect a company's strategy in managing its IC*. This definition is supported by looking at the way it was applied in some of previous IC reporting and SER studies such as Beck et al. (2010), Campbell and Abdul Rahman (2010), Uwalomwa (2011), and Hackston and Milne (1996). All these studies have measured theme in relation to indicators, sub-categories/items or categories of IC or SER. The resolution by theme has enabled all of these coders to break down a sentence or paragraph into its component text unit themes before they are place in the selected sub-categories and categories (Campbell & Abdul Rahman, 2010).

So far, theme has been chosen to record and count IC information incorporated in the narrative form, in addition to numbers that are included in the text. As for other forms of communication, particularly visual images, while most IC studies have chosen to ignore them (see the list in Table 1) due to the complexity in coding and measuring them, Steenkamp (2007) has taken the extra step of establishing content analysis for visual images. While this study provides a good reference for those interested in analysing visual images, it has been less direct in explaining the chosen recording and counting unit for visual images. Nevertheless, based on the illustration given, it can be assumed that theme has been chosen as both recording and counting unit. Beattie and Thomson (2007) claim that theme can also facilitate the inclusion of IC information provided in forms other than sentences. An illustration is given where information presented using tables has been captured using theme. Unfortunately, the

authors do not provide further examples for other types of visual images, particularly photographs.

When compared to words, sentences, and paragraphs, theme seems to be the most practical recording and counting unit for visual images. For most types of visual images, i.e. tables, charts, graphs, diagrams, charts, and photographs with captions, the possibility of extracting a theme and determining whether or not it belongs to one of the IC indicators/items/categories is with the help of the keywords accompanying them. The main difficulty that coders will have is determining theme for photographs that do not have captions attached directly to them. Extracting theme from photographs means the coders will have to be able to reach a point where a meaning can be extracted from the picture. Without captions accompanying the photographs, the job of interpreting the meaning and eventually the theme will be difficult and subjective. At this stage, the usage of context unit is crucial. In reality, objects will always exist within contexts and the number of cues present in an image that are based on our everyday world will be useful as a guide in making coding decisions. Therefore, it has been decided that theme can be used to record and count all types of visual images, but an appropriate context unit needs to be set, probably different from the context unit set for narratives. Note also that proportion of pages is another type of unit of analysis that can incorporate narratives as well as visual images. Acknowledging the advantage of using proportion of pages, particularly in capturing the size of visual images, an additional analysis will be conducted to see whether or not the result will make a significant difference to the information gathered.

5.3.2.2 Context unit

With theme as the recording unit, the minimal context unit would be sentences, although that might not be enough in certain cases, particularly if the coders are

looking for a specific result. For example, if the coder is interested in analysing whether the IC item adds value to a company or not, limiting the information to only one sentence might not be enough. On the other hand, limiting the information to sentence will help the coder to capture as much IC information as possible, and signify the importance of that particular IC information. This will be crucial if one is measuring extent (quantity) of disclosure. Geller, Kaplan, and Lasswell (1942) in Krippendorff (2004) have demonstrated how the characterisation of recording unit depends on the size of the context unit. By testing four different context units (a sentence, a paragraph, three sentences, and the entire article), Geller et al. (1942) have shown that, although the results are all in the same direction, the actual figures decrease as the context unit gets bigger. For this reason, this research has chosen sentence as the context unit to ensure the results capture as much IC information as possible — particularly in quantifying the extent of disclosure while still maintaining the meaning of the information, even though probably at a very minimal level.

Sentence is an appropriate context unit for any IC information presented using narratives, and, in certain circumstances, numbers that are included in the narratives. The same conclusion cannot be made for IC information presented through visual images. Even though sentence is the minimum context unit for sentence, it is still possible to manifest its meaning because it is a set of words guided by the rules of grammar. Visual images, on the hand, are not typically nor exclusively presented in written format (Steenkamp, 2007). Abeysekera and Guthrie (2005) have chosen line (sentence) as the context unit for both visual images and narratives as it is more appropriate to convert charts, tables and photographs into equivalent lines so that text, charts, tables, and photographs can be compared on a common basis.

Two issues can be identified from this approach. First, to interpret line as equal to sentence might not be appropriate as in certain scenarios a sentence contains more

than one line, and one line can contain more than one sentence. Therefore, a decision needs to be made on which is the most appropriate context. One possible solution is to use sentence as the context unit for narrative, while line is the equivalent context unit for images. Second, line might be an appropriate context unit for tables, charts, graphs, and diagrams, but this might not be the case for photographs, especially those that have no caption attached to them. To achieve an optimal result, it is proposed that the context unit for photographs needs to be larger than line (or anything equivalent to it) to ensure the proper meaning is interpreted, and eventually a theme can be recorded and measured.

Taking into consideration that it is almost impossible to read the meaning of a visual image without looking at its surroundings, the context unit for all types of visual image will be the image itself, as well as its surrounding text. However, this decision needs to be applied with caution as there are two issues that coders need to consider. First, when context unit includes the surrounding text, there is a high possibility that it will overlap with another context unit that has been used to record IC information through narratives. In this situation, Krippendorf (2004) assures that since context units are not counted, they do not need to be independent from other context units, i.e. they can overlap. However, the surrounding text should not be recorded again if it has been recorded before to avoid double counting the same information within an overlapping context unit. The second important consideration is to ensure each unit of content has been given equal weight to permit aggregation or direct comparison (Holsti, 1969). As far as this research is concerned, although the chosen context unit for narratives is different from visual images, consistency is retained by giving equal treatment in the way the IC information is recorded and counted. For a start, theme has been chosen as the recording and counting unit for both narratives and

visual images. A detailed illustration on how theme is counted for narratives and visual images will be provided in Chapter 7.

5.4 Counting extent of IC reporting

5.4.1 Discussion of issue —presence/absence versus multiple disclosures

One of the main issues in calculating extent (quantity) of disclosure is the handling of repetitive information. For certain IC items, treatment of repetitive information may not be a critical issue if there is not much coverage of the items. The issue will become crucial if the company allocates a significant amount of space to discussing the same IC items. Logically, researchers/coders are faced with two options: to include, or not to include, multiple disclosures. If researchers opt to ignore the repetition and only record the information once, they will only need to record the presence or absence of each indicator used to identify IC items. This seems to be the practice utilised by IC studies such as Bozzolan et al. (2003), Guthrie et al. (2006), and April et al. (2003).

The perspective of this research is that this approach will not help to truly capture the extent of reporting or how much IC information is being disclosed in a given annual report. Beattie and Thomson (2007) claim that by recording particular IC information only once when it has been mentioned more than once, is a very partial analysis of the amount of IC disclosure in companies' annual reports. Therefore, if only presence/absence is to be used as an approach, this research proposes for it to be used by studies that aim to measure quality of information, as quality puts more focus on the information content and not how much of it there is. Even so, researchers need to be very cautious in treating IC information being disclosed more than once, but possessing different levels of quality. In this situation, since the focus is to look at quality of information, each unit of information disclosed using different levels of

quality should be recorded separately, even though it is related to the same information.

5.4.2   Choice of how to count extent of IC reporting

In this research, the preferred method for counting extent of disclosure is to record all IC information being disclosed including repetitive information. It is believed that this is a better approach if researchers are trying to measure the extent of company reporting or quantity of reporting. In their study on environmental disclosure, Hackston and Milne (1996) state that:

> A problem with relying on incidence rate (present /absence) is that they may be misleading in the sense that they treat companies which make one or more disclosures as equal — a company making a one sentence disclosure on the environment is treated as equal to a company which discloses 50 sentences on the environment. (p. 89)

Therefore, if the researcher is trying to compare one company's level of disclosure with another company, it is more appropriate to count the number of times each item on the checklist occurs (Beattie & Thomson, 2007). Furthermore, the fact that the company keeps on repeating the same information should be of interest, and it could be a part of the company's communication strategy to show the importance of that information to the management (Beattie & Jones, 2001).

5.5   Analysing quality of IC reporting

5.5.1   Discussion of issue — quantity versus quality

Most IC disclosure studies have not made a clear distinction between quantity and quality of reporting (for example, April et al., 2003; Goh & Lim, 2004; Sujan & Abeysekera, 2007). Interestingly, however, as discussed in Chapter 2, it seems that more recent studies on IC reporting have started to appreciate not only quantity but have made allowance in their analyses for quality of IC reporting as well (for

example, Campbell & Abdul Rahman, 2010; Yi & David, 2010; Schneider & Samkin, 2008).

A conclusion can be made that while recent studies have started to acknowledge the importance of quality, others have either opted to choose between quantity and quality of disclosure, or opted to not make any differentiation between quality and quantity. In the SER studies, it is recognised that the quantity of disclosure alone does not indicate what is actually being disclosed (Guthrie et al., 2004). However, due to difficulty in assessing quality, researchers tend to assume that quantity and quality are positively related (Botosan 1997). This does not mean that attempts to measure quality should be abandoned, as quality can provide insight on how companies disclose their information and offer a different dimension to the way researchers look at IC information. The fact that both concepts are treated separately and are often being regarded as adversary in our daily activities should further strengthen the need to conduct a separate analysis on quality. We are sometimes faced with a situation where we are given an option between quantity and quality, for example when we have to choose between a better quality product/service or more of that product/service but with less quality. Do you prefer one gold ring or do you prefer 100 aluminium rings? The same concept can be applied in the disclosure studies. Having more information being disclosed does not necessarily mean that the information is of high quality.

In certain studies, self-constructed disclosure indices themselves have been used as a proxy for disclosure quality. For example, Hooks, Coy, and Davey (2002) propose a consensus-reaching methodology for quality assessment by assigning weight to each disclosure item obtained from an assessment made by researchers, expert accountants, and the chief financial officers of analysed companies. The weights reflect the importance attributed by different classes of users to each

disclosure item. However, Beretta and Bozzolan (2008) claim that empirical evidence has not shown clearly whether unweighted and weighted indices capture quantity or quality, as there are studies that show non-significant differences (for example Chow & Wong-Boren, 1987), and there are some that show significant differences (for example Naser & Nuseibah, 2003). For reasons previously outlined in Chapter 4 (Section 4.5) on weighting IC disclosure items, measuring quality through disclosure indices has been considered as not applicable and will not be used as part of a quality measure. There has not been a unique definition of quality as far as IC studies are concerned. Beattie et al. (2004) resolved to provide a list of several definitions of disclosure quality instead of one. For example, King (1996) defines disclosure quality as the degree of self-interested bias in the disclosure, while Hopkins (1996) defines quality as the ease with which investors can read and interpret the information (Beattie et al., 2004). The difference in the way quality is defined could be attributed to what the researchers are looking for when the study is conducted.

Based on the above argument, this research proposes the need to separately measure quantity and quality and that an explicit differentiation needs to be made between these two. The term *extent* is used to denote quantity of disclosure, while quality will be represented by several measures. The concern of this research, when quality is measured, is to see how companies present their IC information by looking at the forms of disclosure used and where the information has been disclosed. The next subsections provide a detailed illustration on the development of the two quality measures used in this research, namely *forms of disclosure* and *locations of disclosure*.

5.5.2 Choice of quality measures

This research acknowledges that extent of disclosure only represents one dimension of quality, and that an assessment on disclosure quality cannot be based purely on this

association (Beattie et al., 2004). To decide how quality should be measured, this research has started with an overview of some quality measures used by previous IC reporting studies, and the summary is outlined in Appendix 3. From the review it is apparent that the most commonly used quality measure is form of disclosure (for example quantitative vs. qualitative). However, it is safe to conclude that there is still no universal agreement on what constitutes quality of disclosure. Therefore, the choice of quality measures should depend on what the questions are that the researcher is trying to answer when IC information is analysed.

As extent of reporting only considers how much information is disclosed, this research is conducted from the perspective that quality of reporting should be able to show the richness of information being disclosed. The richness of information can be measured through the availability of information in different forms of disclosures and the availability of information in different locations in the annual report. Again it must be emphasised that there is no definitive set of quality attributes since quality is subjective and context-dependent (Beattie et al., 2004, p.230). A detailed explanation on each attribute is provided below.

5.5.2.1 Forms of disclosure

Instead of categorising forms of disclosure into qualitative or quantitative as used in most IC studies such as Sujan and Abeysekera (2007), Abeysekera and Guthrie (2005), Bozzolan et al. (2003), and Guthrie and Petty (2000), this research introduces a new three-point scale for forms of disclosure. It is important to highlight that Schneider and Samkin (2008) and Yi and Davey (2010) utilise a six-point scale to measure quality through forms of disclosure. The highest scale is allocated to any IC information that is disclosed using quantitative and descriptive forms. However, as this research takes into consideration all forms of disclosure including visual images,

it is therefore necessary to introduce a new scale for forms of disclosure. The new

three-point scale incorporates all forms of information used in the annual reports, i.e.

narrative, numbers, and visual images. To the knowledge of this researcher, there has

been no quality measure that takes into consideration all forms of disclosures. Table

10 provides a description for the three-point scale of forms of disclosure.

Table 10: Forms of disclosure

Form of disclosure	Weight	Description	
Obscure	1	i-	IC indicator being discussed using narrative whilst discussing another IC indicator or the discussion is made with limited reference or value comments. As it is discussed together with another IC indicator, the illustration will be brief and does not carry high quality of information.
		ii-	IC indicator being disclosed using images or numbers but with no detailed explanation attached directly to it. Any images/numbers that have no direct explanation but are interpreted as IC indicators will be recorded according to their respective IC category but categorised as *obscure* due to their limited discussion.
Descriptive	2	The IC indicator is discussed (not with another IC item) using detailed narratives (without supporting images or numbers). Any IC indicator discussed using this category is considered as having medium quality of reporting as it is disclosed with a clear explanation indicating the significance of the particular IC information to the company.	
Strongly descriptive	3	IC indicator that has been expressed using narratives and supported with either numbers (monetary or non-monetary) or visual images.	
		This information is considered as the highest quality of disclosure as the information being discussed not only uses written text but is supported with images or numbers.	

Key: IC, intellectual capital.

The rationale for choosing form of disclosure as one of the quality measures

lies in the revelation that companies have strategised their IC news to market

participants as narrative, visual, and numerical disclosures to inform about their value relevant activities (Mouritsen et al., 2001a). Each form of disclosure is said to have its own strategy initiatives, with narrative providing the *legitimacy* of the resources deployed as IC, the visual images constructing the *wholeness* for the IC resources, and the numerical content informing the *seriousness* of management to hold them accountable for the resources disclosed (Mouritsen et al., 2001a). Abeysekera (2011) further noted that each of these forms of communication performs its own function. The construction of narrative disclosure is often related to management activity as it enables management to explain to investors about the future earnings capacity of IC (Abeysekera, 2011, p. 5); visual disclosure enables companies to communicate specific events, feelings, and contexts that might otherwise be ignored in narrative and numerical disclosure (Moss, 2008), and that can influence companies' way of thinking (Wagner, 2006, p. 58); while numerical disclosure provides a concrete description of companies' affairs in a precise but abstract manner (Abeysekera, 2011, p.7).

Even though each form of disclosure has its own function, utilising form of disclosures as one of the quality attributes could pose problems since there is a possibility that not all types of IC items can be conveyed through all forms of disclosure. In studies by Schneider and Samkin (2008) and Yi and Havey (2010), this problem has been minimised by introducing different maximum scores for each type of IC indicator. In this research, even though it is acknowledged that most IC indicators are descriptive in nature and that some indicators are difficult to quantify, this research proposes that it is still possible to quantify certain types of IC information. While to expect all IC information to be disclosed using monetary value may be too ambitious, the company still has the opportunity to quantify the information using non-monetary figures. For instance, even though is it difficult to put a monetary value on employee equality and diversity, a company can still disclose

quantitative information by providing the ratio between different genders or the ratio between different types of races. If companies provide this information, a conclusion can then be made that they have presented higher quality information as compared to those that do not.

The same argument can be used for certain indicators which are normally quantitative. For example, indicators such as number of employees are normally disclosed using quantitative terms, but companies can still offer descriptive information by disclosing information such as factors that lead to the changes in numbers of employees. The same goes for employee ages, as companies should not only limit their report to employee ages. They could also provide other information such as qualitative description of age-related advantages or strengths of their employees. Nonetheless, given the above possibilities and given that IC reporting itself is still in its infancy, to expect companies to provide the required information using the required forms of disclosure might be too ambitious. Many companies may avoid using certain forms of disclosure for particular reasons and not because they do not have the required information. For example, Abeysekera (2011) claims numerical (monetary and non-monetary) disclosure of IC occurs much less frequently than narrative disclosure to avoid measurement errors resulting from direct measurement. Abeysekera (2011) then takes the view that since numerical IC information is scant and not often used as an expression of measurement of IC resources, using numerical IC disclosure as a separate strategy is ineffective.

On the other hand, a voluntary presentation of graphics is increasingly used in companies' annual reports, particularly large companies, which is largely attributed to the changing role of the corporate report from a formal, statutory document for shareholders to a major advertising and public relations document that serves multiple purposes and multiple audiences (Beattie & Jones, 2001). Furthermore, visual images

(such as photographs) in annual reports can become a more powerful tool than narrative disclosure for stakeholders who do not have time to read every word, but simply flip through the reports. There is also an increasing awareness that companies use visual images, particularly photographs, to send messages and signals to investors about what is important, to build their company image, and also to represent IC indicators that are difficult to communicate and understand in accounting narratives (Hooks et al., 2010).

Based on the above points, the perspective of this research is that it is necessary to have a new three-point scale to determine quality through form of disclosure. The present measures acknowledge the growing importance of visual images in companies' disclosures and also the fact that if a company is capable of disclosing IC information using a combination of narratives together with either numbers or visuals, they should be scored as having higher quality forms of disclosure. In this case the information is given a score of 3, denoting strongly descriptive information. It also proposes that any IC information being disclosed with a limited discussion, or when the discussion is made with other IC items, should be rated lower than IC information being disclosed with a clear narrative discussion. Even though it is recognised that it is possible for companies to disclose IC information using quantitative forms, despite them being descriptive in nature, these will be scored 1 if there is no detailed explanation attached. The same rule applies to visual images. The underlying reason is that without a detailed narrative accompanying them it will be difficult to comprehend their meaning. On the other hand, a detailed narrative (without supporting numbers or images) is scored higher, using a score of 2, since it is assumed that, unlike numbers and images, narratives can stand on their own in conveying meaning.

Once IC information is categorised according to its form of disclosure, total quality of disclosure is calculated for each IC indicator. One particular concern being raised by previous studies prior to finalising the quality level for each IC indicator is when the coders come across IC indicators being disclosed more than once but with different quality scores. Guthrie et al. (2006) and Yi and Havey (2010) address this issue by only recording the highest score. For example, if an indicator originally scored a 2 and then, later on, further disclosure warranted a score of 3, the indicator will be scored as 3 (Guthrie et al., 2006). Alternatively, Schneider and Samkin (2008) have allocated a quality score for each indicator based on the aggregate of the group. The quality score for the group of codes is taken as a raw mark for that particular IC indicator and then is multiplied by the weighting for that indicator to obtain the weighted score for the item.

From the two proposed approaches, this research has chosen to use the same approach practiced by Schneider and Samkin (2008). The forms of disclosure are quality attributes that provide data on companies' strategies in communicating their IC information. Therefore, all forms of disclosure used by the company should be taken into account. By recording an IC indicator using its highest score only, the unrecorded quality level will be lost. The final result will not give a full reflection of what the company is disclosing. For this reason, this research opts to calculate the aggregate quality score for each IC indicator. The final quality score for each IC indicator will be:

$$= \sum \text{[weight of form of disclosure x total scores for each IC indicator in the respective IC category]}$$

Note that the same formula can be used to calculate total quality at IC items or category level.

5.5.2.2 Location of disclosure

Motivated by the idea suggested by Abeysekera (2007) and Guthrie et al. (2004) that location of IC disclosure is potentially revealing when incorporated as part of quality measures in formulating views on companies' commitment to the development of IC, this research incorporates location as one of the quality measures. Very few studies have discussed the importance of positioning IC information in annual reports, and when they do, the discussion has been on how location reflects management views on the importance of IC by making an indirect inference from the amount of IC information being disclosed in each section of the annual report (for example, Bruggen, Vergauwen, & Dao, 2009; Guthrie et al., 2006; Khan & Ali, 2010). No attempt has been made, within IC reporting studies, to assign weight to each location in the annual report according to its level of importance. The calculation of weight of each section in the annual report as one of the measures of quality will serve a dual purpose. The segregation of IC indicators by location will help researchers to make inferences about how IC is important to the company's management, bringing the internal perspective of the company to the fore. For example, Guthrie et al. (2006) found the greatest voluntary IC disclosures occur in the business/operational section of annual reports. The very high incidence of IC reporting in this section is likely attributable to the trend set by companies to relate IC to the operations of their organisation via the human capital nexus (Guthrie et al., 2006).

Alternatively, the weightings can signify external perspectives and the results will reflect companies' initiatives to report information in sections perceived as important by users. Given the status of IC, which can potentially help to explain the gap between company book value and market value, readers would expect this information to appear in a company's annual report. This is crucial if IC information is going to be used in decision making processes. However, to expect users to read the

whole set of annual reports would be impractical given the probability that not all of them are accountants or experts in the preparation of annual reports. Therefore, the information is expected to be disclosed in specific sections. Furthermore, limited time might constrain users' abilities to read all of the sections in an annual report, particularly if the annual report has hundreds of pages. Taking this into consideration, a score has been assigned to each section in the annual report based on which section users of annual reports perceive as important, and will be more likely to read. Quality of disclosure location will be measured based on whether or not the company has chosen to report their IC information in a location that is perceived as representing user preference. Since this is the first attempt in an IC study to measure quality of IC reporting through location of disclosure, the weight is assigned based on a review of previous studies that look at the importance of location in annual reports.

The first step is to determine which users are more likely to use the annual report. According to *The Corporate Report* (in Deegan & Ramkin, 1997, p. 568), issued by the Accounting Standards Steering Committee of the Institute of Chartered Accountants in England and Wales, the user groups are identified as equity investors, creditors, employees, analysts/advisers, business contact groups, the government and the public. This definition shows that users of annual reports extend beyond shareholders and that companies are accountable to various parties in the community. However, to meet the needs of each of these users might be difficult as each one of them may have different demands and preferences.

The IASB Conceptual Framework for Financial Reporting (OB2, 4, & 6) only recognises present and potential investors, lenders, and other creditors as the primary users of general purpose financial reporting, while regulators and other parties are considered secondary and are advised to consider pertinent information from other

sources as well to help their decision making process (Deloitte, 2011). This explains why most previous studies that measure what users need only concentrate on certain types of users, particularly shareholders. This study acknowledges the differences in users' needs and it is difficult to capture all their needs at one time. While every effort has been made to cover as much literature as possible on the importance of location, the limited focus used by previous studies may have resulted in the weight representing only certain types of users. A summary on past studies is provided in Appendix 4.

Based on the review, it has been concluded that past studies have focused more on what shareholders considered important or which sections were more likely to be read by shareholders. This is more practical given the interdependent status that the company has with its shareholders. Shareholders are generally perceived as the most important stakeholder group to firm survival, with the power-dependence relationship viewed as one of high importance (Elijido-Ten, Klot, & Clarkson, 2010). Even though shareholders have the potential to threaten a company's survival, their investment in the company will also make them highly dependent on the company for their own capital growth (Elijido-Ten et al., 2010). Their direct dependency could provide the rationale for shareholders to be the primary users of annual reports. As for other parties, such as customers and the government, Elidijo-Ten et al. (2010) conclude that companies are more dependent on them than they are on the company, which makes them less likely to use annual reports as their main reference, as compared to shareholders.

Review of the literature suggests that the sections being analysed can be divided into four, namely, a financial section, the chairman/chief executive review, a special section such as on CSR, and the business/operating review. Note that allocating a special section has not been popular in research prior to the year 2000,

which is probably due to its being new and users needing more time to become familiar with it. It could also be due to the fact that users, particularly shareholders, do not regard the information as being relevant to them. This research has divided the sections in annual reports into five instead of four to ensure the weightings capture all sections in the annual reports and possibly a larger group of users. The financial section will include financial statements (plus everything else in the section such as directors' report, auditor's report, and notes to the financial statements) and the financial summary/highlights, which are normally disclosed separately from the financial statement.

The review shows that most parts of the financial statements are considered as the most important sections, and in certain studies, such as Bartlett and Chandler (1997), the financial summary is among the top five most read sections. Therefore, the financial section of an annual report is scored as 5, the highest. Even though De Villiers and Van Staden (2010) consider notes to the financial statement as the least popular section, this is understandable as the study concerns where shareholders perceive environmental information should be disclosed. As far IC is concerned, notes to the financial statement could potentially provide useful information on companies' policy in relation to their IC. For example, it is in notes to the financial statement where information on the types of benefit received by employees such as the employee share option and the type of loan given to the employees.

There are, however, potential issues with some parts of the financial statement, such as directors' report and auditor's report, as there are mixed results on the importance of these two sections. For example, in De Zoysa and Rudkin (2010), auditor's report is rated as more important than chairman's report, but the result is reversed in Bartlett and Chandler's (1997) study. This research has given all sections in the financial statement equal treatment based on the fact that all of them fall within

the auditor's ambit, making it an important section (Gray et al., 1995). As far as IC is concern, the availability of IC information in an audited financial statement should increase the quality of the IC information being disclosed.

The next most important section is the chairman/chief executive review section, which is rated as 4. Most of the previous studies on location have either considered chairman's statement as the most read section or the second most important section after the financial section (for example, Bartlett & Chandler, 1997; Jaffar, 2006; De Villiers & Van Staden, 2010). Similar results are shared with the chief executive review, although this is slightly less important than the chairman's statement. These two sections are more likely to be read as they provide an overview of the company instead of giving readers a detailed disclosure that could possibly be less appealing to users that are more passive when reading annual reports. Another section that has not been given much consideration, except in Jaffar (2006), is a separate statement on the company's vision/mission/philosophy/strategies. A study conducted by Beattie and Pratt (2002) concluded that disclosure of a company's broad objectives and strategy is considered useful and was rated highly by the respondents. Based on this, a statement on the company's vision/ mission/ philosophy/ strategies is scored as 4 as well.

The business/operating section is considered an important section as it discloses information that fully integrates with the mainstream activities of the company. This section has been rated among the most read sections, although not as popular as the first two sections (for example, Bartlett & Chandler, 1997; ProShare, 1999), however, in Jaffar (2006) it has been given the lowest score. This could be due to the tendency for companies to over-disclose information, resulting in a very lengthy section. On the other hand, due to the gap between a company's book value (covered using financial statements) and market value, the business/operating section should

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provide a venue for stakeholders to identify other factors contributing to the company's market value. These factors may have not been covered in the financial section. Based on these reasons, it is appropriate to score this section as 3.

There have been mixed reviews on the importance of special sections such as CSR. De Villiers and Van Staden's survey (2010) has shown that special issues such as environmental issues should be disclosed in a separate section, but there is lack of empirical evidence on the importance of this special section for users of annual reports. The lack of evidence does not necessarily mean this section is irrelevant. From the perspective of IC, disclosure on a company's involvement with CSR activities could help to build up the company's image, leading to the creation of its external capital. However, Beattie and Pratt (2002) have provided evidence that shareholders rate environmental, social, and community items as among the least important items, although they tend to be judged, on average, as fairly useful. Taking into consideration the importance of this section and the mixed results on how important it is to the users of annual report, it is scored as 2.

The remainder of the sections in annual reports are scored as 1. The lack of discussion on those sections is a signal that they carry less significance to users of annual reports. For example, in the Bartlett and Chandler (1997) study, sections on corporate governance have been perceived as providing little impact on shareholders, and receive the lowest score of importance. One possible explanation provided by Bartlett and Chandler (1997) is that this section has been significantly expanded in an attempt to tackle the gap in expectations. However, using annual reports as a medium to educate users concerning the nature of auditing might not be seen as the best avenue for the users (Bartlett & Chandler, 1997), as not all of them are willing to thoroughly read annual reports. The final weights for all of these sections are provided in Table 11.

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Table 11: Weights for different reporting locations in annual reports

Location	Coding group	Weight
Financial sections (e.g. financial statements, notes to the financial statements, financial highlights)	A	5
Chairman/chief executive review &vision/mission/philosophy/ strategic sections	B	4
Business/operational sections (e.g. business operating review, operations review)	C	3
Special section (e.g. CSR report)	D	2
Others (e.g. corporate governance section, front page, calendar highlights, calendar of events, corporate profile, awards & accolades, etc.)	E	1

Key: CSR, corporate social responsibility.

Once each IC theme has been categorised according to its location, the quality of disclosure will be based on:

$$= \sum [\text{weight of location x total scores for each IC indicator in the respective IC category}]$$

In measuring quality of reporting through form of disclosure and location, the treatment of repetitive information is different from extent of disclosure. Under extent of disclosure, repetitive information will be counted repetitively even though it is related to the same IC indicator. In the case of these two quality measures, all IC information will be counted only once if it is related to the same IC indicator and using the same form of disclosure or in the same location. The main reason for this is because quality emphasizes more about what information is being disclosed and how, rather than how much is being disclosed (quantity).

5.6   Developing a multidimensional coding framework
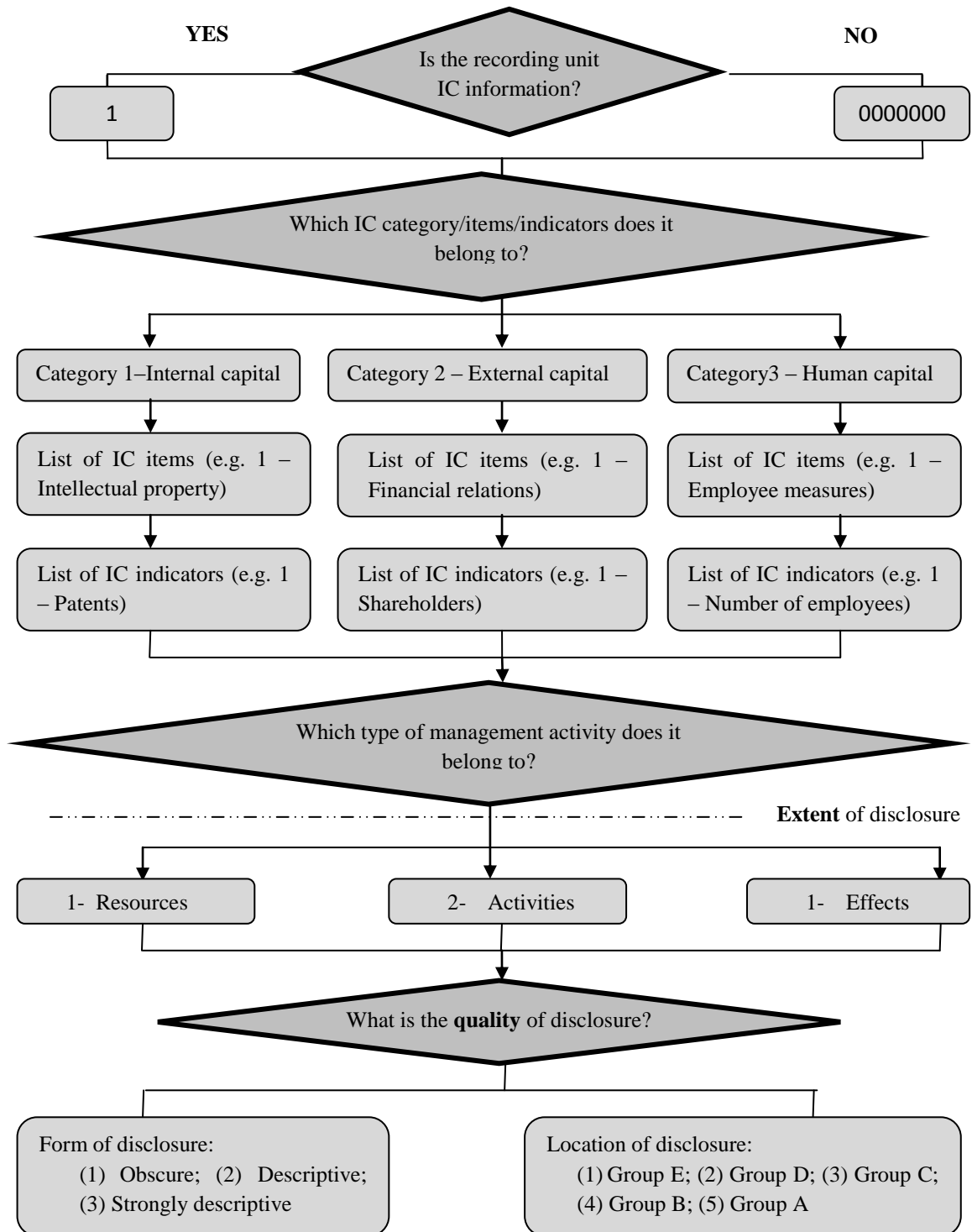
Figure 3: Multidimensional coding framework

With the decisions having been made on the recording/coding and counting units, the calculation of extent of IC reporting, and the types of quality measured, the next step is the introduction of the multidimensional coding framework (Figure 3). The coding framework developed in this section has not been introduced to IC academic literature before. This framework does not offer a perfect solution for the use of content analysis due to several issues such as the choice between different unitizing methods and differences in measuring disclosure quality, but it does lead to a richer level of analysis of IC disclosure in companies' reports. Beretta and Bozzolan (2008) argue that to appreciate what has been disclosed by a company, researchers need to adopt a multidimensional framework that jointly considers not only how much is disclosed (the extent of disclosure) but also what and how it is disclosed (richness of disclosure), i.e. quality of disclosure. Therefore, the proposed multidimensional content analysis framework is developed to embody a detailed analysis on both the extent of IC disclosure and quality of information being disclosed. In addition to these two analyses, this coding framework will also incorporate an additional analysis looking at how companies mobilise their IC by categorising the IC into three types of IC activities, i.e. resources, activities, and effects (as discussed in Chapter 4).

Figure 3 presents the multidimensional coding framework. Once a sentence or image has been analysed, each is given a seven digit code. A 0000000 code is assigned if the sentence or image does not contain any IC theme. The code represents three stages of analysis, i.e. extent of disclosure, IC activities, and quality of disclosure. In the first stage, each sentence and image in the annual report is analysed, and if it contains an IC theme, it will be given a seven digit code with appropriate numbers being assigned. The first digit will be 1, denoting the existence of IC theme.

The second, third, and fourth digits denote the IC category, items, and indicators to which it belongs. Note that the current IC index has 20 IC items divided

into the three IC categories. Under each IC item, a pre-determined list of IC indicators has been assigned. Numbers have been assigned for each IC indicator, item, and category for coding purposes. However, this list, particularly the IC indicators and possibly the IC items, can be changed to accommodate the actual IC information disclosed in the annual reports. The dotted line in Figure 3 signifies the end of measurement for extent/quantity of IC disclosure and that there is a difference between how coders count extent of disclosure and IC activities as well as quality of disclosure, illustrated later in Chapter 7 of this thesis. The fifth digit signifies types of IC management activities, i.e. whether they represents IC resources, activities, or effects. Lastly, each theme is coded for quality of disclosure based on forms of disclosure (digit number 6) and locations (digit number 7). Once each annual report is analysed the result is recorded in a coding sheet where the data is counted and summarised.

5.7   Reliability tests

5.7.1   Discussion on types of reliability tests

Regardless of which recording/coding and counting unit is chosen, the researchers or coders need to demonstrate the reliability of their instruments and/or the reliability of the data collected using those instruments, as this will permit replicable and valid inferences to be drawn from data derived through content analysis (Milne & Adler, 1999). Krippendorf (2004) identifies three types of reliability tests for content analysis: stability, reproducibility, and accuracy. Table 12 provides a summary of all these reliability tests.

Table 12: Types of reliability tests (Krippendorf, 2004)

Reliability tests	Definition	Test
Stability	The ability of a judge to code data the same way over time.	Test-retest procedure — for example, annual reports analysed by a coder could again be analysed by the same coder three weeks later. If the coding was the same each time, then the stability of the content analysis would be perfect.
Reproducibility	The extent to which coding is the same when multiple coders are involved.	Test-test procedure — for example, two or more individuals, working independently of each other, apply the same recording instructions to the same units of analysis. The measurement would be based on both intra-observer inconsistencies and intra-observer differences in the interpretation and application of given recording instructions.
Accuracy	Assessing coding performance against a predetermined standard set by a panel of experts, or knowledge from previous experiments and studies.	Test-standard procedure —i.e. researcher must compare the performance of one or more data-making procedures with the performance of a procedure that is taken to be correct. The reliability would be measured based on intra-observer inconsistencies, intra-observer differences, and deviations from a given standard.

Through a review on several content analysis studies, very few IC studies have conducted accuracy tests, except for Bozzolan et al. (2003), who chose to conduct all three reliability tests. Accuracy tests have not been a popular choice due to the fact that it is difficult to determine the standard result that is taken to be correct, let alone finding a standard set by a panel of experts. Even if there is a standard set by a panel of experts, the detailed approach used might be different, which will create comparability issues. Based on the illustration given by Bozzolan et al.(2003), accuracy was ensured by the use of two coders (the authors) using a data collection procedure that was prepared and discussed before the start of the analysis. They then

used two coders to conduct the analysis, and the results were compared to test for accuracy. Finally, after one week, the stability of the content analysis was tested by doing a second round of coding.

For certain researchers, particularly those who conduct solo research, the second and third reliability tests could be a less popular choice due to certain restrictions on the research domain. For example, the test-test procedure requires the use of multiple coders as a means to assess reliability, which may not be as effective as perceived, especially if the other coder is not the author, and may not be well versed with the details of the research. Furthermore, Morris (1994) claims the use of multiple human coders may result in sacrifices in research design and rigor as there are several costs involved like time, tediousness, and perhaps monetary compensation. Krippendorf (2004) also points out the weakness of using multiple coders as follows:

> Two coders in the same event who hold the same conceptual system, prejudice, or interest way may well agree on what they see but still be objectively wrong. Because content analysis has acquired a language and concepts that make them see the word from the unique perspective of their academic discipline, their observations and readings are based in a consensus that is not likely shared by many people outside of their scholarly community. (p. 213)

Therefore, the usage of multiple coders can be misleading and may not lead to a valid result. As for the test-standard, with many differences in the application of content analysis in IC reporting studies, it is not clear whether a standard exists that can be used to assess the accuracy of IC reporting content analysis studies. This perception is supported by Steenkamp (2007).

Milner and Adler (1999) have conducted an experiment on these reliability tests and concluded that to establish a minimum standard to be achieved in content analysis is complex. The choice between methods is often arbitrary. They further advise researchers that what is more important is to understand the tools, their limits, and the research context, before making careful interpretations of results. Guthrie,

Johanson, Bukh, and Sanchez (2003) suggest several methods that researchers can use to increase the reliability in recording and analysing data, and they are:

i. Selecting disclosure categories from well-grounded relevant literature and provide a clear definition.

ii. Establishing a reliable coding instrument with well-specified categories and decision-making rules.

iii. Training the coders and showing that coding decisions made on a pilot sample have reached an acceptable level.

The preferred reliability test for this research has been the stability test, and extra efforts as suggested by Guthrie et al. (2003) have been taken into consideration. A detailed description is provided in the next sub-section.

5.7.2 Choice of validity and reliability test

So far, the application of content analysis in an IC reporting study involves two main activities, i.e. the construction of the IC index and devising a set of rules on what and how to record and count the data. There are two possible issues in these two activities. First, the ability of the IC indicators developed in the index to reflect all issues of interest that are embedded in the annual report, which means raw data can be accurately coded into the coding sheet (Abeysekera, 2004). Second, the instrument used to record and count the data needs to demonstrate its ability to permit replicability and that valid inference can be drawn from the data derived from the process (Milne & Adler, 1999). The next paragraph outlines steps taken in this research to tackle these issues and hence minimise the possible threat on the validity and reliability of the research results.

This research applies three steps in minimising possible threats to the validity and reliability of the research results. First, the validity of the IC index is achieved

through the use of IC categorisation that is grounded in previous IC reporting studies such as Guthrie et al. (1999) and Guthrie and Petty (2000), which originated mainly from Sveiby (1997a, 1997b). Prior to utilising the index on companies' annual reports, each IC item was given a definition and a set of indicators to act as references for the coder in ascertaining the content in the annual reports. The index, however, is not definitive and has been relaxed to accommodate further modification needed when relevant IC information is identified which does not fit into the original set of IC indicators/items. According to Gray et al. (1995), this is a common situation and it would be inappropriate to ignore such information. Consequently, each IC category is revised and new IC items and indicators are created, if necessary (described in Chapter 7).

Second, this research has developed a coding framework to analyse the three dimensions of IC reporting, with a detailed discussion on the components needed to utilise the framework. Furthermore, the choice on the components needed to conduct the content analysis and the multidimensional coding framework was improved and finalised after a pilot test was conducted on the 10 largest Malaysian publicly listed companies. To increase the reliability of the content analysis process, a consistent procedure was used to record and count any IC themes available in narratives, numbers, and images of annual reports and is illustrated in Chapter 7 of this thesis.

Lastly, the coder re-examined the annual reports after a certain time interval to confirm consistent identification in the annual reports. This research opts not to apply the other two reliability tests due to several resource constraints. The accuracy test is not an option as there is no known standard procedure in conducting content analysis that deems it to be universally accepted by all IC researchers. Furthermore, the fact that this present research is utilising a multidimensional coding framework that should provide a richer analysis in IC reporting and has not been applied in previous research,

will restrict the ability to compare with previous instruments used. The best option is to use a reproducibility test by having multiple coders, and a measure of consensus between different coders is interpreted by a consensus coefficient.

However, as pointed by Abeysekera (2004), a consensus coefficient has its own weaknesses. A low coefficient can cast doubt upon the reliability of the data, but a high coefficient, even though seeming trustworthy, still has the possibility of being unreliable if there is high frequency of false data. This issue can be minimised by having several more coders re-code a random sample of investigated material to identify differences so that an ordinary coefficient can be calculated, but this approach is time consuming and costly (Abeysekera, 2004). Furthermore, as the coding framework incorporates images as part of the analysis, there will always be the possibility for another researcher to code the content in the annual report differently. This occurs not because of carelessness but because of the differences in how each coder creatively interprets information presented in the annual report, particularly those presented using visual images. Based on the above limitations and given the nature of the multidimensional coding framework, this research takes the perspective that the data produced by a sole researcher is sufficient to produce a reliable and valid result.

5.8   Choice of documents to be analysed

5.8.1   Choice of sampling unit

To illustrate the application of this new multidimensional coding framework, this research focuses on 30 of the largest Malaysian companies, by market capitalization, listed on the Bursa Malaysia stock exchange. As discussed in Chapter 3, Malaysia is a developing country that has implemented several national plans to bring the country further towards becoming a self-sufficient industrialized nation by the year 2020. One

of the key thrusts included in the plans is developing a KBE; the foundation for which was formulated in the mid-1990s. Therefore, analysing the level of IC disclosure among Malaysian companies is desirable to see how far private sector companies have progressed in helping the Malaysian government achieve its objectives. Only 30 of the largest Malaysian companies were chosen to conform with the view suggested by Guthrie et al. (2006) that large companies are more likely to be more progressive and innovative because they have the financial resources that enable this type of reporting. Given that IC reporting is still at voluntarily stage, it is generally expected that, due to resource and visibility factors, large companies are more likely to be active in the area of IC reporting (Guthrie et al., 2006).

This research focuses only on annual reports as the source document as they are the most widely distributed and regularly produced documents (Campbell, 2000). Other types of resources, for instance, a separate statement on CSR, are ignored on the basis that producing a separate statement is not compulsory to all companies. It is expected not all companies will produce the additional statement, whilst all companies need to produce annual reports. Furthermore, for a long time annual reports have been used by companies as a channel to establish an image in the public domain, and to communicate with investors (Lang & Lundholm, 1993). Due to the differences in the financial year ends of the companies in the sample, 31 December 2008 has been used as the cut-off point for choosing relevant annual reports.

The list of the 30 companies is taken from the Financial Times Stock Exchange (FTSE) Bursa Malaysia Index Series. This is designed to represent the performance of companies, providing investors with a comprehensive and complementary set of indices, which measure the performance of the major capital and industry segments of the Malaysian and regional market. This tradable index provides a list of the 30 largest companies in the FTSE Bursa Malaysia EMAS index

by market capitalisation. This index is reviewed semi-annually by FTSE Bursa Malaysia, which takes place in June and December. The sampling unit for this research is taken from December 2009, the latest review to date prior to the commencement of the research. Table 13 provides the list of the 30 companies listed in the Malaysian stock exchange and a summary of total number of pages for each annual report.

Table 13: List of 30 Malaysian largest publicly listed companies by market capitalisation

No.	Company name	No. pages (AR)	GLC	Industry group	K-based
1	Axiata Group Berhad	332	No	Media & telecommunication	Yes
2	Digi.Com Berhad	109	No	Media & telecommunication	Yes
3	Telekom Malaysia Berhad	348	Yes	Media & telecommunication	Yes
4	Astro All Asia Network Plc.	152	No	Media & telecommunication	Yes
5	RHB Capital Berhad	260	No	Banking	Yes
6	Hong Leong Bank Berhad	198	No	Banking	Yes
7	CIMB Group Holdings	475	Yes	Banking	Yes
8	AMMB Holdings Berhad	332	No	Banking	Yes
9	Malayan Banking Berhad	340	Yes	Banking	Yes
10	Public Bank Berhad	448	No	Banking	Yes
12	PPB Group Berhad	207	No	Consumer products	No
13	Nestlé (Malaysia) Berhad	200	No	Consumer products	No

No.	Company name	No. pages (AR)	GLC	Industry group	K-based
14	British American Tobacco (Malaysia) Berhad	188	No	Consumer products	No
15	UMW Holdings Berhad	195	Yes	Consumer products	Yes
11	Kuala Lumpur Kepong	143	No	Plantation	No
16	IOI Corporation Berhad	260	No	Plantation	No
17	Sime Darby Berhad	234	Yes	Plantation	No
18	Berjaya Sports Toto	108	No	Hotel, restaurant, & leisure	No
19	Genting Malaysia Berhad (Resort Worlds Berhad)	92	No	Hotel, restaurant, & leisure	No
20	Genting Berhad	135	No	Hotel, restaurant, & leisure	No
21	Tanjong Public Limited Company	143	No	Electric, gas & utilities	No
22	MMC Corporation Berhad	172	No	Electric, gas & utilities	No
23	YTL Group	210	No	Electric, gas & utilities	No
24	Petronas Gas Berhad	148	Yes	Electric, gas & utilities	No
25	YTL Power International	146	No	Electric, gas & utilities	No
26	Tenaga National Berhad	287	Yes	Electric, gas & utilities	No
27	Petronas Dagangan Berhad	162	Yes	Electric, gas & utilities	No
28	Malaysian Airlines Systems Berhad	207	Yes	Consumer & industrial service	No
29	Malaysian Internation Shipping Corporation Berhad	218	Yes	Consumer & industrial service	No

No.	Company name	No. pages (AR)	GLC	Industry group	K-based
30	Plus Expressways Berhad	248	Yes	Consumer & industrial service	No

Key: AR, annual report; GLC Government-linked company; K-based, knowledge-based.

These 30 companies represent companies from seven different industries based on the nature of their business, and two different industry groups based on whether or not the industry is K-based. In addition, Table 13 also provides information on whether the company is a government-linked company (GLC) or not. The categorisation based on industry types and GLCs versus non-GLCs is important for the additional tests illustrated in the next chapter, Chapter 6.

5.8.2   Data in the annual reports

This multidimensional coding framework will be used to analyse mandatory and voluntary IC disclosure information contained in the companies' annual reports. All sections in the annual reports will be included in the analysis starting with the front page up to the company's directory. All forms of communication displayed in the annual reports, i.e. narratives, numbers (monetary and non-monetary), and visual images (photographs/pictures, tables, diagrams, graphs, and charts) are analysed to measure extent and quality of disclosure as well as types of IC management activities.

5.9   Chapter summary

With the objective of further refining the usage of content analysis in IC reporting studies, this chapter discussed some of the issues involved with conducting content analysis on IC information in companies' reports. A set of recommendations believed to be the best practice for this present research has been made. All of these recommendations are concluded with the introduction of a multidimensional coding

framework. Chapter 6 provides a discussion on the use of proactive legitimacy theory

as the theoretical framework for this research.

CHAPTER 6: THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

6.1 Introduction

This research uses proactive legitimacy theory as a mechanism for understanding IC disclosures, particularly among Malaysian companies. This chapter is structured as follows: Section 6.2 provides an overview of legitimacy theory and Section 6.3 provides a discussion leading to the selection of legitimacy theory for this research. Section 6.4 provides evidence on the establishment of social contracts in IC reporting, while Section 6.5 documents the establishment and test of proactive legitimacy theory as the theoretical foundation for this research. Section 6.6 concludes the chapter.

6.2 An overview of legitimacy theory

Central to legitimacy theory is the concept of organisational legitimacy, which is defined in Lindblom (1994) as:

> …a condition or a status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy. (p.2)

This definition views a company as a component of the larger social environment within which it exists (Gray et al., 1995). Within this social environment there lies a social contract between a company and the public at large, not merely its shareholders (Guthrie et al., 2004). Whilst in the past a company's profit was viewed as an all-inclusive measure of legitimacy, currently there seems to be a movement away from this (Patten, 1992). A company is now being bequeathed with legitimacy based on its ability to operate within the bounds imposed by society in order to enjoy continued access to products and resource markets (Campbell, Craven, & Shrives, 2003).

Deegan and Rankin (1996) state that a breach of the social contract, i.e. failure to comply with social expectations, may lead to a revocation of the contract, which means the company then risks sanctions forced upon it by the society. For example, a company could lose the power to own and use natural resources or the power to hire more employees. In accordance with legitimacy theory, if a company perceives it has breached the contract or its legitimacy is in question, a number of combative strategies can be applied (Lindblom, 1994). First, a company can seek to make appropriate internal adjustments to close the legitimacy gap and communicate these changes to shift the relevant members of the public's expectations. Second, a company makes no attempt to make any internal adjustment and instead seeks to demonstrate the appropriateness of the company's behaviour through educating the public. Third, instead of making internal adjustment or changing public expectations, the company seeks to manipulate the public's perceptions by deflecting attention from the issue of concern to other issues. Finally, a company can seek to adjust societal expectations of its performance rather than making internal adjustment to close the legitimacy gap.

Regardless of whether the strategy is to educate the public or to communicate the changes that have been made, one of the means to implement each of the above strategies is to use the public disclosure of information, which is often achieved through the medium of company reports (Guthrie et al., 2006). De Villiers and Van Staden (2006, p. 765) further assert that if the company does not communicate or disclose the changes it has made, particularly to the legitimacy-conferring stakeholder groups, the company can still face a legitimacy threat. The concept of legitimacy-conferring stakeholder groups was first introduced by O'Donovan (2002), referring to the stakeholders that are important enough to influence the company directly or via the influence of the perception of the general public regarding the company.

This leads to an apparent link between accounting research and legitimacy theory that revolves around the annual report and related disclosures (Tilling & Tilt, 2010). A number of prior studies in SER have embraced this view on legitimacy theory to examine voluntary annual report disclosures as a method that companies use to respond to the pressure resulting from the social contract (for example Deegan & Rankin, 1996; Guthrie & Parker, 1989, 1990). However, the way legitimacy theory is generally used in the SER literature appears to put more focus on the notion that legitimacy is a reactive approach (for example, Deegan, Rankin, & Voght, 2000; Islam & Islam, 2011). Deegan et al. (2000), for example, provide evidence on how companies legitimised their operation through the change in their disclosure policies around the time of major company and industry-related social events. One of the arguments used by previous SER studies is that if companies' disclosure policies are reactive to major social and environmental events, then there should be correspondence between peaks of disclosure and events which are significant (Guthrie & Parker, 1989).

There is, however, another side to legitimacy theory, i.e. proactive legitimacy theory that has had less focus, possibly due to the common belief that legitimacy theory is reactive in nature. In fact, studies such as Buhr (1998) and Woodward et al. (2001) have suggested a distinction between legitimacy theory and political economic theory, with the latter being categorised as representing a proactive disclosure approach. Spence, Hussilos, and Correa-Ruiz (2010) assert that this theorisation can be traced back to an earlier study conducted by Guthrie and Parker (1989) that suggested legitimacy theory is primarily reactive to social norms. Spence et al. (2010) then argued that Guthrie and Parker (1989) can hardly be blamed for this, as at the time the theory, particularly for SER reporting, was still in its infancy and the proposition made is open to interpretation. It seems, moreover, that the notion of

legitimacy theory as purely reactive can still be debatable, as Lindblom's (1994) legitimization strategies were explicitly argued as incorporating both proactive and reactive strategies (Spence et al., 2010).

The proactive approach of legitimacy theory was recently tested by Van Staden and Hooks (2007) to predict a positive association between environmental responsiveness and disclosure. Van Staden and Hooks (2007) utilised the argument set out by Sethi (1975) and Lindblom (1994) to support the notion that legitimacy strategy can be reactive and proactive. Sethi (1975) classifies companies' behaviour into three state schemas. He describes companies' behaviour towards social responsibility as prescriptive, with a reactive operating strategy, while the behaviour towards social responsiveness is anticipatory and preventative, with a proactive adaptation of operational strategy (Sethi, 1975, p. 63). Van Staden and Hooks (2007) also adopt a similar line of argument as Spence et al. (2010) supporting Lindblom (1994), where the decision taken by a company to undertake legitimacy strategy can be both proactive and reactive, with the proactive approach," aimed at preventing a gap as opposed to attempting to narrow such a gap" (Lindblom, 1994 p. 18). However, while the concepts of proactive legitimacy theory have been discussed among SER researchers as one of the theoretical bases to explain and comprehend company disclosure policy, as far as IC reporting is concerned, this part of legitimacy theory, and in fact the legitimacy theory itself, can still be considered to be an under-developed theory.

6.3 Factors leading to the selection of legitimacy theory

Deegan and Unerman (2006) emphasize the different perspectives undertaken by each researcher to study the same phenomena leading to the adoption of alternative theoretical perspectives. Furthermore, "theories are abstraction of reality and hence

particular theories cannot be expected to provide full account or description of particular behaviour" (Deegan & Unerman, 2006, p. 268). This research acknowledges that there are other theories being used or discussed in IC reporting studies such as agency and signalling theory (Bozzolan et al., 2003), political economic accounting theory (Abeysekera, 2004; Abeysekera & Guthrie, 2005), stakeholder theory (Guthrie et al., 2006), and media agenda setting theory (Sujan & Abeysekera, 2007). However, in most cases it is noted (for example, Abeysekera, 2008b; Brennan, 2001; Campbell & Abdul Rahman, 2010; Goh &Lim, 2004; Striukova et al., 2008) that there has been no theoretical framework being used as a basis to explain their findings. The same view is taken by Abeysekera (2006).

All of these theories should not be seen as competing theories and instead they should be seen as a complement to one other, with one being chosen as best representing the view of a particular researcher. A recent paper written by Yi and Davey (2011) tries to capture the variation in the usage of theory by integrating several theories such as agency theory, signalling theory, stakeholder theory, and legitimacy theory into one integrated theoretical framework. While the effort is commendable, the researchers admit there are several other theories that are relevant for IC studies and have not been covered by the study. This section does not attempt to discuss all available theories and instead opts to focus only on three of the most discussed theories, which eventually leads to the choice of legitimacy theory as the most relevant theory to explain the findings within the context of this research.

Among the previously listed theories, three of the most popular theories discussed in the literature are political economic theory (Abeysekera, 2008c; Abeysekera & Guthrie, 2005), stakeholder theory (Guthrie et al., 2004; Guthrie et al., 2006), and legitimacy theory (Guthrie et al., 2004; Guthrie et al., 2006; Steenkamp, 2007). In the case of stakeholder and legitimacy theory, "there are many similarities

between the two that to treat them as two totally different theories would be incorrect"
(Deegan &Unerman, 2006 p. 284-285). Deegan (2002, p. 295) argues both theories
"conceptualise the organisation as part of a broader social system wherein the
organisation impacts, and is impacted by, other groups within society". Nonetheless,
as argued by Abeysekera (2008c), to apply stakeholder theory for IC reporting might
be less accurate for two reasons. First, there are some elements of IC reporting that
could benefit from a much wider stakeholder group, instead of only one dominant
group, such as the groups affected by equity issues (Abeysekera, 2008c). On the other
hand, there are also elements of IC such as employee measurements (see for example
value added per employee) that are "unlikely to benefit stakeholders as they do not
offer information to evaluate each stakeholder's position in relation to value added
versus return received" (Van Staden, 2000 in Abeysekera, 2008c p. 32). Second,
based on a review undertaken by Abeysekera (2008c), there is no evidence that IC
reporting was directed towards a dominant stakeholder group.

Abeysekera (2008c) and Abeysekera and Guthrie (2005) proposed the usage of
political economic theory over legitimacy theory primarily due to IC reporting being
more proactive and because legitimacy theory represents largely a reactive act. In
addition, Abeysekera (2008c) argues that since IC reporting is not yet mandated by the
law or accounting standards, there is no implied social contract between the
companies and the stakeholders. Therefore, it is proposed that political economic
theory is a more applicable theory to explain IC reporting (Abeysekera & Guthrie,
2005). Even though the suggested theory may have been appropriate given the
arguments laid out in both studies, the choice to reject legitimacy theory may have
been influenced by the usage of legitimacy theory in SER that, in most cases (see for
example Deegan & Rankin, 1996; Patten, 1992), portrays legitimacy theory as
reactive to a particular event. Previous SER research, particularly the environmental

reporting research, has shown much explicit public pressure arising from the social contract between companies and society.

Given that legitimacy theory itself is said to be derived from the bourgeois stream of political economic theory (Gray et al., 1995) this present research operates from the perspective that it still has the potential to present a much more in-depth understanding of IC reporting. Therefore, it is crucial for this research to offer a second look at the potential use of legitimacy theory, particularly on its ability to also explain the proactive approach to IC reporting as well as the potential existence of social contract. Among IC studies that have discussed legitimacy in relation to IC are Guthrie et al. (2004), Guthrie et al. (2006), Oliveras et al. (2008), and Khan and Ali (2010). Even though legitimacy theory is possibly the most quoted theory in IC studies, there has been very little discussion provided by those same researchers. The most commonly used arguments seem to be the ones provided by Guthrie et al. (2006), who describe that companies are more likely to report on their IC particularly when they cannot legitimise their status via the hard assets that are recognised as symbolic of traditional corporate success. While this argument will be explored later in this chapter, for now it is crucial to see whether it is possible to establish a social contract between companies and society within the context of IC.

6.4   Establishment of social contract within IC reporting studies

As argued by Abeysekera (2008c), a social contract essentially envelopes the whole legitimisation process. The increasing attention being paid to IC, particularly the community of IC researchers and practitioners (Petty & Guthrie, 2000), could lead to the same result found from SER studies where companies will voluntarily disclose IC information due to the change in public perception. In fact, the growing interest in IC offers a more refreshing concept of social contract driven by a broader range of socio-

economic changes pertaining to an increasingly sophisticated society; the surge in service based industries, changing patterns of interpersonal activities, and the emergence of the network society — being digital, virtual, and interconnected (Petty & Guthrie, 2000). With these broader socio-economic changes it is expected that there will be a shift in companies' value drivers, with knowledge resources taking precedence over traditional physical resources in the pursuit of competitive advantage. Society, therefore, is expecting companies to communicate to all stakeholders that they are abiding to the terms of this new social contract by providing information illustrating how they manage and measure their knowledge resources, how they benefit from doing so, and how they may improve their activities and capabilities.

The above arguments may not be enough to strengthen the link between IC reporting and legitimacy theory as the social contract (a core ingredient for legitimacy theory, which has not or probably cannot be, explicitly established). However, the term *social contract* cannot be known with any precision, and different managers will have different perceptions about those various terms (O'Donovan, 2002). In many countries IC is still at the voluntary stage, which means there is no legal requirement to provide the explicit terms of the contract. IC reporting therefore, at least at present, can only be considered as part of non-legislated societal expectations that embody the implicit terms of the contract (Gray et al., 1995).

Archel, Hussilos, and Spence (2009) propose a way to expand the explanatory power of legitimacy theory by explicitly considering the role that the state or government plays in the context of CSR disclosures. As government policies are meant to protect the general well-being of the public, "corporations are expected to initiate, participate in, and respond to changes in public policy" (Preston & Post, 1975, p. 3).Therefore, within the context of this IC research, the role of the government in introducing the concept of IC can be seen as providing the potential for more explicit

terms of contract between companies and the society, particularly if it has been recognised that the private sector is one of the key players in moving the IC. While the involvement of government may not necessarily represent a mandated law (the key to an implied social contract argued by Abeysekera (2008c)), this research proposes that the direct involvement of government in promoting the private sector's involvement with IC may be enough to imply the social contract between the companies and the society (represented by the government).

In the context of this present research, Chapter 3 has provided a discussion on the role of the Malaysian government in promoting the KBE. Malaysia is a country that started to lay the foundation of the KBE in the mid-1990s, and by the beginning of the year 2000 the Malaysian government had accelerated its efforts to build a K-based economy by making it one of the key thrusts in the OPP3, leading to the launched of the Master Plan in 2002. While having a KBE may have a less direct link to the society, the initiatives to transform Malaysian into a KBE have not been designed solely for the Malaysian economy, as the plan also contains initiatives towards nurturing a K-based society. A technical paper produced by the Asian Development Bank (ADB) in 2008 —*Moving towards K-based economies* — reports that Asian governments, including Malaysia's, actually envision and plan for a mix of KBE and K-based society. The following statement has been made in the report:

> It is apparent from official plans and policy statements that economic growth objectives are often mixed with social development objectives. The terms "knowledge-based economy" and "knowledge-based society" both occur in Asian development discourse. (ADB, 2007, p. 6)

This claim is evident in the Master Plan, which contains 136 recommendations to strengthen the critical elements supporting the KBE as well as to help in building a K-based society (EPU, 2011c).

With the existence of the Master Plan it is becoming clearer what the most critical elements needed by the government to transform the country into a developed nation are: to have knowledge and skilled human capital, to have adequate support for education and training infrastructure, to have an R&D capability, and to develop a strong S&T base. Even though there is no direct reference to the four elements being compiled under one term called IC, the plan did acknowledge the existence of IC and that its components represent a portfolio of organised knowledge. As an illustration, under ST5 (5.6) of the Master Plan, IC has been recognised as the most valuable asset for economic growth and it is recommended that it should be nurtured further.

It is also apparent that the government is expecting the private sector to play an active role by investing in these four elements. In fact, ST7 of the Master Plan — *Private sector spearheading the K-based economy* — is specially written to express the importance of the private sector assuming a more critical role in the KBE. It is acknowledged that one of the strategic directions of the Master Plan is to have the private sector taking a strategic role in developing towards a K-based economy. At one point, the Master Plan actually recommends companies to restructure their organisations so that they meet the need of the KBE (ST7 – 7.8). The Master Plan notes that the traditional hierarchical structure that the companies are currently using will no longer be appropriate for the KBE.

6.4.1 Change in public perception

With the visibility of efforts to shift Malaysia towards becoming a more knowledge intensive country, and the call for private sector involvement that has been documented in the Master Plan, the almost invisible social contract has started to become more apparent. Therefore, it is expected that there will be a change in community perception on how companies adapt to this new development. If society's

expectations about performance changes, then arguably an organisation will need to show that what it is doing is also changing (Deegan & Unerman, 2005, p. 273). Lindblom (1994) states:

> Legitimacy is dynamic in that the relevant publics continuously evaluate corporate output, methods, and goals against an ever evolving expectation. The legitimacy gap will fluctuate without any changes in action on the part of the corporation. Indeed, as expectations of the relevant publics change, the corporation must make changes or the legitimacy gap will grow as the level of conflict increases and the levels of positive and passive support decrease. (p. 3)

In this case, even with no direct threat to a company, the company would take a proactive approach to invest in knowledge if they believe it would help to legitimise the company's operation. Under legitimacy theory, it is suggested that if a company believes its survival is dependent on being legitimate, it will pursue strategies to ensure the continued supply of that resource (Deegan, 2002). Societies are also expecting companies to communicate to all stakeholders that they are abiding to the terms of this new social contract by providing information illustrating how they manage and measure their knowledge resources, how they benefit from doing so, and how they may improve their activities and capabilities. However, in the absence of a direct threat to the company, the initiatives (if they exist) should be aimed at preventing a legitimacy gap as opposed to attempting to narrow an existing gap.

6.4.2 IC reporting as an initiative to legitimise non-traditional assets

As argued by Guthrie et al. (2006), companies are more likely to report on their IC particularly when they cannot legitimise their status via the hard assets that are recognised as symbolic of traditional corporate success. The growing importance of the KBE initiated by the launch of the Malaysian government's K-based economic plan actually provides the opportunity for companies to legitimise the part of their operations that relies on IC, that they have not been able to report under current traditional financial reporting. Furthermore, with the assumption that traditional

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financial reporting has difficulty in explaining why there is a difference between companies' market value and book value, which in turn may lead to corporate collapse, society will expect companies to be involved in activities other than those relating to physical and financial capital. Since IC has the potential to explain many of the differences that are causing divergence between companies' market values and book values (Abeysekera, 2003), relevant publics should expect companies to disclose these value drivers in an attempt to legitimise their actions and activities (Steenkamp, 2007). Failure to report this information or to act in accordance with the social contract is interpreted as being detrimental to the ongoing operations of a company (Deegan et al., 2002).

6.5   Establishing and testing proactive legitimacy theory

Van Staden and Hooks (2007, p. 199) are quick to point out that there has been criticism regarding not having the possibility to know for certain which legitimacy strategies (proactive or reactive) companies are following. Even if it is clear that the disclosure is a result of a particular event (reactive), the information can still be misleading. Patten (2005), for example, highlights how financial reports of environmental disclosures have been widely criticised as being misleading because companies appear to increase the provision of positive disclosure in response to facing increased exposure, and because of this the disclosures do not appear to be accurate measures of the companies' actual environmental performance.

The same argument can be applied in the case of IC reporting. Previous studies (for example, Guthrie et al., 2004; Oliveras et al., 2008; Khan & Ali, 2010) that utilised legitimacy theory have not been explicit on whether they are referring to the proactive or reactive approach of legitimacy theory. Oliveras et al. (2008) and Khan and Ali (2010) rely mainly on the argument put forward by Guthrie et al. (2004) that

companies with a higher level of IC will be more inclined to disclose their IC as they cannot fully legitimise their operation through traditional financial reporting. Guthrie et al. (2004) mainly based their arguments on Lindblom's (1994) proposition that companies can use disclosure, in this case IC disclosure, to implement any of the suggested legitimacy strategies. The use of Lindblom's (1994) legitimacy strategies seems to suggest that IC reporting can either move towards a reactive or a proactive approach.

In this research, while it has been established that there is a social contract between Malaysian companies and the society due to government initiatives towards developing a KBE as well as a K-based society, the approach taken can be seen as either reactive or proactive. Using the three schemas of corporate behaviour described by Sethi (1975), it has been decided that IC reporting, within the context of this research, is better explained as a proactive approach. Table 14 outlines an extract of Sethi's three schemas of corporate behaviour (Sethi, 1975).

Table 14: An extract of Sethi's three schemas of companies' behaviour (Sethi, 1975, p. 63)

Dimensions of behaviour	State One: Social obligation (prescriptive)	State Two: Social responsibility (prescriptive)	State Three: Social responsiveness (anticipatory and preventive)
Search for legitimacy	Confines legitimacy to legal and economic criteria only; does not violate law; equates profitable operations with fulfilling social expectations.	Accepts the reality of limited relevance of legal and market criteria of legitimacy in actual practice. Willing to consider and accept broader, extra-legal, and extra-market criteria for measuring corporate performance and social role.	Accepts its role as defined by the social system and therefore subject to change; recognises importance of profitable operations but includes other criteria.

Dimensions of behaviour	State One: Social obligation (prescriptive)	State Two: Social responsibility (prescriptive)	State Three: Social responsiveness (anticipatory and preventive)
Operating strategy	Exploitative and defensive adaptation. Maximum externalization of costs.	Reactive adaptation. Where identifiable internalises previously external costs. Maintains current standards of physical and social environment. Compensates victims of pollution and other corporate-related activities even in the absence of clearly established legal grounds. Develops industry-wide standards.	Proactive adaptation. Takes the lead in developing and adapting new technology for environmental protection. Evaluates side effects of corporate actions and eliminates them prior to the actions being taken. Anticipates future social changes and develops internal structures to cope with them.
Response to social pressures	Maintains low public profile, but if attacked, uses PR methods to upgrade its public image; denies any deficiencies; blames public dissatisfaction on ignorance or failure to understand corporate functions; discloses information only where legally required.	Accepts responsibility for solving current problem; will admit deficiencies in former practices and attempt to persuade public that its current practices meet social norms; attitude towards critics conciliatory; freer information disclosures than in State One.	Willingly discusses activities with outside groups; makes information freely available to public; accepts formal and informal inputs from outside groups in decision making. Is willing to be publicly evaluated for its various activities.

While the three schema described by Sethi (1975) are designed mainly to explain companies' behaviour towards environmental issues, the same behaviour can be used to explain the relationship between companies and IC reporting. Corporations, in general, are an integral part of a society and must depend on society for their existence, continuity, and growth (Sethi, 1975, p. 60). As far as IC is concerned,

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particularly within the context of the KBE initiatives launched by the Malaysian government, State One and State Two are considered as less relevant to Malaysian companies.

State One views companies as accountable to the issues limited to their legal and economic responsibilities, and to maintain a low public profile in the face of bad publicity. The Master Plan, on the other hand, explicitly calls for active participation from the private sector. State Two is considered as less relevant as it concerns the responsibility of the companies to bring corporate behaviour up to level where it is congruent with the prevailing norms. This will happen when companies are being accused of violating the laws of their nations and increasingly criticised for failing to meet social expectations. The biggest criticism that companies have faced in relation to IC is the argument that the relevance of traditional financial reporting has diminished over the years due to its limitation in preventing a series of accounting scandals and corporate collapses in recent years (Abeysekera, 2008a).

As stated in Abeysekera (2003), it is of increasing importance that IC has the potential to explain many of the differences between companies' market values and book values, which may not be able to be explained by the traditional accounting system, particularly the financial reporting system (Petty & Guthrie, 2000). Therefore, what is needed is the construction of a new accounting system that enables the non-financial, qualitative items of IC to be measured alongside traditional, quantifiable financial data (Johanson et al., 1999). This suggestion, however, requires a much more radical departure from the usual nature of corporate activities and needs a response that goes beyond the control of the company. What is needed, for example, is for the regulators to change the current reporting system so that companies will then react. In the absence of such mandated requirements, any action taken by the company should be considered proactive.

Therefore, State Three is considered as giving a more accurate representation of what is required from private sector companies in relation to K-based initiatives. At this level companies are expected to accept their roles as defined by the social system, and the concern is not on the social pressure but what their long-term role should be in a dynamic social system (Sethi, 1975, p. 62). Any actions taken by the company are expected to help improve the congruence between companies' performance and social expectations that eventually increase companies' legitimacy (Sethi, 1975, p.62). In the journey for Malaysia to transform itself into a KBE and K-based nation, the Master Plan has proposed that the policies and strategic directions of Malaysian companies need to be changed so that their attitudes and mind sets are in tune with the demand of the KBE. To illustrate, paragraph 7.19 of the Master Plan highlights how the increasing technologically induced changes will mean that companies will be the central focus of the learning economy. Quoting paragraph 7.19 of the Master Plan, "the creation, absorption and diffusion of knowledge can be constrained, or encouraged, by the character and culture of organisations. Organisation learning can lead to reorganisation, re-positioning or a change in the system's operating rules and behavioural responses" (EPU, 2011c).

Therefore, it is fair to say that in order for Malaysia to achieve its aim in developing a KBE, companies are expected to take a proactive approach in promoting and implementing the core ingredients needed to push towards the KBE. Companies should also be able to take actions such as restructuring their internal structure to reflect their anticipation of potential future changes in the legal environment that could directly affect them. In fact, the Master Plan itself (ST7–7.2) has put forward a suggestion to revisit and revise the accounting standards of the private sector. It is argued that the present accounting standards do not acknowledge the importance of knowledge and IC (EPU, 2011c). Therefore, based on the above arguments, it is

proposed that Malaysian publicly listed companies will take a proactive approach in reporting their IC if they want to legitimise their operation with the current perception set by the increasing popularity of the KBE, and in anticipation of potential future legal changes that could affect them. The next subsections outline the analysis conducted by this present research to support this proposition.

6.5.1 Proactive legitimacy and extent of IC reporting

According to Guthrie et al. (2006), one of the mediums used by companies to continually appear consistent with societal values is by reporting the relevant information in annual reports. Using the same principle, this research proposes that a study on the extent of IC reporting will provide a reflection on the extent to which Malaysian companies have become proactive in supporting and implementing the K-based initiatives launched by their government. The action taken by the companies will be used by the companies as a tool to construct, sustain, and legitimise their economic, social and political arrangements —which eventually contribute to the companies' self-interest. To ensure that all IC information found in the companies' annual reports reflects the K-based initiatives, the IC index developed in Chapter 4 for the purpose of content analysis is extended to show how each element in the index reflects (if applicable) the list of STs and recommendations available in the Master Plan (see Table 15).

Table 15: IC index and relevant Master Plan recommendations

IC categories/items	Related recommendations from the Master Plan[a]
Internal capital	
Intellectual properties	3.3, 3.16
Corporate culture	-
Management philosophy	-
Management and technological processes	3.1, 3.9, 3.16, 4.1, 4.3,5.8

IC categories/items	Related recommendations from the Master Plan[a]
Information and networking systems	3.1, 3.8, 3.9, 3.10, 3.11, 3.12, 4.1, 4.3
Research and development	3.2, 3.3, 3.5, 3.24, 4.2, 4.3, 5.4, 6.8
External capital	
Financial relations	-
Brand building	4.1
Customers	4.1
Corporate reputation	1.24, 3.9. 5.1, 7.1, 7.3, 7.5, 7.6, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15
Business partnering	3.1, 3.4, 4.1, 6.8
Distribution channels	4.1
Human capital	
Employee related measurements	1.60, 1.61
Directors related measurements	1.61, 1.61
Training and development	1.37, 1.40, 1.41, 1.44, 1.48, 1.56, 1.58, 3.7, 4.1, 7.3
Equity issues	7.2, 7.14
Employee relations	1.59, 1.60, 5.5
Employee welfare	-
Entrepreneurial skills	1.58, 3.7
Employee safety	-
Intellectual capital in general	**3.6, 3.15, 3.20**

[a] refers to Chapter 3

Note that, due to the position of the researcher as user of the Master Plan and not the creator, the identification of thrusts and recommendations are limited to what is written in the Master Plan. The identification of thrusts and recommendations that are relevant to the private sector are made through identifying any recommendation that has explicitly stated the role of the private sector in the respective recommendation. It is important to highlight here that ST5 (5.6) of the Master Plan has already pointed out the need to assess the extent of knowledge content of Malaysian-owned and foreign-owned companies particularly in selected key sectors, making the study of the extent of companies' IC reporting even more relevant. To further strengthen the proposition that companies are proactively reporting their IC

information, additional analyses are conducted looking at the effect of industry and types of ownership of companies.

6.5.2 Additional analysis —hypotheses development

6.5.2.1 Industry effects

A number of studies have identified the nature of a company's industry as a factor affecting the company's IC disclosure (for example, Sonnier, 2008; Sujan & Abeysekera, 2007), although this has not been tested among Malaysian companies (for example, Goh & Lim, 2004; Yau et al., 2009). Companies in different industries have varying motivations towards legitimisation due to the different perceptions society has of their activities, and how the management of the companies themselves perceive society's opinions about them (Campbell et al., 2003). Prior studies have found differences between different industries on the amount of IC information being disclosed, with K-based companies and companies that are more dependent on IC as an asset reporting a higher level of IC (Sujan & Abeysekera, 2007). This research proposes the application of proactive legitimacy theory to explain the potential variation between industries, tested in two stages.

First, all 30 companies were grouped into seven different types of industries according to the specific nature of each industry. Due to the small sample size, some groups are merged to facilitate a more meaningful result. Second, the companies were divided into two major groups depending on whether or not each company falls under the definition of a K-based industry. This is influenced by Sujan and Abeysekera's findings on K-based and service-based industries reporting a significantly higher level of IC information (Sujan & Abeysekera, 2007). The OECD's definition of *knowledge industries* includes "high to medium technology manufacturing industries, high tech services, business services, telecommunications, financial services, and health and

education" (Brinkley, 2006, p. 24). The Master Plan does not provide its own definition of K-based industry and instead opts to use the definition used by the OECD. It is acknowledged that the distinction between K-based industries and non-K-based industries is a matter of degree rather than binary, i.e. yes or no (EPU, 2011c).

It is expected that, due to the implementation of the KBE in Malaysia, which is consequently changing societal expectations, companies that rely more on IC and companies that are in K-based industries will have higher levels of IC disclosure. The Master Plan itself has outlined several recommendations that should have prompted the K-based industries to be more proactive as compared to the non-K-based industries. ST3 outlines a list of recommendations such as granting tax exemptions to companies that have being given "Strategic Knowledge-based Economy Status" (3.14) and establishing a fund that can finance the growth of K-based companies (3.22 and 3.26) that could encourage K-based industry to be more proactive in supporting government initiatives. Accordingly, it is predicted that:

$H1_a$: There are significant industry effects with respect to the reporting of IC information in companies' annual reports.

$H1_b$: There are significant differences between K-based industry and non-K-based industry with respect to the reporting of IC information in companies' annual reports.

6.5.2.2 Ownership effects

Yau et al. (2009) have extended the analysis they conducted on Malaysian companies to include the effect that companies' ownership has on the extent of IC reporting; specifically companies that are politically sensitive and companies that are non-politically sensitive. Companies where the government is one of their major shareholders are considered politically sensitive companies and are commonly known

as government linked companies (GLCs). To the knowledge of this research, this is something that has not been tested in other IC reporting studies conducted in other countries. It is generally accepted that unlike other countries in the world, the Malaysian corporate sector is characterised by the existence of politically favoured companies (Abdul Wahab, Mat Zain, & James, 2011). This is a unique characteristic of the Malaysian business environment that is said to be a result of the introduction of the government's new economic policy as well as the informal ties among companies run by Malay, Chinese and Indian business executives along with prominent political figures (Gomez & Jomo, 1999).

Given that the KBE initiatives are closely related to the Malaysian government vision and that 11 of the companies listed in the sample are partly owned by the government, i.e. GLCs (see Table 13), analysing the potential effect of politically sensitive companies will be interesting. The two types of companies are categorised as either GLCs or non-GLCs. Accordingly, the following hypothesis is developed:

H2: There are significant differences between GLCs and non-GLCs with respect to the reporting of IC information in companies' annual reports.

The two hypotheses proposed in this section are additional analyses conducted to support the proposition that companies, particularly K-based companies and GLCs, are proactively reporting IC information. The hypotheses are tested using a simple one-way analysis of variance (ANOVA) test with the two industry groups and GLCs/non-GLCs as independent variables, and the extent of reporting as the dependent variable.

6.6   Chapter summary

This chapter illustrates the usage of proactive legitimacy theory as the theoretical framework for this research. It is proposed that the role of the Malaysian government in introducing the KBE initiatives, with the explicit call for support from the private sector, has made the social contract between companies and Malaysian society more explicit. Therefore, it is expected that companies will take a proactive approach in responding to these initiatives prior to the side effects of not doing so becoming the catalyst for a wave of protest against business. This research proposes that one way to measure the existence of proactive legitimacy is by looking at the extent of IC reporting among Malaysian companies and how the disclosure of that information is consistent with the STs and recommendations outlines in the Master Plan launched in 2002. This proposition is further strengthened with additional analysis investigating how types of industry and politically sensitive companies present a different level of IC reporting. It is expected that GLCs and companies that rely more on K-based assets will present a higher level of IC reporting. Chapters 9 and 10 will provide a discussion of the results for all three analyses, i.e. the results from the content analysis and the two developed hypotheses. Prior to that, the next chapter will provide an illustration of the analysis of IC information in the 30 Malaysian companies' 2008 annual reports.

CHAPTER 7:   AN ILLUSTRATION OF THE ANALYSIS OF IC INFORMATION

7.1   Introduction

This chapter provides an illustration of the process involved in analysing IC information in companies' annual reports. The illustration is accompanied with a discussion of issues encountered and the solutions taken by the coder throughout the process. With the support of the results of the analysis, this chapter is structured as follows: Section 7.2 describes the issues that the coder faced in utilising the predetermined index. Section 7.3 illustrates the process of utilising the recording, counting, and context units, while Section 7.4 discusses the issues in quantifying the extent of IC reporting. Sections 7.5 and 7.6 illustrate the process of analysing the types of IC management activities and the quality of disclosure. Section 7.7 concludes the chapter.

7.2   Conceptual boundary problems and the modification of the IC index

While the IC index has been developed based on previous prominent IC literature, utilising the coding framework with the guide of the index has initiated a few boundary issues. The issues could be within the IC index or between IC and what has been reported under the financial reporting standards. Furthermore, the list of indicators used to support the given definition for each IC item can be expanded to ensure they capture all IC information available in companies' reports. The following paragraphs illustrate four boundary issues faced by the coder when the analysis was conducted, accompanied by the approach taken by the coder to solve the issues.

7.2.1 Intangible assets versus IC

Once the IC index was being applied to companies' annual reports, it become apparent that there was a separation between the index and the item *intangible assets* disclosed mostly in the financial section of companies' annual reports. There is little discussion on how previous IC reporting studies have handled this issue, possibly due to their decision to focus only on voluntary disclosure of IC information. However, for the IC concept to be accepted by a company it is crucial to show the ability of the IC index to interact with what has been reported by the company, which includes their intangible assets. In financial accounting, intangible assets act as proxy for IC, but looking at a broader definition of IC, intangible assets are merely a part of IC (Brannstrom, Catarus, Giuliani, & Grojer, 2009). The latter seems to be more practical, since the accounting standards state that an intangible asset must be an identifiable non-monetary resource, without physical substance, that is controlled by the reporting entity and expected to provide future economic benefits (see IAS 38 – *Intangible Assets*). IC, on the other hand, includes other items that do not meet this requirement, such as human skills and company reputation, and thus if reported will be found outside of the financial section. The question is: how to record intangible assets that have been disclosed by the company in the coding sheet?

Throughout the analysis process, items such as rights, goodwill, licenses, R&D costs, royalties, trademarks, patents, and copyrights have been disclosed under the term *intangible assets*, consistent with suggested possible intangible assets defined under IAS 38. The coder would face difficulty recording all this information as the index does not provide a specific IC item under the term *intangible assets*. Creating a new item called *intangible assets* would be the easiest option, but given the assumption that an intangible asset can act as a proxy for IC, this might create further confusion — particularly for studies that use the term *IC* interchangeably with the

term *intangible asset*. Furthermore, having an intangible asset as one of the IC items would make almost all IC information being recorded fall under it, making the three way IC categorisation meaningless. Therefore, this research has recorded information with regard to intangible assets into each IC category depending on its respective properties.

Any information in relation to patent, copyrights, and trademarks that has been created by the company is recorded under the item *intellectual property* (IP). As there is no generally accepted definition of IP, all information pertaining to the creation of companies' intellectual assets leading to an exclusive right of use will be recorded under the term IP. Information relating to companies obtaining licensing rights and payments of royalties to the holders of IP will be recorded under the external capital category using the heading *business partnering*. This information is perceived as representing company initiatives to form alliances with external parties in their search for resources that they are lacking, and it is assumed that the alliance will in turn create intellectual assets giving both partners a competitive advantage. R&D costs are recorded under a separate category and not under IP itself as they are concerned more with creative works undertaken on a "systematic basis to increase the stock of S&T knowledge that can be used to devise new application" (OECD, 2002, p. 30), that may or may not lead to the existence of IP.

7.2.2 Goodwill versus IC

Recording goodwill presents a big challenge as the development of IC indices, including the index created for this research, have not included much discussion on how goodwill should be treated. So far, the discussion on goodwill has concluded that it is not a good measurement to explain the difference between a company's market value and book value as it does not provide information on the composition of a

company's intangible assets (Oliveras et al., 2008). However, this does not alter the fact that historically goodwill has been disclosed as part of companies' intangible assets and can be found disclosed in all of the 30 companies' annual reports that were analysed in this study. Therefore, any attempt to study the extent of company disclosure of IC as a whole will have to provide guidelines on how goodwill can fit into the existing IC index.

According to the IASB, goodwill is any excess value over and above the fair value of the identifiable assets and liabilities of a company (Bloom, 2008). Brannstrom et al. (2009) claim goodwill arising from a business combination is like a black box containing a bundle of intangible assets, and that a significant part of goodwill contains IC (Boekestein, 2009). A study conducted by Boekestein (2009) has concluded that in the event where the justification is provided for the goodwill allocated from the purchase price of a company, it is normally related to IC categories such as human capital, internal capital, and, to a lesser extent, external capital. In most cases, however, there has been no justification provided for the amount of goodwill presented. Based on this reasoning, until a clear guideline specifying and valuing goodwill components is provided to clarify its relation with IC, goodwill is not recorded as part of IC information. Furthermore, if goodwill resulting from the acquisition of a company does represent the acquired company's IC, the IC items would be incorporated into the acquiring company's existing IC and would have been taken into consideration when the analysis is conducted.

7.2.3   Boundary issues between IC categories and items

During the analysis there were considerable amounts of IC information found that could be categorised into more than one IC category or more than one IC item. This was expected as the three IC categories are interrelated and it is the relationship

between the three that potentially contribute to a company's value. In the case where lots of IC information can be recorded into more than one IC item within the same IC category, the solution might have been to cluster the IC information into a smaller number of IC items (Beattie & Thomson, 2007). However, having a smaller number of IC items might result in a much more general analysis of IC and could potentially lead to loss of important information. Furthermore, the same solution cannot be applied to the categories unless the researcher is intent on eliminating the three way categorisation. This research concludes that the boundary issue is much more critical and apparent between IC categories rather than within each category. There are several types of information in relation to human capital that can also be recorded under either internal capital or external capital. Therefore, for this research, a boundary has been set for all IC information that can be recorded into more than one IC item or IC category. The same approach has been taken by Beattie and Thomson (2007).

For example, the following sentence (extract from the 30 companies' annual reports) could be interpreted as part of human capital (employee health and safety) or as management culture under internal capital:

> Focusing on safety, the Zero Incident Zero Accident campaign was continuously carried out to inculcate a safety and environment management culture (Malaysia International Shipping Corporation, 2008, p. 88).

In this example, as both internal and human capital categories are internal to the company, a decision has been made to record the information under human capital as it represents a more specific policy meant for employee safety, i.e. human capital. Furthermore, unlike internal capital, human capital is transferable and can become lost to an organisation. Therefore, it is more appropriate to record the information under human capital as it provides an inference on the company's attempt to promote itself as a good employer in safeguarding its human capital.

Similarly, the following sentence could be interpreted as either internal capital (information and network) or external capital (under the item business collaboration):

> Maybank and Microsoft Malaysia signed an Enterprise Subscription Agreement that further enhanced cost efficiency in the adoption of a common software toolset for Maybank's desktop applications as well as to promote greater communication among employees and customers"(Malayan Banking Berhad, 2008, p. 11).

Deciding where to record a software agreement provides a challenge, as other information on software that has been purchased as part of companies' hardware is recorded under the *information and network* item of the internal capital category. In the above example, the company has clearly stated that they have entered into an agreement to adopt software from an external party, and based on the rationale that external capital is the key to the existence of that information, it is more accurate to record the information under external capital —*business collaboration—licensing agreement*. While these are the decisions made for this research, it is acknowledged that other coders will use their own judgment in determining the most appropriate category. An example of IC information collected from companies' annual reports is available in Table 16 together with possible alternative IC categories/items, if applicable.

Table 16: Examples of intellectual capital information extracted from companies' annual reports and alternative intellectual capital item/category (if applicable)

IC items	Example	Example of alternative item/category
Internal capital		
Intellectual properties	In 2008, TMR&D made 44 patent disclosures of which 22 have been filed with the patent office (Telekom Malaysia Berhad, 2008,p. 181).	Research & development (internal capital)
Corporate culture	The Board has adopted and implemented a Code of Conduct which reflects DiGi's values of integrity, respect, trust and openness (Digi.com, 2008, p. 40). As one of the leading publicly listed	Management & technological process (internal capital);

IC items	Example	Example of alternative item/category
	financial institutions in Malaysia, we are cognizant of our mandate to improve shareholder value (RHB Capital Berhad, 2008, p. 28).	Management philosophy (internal capital)
Management philosophy	It is also about conducting business with a conscience — caring for the community, the environment, the customers, employees, and stakeholders (Hong Leong Bank Berhad, 2008, p. 39).	Management culture (internal capital)
Management & technological process	The Assurance function under the Quality & Assurance Department ("Q&A") assists both the Board and Audit Committee in conducting appropriate reviews to ensure that key financial, operational, system and compliance controls established by the Board and management are operating effectively (Digi.com, 2008, p. 44).	Directors' related measurement (human capital)
	In furtherance to the Board's commitment to maintain a sound system of internal control, the Board continues to maintain and implement a strong control structure and environment for the proper conduct of the Group's business operations as follows... (Petronas Dagangan Berhad, 2008, p. 61).	
Information & network	All key policies and procedures are available via the Group's intranet site, which are revised periodically to meet changing business, operational and statutory reporting needs (Digi.com, 2008, p. 44).	Management & technological process (internal capital)
Research & development	Research and development expenses 2008 — 47.1 million (Tenaga Nasional Berhad, 2008, p. 201).	

External capital

IC items	Example	Example of alternative item/category
Financial relations	TM maintains constant 'dialogue' with its shareholders and investors via a carefully planned investor relations program (Telekom Malaysia Berhad, 2008, p. 190).	
Brand building	Since 1912, Nestlé has built trust among Malaysian consumers through our products and activities, and many of our brands have become household names (Nestle (Malaysia) Berhad, 2008, p. 4).	Corporate reputation (external capital)
Customers	A structured and focused data and	Management

IC items	Example	Example of alternative item/category
	information gathering exercise has been in place these last 10 years to obtain customer feedback and complaints (Tenaga Nasional Berhad, 2008, p. 38).	&technological process (internal capital)
Corporate reputation	Tenaga Nasional Berhad (TNB) is the largest electricity utility in Malaysia with more than RM69.8 billion in assets (Tenaga Nasional Berhad, 2008, p. 8).	Brand building (external capital)
Business partnering	Promoting continuous research and development —collaborate and establish smart partnerships with academia and related food and nutrition organisations such as MARDI, UKM, NSM, etc. (Nestle (Malaysia) Berhad, 2008, p. 32).	Research & Development (internal capital)
Distribution channel	These sales networks are in turn effectively supported by the Company's extensive and reliable logistics and distribution network comprising of bulk depots, LPG bottling plants, aviation refueling depots and bunkering facilities (Petronas Dagangan Berhad, 2008, p. 22).	Management &technological process (internal capital)
Human capital		
Employee related measurement	As at 31 January, 2008, ASTRO, and its subsidiaries in Malaysia, India and China, employed 3,432 men and women of different ethnicities, ages and skill levels (Astro All Asia Networks, 2008, p. 38). Productivity per employee — 3,103.4 M/Wh (Tenaga Nasional Berhad, 2008, p. 23).	
Directors related measurement	During the financial year, the Directors have attended individually or collectively the various program and briefings...(Digi.com, 2008, p. 37).	
Training & development	This year, the Group will also be embarking on a Personnel Exchange Program with Central Nippon Expressway Company Limited which operates the expressways network in Central Japan (Plus Expressways Berhad, 2008, p. 87).	Business collaboration (external capital).
Equity issues	It has created an environment free from discrimination of ethnicity, religion, race, gender, sexual orientation, nationality, marital status, ancestry, socio-economic status or physical disabilities (Digi.com, 2008, p. 5).	Corporate culture (internal capital)

IC items	Example	Example of alternative item/category
Employee relations	Each and every employee at Nestlé has contributed in one way or another to our CR commitments and will continue to do so as CR is part of our DNA (Nestle (Malaysia) Berhad, 2008, p. 10).	Management philosophy (internal capital)
Employee welfare	Employees' entitlement to annual leave is recognised when the associated services performed by employees increase their entitlement to annual leave (Digi.com, 2008, p. 66).	Management & technological process (internal capital)
Employee health & safety	During the year, Maybank received the Gold Award for Occupational Safety and Health (OSH) Excellence (Malayan Banking Berhad, 2008, p. 84).	Company reputation (external capital)
Entrepreneurial skills	The Division is proud to report that one of its technical experts, Associate Professor Ir. Sazali P. Abdul Karim was accorded world recognition when his research entitled "Flashover Analysis Tool" was published in the World Intellectual Properties Organisation on 29 May 2008 under the Patent Cooperation Treaty (Tenaga Nasional Berhad, 2008, p. 60).	Employee related measurement (human capital)

7.2.4   Modification of the IC index

At the end of the analysis, a conclusion has been made that the existing IC categories and items are sufficient to cover all IC items disclosed in the 30 annual reports. However, the list of indicators suggested earlier has been modified to accommodate the actual IC disclosure found in the reports. The modification is also necessary for the following reasons:

i.   Since the analysis is conducted on 30 companies from seven different industries, there is the possibility of indicators that are unique to certain types of industry. In this research, the indicator *shariah committee* is important to companies in the banking industry, as the committee will show their commitment in offering an Islamic product that meets Islamic legal guidelines.

Furthermore, each individual company analysed in this research has presented its own individual style in disclosing their information, particularly information that is regarded as voluntary. For example, companies such as the Public Bank Berhad have extended their reporting on equity issues by disclosing information regarding meritocracy and stressing the issues for women/men in management. These two indicators are considered as relevant and have been added under the item *equity issues*.

ii.   While the index provides guidelines on what should have been reported by the companies, the infancy of the index suggests that there are potentially several IC indicators that were not been considered by the researcher when the index was developed. The item *business partnering*, for example, can be extended to include new indicators such as *expertise sharing*, *industry development collaboration*, and *training collaboration*. The inclusion of these new indicators is also necessary to let the company know that IC reporting does not necessarily mean they have to produce new information. Most of the information presented in company reports has already reflected its IC but has not been presented in a similar structure to what has been prescribed by IC indices.

Based on the above reasons, the suggested indicators has been modified and presented in Table 17.

Table 17: IC index with the predetermined and newly added indicators

IC items	Suggested indicators	Added indicators
Internal capital		
Intellectual properties	Patent, trademark, copyright	Intellectual property
Corporate	Vision, mission, code of	Culture, code of ethics, objectives,

IC items	Suggested indicators	Added indicators
culture	conduct/ practice, principles of operation	values, strategic direction, motto, promise
Management philosophy	Create value to shareholders, company's growth, protect the environment, caring society	Philosophy on: business community, CSR, nation, customers, employees
Management and technological process	Quality control/quality process, performance appraisal, organisation structure, technological & production process	Management committee, business control framework, business procedures, business model, shariah committee
Information and networking systems	Computer network (internet/intranet), database, software/hardware	IT system/program, bandwidth, support & recovery system
Research and development	Policies on R&D, budget on R&D, output/successful rate, project to date	Research quality & awards, R&D infrastructure

External capital

IC items	Suggested indicators	Added indicators
Financial relations	Relationship with shareholders, bankers, and other providers of funds	-
Brand building	Brand, sub-brand, product awards, market share	Product quality
Customer	Customers named, customer loyalty, customer trust, customer feedback, customer services, customer satisfaction, number of customers, customer segmentation	Customer appreciation (rewards)
Corporate reputation	Company name, favourable contract, CSR activities	Awards (not related to employees and R&D), media coverage/relations, relationship with regulators, relationship with stakeholders
Business partnering	Business partnership, research collaboration, franchising agreement, licensing agreement, suppliers, government collaboration	Rights agreement, charter agreement, marketing partnership, expertise sharing, industry development collaboration, memorandums of understanding (MoUs), joint ventures, training

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IC items	Suggested indicators	Added indicators
		collaboration, strategic alliances
Distribution channels	Supply/distribution channel, delivery systems, marketing, advertising, and promotion activities	Store location, electronic channel, delivery systems

Human capital

IC items	Suggested indicators	Added indicators
Employee measurement	Employee numbers, value-added per employee, years of service, median age of employee, vocational qualification, know-how, employee morale and attitude, duties and responsibilities	Revenue per employee, employee competency index, productivity per employee, staff production, pre-tax profit per employee, turnover rate, assets per employee, profile of top management
Directors related measurement	Profile of directors	Training, duties & responsibilities, awards
Training and development	Continuing education offered to employees, career development, vocational development, training, recruitment/retention	International exposure, exchange program, knowledge sharing program
Equity issues	Number of employees by race, gender, and religion, disabled employees issues	Meritocracy issues, diversity issues, management by gender
Employee relations	Union/club activities, employees thanked, employee opportunities to be involved with community	Engagement with business community, recognition from employer, engagement with employer, external recognition
Employee welfare	Post employment benefit, short-term benefits, employee shares and options, ownership plans, working environment	Loans for employees, family welfare, termination benefit
Entrepreneurial skills	Employee innovation, entrepreneurial spirit	-
Employee safety	Safety policy/procedures, quality	Activities, awards

Key: CSR, corporate social responsibility; R&D, research & development.

7.3   Utilising recording, context, and counting unit

7.3.1   Analysing IC information in narratives

Theme was chosen as the recording and counting unit for this research, while sentence has acted as the context unit. The main principle leading to this decision is that theme will minimise the subjectivity involved when deciding which IC category is more dominant, where more than one category is present in a sentence. The following sentence, coded for this research, illustrates:

> With the Group's extensive network of branches and expanding electronic delivery channels, a comprehensive and competitively priced and innovatively packaged range of products and services that is still expanding, customer service delivery that is benchmarked to international standards, the strong deposit franchise and the PB Brand promise of delivering excellence, the Group will definitely sustain its competitive edge (Public Bank Berhad, 2008, p. 65).

This sentence can be broken down to six different IC indicators that lead to four IC items and eventually two main IC categories, as shown in Table 18.

Table 18: Analysis of IC theme in a sentence

Theme	IC indicator	IC item	IC category	Count
With the Group's extensive network of branches	Stores network/ location	Distribution channel	External capital	1
and expanding electronic delivery channels	Electronic channel	Distribution channel	External capital	1
a comprehensive and competitively priced and innovatively packaged range of products and services that is still expanding	Product quality	Brand building	External capital	1
customer service delivery that is benchmarked to international standards	Customer service	Customers	External capital	1
the strong deposit franchise	Product quality	Brand building	External capital	1
and the PB Brand promise of delivering excellence	Promise	Management culture	Internal capital	1

Key: IC, intellectual capital.

This sentence provides a good example of how a decision determining which indicators, items, and categories are more dominant will become complex and subjective, if the sentence is to be used as a recording/counting unit. The most logical decision would be to record it under external capital, as only the last part of the sentence is related to internal capital. Even this does not help to solve the problem as a decision still needs to be made on which IC items and indicators the sentence belongs to. Regardless of which IC indicator, item, or category is chosen, the disclosures in relation to the others are lost (Beattie & Thomson, 2007). The other option is to record the same sentence in each indicator, item, and category to which it relates, which creates a double counting issue, to say the least. This will eventually lead to the sum of the content count parts conceivably being greater than the whole sentence, thereby frustrating later analysis (Campbell & Abdul Rahman, 2010). Therefore, the usage of theme is more appropriate in capturing all IC information available in the respective sentence. The breaking down of the information remains within the context of the sentence throughout the process of analysing the narrative information.

Another issue that has had little attention by literature on IC is the treatment of narrative information disclosed using bullet points or any similar symbols. Bulleted information can be disclosed either in short phrases, single sentences, or in paragraphs. As far as the recording and counting unit is concerned, the length of the bullet point is not a critical issue in relation to theme. However, choosing a context unit to comprehend the meaning of the theme will be problematic, particularly in the case of short phrases. Sentence is a context unit for narrative information and has been an adequate context unit for bullet points presented as complete sentences and even paragraphs, as they can be broken down into sentences. As for bullet points that are not a complete sentence, all the points normally act as a list that precedes a particular sentence. In other words, instead of combining the information using one sentence and

using commas to enlist the information, the company has opted for bulleted points, possibly to make it easier for readers. For example:

> Towards this end, Nestlé has globally rolled-out the Nestlé Continuous Excellence — or NCE — program, which aims to accelerate the achievement of the 3Cs:
>
> - Delighting the Consumers
> - Having a Competitive Advantage
> - Excelling in Compliance
>
> (Nestle (Malaysia) Berhad, 2008, p. 24)

In this case, the context unit will be the bulleted points and the sentence preceding them. It is assumed that the whole passage is equivalent to one sentence. For the purpose of recording and counting, the whole passage is dedicated to the NCE program that focuses on three areas — consumers, competitive advantage, and compliance. It is recognised that the whole passage consistsof only one theme and has been recorded under *internal capital — management and technological process — business model.*

7.3.2 Analysing IC information in visual images

Throughout the analysis, visual images have been one of the modes used by companies to communicate their IC information. Out of 4,635 photographs found in the 30 companies' annual reports, 4,503 photographs have been identified as communicating IC information, whilst the remaining (132) photos are declared as not related to IC or unidentified. However, the main difficulty involved in analysing the content of visual images, particularly photographs, is to identify which IC unit it belongs to. One of the critical stages in analysing visual images is choosing an appropriate context unit so that an inference can be made from the visual image. As mentioned previously, to be consistent with the way IC narratives are recorded, theme is the recording and counting unit for visual images. Context unit, however, has been

changed to the visual image itself and if necessary, the surrounding text. The following six examples provide illustrations of how various types of IC information conveyed through visual images have been interpreted.

Example 1— Recording and counting a table

Table 19: Example of IC information disclosed in a table

	31 Dec 2008	31 Dec 2007	31 Dec 2006	31 Dec 2005
Employee strength(At 31 Dec/31 March)	19,094	19,423	19,596	22,835
Revenue per employee(RM000)	787	753	684	402
Available capacity per employee	445,334	493,183	486,100	337,905
Load carried per employee	301,161	324,634	324,527	227,952

Key: RM, Ringgitt Malaysia
Source: Malaysian Airlines Systems Berhad (2008, p. 36)

In this example, the table alone is sufficient to infer the meaning of IC information disclosed in it, which means the theme can be extracted, recorded and measured from it without looking at the surrounding text. IC analysis for Table 19 is provided in Table 20.

Table 20: Analysis of intellectual capital theme in a table

Theme	IC indicators	IC items	IC categories	Count
Employee strength for year 2008, 2007, 2006, and 2005	Number of employees	Employee measurement	Human capital	4
Revenue per employee for year 2008, 2007, 2006, and 2005	Value added per employee	Employee measurement	Human capital	4
Available capacity per employee for year 2008, 2007, 2006, and 2005	Productivity per employee	Employee measurement	Human capital	4
Load carried per employee for year 2008, 2007, 2006, and 2005	Productivity per employee	Employee measurement	Human capital	4

Key: IC, intellectual capital

All IC information disclosed in this table has led to the identification of multiple disclosures referring to the same theme. Should the information on employee strength be recorded as one theme or one for each year, i.e. four? For the purpose of calculating extent of disclosure, this present research has treated each theme separately even though it is related to the same IC indicators, items, and categories. It is assumed that by disclosing the information for four years signifies how important the information is, either to the company or to their potential readers. Furthermore, employee number for 2008 is not similar to employee number for year 2007 and should be treated differently.

Example 2 – Recording and counting bar graph
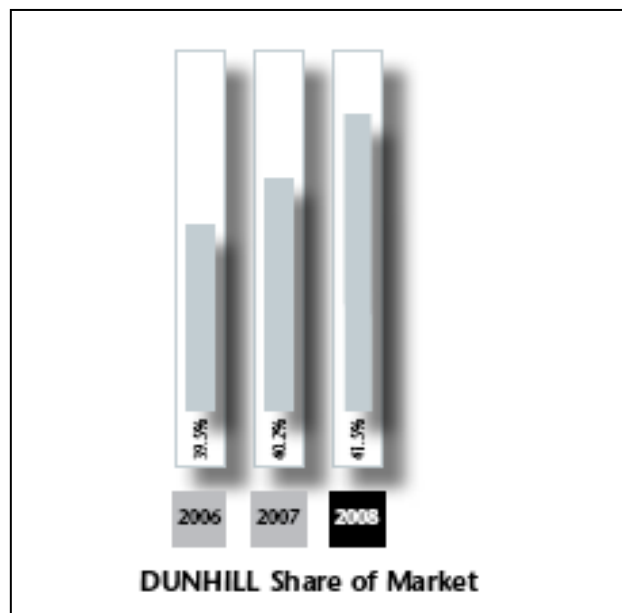
Figure 4: Example of IC information in a bar graph (British American Tobacco (Malaysia) Berhad, 2008, p. 44)

The graph alone in Figure 4 is not sufficient to identify the most appropriate IC theme as the graph only contains numbers. Therefore, its surrounding text, in this case the caption, is used to help identifying the meaning of the information. IC analysis for this graph is shown in Table 21. Each bar represents Dunhill's share of market for a particular year, i.e. from 2006 to 2008. Information for each year is recorded and counted as one theme each.

Table 21: Analysis of IC theme in a bar graph

Theme	IC indicator	IC item	IC category	Count
DUNHILL share of market for year 2006, 2007, and 2008	Market share	Brand building	External capital	3

Key: IC, intellectual capital.

Example 3 – Recording and counting a pie chart
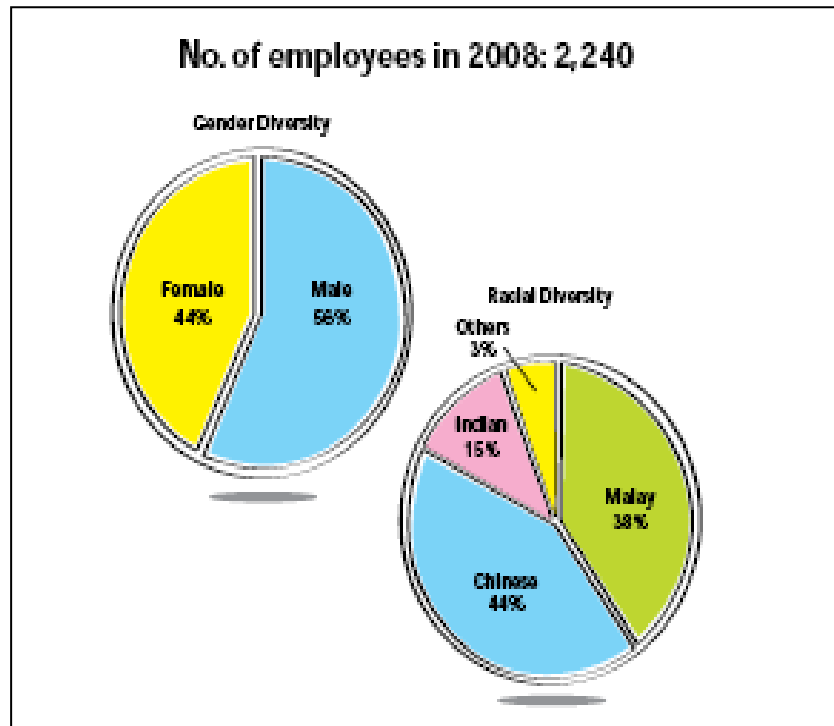
Figure 5: Example of IC information in pie charts. (Digi.Com Berhad, 2008, p. 5)

In Figure 5, the charts provide information on gender and racial diversity but they do not provide further information on to which IC information they belong. However, looking at the surrounding text, i.e. the caption, it is apparent that the charts are related to employee equity, i.e. human capital. Further analysis is provided in Table 22.

Table 22: Analysis of IC theme in pie charts

Theme	IC indicator	IC item	IC category	Count
No. of employees in 2008:2,240	Number of employees	Employee measurement	Human capital	1
Gender diversity: female and male	Diversity by gender and race	Equity issue	Human capital	1
Racial diversity	Diversity by gender and race	Employee measurement	Human capital	1

Key: IC, intellectual capital.

Each pie chart contains two and four sectors respectively. In this case, the coder is faced with two options. First, the information can be recorded and counted as 1 for each pie chart. Second, the information can be recorded and counted as 2 for gender diversity and 4 for racial diversity according to the number of sectors available. As theme has been chosen as the recording and counting unit, the main thing that the coder considers is how many themes there are. In this example, dividing the charts into 2 (gender) and 4 (racial) is not interpreted as multiple disclosure but as necessary to show readers the diversity of gender and race. Therefore, it is interpreted that each pie chart represents a gender theme and a racial diversity theme and that each should be recorded as '1'.

Example 4 – Recording and counting a diagram
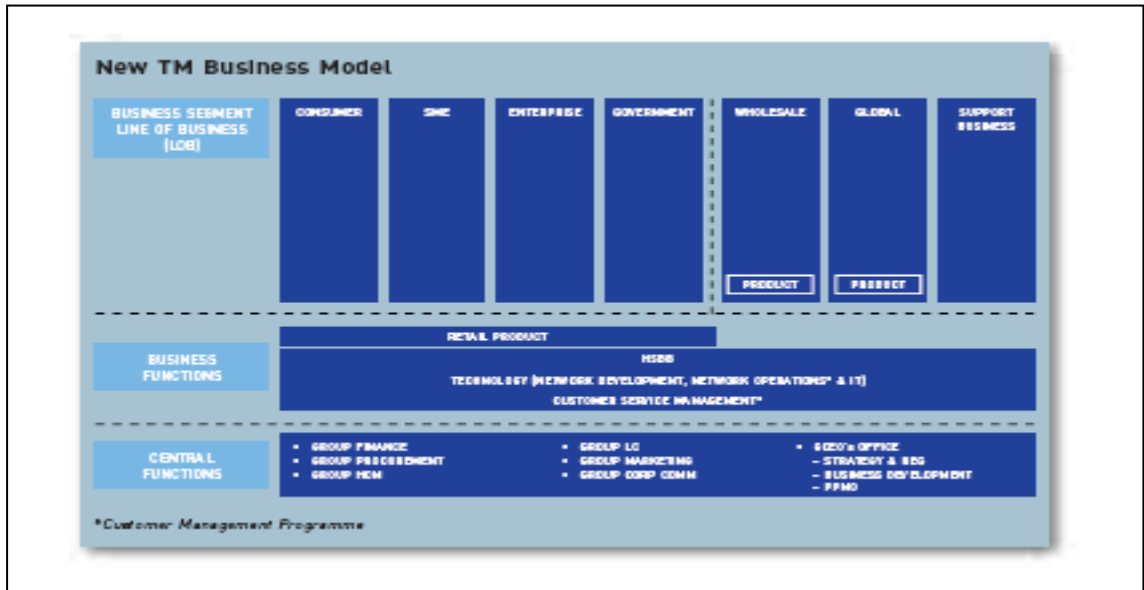
Figure 6: Example of IC information in a diagram (Telekom Malaysia Berhad, 2008, p. 130)

Based on the heading available at the top of the diagram in Figure 6, it is concluded that this diagram is related to the company's business model. Table 23provides the analysis for this diagram.

Table 23: Analysis of IC theme in a diagram

Theme	IC indicator	IC item	IC category	Count
New TM Business model	Business model	Management & technological process	Internal capital	1

Key: IC, intellectual capital; TM, Telekom Malaysia Berhad.

Similar to Example 3, this diagram represents a list containing the company's central function, business function, and business segment, which, when put together, represents the company's business model. Therefore, if each list is separated and recorded/calculated separately, it will represent another theme instead of the business model. In this research, the whole diagram is interpreted as business model and is calculated as 1.

Example 5 —Recording and counting newspaper cuttings

Figure 7: Example of IC information in a newspaper cutting (Nestlé (Malaysia) Berhad, 2008, p. 37)

Figure 7 shows an example of newspaper cuttings available in Nestlé's annual report. This photograph poses a challenge as the coder is faced with two questions. Should each newspaper cutting be interpreted separately and IC information recorded and counted based on the content of each newspaper article (which means each article will belong to a different IC indicator, item and category)? Should the picture be treated as media coverage and calculated accordingly? This research concludes that the first question should not be an option as the analysis is conducted on the company's annual report and not on the newspapers themselves. The need to assign each article to different IC indicators, items, or categories is considered irrelevant. Therefore, as far as the annual report is concerned, the newspaper cuttings represent a list of media coverage collated by the company to help shape the company's reputation. One main concern in choosing this option is whether the individual articles are related to

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positive or negative news about the company, which brings one back to the first question — should the articles be individually analysed? Determining positive or negative news is crucial as it will either increase or decrease the company's reputation. The former will lead to IC as an asset, while the latter is related to IC as a liability.

As far as this research is concerned, so far the focus is on IC as a company asset; any IC liabilities or negative coverage found are not included in the analysis. However, given the language limitations that the coder faces when reading each article, any article that is not in English or Malay is excluded from the analysis. This criterion was found to have an insignificant effect on this study, as only a few documents were found to be written in language that was not English or Malay. Each readable article is interpreted as representing different media coverage and can be independently counted. The final count is calculated as 8, as shown in Table 24.

Table 24: Analysis of intellectual capital theme in a newspaper cutting

Theme	IC indicator	IC item	IC category	Count
A list of article cuttings related to Nestlé	Media coverage	Company reputation	External capital	8

Key: IC, intellectual capital.

Example 6 – Recording and counting a photograph without a caption

This photograph represents one of the challenges that the coder faces in interpreting photographs, as there is often no caption directly available under/above/next to the picture. This is a case where the coder needs to expand the context unit to the surrounding areas. In situations represented by Example 6 it is necessary for the coder to read the whole page to determine the theme presented in the picture. After reading through page 64 of the report it can be concluded that the picture is most probably

related to the company's discussion of its e-channels. Even though e-channels can be interpreted as part of the company's initiative to improve its customer service, this paper concludes that a more appropriate theme would be *electronic channel* under *distribution channel*. It is important to highlight that any narrative that is believed to be related to the picture should be recorded and counted separately when the narrative information is analysed. The final count for the photograph alone is available in Table 25.
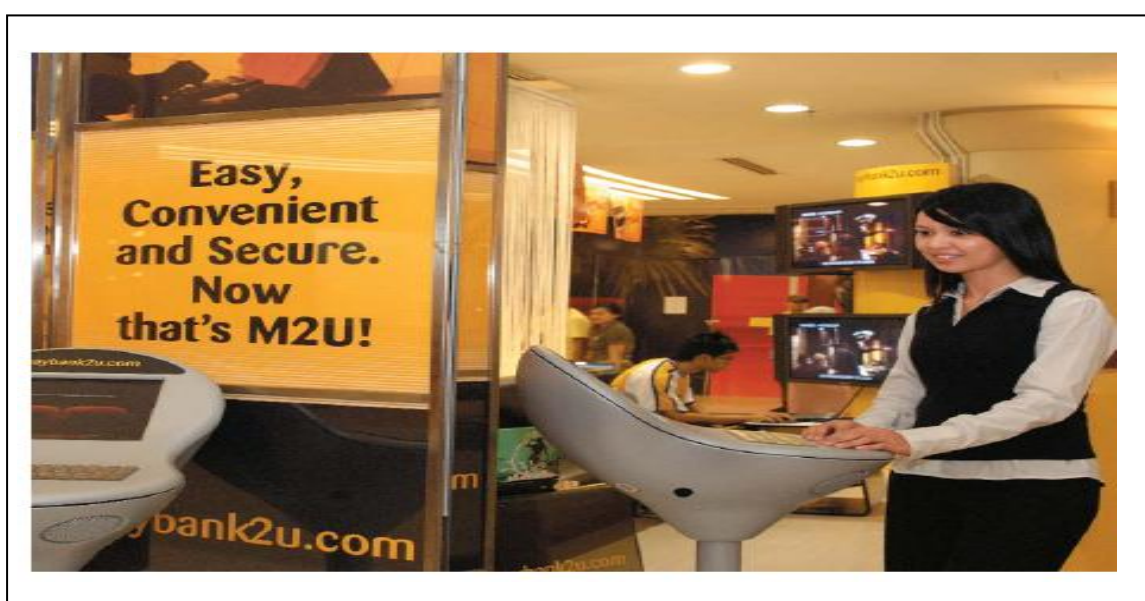
Figure 8: Example of intellectual capital information in a photograph without a caption (Malayan Banking Berhad, 2008, p. 64)

Table 25: Analysis of IC theme in a photograph that has no caption

Theme	IC indicator	IC item	IC category	Count
Photograph	Electronic channel	Distribution channel	External capital	1

Key: IC, intellectual capital.

So far, the examples have not considered the use of colour, font size, font style, and size of images. The use of colour and font style can be regarded as less critical for this research as compared to the size of font and images. If colour and font

style are perceived as part of a company's motive to highlight the importance of a particular IC item, it can be added as an additional attribute by future researchers. However, in this study, the concern is on the extent of disclosure, which is determined by calculating the quantity or volume of IC information being disclosed, making colour and font style less critical. The same cannot be said for size, as size has been argued to provide an alternative unit of analysis to calculate disclosure level — particularly if visual images are involved (see Unerman, 2000). Therefore, this research has conducted an additional test on proportion of pages used by companies to disclose their IC information to capture the effect of size in IC reporting. To measure proportion of pages, a grid with 25 rows of equal height and four columns of equal width is laid across each page of an annual report, with quantity being measured as the number of cells on the grid taken up by sentences or visual images used to disclose the IC information. The result is presented in Table 26.

A correlation test between extent of disclosure and proportion of pages has shown a result of 0.911** with a significance level (2-tailed) of p <.000 (Table 27) which means the two results are highly positively correlated. Referring to the result in Table 26, a conclusion can be made, under both approaches, that external capital has shown the highest level of disclosure, followed by human capital and internal capital. A much more detailed analysis of IC items and IC indicators (see Appendix 5) may have shown a slight inconsistency between the two that can be taken into consideration if a further discussion is made on the results of the analysis. For example, under the IC item *management philosophy*, proportion of pages has shown that companies have allocated disclosures on philosophy towards their employees and philosophy towards the nation at the same amount/counts (886 each) while under the current approach (theme), the count for philosophy towards employees is higher (121 counts) as compared to the nation (37 counts). Therefore, with only slight differences

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between the two approaches (counts or theme), a question will be asked about whether or not the choice between these two approaches is irrelevant. This research argues that, while proportion of pages can provide a similar result to theme, it should only be used as a counting unit. It seems less logical and less practical to use proportion of pages as the recording/coding unit since it still needs a word, phrase, or theme to help identify whether the information belongs to any IC categories, items, and indicators.

7.4   The extent of IC reporting— Multiple disclosures vs. Presence/absence

Table 26: The distribution of the 30 publicly listed Malaysian companies' IC themes - extent of IC reporting, presence/absence, and proportion of pages.

IC categories, items, and indicators	Extent (with multiple disclosures)	Presence/ absence	Proportion of pages
Internal capital			
Intellectual property	93	11	745
Management culture	973	113	4,872
Management philosophy	832	125	10,878
Management & technological process	4,720	113	12,293
Information & networking system	2,206	58	3,571
Research & development	236	35	513
Total	**9,060**	**455**	**32,872**
External capital			
Financial relations	700	35	1,423
Brand building	3,918	123	14,162
Customers	1,261	126	3,761
Corporate reputation	4,238	134	12,940
Business partnering	1,752	90	3,975
Distribution channels	3,400	53	3,251
Total	**15,269**	**561**	**39,512**
Human capital			
Employee measurement	2,292	107	8,896
Directors measurement	7,595	90	15,101
Training & development	555	64	1,240
Equity issues	45	14	136
Employee relations	594	94	1,513
Employee welfare	3,384	110	7,491
Entrepreneurial skills	51	7	64

IC categories, items, and indicators	Extent (with multiple disclosures)	Presence/ absence	Proportion of pages
Employee health & safety	598	42	1,245
Total	**15,114**	**528**	**35,686**

Table 26 presents the results on the extent of IC reporting for all 30 companies at IC category and item levels. The detailed results for each IC indicator are available in Appendix 5. An additional result is provided if the coder only takes into consideration presence/absence of the IC information, i.e. ignoring multiple disclosures, if available. Note that the results are presented in the form of absolute frequency derived from counting total number of themes available in the 30 companies' annual report (either multiple disclosures or presence and absence only). Looking at overall disclosure level for each IC category, the difference between the two seems to be irrelevant as the same conclusion can be derived from both results. This is supported with a correlation test showing a correlation value of 0.480** with the significance level (2-tailed) of p <.0000 (Table 27) indicating a strong positive relationship between the two. Both approaches have shown external capital as having the highest amount of IC information being disclosed in annual reports, followed closely by human capital, and lastly internal capital. However, if the researcher intends to conduct a more detailed analysis on extent which is beyond the IC category, the two approaches seem to lead to an inconsistent result if the level of IC disclosure among IC items and IC indicators is to be ranked according to their disclosure level. For example, looking at the disclosure level of human capital, the directors measurement shows the highest level of IC disclosure (7,595 counts), if the multiple disclosure approach is used together with the presence/absence approach, employee welfare will earn the highest spot (110 counts).

Table 27: Pearson correlation between extent of reporting, presence/absence, and proportion of pages

		Extent	Presence/ absence	Proportion of pages
Extent	Pearson Correlation	1	.480[**]	.911[**]
	Sig. (2-tailed)		.000	.000
	N	141	141	141
Presence/ absence	Pearson Correlation	.480[**]	1	.583[**]
	Sig. (2-tailed)	.000		.000
	N	141	141	141
Proportion of pages	Pearson Correlation	.911[**]	.583[**]	1
	Sig. (2-tailed)	.000	.000	
	N	141	141	141

Key: Sig., significance; N, total number of IC indicators
** Correlation is significant at the 0.01 level (2-tailed).

While the above issue may not be critical for researchers who are analysing IC disclosure levels for each IC category, the issue remains that ignoring multiple disclosures means the absolute or relative volume of IC information will not be captured (Beattie & Thomson, 2007). For example, from Appendix 5, disclosing the quality of companies' products is part of the voluntary information available in the companies' reports, with a total disclosure level of 1,514. If the presence/absence approach is applied in the research, the level of disclosure will only be 30 (one for each company) which does not reflect the actual amount of information provided by the companies. Furthermore, if a comparison is going to be made between companies, each company will be counted as having 1 disclosure each, while in the actual report, some companies might disclose more or less about the quality of their product. Davison (2008) also provides evidence that companies behave in a manner in which

repetition is consciously used as a rhetorical technique to communicate the existence of their IC and less consciously used to reflect or build corporate identity. Therefore, for this research, all multiple disclosures are counted and are believed to be the most appropriate measures for extent of reporting.

7.5   Analysis on types of IC management activities

The coding framework extends the three way IC index by introducing an additional analysis to monitor the extent of companies' initiatives in mobilizing their IC. All IC information found in the companies' reports are divided into three types of IC management activities, i.e. IC resources, IC activities conducted by companies to enhance their IC, and the effect or outcome from all those resources and activities.

Mouritsen et al. (2001a) propose an IC model that will generally show what types of actions and objects the company has built on instead of just a list of indicators that tell a very general and very flat story about the firms' IC. However, applying the model to companies' annual reports proves to be a challenge given that IC information has been disclosed in an unstructured manner as compared to IC information disclosed in the IC statement, the form of reporting referred by Mouritsen et al. (2001a, 2001c). Nonetheless, given the argument that IC is a potential factor in explaining the difference between company market value and book value, differentiating IC information in annual reports between resources, activities, and effects is still a valid analysis. This extended analysis will provide a different insight into how a company treats its IC. Has something been done to improve its IC? Are the activities taken proving to be fruitful?

Unlike extent of disclosure, where multiple disclosures are counted, a different approach has been used for this analysis. The objective is to analyse the types of IC activities presented in the IC theme — which means if the information has been

assigned a particular IC activity, similar information with a similar IC activity should not be counted again. If it is counted, there will be a possibility that certain IC activity has a higher disclosure level simply because of multiple disclosures. For example, the following information has been found twice in the 2008 annual report of Petronas Dagangan Berhad (2008):

> Health programs such as the Occupational Health and Hygiene Program for Depots, Total Health Promotion, Training on Occupational Safety and Health in the Office, Health Seminar, First Aid Training, Health Surveillance & Monitoring and Health Communication was conducted at head office and regional level. (p. 33)

> These included the Occupational Health and Hygiene Program for Depots, Total Health Promotion, Training on Occupational Safety and Health in the Office, Health Seminar, First Aid training, Health Surveillance & Monitoring and Health Communication. (p. 42)

Under extent of disclosure, the two sentences should be counted individually (one theme each) whereas under this extended analysis, the two sentences are counted only once since both refer to the same IC indicators and can be categorised under 'IC activities'.

Throughout the analysis it is vital to draw attention to the fact that some IC indicators previously listed in Table 17 should naturally belong to certain IC activities. For example, indicators such as number of *employees*, *R&D infrastructure*, and *customers named* should represent IC resources, while items such as *employees' production* and *products awards* technically indicate IC effects. On the other hand, there is also IC information in relation to the IC indicators that can be grouped into more than one criterion. To illustrate, indicators such as *customer loyalty & support* can possibly lead to more than one IC management activity, namely *activity* and *effect*. This is an example of a scenario where reading the information within a context unit will help the coder to make a decision on the best way to code the information.

For the purpose of this research, it has been decided that sentences provide a sufficient context unit to identify the best possible IC management activities for each IC theme.

It is also important to highlight that there has been no guideline provided by previous literature on which IC indicators are considered resources, activities, or effects. Mouritsen et al. (2001c) provide a list of possible indicators for all three management activities using a case study of a company — Systematic Software Engineering Ltd. Employees and customers are indicated primarily as resources and effects while processes are used to indicate effects and activities. Throughout the content analysis stage it is reasonable to conclude that some IC items are more frequently disclosed as certain types of IC management activities over others. A detailed result and discussion for IC management activities is available in Chapter 8. As a guideline, Table 28 provides examples of how IC information found in the annual reports is characterised into resources, activities, and effects.

Table 28: Illustration of IC management activities

Internal capital	External capital	Human capital
Resources		
As the technology ecosystem evolves and greater focus is given to fiscal performance, Telekom Research & Development Sdn. Bhd. (TM R&D) is reinventing itself to suit the times. Originally founded as an R&D unit focused on the internal needs of the Group, the company has begun to look outwards, setting its sights on commercialisation and innovations. (Telekom Malaysia Berhad, 2008, p. 180).	As at end 2008, we had 1.603 million broadband customers, 26.7% more than our customer base of 1.265 million in 2007 (Telekom Malaysia Berhad, 2008, p. 128).	In 2008, Nestlé recruited a total of 1,417 new employees. Demographically our staff population reflects the diversity in terms of ethnic, gender and age spread (70% Malay, 21% Chinese, 8% Indian & Others, 1% Expatriate (Nestle (Malaysia) Berhad, 2008, p. 26).

Internal capital	External capital	Human capital
Activities		
Beginning in 2007, TMR&D embarked on a quality and process improvement journey by implementing the Capability Maturity Model Integrated (CMMI), in addition to its ISO9001:2000 initiative (Telekom Malaysia Berhad, 2008, p. 181)	In 2008, TMFA conducted several programs for its customers, including one on safe-driving (Telekom Malaysia Berhad, 2008, p. 158).	The Executive Diploma in Manufacturing Management (EDMM) – a collabouration with the Open University Malaysia – is an 18-month program, which combines workplace and classroom learning for Nestlé's First Line Managers (Nestle (Malaysia) Berhad, 2008, p. 25)
Effects		
In 2008, TMR&D made 44 patent disclosures of which 22 have been filed with the patent office (Telekom Malaysia Berhad, 2008, p. 181)	That it is carrying out its functions effectively can be seen by the high score of 87.2% it notched in a Customer Satisfaction Index (CSI) survey done in December 2008 (Telekom Malaysia Berhad, 2008, p. 158).	In 2008, the target was to complete the EDMM pilot program, which generated 48 graduates (Nestle (Malaysia) Berhad, 2008, p. 25).

7.6 Quality of IC reporting

Table 29: Distribution of IC information based on quality of disclosure

IC categories/items	Form of disclosure [a]				Location of disclosure [b]					
	1	2	3	∑	1	2	3	4	5	∑
Internal capital										
Intellectual property	5	0	5	20	2	0	2	3	8	60
Management culture	50	77	29	291	56	25	31	62	7	482
Management philosophy	44	81	58	380	53	58	28	77	7	596
Management & Technological process	33	74	73	400	94	9	46	33	8	422
Information & networking system	38	35	36	216	7	5	25	10	44	352
Research & development	15	18	8	75	1	4	15	5	20	174

IC categories/items	Form of disclosure [a]					Location of disclosure [b]				
Sub total	**185**	**285**	**209**	**1382**	**213**	**101**	**147**	**190**	**94**	**2086**
External capital										
Financial relation	31	20	13	110	34	5	3	35	1	198
Brand building	86	77	98	534	128	8	87	80	23	840
Customers	81	42	61	348	58	15	63	53	28	629
Corporate reputation	85	73	90	501	116	38	55	83	16	769
Business partnering	61	58	69	384	49	6	46	46	60	683
Distribution channel	39	33	32	201	29	3	36	14	37	384
Sub total	**383**	**303**	**363**	**2078**	**414**	**75**	**290**	**311**	**165**	**3503**
Human capital										
Employees' measurement	93	20	42	259	64	14	44	55	21	549
Directors' measurement	33	52	45	272	127	2	1	18	23	321
Training & development	20	36	44	224	12	41	31	17	6	285
Equity issues	9	2	4	25	0	11	2	1	0	32
Employee relations	42	40	45	257	37	43	18	39	5	358
Employee welfare	81	98	52	433	11	14	7	3	129	717
Entrepreneurial skills	1	4	6	27	3	3	3	1	1	27
Employee health & safety	10	29	22	134	12	29	12	16	1	175
Sub total	**289**	**281**	**260**	**1631**	**266**	**157**	**118**	**150**	**186**	**2464**
Overall total quality	**857**	**869**	**832**	**5091**	**893**	**333**	**555**	**651**	**445**	**8053**

[a] A detail description on the scores is available in Table 10
[b] A detail description on the scores is available in Table 11

Table 29 provides a summary of results (at the IC category and item levels) on the quality of disclosures found in companies' annual reports where IC information is concerned. A similar approach to the way IC activities are counted (Section 7.5) is used to measure the quality of disclosure. Under extent of IC reporting every multiple disclosure is counted, regardless of whether they are related to the same information or different information under the same IC indicators. For quality of disclosure, each item of IC information under each indicator is counted only once unless it is presented using different forms of disclosure or is found in a different location. One of the challenges in categorising IC disclosure quality is categorising information into

obscure, *descriptive,* and *strongly descriptive* categories. The coder is faced with several questions: What is the appropriate length of information to consider as obscure or descriptive? Is a caption attached to a visual image sufficient to categorise the information into the strongly descriptive category?

As this is the first time a three-point scale form of disclosure is introduced in an IC reporting study, there is no guideline available from previous research on how these questions should be treated. Therefore, for this research, the following rules have been applied (Table 30).

Table 30: Rules for determining form of disclosure

Form of disclosure	Rules applied
Narrative	i- Even though sentence has been chosen as the context unit for narrative as it captures more IC themes and minimises information loss, it is considered as the minimum context unit available and therefore provides less meaning as compared to paragraph or other longer context units. Therefore, an IC theme located only in one sentence is considered as providing limited discussion and is recorded as *obscure*.
	ii- Any discussion on a particular IC theme that has been repeated immediately after the first sentence, i.e. the disclosure of that particular theme is more than one sentence in length, is recorded as *descriptive*. It is necessary for the discussion to be made immediately after the IC theme is found.
	iii- If more than one IC theme (related to different IC indicators) is discussed in a sentence, it is categorised as *obscure*.
Narrative with numbers	iv- Any theme found in the form of narrative and numbers but with limited explanation (not more than one sentence) will not be categorised as *strongly descriptive*. Instead it has been interpreted as having limited discussion and is recoded and counted as *obscure*.
Visual images	v- Visual images have a larger context unit as the unit includes the image's surrounds. Therefore, to differentiate between obscure and strongly descriptive, IC themes found in visual images that have no immediate description are interpreted

Form of disclosure	Rules applied
	as not providing enough discussion on the visual images. The theme is categorised as *obscure*.
	vi- IC theme in a visual image with a caption that is less than one sentence is also considered as *obscure*.
	vii- An IC theme in a visual image is recorded as *strongly descriptive* if narratives are provided using more than one sentence immediately before or after the image.

Key: IC, intellectual capital.

In categorising information based on location of disclosure, the process is relatively straightforward, as the main step is determining where the IC theme is located and an appropriate weight can then be assigned.

An additional correlation test between extent and quality of disclosures seems to support the basic idea that quantity and quality of information are not able to be separated (Botosan, 2004). If quantity is said to represent one dimension of quality, it is to be expected that the three measures will be associated with each other. Table 31 shows a significant positive relationship between the three measures, i.e. extent of disclosure (quantity) and the two types of quality measures (at a significance level of 0.000).The apparent link between the three suggests that the measures used to evaluate quality of IC reporting do have construct validity.

Table 31: Pearson correlation between extent and quality of disclosure

		Extent	Forms of disclosure	Location of disclosure
Extent	Pearson Correlation	1	.591[**]	.525[**]
	Sig. (2-tailed)		.000	.000
	N	141	141	141
Form of disclosure	Pearson Correlation	.591[**]	1	.928[**]
	Sig. (2-tailed)	.000		.000
	N	141	141	141
Location of disclosure	Pearson Correlation	.525[**]	.928[**]	1
	Sig. (2-tailed)	.000	.000	
	N	141	141	141

Key: Sig., significance; N, total number of IC indicators
** Correlation is significant at the 0.01 level (2-tailed).

Nonetheless, despite the variables having a very high correlation, as discussed in Chapter 5, Beattie et al. (2004) argue that extent of IC reporting only represents one dimension of disclosure quality. Therefore, the fact that the three are related does not implicitly suggest that other measures of quality are irrelevant. A detailed comparison between extent of disclosure and quality of disclosure has proven that quality of disclosure provides another dimension to the results. To illustrate, under both quality attributes, CSR activities (external capital) have been identified as having the highest quality level (with total quality measures of 155 and 251 respectively) while the same conclusion cannot be said for extent of disclosure. Under extent of IC reporting, the highest reporting indicator has been profile of directors. The detailed results showing the distribution of quality of reporting at the IC indicator level is available in Appendix 6. Furthermore, as argued by Beretta and Bozzolan (2008), quality measures (other than quantity) provide more insight into the disclosure behaviour adopted by companies. A detailed discussion on the results is available in Chapter 8.

7.7   Chapter summary

This research introduces a new multidimensional coding framework to the IC academic literature that not only addresses specific issues pertaining to content analysis, but also provides alternatives to the way IC researchers currently conduct their IC studies. This chapter is specifically designed to provide an illustration of the content analysis process conducted to assess IC reporting from different dimensions, namely, extent, quality, and types of IC management activities. The three analyses are tested on the 2008 annual reports of the 30 largest Malaysian publicly listed companies. Using the results of the three analyses as the supporting figures, several issues are discussed. Some of the issues have already being identified prior to the analysis (and were discussed in Chapter 5), and some are identified when the analysis was conducted. These include issues related to the choice of unit of analysis, analysing quantity versus quality, presence/absence versus number of occurrences, usage of narratives, numbers, and images, and the incorporation of IC activities. The choices believed to be most appropriate and in the best interests of this research have been made to suit the context of this research.

The focus so far has been on refining the usage of content analysis particularly in analysing IC information in companies' annual reports. The rest of this research will provide discussion on the results and provides detailed insight on the reporting of IC information among Malaysian publicly listed companies.

CHAPTER 8: DISCUSSION OF RESULTS— CONTENT ANALYSIS

8.1 Introduction

This chapter provides a discussion of the results from the content analysis conducted on all 30 of the largest Malaysian publicly listed companies' annual reports. The results are also reported in Chapter 7 of this thesis. This chapter is divided into three main sections: Section 8.2 documents the discussion on the results of the extent of IC disclosure. Section 8.3 discusses the results from the perspective of IC mobilisation, looking at how well Malaysian companies presented their IC information within the three types of IC management activities, namely resources, activities, and effects. Section 8.4 provides discussion on the quality of IC information presented, measured through the forms of disclosure and location of the information. Section 8.5 summarizes the chapter.

8.2 Extent of IC reporting
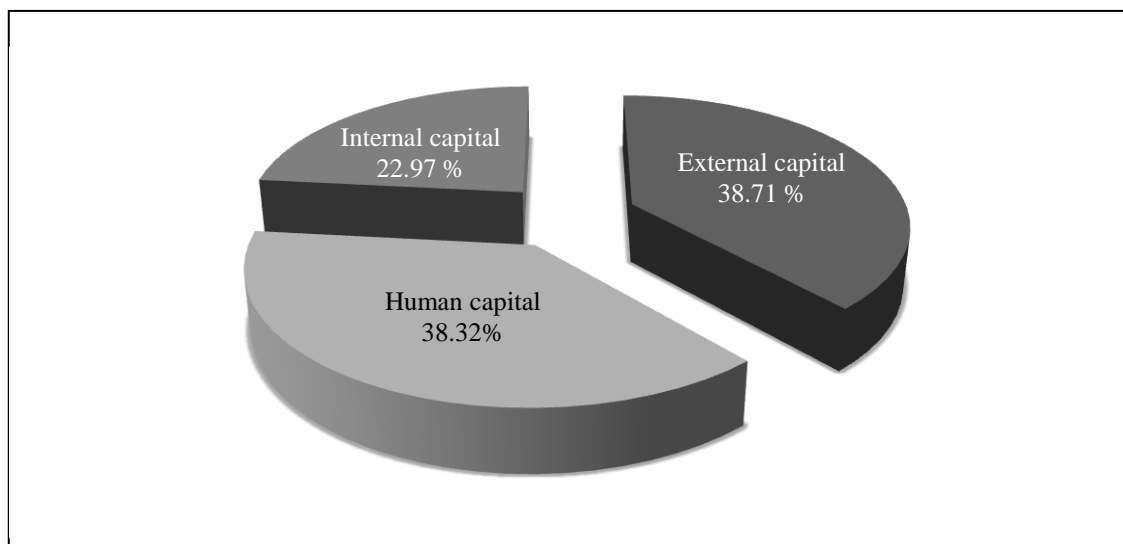
Figure 9: Extent of IC reporting for the 30 Malaysian publicly listed companies (2008) — overall category results
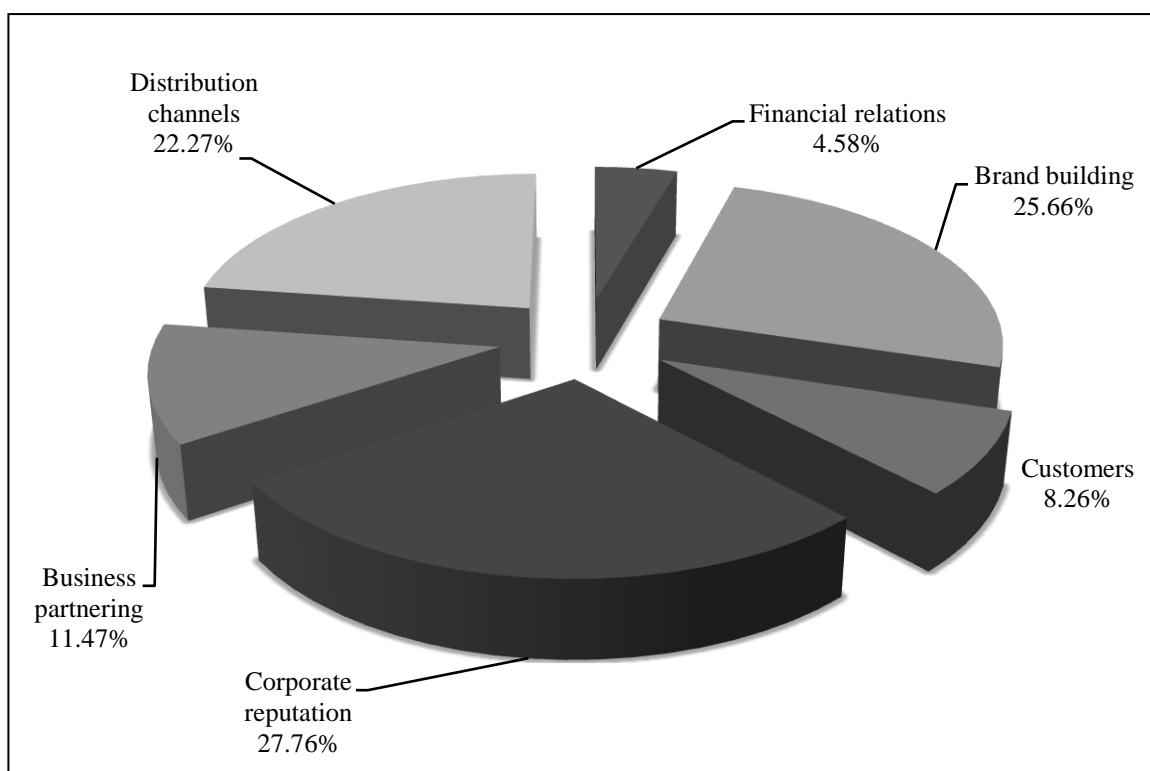
Figure 10: Extent of IC reporting for the 30 Malaysian publicly listed companies (2008) – external capital

Figures 9 to 12 present a summary on the extent of IC reporting by category (Figure 9) and for the respective IC sub-categories (Figures 10 to 12), in addition to the detailed results available in Chapter 7 (Table 26) and Appendix 5. Figure 9 shows percentage attached to each IC category calculated by dividing the total IC counts for each IC category by the total IC counts for all categories. The analysis of Malaysian companies' 2008 annual reports leads to the conclusion that, even with the lack of IC reporting guidelines available, there has been some consistency in the type of IC information reported. For example, all companies have been consistent when dealing with certain items under external capital, with all companies reporting: information on the relationship with their fund providers, particularly shareholders; information to boost the company's reputation, such as their contribution to society; information that leads to brand building, such as awards received for their products; and information on

business partnerships created with external parties. The following discussion on extent of IC reporting is conducted according to the respective IC categories.

8.2.1   External capital reporting

Figure 9 shows that among the three IC categories external capital has shown the highest amount of reporting, but at a level that is just slightly higher than human capital reporting. The difference between the two is only 0.39 percent or 155 IC theme counts. The increase in global competition for capital where companies need to uphold their investors' confidence could provide an explanation on why companies are more proactive in providing information in relation to their external capital (Abeysekera, 2007). In the case of Malaysia, there are two possible explanations for the relative importance of external capital.

First, Malaysia is a country that has gone through a transformation process from a mainly agriculturally based economy to a mainly industrially based economy. Yusof and Battasali (2008, p. 7-8) argue that the push for industrialisation is motivated by three factors. First, recent years have witnessed a much faster growth of non-resource based industries. Second, the future of labour intensive industries is a source of concern due to the increase in Malaysian labour costs compared to other developing countries. Third, and related to this present research, there has been a strategic push in recent years to seek out new growth areas and push towards higher value-added and K-based industries, with the erosion in Malaysia's comparative advantage in labour costs and labour-intensive manufacturing industries. This loss of advantage has pushed Malaysia to catch up with developed nations, and the emphasis on external capital information will help to instil and possibly restore investors' confidence in Malaysian companies.

Second, Malaysia is one of the countries that has made exceptional achievements through mega projects like Kuala Lumpur's Petronas Twin Towers and the Kuala Lumpur International Airport, where both structures are said to have been vigorously developed based on the concept of image building (Chen, Ngu, & Taib, 2004). In fact, a survey conducted by Lines (2004) has shown Malaysia is one of the Asian countries where more than 80 percent of Asian corporate executives agree that corporate reputation is more important today than ever before. Lines' (2004) findings, however, reveal that the objective of reputation management for Asian executives is very tangible, i.e. focussed more on increasing sales and share prices instead of the intangible areas that look at the relationships with external parties, particularly the community. This area has been consistently ranked low among Asian executives, unlike the North American and European executives who see corporate reputation as being much more important for the recruitment and retention of employees, and for building support for public policy initiatives (Lines, 2004).

The higher level of external capital reporting provides support for Lines' (2004) study, where companies are actually putting more emphasis on building a good reputation through creating external capital assets for companies. A detailed analysis of the components of external capital (Figure 10) provides evidence that corporate reputation has earned the highest level of external capital reporting (27.76 percent) followed closely by brand building (25.66 percent). However, a more detailed inspection of the activities conducted by the companies in managing their reputations provides evidence that companies are moving towards creating their reputations in intangible instead of tangible areas such as CSR activities — following the practice of North American and European countries. The detailed results on companies' reputations shows CSR activities as having the highest IC theme counts of 2,584 (Appendix 5). The findings also support Deegan and Unerman's proposition that

companies are willing to publish certain information in their company reports to avoid damaging their reputation and thereby risking the company's value and its future profits (Deegan & Unerman, 2005).When companies believe they are lacking in legitimacy, this strategy is considered part of reputation risk management.

It is important to emphasise, once again, that with the similarity of some items in CSR and IC index, there seems to be a vague line between these two forms of reported information. Several studies, such as Barnett (2007) and McWilliams et al. (2006) have shown that IC plays an important role in relation to companies' CSR, and that both aspects actually interact in influencing companies' values. For example, in the case of human capital, companies' capabilities to be involved in CSR activities such as health and safety programs will promote greater employee engagement (Passetti et al., 2009). This in turn will help to increase the value of the companies' human capital, which is part of IC. Therefore, with government initiatives to make it compulsory for all Malaysian publicly listed companies to disclose their CSR activities or practices, with effect from 31 December 2007, it is no surprise that all 30 companies provide reports on their CSR activities, which, as far as IC is concerned, contributes to improving their reputations. One could argue that the consistency in the reporting of companies' IC is mainly due to the fact that this research also covers mandatory reporting. This is true in cases such as CSR information and any information that falls under the requirements of financial accounting standards, particularly information on employee benefits. However, there are cases where companies have voluntarily disclosed their IC information, believing that it will add value to the company's IC assets. For example, all companies have been generous in providing information on the quality of their products, an action inferred as part of their brand building initiatives (see Appendix 5).

8.2.2 Human capital reporting
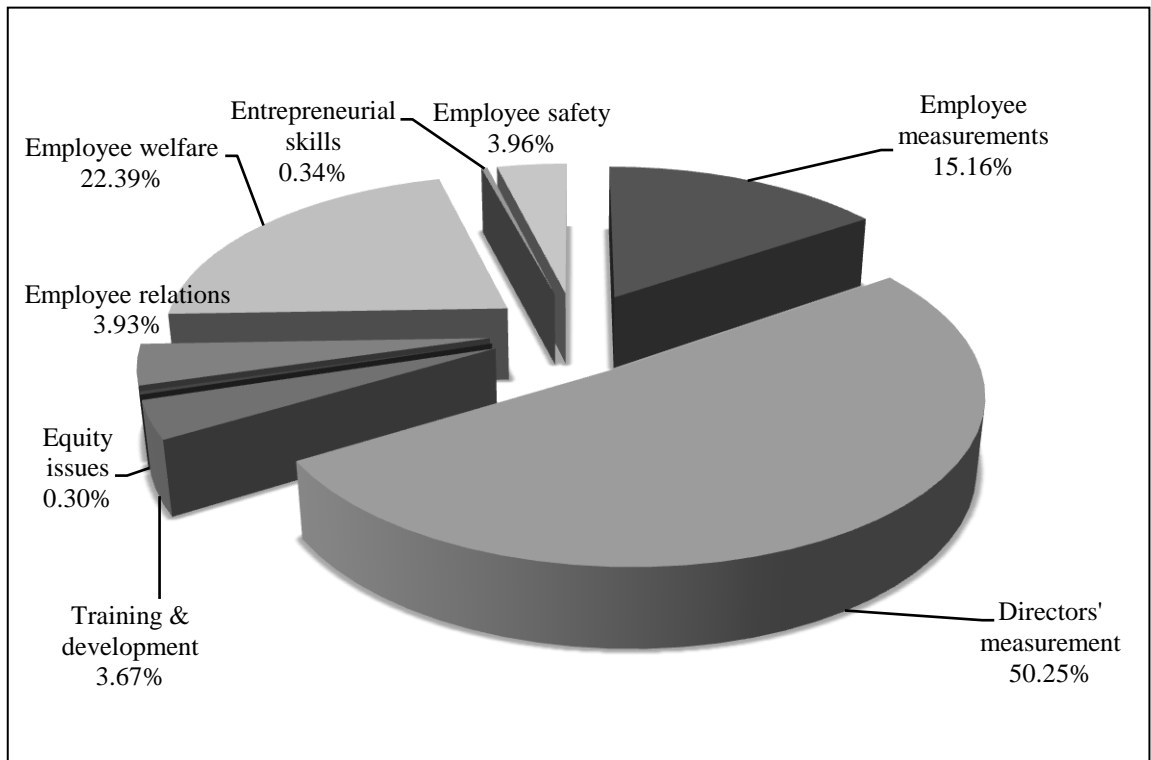
Figure 11: Extent of IC reporting for the 30 Malaysian publicly listed companies (2008) – human capital

The next highest IC reporting category is human capital (38.32 percent) with directors' measurement having the highest count of human capital information (50.25 percent). A much higher reporting for the directors' measurement can be linked to the importance of corporate governance in Malaysia through the introduction of the Malaysian Code on Corporate Governance (MCCG). While the MCCG is voluntary and is meant to be non-statutory and self-regulatory, Bursa Malaysia has strengthened efforts towards enhancing corporate governance practices by integrating the code in its listing requirements. Therefore, the fact that it is mandatory for Malaysian publicly listed companies to report their corporate governance structure may have contributed to a much higher level of reporting on information pertaining to the companies' directors. The revised version of MCCG (revised 1 October 2007) has put more emphasis on strengthening the companies' BOD as one of the important principles of corporate governance.

The findings of this research reconfirm part of the Global Competitiveness Report (GCR) produced for Malaysia in 2008-2009. The GCR represents a nation's level of competitiveness that reflects the extent to which it is able to provide rising prosperity to its citizens (Porter & Schwab, 2008). Since 1979, the World Economic Forum's annual GCR has examined many factors enabling national economies to achieve sustained economic growth and long-term prosperity (Porter & Schwab, 2008). One of twelve pillars used by the report to measure a country' competitiveness level is labour market efficiency (pillar seven). The highest rank received by Malaysia in this category is the ability of Malaysian companies to compensate their employees based on their productivity. This is reflected in this research, with employees' welfare being the second most reported human capital information (22.39 percent). The largest amount of information available is on employee shares and options plans, with a count of 1,979 IC themes (Appendix 5).

On the other hand, as reported by the GCR in 2008-2009, the lowest rank that Malaysia received, as far as labour forces are concerned, is in female participation in the labour force (Malaysia ranked 107 from 134 countries) (Porter & Schwab, 2008). This could possibly provide an explanation on the lack of willingness by companies to disclose information on their equity issues — the item is the lowest reported information at only 0.30 percent. Furthermore, equity issues are a sensitive issue in Malaysia particularly due to its multi-ethnic and multi-racial state. Companies in Malaysia have to cater for Chinese, Malays, and Indians in the same workplace, and they are required to follow a quota system to include all the races in their recruitment policy (Hooi, 2008).

The government's role in promoting equality is also evident in the 2008 budget proposal, which requires publicly listed companies to disclose their employment composition by race and gender through their CSR reporting (Amran & Devi, 2008).

Unfortunately, although the Bursa Malaysia listing requirements specify the need to report CSR activities, the CSR framework launched by Bursa Malaysia is optional, i.e. companies can opt not to use the framework. Therefore, even though the framework has illustrated workplace diversity and gender issues as part of the information that the framework is looking for, the company can still opt to meet only the basic requirements. In addition, ethnic and religious tensions means those incompatibilities could inevitably surface from time-to-time and could contribute to the fact that companies are less willing to discuss and disclose their gender and racial diversity information. If there is tension between employees, it could result in a decrease in the satisfaction that workers derive from their jobs and may force some of the workers to leave involuntarily (Hooi, 2008, p. 374).

Note that, as compared to external capital, where all items except one (financial relations) has a fairly consistent reporting level of more than 1000 counts, the other two IC categories have been less consistent. In the case of human capital, this may have resulted from that fact that some IC reporting is still at the voluntary stage and that companies may regard additional information on their employees, other than those required by the accounting standards, as internal management issues (Sujan & Abeysekera, 2007) and therefore should be reported internally. As mentioned in Guthrie et al. (1999), companies may set priorities as to what is to be reported, and at this early stage of IC reporting they might have not yet seen the importance of external reporting.

8.2.3 Internal capital reporting
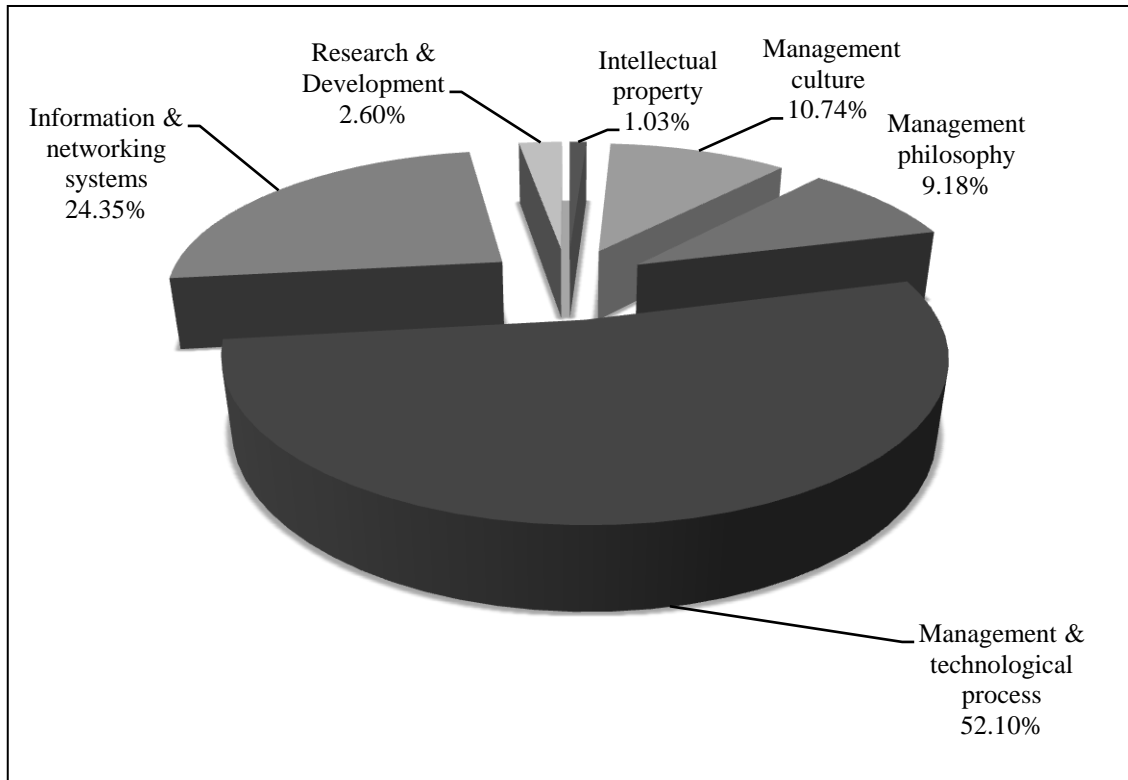
Figure 12: Extent of IC reporting for the 30 Malaysian publicly listed companies (2008) — Internal capital

Unlike external capital and human capital, internal capital has the lowest amount of IC theme (22.97 percent). The absence of internal capital information in most Malaysian companies' annual reports can be explained by it not being applicable to the companies' current operation. This seems to be a more logical conclusion given some items, such as R&D and IPs (if they exist), are included in information required by the existing accounting standards. Therefore, if they do exist, the information should be available in the company's financial statement section, unless companies opt for non-compliance.

Note that IP and R&D are the two least reported items under the internal capital category (1.03 and 2.60 percent respectively). In the case of R&D, a recent study conducted by Md Nor, Mohd Saleh, Jaffar, and Abdul Shukor (2010) has

arrived at a similar conclusion where R&D disclosure among Malaysian companies was also shown to be low. The survey conducted by the GCR 2008-2009 has shown Malaysia as having a competitive advantage in terms of R&D among companies (ranked 18 from 134 countries), but the country's IP protections are considered by the report as one of Malaysia's competitive disadvantages as it ranks lower (ranked 33) in this category than the country's overall competitive rank (ranked 21) (Porter & Schwab, 2008). The competitive disadvantage that Malaysia displays in protecting IP rights may provide another potential explanation for lack of IP disclosure among Malaysian companies, as well as the lower reporting of R&D activities.

Despite having the least overall counts for IC themes, two of the IC items listed under internal capital (management & technological processes and information & technological systems) actually presented higher level of reporting as compared to other IC items in the other two IC categories (for example, the items labelled customers, business partnering, employee health & safety, and training & development). It can be argued, however, that the high volume of reporting could be because some of the information falls under the mandatory reporting requirements, such as information on management committees, which is normally disclosed under the corporate governance section, and information regarding hardware/software, commonly found in the financial statements section. However, if these indicators are excluded, companies' willingness to report information (other than the information required by the statutory bodies) such as their quality control process (496 counts), technological and production process (267 counts), and their business model (206 counts), are still much higher than the overall reporting of other IC items — such as entrepreneurial skills (51 counts) and equity issues (45 counts) (see Appendix 5). This could support the proposition that companies are making efforts to legitimise parts of their operations that cannot be legitimised by the traditional reporting systems.

8.2.4 Comparing the extent of disclosure with previous studies

As noted, this is a research on IC reporting that analyses information in annual reports, both mandatory and voluntary, which contain IC information, incorporating all forms of disclosure — narratives, numbers, and images. While there are limitations in directly comparing the findings of this research with previous research due to differences in sample size and the methodology applied, it is still worth comparing the implications of the various studies. It is also important to highlight that the results for extent of IC reporting presented in this research have shown much higher levels of IC counts. This is due partly to the decision to use sentence as the context unit, and the calculation of multiple disclosures instead of only presence/absence.

Even though the types of IC information presented among companies are consistent, the presentation of IC information examined in each annual report has not been well structured. This reconfirms the conclusions made by previous studies such as Guthrie and Petty (2000), Guthrie et al. (1999), and Sujan and Abeysekera (2007). Therefore, the same rationale can be put forward, and is true in the case of Malaysia, that there is still the lack of an established and generally accepted IC framework. This also means government targets to re-examine and revise accounting standards for the private sector to recognise the importance of knowledge and intangible capital (ST 5 - 5.2), is yet to be achieved. ST5 (5.2) of the Master Plan raises the concern that the present Malaysian accounting standards only serve the needs of the production-based economy and do not recognise the importance of knowledge and IC (EPU, 2011c).

As far as the overall results are concerned, the findings are consistent with most previous studies (for example, Bozzolan et al., 2003; Goh & Lim, 2004; Striukova et al., 2008; Yi & Davey, 2010), where external capital is the highest reported IC category. Interestingly, however, Yau et al. (2009) find internal capital is the most reported category. The difference could be due to differences in sample size,

where Yau et al. (2009) focus on the 30 top *and* 30 bottom publicly listed companies. This research, on the other hand, opted to focus only on the 30 largest companies that is also commonly referred as top 30. Furthermore, the fact that the latter study was conducted in 2003, where most of companies had just emerged from an economic crisis and had gone through a business re-engineering and restructuring process, could also lead to internal capital being the most reported information (Yau et al., 2009). In this present research, where 2008 annual reports were used, companies are expected to be more internally stable, which means companies are probably more interested in building up their reputations as one of the strategies to expand internationally. This could explain the higher amount of external capital information as compared to internal and human capital.

Despite the results of this research being consistent with other studies in the most reported information (external capital), this research found internal capital as the least reported category, while human capital was found to be the least reported category in most previous IC studies (for example, Goh & Lim, 2004; Sujan & Abeysekera, 2007; Yau et al., 2009; Yi & Davey, 2010). However, the result in this current study is consistent with a study conducted by Striukova et al. (2004). Meanwhile, it is important to note that most of previous studies (for example, Goh & Lim, 2004; Yau et al., 2009; Yi & Davey, 2010) that found human capital as the least reported information do not have specific requirements to disclose employee welfare and directors' measurements. The two items contribute almost 71 percent of the total human capital disclosure in this present research. Furthermore, the fact that the government has put so much emphasis on the development of a K-based nation could possibly lead to companies' greater awareness of the importance of showing the readers of annual reports the importance of their human capital.

The findings of this research also seem to be more consistent with the studies conducted in developing countries, particularly Sri Lanka, as compared to those conducted in developed countries like Australia (Abeysekera & Guthrie, 2005; Sujan & Abeysekera, 2007) and the UK (Striukova et al., 2008) . For example, in a study conducted by Abeysekera and Guthrie (2005) on the top 30 Sri Lankan companies, brand building and company name have been the most reported items, as compared to business partnering — a result similar to this present research. The lack of concentration on business partnering as compared to corporate reputation and brand building could be attributed to the fact that there is lack of interest by companies, particularly those from developed countries, to forge partnerships with companies from developing countries due to a much lesser return obtained (as compared to a partnership with a company in a developed country) (Ueng, Kim, & Lee, 2000).

A similar conclusion can be made when it comes to human capital reporting. In a study conducted on developed countries such as Australia (see Abeysekera, 2007), the most reported human capital category was entrepreneurial skills, which is one of the least reported categories in Malaysia. Based on Abeysekera (2007), this difference between developed and developing countries can be attributed to cultural, social, and economic factors. Ramasamy, Chakrabarty, and Cheah (2004) claim that Malaysia is lacking in entrepreneurial culture. There are two negative features that stand out regarding entrepreneurship in Malaysia — the low levels of job satisfaction and the attitudes towards failure (Ramasamy et al., 2004, p. 881). Ramasamy et al. (2004) further concluded:

> Malaysians tend to work hard for the first successful venture but tend to be satisfied with that achievement and rest on their laurels. As such competitive advantages are not maintained and even lost to other latecomers in the industry. Similar to other Asians, Malaysians scorn failures. (p. 881)

The above claim is further supported with the norm of Malaysian companies importing lots of know-how from the US and the UK, resulting in Malaysian companies not demanding a high level of innovation from their employees. The Master Plan itself promotes the importing of foreign workers with ST1 (1.61) recommending an automatic work permit and right of abode to top-level foreign talents. This, however, is set to be changed as in the NEM launched in year 2010, one of the SRIs (the list of initiatives that are fundamental in achieving the NEM) recommended is to develop a quality workforce and reduce dependency on foreign labour (SRI 2). It is important to highlight that under the new plan, several knowledge dependent factors are still going to play a significant role in the NEM, and they have been included as part of the SRIs. A detailed discussion on the state of the Malaysian KBE is documented in Chapter 9.

8.3   Types of IC management activities

Table 32: A summary of the distribution of IC themes based on the three types of management activities

Intellectual capital categories/items	Resources	Activities	Effects
Internal capital			
Intellectual property	0	4	9
Management culture	113	0	0
Management philosophy	125	0	0
Management & technological process	67	75	0
Information & networking systems	33	35	0
Research & development	14	18	3
Subtotal	**352**	**132**	**12**
External capital			
Financial relations	0	35	0
Brand building	0	46	79
Customers	38	68	36
Corporate reputation	24	69	41
Business partnering	23	88	0
Distribution channels	21	33	6
Subtotal	**106**	**339**	**162**
Human capital			
Employee measurements	101	0	6

Intellectual capital categories/items	Resources	Activities	Effects
Directors measurements	58	27	5
Training & development	0	64	0
Equity issues	11	3	0
Employee relations	0	83	11
Employee welfare	88	107	0
Entrepreneurial skills	0	1	6
Employee health & safety	6	24	13
Subtotal	**264**	**309**	**41**
Total	**698**	**780**	**239**

Mouritsen (2003, p. 28), in his overview of four papers produced in a special section of the Accounting, Auditing & Accountability Journal (Bukh, 2003; Garcia Ayuso, 2003; Holland, 2003; Johansson, 2003) addresses how the four authors have raised the question of "whether or not it is possible to invent a readership for whom information on IC will eventually makes a systematic difference". For example, a review conducted by Bukh (2003, p. 54) has concluded that while the disclosure of intangible information has been increasing, there are no clear signs that investors' and analysts' demand for information has been met. For example, the author argues that for IC information to be perceived as important from capital market perspectives, the information should be disclosed as an integral part of a framework communicating the management's understanding of strategy and value creation, and not only showing indicators of general interest (Bukh, 2003, p. 53). Johansson (2003), on the other hand, argues about the obstacles that prevent the understanding of how knowledge resources are going to work when the mentality of capital markets seems to be so numbers oriented.

Mouritsen (2003) concludes his paper with a suggestion on the importance of incorporating two elements, i.e. disentanglement and entanglement, to push towards institutionalising appreciation of IC information. Disentanglement refers to the

process of identifying and recognising IC as a separate asset, while entanglement involves the process of making IC visible and showing analysts how it works in practice (Mouritsen, 2003, p. 29). While it seems there is a long way to go in this regard, it also seems reasonable to assume that the process of constructing IC indices represents the initial steps taken by IC researchers towards disentanglement of one IC asset from another. However, even though the list shows the elements of IC as separate from each other, it is possible that the majority of IC assets are entangled and that each IC element cannot be separated from the others. This means more work needs to be done in convincing readers to see IC as similar to assets listed in the balance sheet. Therefore, what is currently needed is to show how IC works, particularly in the value creation process.

As discussed in Chapter 4, Mouritsen et al.(2001a, 2001c) discuss the revised versions of the IC model by providing a horizontal dimension that examines three different types of management activities (resources, activities, and effects) that can be used to analyse companies' IC. It is proposed that this extended version can provide a more analytical tool for monitoring effects, surveying qualifying activities, and describing portfolios of resources (Mouritsen, 2001c, p. 380). This version, however, is also proposed to help with the presentation of IC information in separate segments. In Malaysia it may be a long shot to expect companies to produce their own IC statement when the CSR statement itself does not have its own separate report. Despite the latter being discussed much earlier than IC, it currently only has a separate section in companies' annual reports. Therefore, in response to (1) the revised model discussed in Mouritsen et al. (2001a, 2001c) and (2) the need to start the ground work of presenting IC information that can lead to the value creation process, this present research has categorised all IC information found in the 30 Malaysian companies'

annual reports under the three types of management activities, i.e. resources, activities, and effects.

Table 32 summarises the total number of IC themes found in the 30 companies' annual reports, which have been categorised into resources, activities, and effects. A conclusion can be drawn from Table 32 that the highest reported management activities fall under the activities category (780 counts) denoting activities undertaken by the management to upgrade, develop, or improve resources. The highest recorded category (339 counts) comes from the external capital category, where its three reported subcategories are business partnering (88 counts), corporate reputation (69 counts), and customers (68 counts). The three items generally represent activities such as collaborating with the government to increase the company's market share, conducting CSR activities that could help to improve the company's reputation, and improving customer services with an aim to increase customers' satisfaction.

The activity conducted under the human capital category (309 counts) mainly concentrates on improving employees' welfare (107 counts), focusing on activities such as providing post-employment benefits and the distribution of share options. The other two commonly seen activities in the annual report are employee relations activities (83 counts) and training and development (64 counts). Employee relations concentrates on the opportunity for employees to be involved with the community through various CSR activities as well as activities conducted under their labour union. In the case of internal capital, which has the lowest amount of activity (132 counts), management focuses mainly on improving or enhancing their management and technological process (75 counts), information and networking system (35 counts), and R&D (18 counts). Among commonly found activities under item management and technological processes are the management initiatives to improve

their quality control or standard processes and activities in relation to their technological and production processes.

The second highest management activity is IC resources, with 698 counts. Based on the explanation in Mouritsen et al. (2001c), resource indicators are about the company's stock of relatively stable objects such as *a customer*, *an employee*, a *computer*, and *a process*. Determining the resource portfolio for external capital and human capital is a fairly straightforward procedure, with both mainly relating to customers and employees as their main resources. The internal capital category has almost no visible resources, with the exception of technology (such as computer hardware). Using the logic of Mouritsen et al. (2001c) that a resource needs to be a fairly stable unit, *a process* represents the most stable unit, in addition to the companies' physical technological appliances.

Therefore, all information regarding the management's philosophy, committees formed to monitor the companies' activities (such as the shariah committee), and procedures or frameworks developed to guide the companies' daily operation, are categorised as part of management resources. This has resulted in the internal capital category having the highest number of resources disclosed at 352 counts. Unfortunately, however, there has been no attempt made by the companies to disclose the extent of their physical technology, such as computer hardware. The closest indication that can be found in the companies' annual reports is information on the book value of companies' computer hardware, software, and information systems. Therefore, for the purpose of this research, such information is treated as representing part of companies' technological resources.

The second highest number of resources identified are under the human capital category (264 counts), most of which is contributed by information on employee measurements (101 counts) followed by employees' welfare (88 counts) and directors

measurement (58 counts). Under employee measurements, examples of information disclosed are number of employees, the extent of employees' knowledge, and their attitudes. Finding potential resources under the item employee welfare presents a similar challenge as that of determining resources for the internal capital category. It is concluded that any policies written by the company concerning their employees' welfare are categorised under the activity *resources*. The least reported resources are found under the external capital category, with a total of only 106 counts. Most of the external capital resources centre around information on the companies' customers (38 counts) such as customers' names, number of customers, and customer segmentation. Other types of resources available are company name (24 counts) as an important indication of the company's presence in the available market information, companies' policies regarding their business partnering (23 counts) and companies' distribution channels (21 counts) — such as the existence of electronic distribution channels and numbers of stores associated with the company.

Lastly, the information on the outcome or the effect from the activities implemented by management is mostly disclosed within the external capital category (162 counts), led by brand building (79 counts), corporate reputation (41 counts), and customers (36 counts). More specifically, the effects of brand building activities are mainly shown through improvements in product quality, market share, and product awards, while corporate reputation's effects are related to the types and numbers of awards received by the companies and by receiving favourable contracts from external parties. As for customers, the effect can be seen in customers' loyalty and support, trust, satisfaction, outcomes of customer service and customer feedback.

The second highest reported information on effects is related to human capital (41 counts). The effects resulting from management activities can be seen from the number of awards received by the companies for their efforts to improve employees'

health and safety standards, the awards received by employees either from their employers or from external parties, and through the analysis of employees' level of productivity (for example, revenue per employee and employee competency index). The least reported effects are under the internal capital category (12 counts), which contains information on companies' IP resulting from management's innovation activities such as R&D, the list of research outputs or the success rates of companies' R&D activities, and the effect of companies' activities in improving their performance appraisal processes.

The above discussion has provided evidence that the annual reports of the 30 companies do contain information on the types of management activities conducted on the companies' IC assets. Table 28 of Chapter 7 extracts information that characterises IC information into resources, activities, and effects. Unfortunately, as the information is presented in annual reports, it is very hard to find IC information presented in a form where a real causality between IC resources, activities, and effects can be made. Very few companies managed to show a link between the three measures. An ideal situation would be where the IC information is presented in a way that allows hypotheses on the direction and nature of interaction between various factors and thus serves as a guide to causal/predictive modelling, if needed (Shapira et al., 2006). Table 28 shows three examples (one for each IC category) extracted from two companies' annual reports, Telekom Malaysia Berhad and Nestlé (Malaysia) Berhad, where the IC information is reported and shows a link between the three types of IC management activities.

The wide distribution of management activities on IC without a real demonstration of causality will add to the difficulty for readers of understanding the value creation said to be brought by IC as part of a company's assets. Malaysian companies can hardly be held responsible for this, as the findings of this research have

provided evidence that the 30 companies are already disclosing information on IC, although possibly without them realising as well as exhibiting a lack of structure. In fact, Malaysian companies have been very detailed in describing their operations, as evidenced through their annual reports (which an average consist of 223 pages). Therefore, a proper establishment of IC framework that provides not only IC indicators, but also guides companies on how information should be structured, will not only make the information presented by companies more relevant, but will be seen as more relevant to the capital market users.

Based on what is currently reported by Malaysian companies, Table 33 provides a list of examples of how IC information can be disclosed using the three types of management activities and showing more insight on the potential value creation of IC. This list is not exclusive and therefore can be added to and improved. As highlighted by Bukh et al. (2001) and Mouritsen, Bukh, Larsen, and Johansen (2002), IC categories and their indicators cannot be seen as separate from each other. Each category and its indicators complement each other, and the productivity of one resource may be improved by investment in another resource (Bukh, 2003). This explains why there are several missing links in Table 33.

For example, the first two IC items listed in Table 33 — management culture and management philosophy — are seen as resources that rarely have direct activities and consequently they will have no direct effects. These items are normally used as resources for other IC items. For example, companies' codes of conduct are designed to guide the employee attitudes that are listed under the human capital category. In another example, activities that are conducted by management on IC resources may have effects listed under other IC items. To illustrate, a company's effort to improve employee welfare may have an effect on employees' productivity, which is listed under the item employee measurements. Therefore, as described in the previous

paragraph, the list under each item and management activity cannot be seen as exclusive and can be seen as a cause and effect relationship with other IC items, regardless of whether or not they are within the same or different IC categories.

Table 33: Example of potential IC information categorised into the three types of management activities

IC categories/items	Resources (examples only)	Activities (examples only)	Effects (examples only)
Internal capital			
Management culture	- Company vision & mission - Code of conduct	-	-
Management philosophy	- Company philosophy towards stakeholders	-	-
Management & technological processes	- Management committee - Business model - Framework and procedures, e.g. CSR framework	- Restructuring activities - Investment to upgrade technological processes	- Shorter production time - Better communication between different levels of organisation
Information & networking systems	- Amount of computer hardware & software - Types of information systems used - Types of networks used	- Upgrading information systems (in cost and the timeline of the upgrading project)	- Decrease in no. of system breakdowns
Research & development	- No. of machines - No. of labs - No. of workers in R&D department - R&D budget	- R&D activities - Upgrading the R&D infrastructure	- No. of research outputs - Success rate of R&D projects
Intellectual property	-	- Application for copyright or intellectual property rights	- No. of trademarks - No. of copyrights - No. of intellectual properties

IC categories/items	Resources (examples only)	Activities (examples only)	Effects (examples only)
External capital			
Financial relations	- Current relationship with financial providers	- Investor relations activities, e.g. conducting media and analyst briefings	-
Brand building	- Brand name	- Implementing brand programs, e.g. introduction of special edition products, introduction of new packaging	- Change in the product market share - No. of awards received
Customers	- No. of customers - Customers' names - Customers by segments	- Activities to improve customer service - Conducting surveys on customer satisfaction - Giving rewards to customers	- Change in customer satisfaction index - Change in customers trust/loyalty
Corporate reputation	-Current position of the company, e.g. leaders in the utility industry	- Types and no. of CSR activities - Investment in media to release information	- Types and no. of awards received - Types and no. of favourable contracts received
Business partnering	- Current policies on business partnering - No. of current agreements with external parties	- Activities conducted with business partners	- Increase in revenue resulting from business partnering
Distribution channels	- No. of stores - No. of electronic channels - Policies on sales and marketing	- Investment in upgrading the distribution channel	- Improvement in delivery time
Human capital			
Employee measurements	- No. of employees - Employees' level of education - Employees' skills	-	- Productivity per employee - Employee competency index - Revenue per employee
Training &	-	- Investment in	- No. of employees

IC categories/items	Resources (examples only)	Activities (examples only)	Effects (examples only)
development		employees' training & development - Sponsorship for company education	graduated - No. of employees completing the training program
Directors' measurement	- No. of directors - Directors' level of education - Directors' professional experience	- Training & development programs conducted	- Recognition received from external parties
Equity issues	- No. of employees by gender and race - No. of women in management - Policies on employee equality	- Activities conducted showing evidence of equality for all employees	-
Employee relations	-	- Employees' opportunity to interact with community - Employees' opportunities to organise social functions - Activities through labour union	- Amount of external recognition received by external parties
Employee welfare	- Policies on employees' benefits	-Investment in employees' benefits either monetary or non-monetary	-
Entrepreneurial skills	-	- Investment to support employees' innovation	- Amount of innovation produced by employees - Amount of recognition received
Employee health & safety	- Policies on employees' health & safety	-Investment in program to enhance employees' safety	- Amount of recognition received - Compliance with safety regulations - No. of employee absences

8.4 Quality of IC reporting

In addition to the analysis on extent of disclosure and the categorisation of IC information into the three types of IC management activities, this research also resolves to address information quality using two qualitative characteristics, i.e. form of disclosure and location of disclosure. The idea of analysing quality of disclosure is motivated by Guthrie et al.'s suggestion that this will mitigate the loss of information, characterised by considering only quantity of information disclosure (Guthrie et al., 2004, p. 289). In addition, it is argued that those capturing purely volumetric and/or frequency based content analysis data (for example, April et al., 2004; Oliveras et al., 2008; Sonnier et al., 2008) are manifestly limited in their power to describe content and trends (Campbell & Abdul Rahman, 2010, p. 60).

Therefore, as indicated at the beginning of this section and as discussed in Chapters 5 and 7 of this thesis, forms of disclosure and location of disclosure have been chosen as two quality measures for this research. The former quality measure has been one of the most popular forms of quality measures with variation in the scales (or no scale) used (see Campbell & Abdul Rahman, 2010; Schneider & Samkin, 2008; Yi & Davey, 2010). However, location of disclosure has been less popular, despite the proposition by Gutrie et al. (2004) that it is one of the potential quality measures that can yield a more meaningful result. Among studies that do venture into the analysis of IC by location are Guthrie et al. (2006) and Steenkamp (2007). As discussed in Chapter 7, the correlation tests conducted on the two quality measures and extent of disclosure have shown a significant positive relationship, providing evidence of the validity of the measures constructed. The quality measures, however, extend the analysis on IC disclosures by providing more insights on companies' behaviour when the information is reported. The following paragraphs discuss the results for both quality measures.

8.4.1 Forms of disclosure

Table 34: A summary of results for quality of reporting — form of disclosure (by IC categories)

Description	Form of disclosure	Weight	Internal capital	External capital	Human capital	Total count
IC indicator being discussed using narrative whilst discussing other IC items or the discussion is made using with limited reference or value comments. IC indicator being disclosed using visual images or quantitative information but with no detailed explanation attached directly to it.	Obscure	1	185	383	289	857
The IC indicator is discussed (not with any other IC item) using a detailed narrative (without supporting images or quantitative information).	Descriptive	2	285	303	281	869
IC indicator has been expressed using narratives and supported with either quantitative information (monetary or non-monetary) or **visual** images.	Strongly descriptive	3	209	363	260	832
Total quality score			**1,382**	**2,078**	**1,631**	**5,091**

Key: IC, intellectual capital.

Table 34 shows that IC information has spread into all levels of quality disclosure with *descriptive* having the highest amount of IC information, with a total of 869 IC themes present. This result is consistent with the results of most IC studies that look at forms of IC disclosure where IC is predominantly written in narrative form only (for example, Sujan & Abeysekera, 2007; Campbell & Abdul Rahman, 2010; Yi & Davey,

2010). Campbell and Abdul Rahman (2010, p. 65) argue that such a result is expected given the narrative-driven nature of annual reports. Furthermore, companies' tendencies to opt for narrative rather than numbers could possibly be related to the relative complexity of most IC information, unlike traditional physical assets (Campbell & Abdul Rahman, 2010). In fact, the IC statement approach to IC reporting recommended by the Danish Guidelines and affirmed by the parallel MERITUM project utilised narratives as the foundation of IC reporting (Alkaniz, Gomez-Bezares, & Roslender, 2011 p. 105).

Despite *descriptive* being the top form of disclosure, the difference between it and the other forms of disclosure is fairly small, with a difference of 12 between *descriptive* and *obscure*, and a difference of 37 presences of IC themes between *descriptive* and *strongly descriptive*. The small difference is possibly due in part to the fact that narratives are categorised under the other two forms of disclosure. To illustrate, the second most used form of disclosure is *obscure*, with a count of 857. *Obscure* denotes any IC themes disclosed with a limited discussion either through the use of narrative, numbers, or visual images. This form of disclosure seems to be a fairly popular option because IC is still a fairly new concept with very limited guidelines available on how it can be measured and how it should be disclosed in companies' reports.

On the other hand, some of the items that are recognised as IC can be argued as *obscure* in nature. For example, companies' values and philosophy are part of companies' IC, which are normally disclosed using narrative and possibly with a very limited discussion. Nonetheless, the analysis has found evidence of companies taking extra steps by providing not only a longer narrative, but also supported it with images. In the annual report of Public Bank Berhad, for instance, one of its business philosophies is to become "customer centric". In addition to this simple statement, the

following information can be found on page 17 and 18 of the company's 2008 annual report:

Figure 13: Example of a 'strongly descriptive' form of disclosure (Public Bank Berhad, 2008, p. 17-18)

Figure 13 is interpreted as communicating one of the company's philosophies, categorised as strongly descriptive on the basis that it is disclosed with additional explanation and supported with visual images (the sad and smiley faces). The ability of companies to take extra measures to explain a particular item can be interpreted as representing the level of importance the item has to the company.

Figure 13 provides a good example of an item that is narrated and supported with images providing a more meaningful and possibly more effective way of communicating the intended message. If the company only stated the words *customer centric,* the information may have looked less important and less effective. As described in Chapter 5, "the numbers show that management is serious about IC and can be held accountable to its words and espoused aspirations. The sketches/images

construct certain 'wholeness' in the organisation of numbers, while the story/narrative suggests how the legitimacy of the intellectual capital statement is formed" (Mouritsen et al., 2001a). Therefore, a combination of at least two of the forms of disclosures should have a bigger impact on readers. This leads us to the highest form of disclosure, *strongly descriptive*, which shows the lowest count of presences, i.e. 832 counts. Nonetheless, despite having the lowest count, the small difference between it and the other two forms of disclosure (25 and 37 counts respectively) suggests that the 30 companies are distributing their information fairly evenly among the three forms of disclosure. While narrative seems to be the most preferred form of communication, images and numbers are also used to support the disclosed narratives on at least 832 occasions.

In comparing the quality of each IC category under the form of disclosure, the results are consistent with the extent of disclosure, where external capital earns the highest quality of disclosure (2,078). This is followed by human capital (1,631) and internal capital (1,382). The overall quality score for all three categories is 5,091. While there is no direct comparison that can be made to measure whether this is a strong quality level or not, the results indicate that the 30 companies have a modest commitment in communicating their IC information to external audiences (Guthrie & Petty, 2000). This is evident through the existence of all three forms of disclosure in all IC categories and almost all IC items.

8.4.2 Location of disclosures

Table 35: A summary of results for quality of reporting —location of disclosure (by IC categories)

Location	Weight	Internal capital	External capital	Human capital	Total counts
Financial sections (e.g. financial statements, notes to the financial statements, financial highlights)	5	94	165	186	445
Chairman/chief Executive review &vision/mission/philosophy/strategic sections	4	190	311	150	651
Business/operational sections (business operating review, operations review)	3	147	290	118	555
Special section (e.g. CSR report)	2	101	75	157	333
Others (e.g. corporate governance section, front page, calendar highlights, calendar of events, corporate profile, awards & accolades, and etc.)	1	213	414	266	893
Total quality score		**2,086**	**3,503**	**2,464**	**8,053**

Key: CSR, corporate social responsibility.

Based on the result summary in Table 35 it is concluded that the highest count of IC themes are available in the section *others*, which consists of subsections such as *corporate governance, front page, calendar of events* and *awards*. As shown in Table 35, the highest count of IC themes is under the external capital category, with 414 counts. From this number, 128 and 116 counts of IC themes come from brand building and corporate reputation, respectively (see Table 29 in Chapter 7). One of the contributors to this concentration on brand building and corporate reputation may have been due to most of the companies' initiatives (27 out of 30 companies) to use subsections such as *corporate diary, calendar of events,* and *awards and accolades*, to

highlight and list all of their achievements throughout their 2008 financial calendar year.

The sections that have the least IC information are the special sections such as the CSR section (333 counts), followed by the financial section (445 counts). Despite CSR activities being among the most reported IC indicators (the third highest between all IC indicators and the highest in the external capital category), the small count of IC themes may have resulted from the section being limited to CSR activities only. On the other hand, other sections, such as the business review section, offer a fairly broad scope as compared to the CSR section. This provides an opportunity for the company to highlight its various business strengths more freely. Tenaga Nasional Berhad, for example, has used their business operating review section to provide a detailed discussion on all 12 divisions of the company. As for the lack of IC themes in the financial section, Guthrie et al. (2006, p. 267) argues that this is to be expected, as the current companies' law and accounting standards provide no specific requirement to quantify IC information.

As described in Chapter 5, in measuring the quality of disclosure, each subsection in the annual reports is categorised into five sections and each is given its own weight, with 5 scored as the highest and 1 as the lowest. The total quality scores have shown that the results are fairly consistent with extent of disclosure, with external reporting earning the highest total quality scores and internal capital earning the lowest scores. Similar to the form of disclosure, since there is no direct comparison that can be made to measure whether this displays a strong level of quality, the results show that the 30 companies have a modest commitment in communicating their IC information in sections that are perceived as important to the users and more likely to be read. The higher quality level for external capital provides a signal that external capital is the most important information that the company

believes readers should know, considering they are reported in a location perceived as most likely to be read by the users of annual reports. Internal capital information, on the other hand, receives a much lower quality level, indicating companies' unwillingness to share their internal capital information with readers. This is expected, as the internal operation of the companies is possibly seen as important to the internal management and not to the external users.

In addition, the results have shown that IC themes are available in all sections of annual reports. This provides further confirmation on the lack of guidelines and regulations surrounding the reporting of IC information, leading to the information being available all through the annual reports without even a small heading entitled *intellectual capital*. The availability of IC information in all of the five sections also highlights a concern, particularly for regulators, on whether it is relevant to have a special section or a special report on IC. Will a special section or report on IC create an overflow of information that is already being disclosed in annual reports? With most of the IC reporting studies (including this research) providing evidence of the availability of IC information in annual reports (see Bozzolan et al., 2003; Goh & Lim, 2004; Sujan & Abeysekera, 2007), perhaps what is needed is to take a step back and consider what is already disclosed in annual reports, instead of looking at IC as a potentially new reporting concept. This brings us back to the IC issue raised by Mouritsen (2003) that it is hard to make a distinct boundary around IC and of the need to disentangle IC from, and entangle IC with, the entity to which it is attached.

8.5   Chapter summary

This chapter provides a discussion on results derived from the content analysis, i.e. the extent of disclosure, the types of IC management activities, and the quality of reporting. Generally the results have provided evidence of the availability of IC

information in the 30 companies' annual reports, and the information can be found in almost every section of annual reports using all forms of disclosures. In all three cases, external capital has earned the highest count of IC disclosure as well as the highest quality level. However, in the case of IC management activities, even though there is evidence of companies reporting all three types of activities, i.e. IC as resources, activities, and effects, there is a lack of disclosure that shows all three and their cause-and-effect relationship. The next chapter will provide a discussion on how the extent of IC reporting discussed in this chapter reflects the state of Malaysian K-based initiatives. The discussion will help to provide further support for the decision to use proactive legitimacy theory as the theoretical foundation of this research.

CHAPTER 9:   EXTENT OF IC REPORTING AND THE STATE OF THE MALAYSIAN MASTER PLAN

9.1   Introduction

This chapter provides a discussion on how the extent of IC reporting among the 30 Malaysian companies reflects the state of Malaysian government initiatives towards the KBE. This chapter is outlined as follows: Section 9.2 discusses the results of extent of IC reporting from the perspective of the Master Plan launched. The discussion provides further evidence on how companies' IC reporting can be explained through proactive legitimacy theory. Section 9.3 documents the results and discusses the one-way ANOVA tests conducted to further support the use of proactive legitimacy theory. Section 9.4 concludes the chapter.

9.2   Extent of IC reporting and the state of the Master Plan

Table 36: The Master Plan and its relevant IC categories, items, and indicators

IC categories/items/indicators	Extent (count of IC theme)	No. of companies reported	Relevant Master Plan STs
Internal capital			
Intellectual property: Patents, copyrights, trademarks, intellectual property	93	9	ST3(3.3, 3.16)
Management & technological processes: Technological and production processes	267	19	ST3(3.1, 3.9, 3.16); ST4 (4.1, 4.3)
Management & technological processes: Organisational structure	0	0	ST5 (5.8)
Information and networking systems: Networks, databases, hardware	2,206	28	ST3 (3.1, 3.8, 3.9, 3.10, 3.11, 3.12); ST4 (4.1, 4.3)

IC categories/items/indicators	Extent (count of IC theme)	No. of companies reported	Relevant Master Plan STs
& software, IT system & programs, bandwidth, support & recovery system			
Research & development: R&D policies, R&D budget, output/success rate, research quality & awards, R&D infrastructure, projects to date	236	13	ST3(3.2, 3.3, 3.4, 3.24); ST 4(4.2, 4.3); ST5 (5.4); ST6 (6.8)
External capital			
Customers: Customer services	415	25	ST 4 (4.1)
Company reputation: CSR activities	2,584	30	ST1 (1.24); ST3 (3.9); ST5 (5.1); ST7(7.1, 7.3, 7.5, 7.6, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15)
Business partnering: Research collaboration, licensing agreements, government collaboration, rights agreements, business partnerships, expertise sharing, industry development collaboration, training collaboration, marketing partnerships, strategic alliances, joint ventures, MoUs	1,752	30	ST 3 (3.1, 3.4); ST 4 (4.1); ST 6 (6.8)
Distribution channels: Supply/distribution channels, delivery systems, store networks, electronic channels	3,050	23	ST 4 (4.1)
Human capital			
Employee measurements: Profiles of top management	1,860	14	ST1 (1.60, 1.61, 1.62)
Directors measurements: Profile of directors	6,568	30	ST1 (1.60, 1.61, 1.62)
Training & development: Continuing education offered	555	21	ST1 (1.37, 1.40, 1.41, 1.44, 1.48, 1.58); ST3

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IC categories/items/indicators	Extent (count of IC theme)	No. of companies reported	Relevant Master Plan STs
to employees, career development, vocational development, training, international exposure, exchange programs, knowledge sharing programs			(3.7); ST4 (4.1); ST7 (7.3)
Equity issues: Number of employees by race, gender, and religion, management by gender	38	10	ST7 (7.2, 7.4)
Employee relations: Recognition from employers, external recognition	196	21	ST1 (1.60)
Employee relations: Union/club activities	0	0	ST1 (1.59); ST5 (5.5)
Entrepreneurial skills: Employee innovation	51	7	ST1 (1.58); ST3 (3.7)

Key: ST, strategic thrusts; CSR, corporate social responsibilities; MoUs, memorandum of understandings; R&D, research and development; IT, information technology

While there is evidence of Malaysian companies proactively reporting IC information in their annual reports, the proactive legitimacy theory used in this research proposed that the core ingredient to a more explicit social contract between companies and the society is the government initiatives towards a KBE. As discussed in Chapter 6, the Master Plan launched by the Malaysian government in 2002 has explicitly acknowledged that IC represents a portfolio of organised knowledge. Therefore, the use of the IC index in this research provides a good avenue to measure the state of companies' awareness of the Malaysian government's initiatives to build a country with a KBE.

It is acknowledged, however, that even though the analysis is intended to highlight interesting developments in light of proactive legitimacy theory, the analysis cannot be linked to the actual performance of the companies. The annual report

represents a document where the company communicates the information it wishes to have publicly available (Deegan & Unerman, 2006). As it is very subjective to directly measure companies' legitimacy by looking only at their annual reports, this research has taken the approach of making an inference on the state of the company's legitimacy by looking at information disclosed that is consistent with the government's Master Plan.

Table 36 presents the extent of relevant IC reporting available in companies' annual reports represented by IC categories, items, and, most importantly, the relevant STs in the Master Plan. To recap, the Master Plan proposed seven STs to help Malaysia realise the KBE vision:

i. ST1: Developing K-based human resources (64 recommendations).

ii. ST2: Setting up the institutions to drive the KBE (4 recommendations).

iii. ST3: Ensuring the incentives and infostructure for the KBE (27 recommendations).

iv. ST4: Building the S&T capacity for the KBE (5 recommendations).

v. ST5: Private sector spearheading the KBE (8 recommendations).

vi. ST6: Fast-forwarding the public sector into the K-based civil service (13 recommendations).

vii. ST7: Bridging the knowledge and digital divide (15 recommendations).

From the seven STs listed above, only ST2 is found to be less relevant to private sector companies. ST2 concerns the setting up of, or the changes that need to be made to, various committees, task forces, and working groups that form the institutional superstructure of the government.

9.2.1 Discussion of IC categories, items, and indicators in relation to the Master Plan

Throughout the analysis process, only two companies — Telekom Malaysia Berhad and YTL Corporation Berhad — have explicitly specified their intention of supporting the Malaysian government to foster the KBE. For example, Telekom Malaysia Berhad has made it one of their key initiatives to foster a K-based nation. The following statement can be found in Telekom Malaysia Berhad's annual report (2008):

> In its vision to propel Malaysia into the global sphere, the government has stressed the importance of developing the nation's ICT capabilities and for Malaysians to embrace fully the opportunities offered by the latest advances to upgrade our skills and knowledge. TM has played a crucial role in both regards. As a telecommunications company, it has kept up with evolving technologies and adopted these in its product and service offerings. As a responsible corporate organisation, it is capitalising on its ICT expertise to nurture an entire nation that will be better positioned to face the increasingly challenging demands of globalization and technopreneurship.(p. 170)

For the other 28 companies, while there is no explicit statement found on this, it is safe to conclude that they have made it part of their CSR to help build a K-based nation through activities such as educational sponsorship and collaboration programmes to improve education levels in rural areas. Table 36 shows that all 30 companies have integrated such activities — either through direct or indirect involvement— in their CSR initiatives, with this being the third highest reporting of IC themes (2,484 counts). These activities cover part of four STs (ST1, ST3, ST5, and ST7), with the main focus on ST7. To illustrate, in the 2008 annual report of IOI Corporation, the company has sponsored the creation of 22 of the 51 schools meant for the children of the plantation workers in Sabah. The works are conducted by the Borneo Child Aid Society in Sabah (or *HUMANA*). This effort is consistent with ST7 (7.6), i.e. to dramatically increase the number of residential schools for the disadvantaged and the needy amongst Malaysian students. It is important to highlight that while it is impossible to determine companies' true intentions in participating in

such activities, the fact that the information is disclosed provides evidence of the company's belief that such activities are not only helping the nation, but can also help to improve the company's reputation.

Apart from companies' CSR activities, business partnering and distribution channels are another two IC items under external capital that are affected by the Master Plan, and display a fairly high level of reporting (1,752 and 3,050 counts each). Business partnering, for example, has seen companies entering different types of collaboration such as R&D, licensing and rights agreement, and training collaboration. Collaboration has been a term used by the Master Plan as a potential means for transferring K-based assets between different players in Malaysia and internationally. All 30 companies have voluntarily provided information with regard to their partnerships, collaborations, joint ventures, and strategic alliances formed with external parties. On the other hand, the least reported information under external capital is information related to customer services, with 415 IC theme counts from 25 companies. As far as the Master Plan is concerned, the focus is on improving companies' relations with their customers (ST4), as part of the knowledge assets that offer companies sizeable opportunities for greater comparative advantage. In this present research, the thrust is interpreted as referring to the information pertaining to the companies' customer services. As shown in Table 36, 25 companies have used their annual reports to illustrate activities implemented to enhance their customer service.

The highest level of reporting in Table 36 is information on directors' measurements, with all 30 companies providing information on this. A very high number of IC themes reported in this IC item is largely due to the fact that the companies are complying with the MCCG, leading to fairly lengthy narratives on the profiles of their directors. However, the concern of this research is the information

presented as companies' knowledge assets. In the specific case of the Master Plan, the directors' profiles provide a venue to assess whether companies are recruiting top level foreign talents as recommended by ST1 of the Master Plan. The profile has given an in depth description of the expertise of each company's director and whether or not the directors are local or foreign talent. Unfortunately, this information is only available for companies' directors and not for other employees. For example, under the profiles of the top level management team, only 14 companies (1,860 counts) have voluntarily provided a detailed discussion on their top management team members' profiles, including providing information on the levels of their expertise.

The recommendation to have more foreign talent in ST1 could potentially contribute to lack of employee entrepreneurial skills among the Malaysian labour market. As seen in Table 36, only seven companies or 51 IC counts provide information on their employees' innovation skills. In addition to lack of evidence on employees' innovation, the other human capital issues that are found to be relevant to the Master Plan are training and development (ST1, ST3, ST4, and ST7), equity issues (ST7), and employee relations (ST1). From Table 36 it can be concluded that the three issues have not been incorporated by all 30 companies. All issues are considered relevant to the companies as they involve the employees that are part of the companies' operation. Therefore, if the information is not available in the annual report, it can either be due to those companies' unwillingness to disclose the information, or there has been no action taken on these particular issues.

Training and development can be considered as one of the core ingredients for building a K-based nation, with the issues being repeated in four thrusts (ST1, ST3, ST4, and ST7). However, out of the 30 companies, only 21 companies disclosed information regarding their employees' training and development. The result is supported with a survey conducted by the GCR 2008-2009. The report presents a chart

summarising those factors seen by business executives as the most problematic for doing business in their economy. The information is drawn from the 2008 edition of the World Economic Forum's Executive Opinion Survey. From a list of 15 factors, respondents were asked to select the five most problematic ones, and to rank those from 1 (most problematic) to 5. The results were then tabulated and weighted according to the ranking assigned by respondents. From the 15 factors listed in the survey, *inadequately educated workforce* was ranked number 6 (Porter & Schwab, 2008), giving an indication that there are steps that need to be taken to improve the level of training and development among Malaysia's employees.

In relation to equity issues, ST7 of the Master Plan has emphasised the importance of leveraging all human capital potential, regardless of gender. However, despite the fact that gender issues are relevant to all companies, 9 of the 30 companies have provided no information on this matter. The information is also limited to numbers that show the proportion of female versus male employees. From the 21 companies, Public Bank Berhad is the only company that has taken the extra step of disclosing information on the percentages of their women employees that are in management and top management. The company has also implicitly shown their support towards gender equality by disclosing other information such as their participation in the Women Entrepreneurs Carnival, meant to support women in small and medium sized enterprises (SMEs).

Lastly, on the issue of employee relations, the Master Plan has promoted the trade union involvement in lifelong learning and encourages employers or other institutions to provide incentives to individuals that support the K-based environment. The latter recommendation is something that has been practiced not only by employers but also other related organisations, with 21 companies providing information about their employees receiving some form of recognition from the

activities conducted by their employees. However, there is, no evidence (0 counts of IC theme and 0 number of companies) found in the annual reports of activities concerning employees' unions that directly bargain for lifelong employability or lifelong learning. While it is highly possible such bargains exist, the annual reports so far have been used to report unions' activities in relation to social activities, either among the union members or through the union interacting with the society.

The internal capital category is affected by the Master Plan particularly on the ability of the companies to incorporate ICT in their daily activities, such as usage of technology in companies' production processes and enhancement of companies' R&D. ST3 of the Master Plan, in particular, puts an emphasis on the need for companies to build or strengthen their infostructure for knowledge diffusion, knowledge management, telecommunications, and networking. The recommendations outlined by this thrust will have more relevant implications for the companies' management and technological processes and most certainly their information and networking systems. Table 36 shows that the latter has presented the highest count of IC themes (2,206 counts), within the internal capital category, with disclosures from 28 companies for the internal capital category. More than half of the information and networking systems items comes from companies' disclosure on the value and related policies of their hardware and software (1,287 counts), that are mostly available in their financial statement sections.

Nonetheless, there are companies that have taken an extra steps by presenting information about their network system such as their internet and intranet systems (12 companies and 426 counts), databases (4 companies with 22 counts), IT systems and programs (269 counts from 18 companies), bandwidth (1 company and 19 counts), and support and recovery systems (183 counts and 3 companies). To illustrate, the following statement provides evidence on how Plus Expressways Berhad (2008)

enhances their operation through building up a stronger infrastructure that supports the infostructure for knowledge creation and diffusion within the company.

> The year also saw us rolling out the web-enabled Executive Information System ("EIS") module of TEMAN [Total Expressway Maintenance Management System]. The EIS contains an executive summary of other sub-systems within TEMAN, relevant statistical and economic data as well as information on other expressways, locally and abroad. With this web-based system, our management now has a more effective way of retrieving records pertaining to expressway asset management and other relevant information to assist them in decision making. (p. 111)

This activity is consistent with ST3 (3.8) of the Master Plan— building the infostructure for knowledge creation and diffusion.

One of the core ingredients for K-based nations is to encourage companies to develop their R&D capability, which in return leads to greater innovation by companies such as creating more IP. Based on the summary of results in Table 36, the disclosure of companies' R&D and IP leans towards a lower rate of reporting with only 13 companies (236 counts) and 9 companies (93 counts) respectively. The low reporting rates of these two items could possibly lead to the conclusion that government propositions to encourage more R&D activities and the creation of companies' IP requires a more robust effort. The Master Plan has listed recommendations that encourage companies to strengthen their technological capabilities as well as strengthening the role of government itself to protect the commercial exploitation of technological innovations.

As discussed in Section 8.2.3, IP protection has put Malaysia at a competitive disadvantage stage and requires more work. It is important to highlight here that information regarding companies' R&D and IP, particularly the costs associated with them, has been addressed by MASB's FRS 138. Therefore, the low reporting rates of this information could either mean the issues are not relevant to companies' activities,

or if the information is relevant, the company has opted for non-compliance. The former seems to be a more likely explanation.

The lowest reporting level shown in Table 36 is companies' management and technological process items, looking particularly at companies' organisational structure. One of the recommendations made by the Master Plan is to have companies restructure their organisations to meet the needs of the KBE (ST5 − 5.8). The recommendation highlights the inappropriateness of the traditional hierarchical organisation of companies in the KBE. It is noted that innovation, networking, and encouragement for knowledge workers would be better served by a more "flat" organisation with a reduced level of hierarchy. While the IC index includes organisational structure as part of companies' internal capital assets, there is no evidence of the 30 companies reviewing their organisational structure to meet the needs of the KBE. Furthermore, the lack of evidence on whether flat or "tall" organisational structures can provide better compatibility for the KBE, and the fact that the Master Plan itself is, in its current form, a recommendation, means less urgency for companies to take the extreme measure of restructuring their organisations at this stage.

9.2.2 Is the Master Plan a success?

The seven STs listed in the Master Plan generally focus on four focal points—to have knowledge and skilled human capital, to have adequate support for education and training infrastructure, to develop an R&D capability, and to ensure a strong S&T base. Based on the analysis of the 30 companies' annual reports, this research concludes that all 30 companies under review have built a foundation in knowledge competencies and capabilities and have embarked on some form of knowledge acquisition, generation, and processing activities. Due to the nature of this research,

there is no certainty that what companies are doing, in general, is for the benefit of the society or the nation. However, the efforts taken support the proposition that the 30 companies have proactively disclosed their IC information as a means of legitimising their activities within the K-based environment.

Nonetheless, even with the signs of change in light of the KBE initiatives, as discussed above, there are several key areas that are still lacking — particularly in the areas of innovation, R&D, and IP. This conclusion is supported by several publications that specifically look at the development of the KBE among developing countries (for example, Bathiasevi, 2010; Ramasamy et al., 2004; Shapira et al., 2006). Malaysia may be a step ahead of other developing countries, particularly within the South East Asian region, but it is still lagging behind other developed nations. To illustrate, a study conducted by Bathiasevi (2010) has concluded that between Thailand and Malaysia, Thailand still lags behind in almost every aspect and should use Malaysia as a benchmark towards the progress of KBE. Another study conducted by the ADB shows Malaysia is leading other South East Asian countries — except Singapore (a developed country) — in the area of innovation and information and communication technology (ADB, 2007). Paragraph 132 of the report further states that "Malaysia acknowledges its weak innovation performance, considering its low R&D expenditure in relation to GDP and the small number of patent applications, which was only a small fraction of the applications in Japan and the Republic of Korea" (ADB, 2007, p. 30).

Another study conducted by Ramasamy et al. (2004) once again emphasises that there is sufficient evidence to show that Malaysia lags in key indicators when it comes to innovation and entrepreneurial spirit. Therefore, if a question is asked on whether or not Malaysia has been successful in achieving its KBE through the Master Plan, the answer would be, "not yet". However, as described by Ramasamy et al. (2004, p.

882), "the creation of a knowledgeable and innovative society cannot happen in a short span of time". Since the ground work has already started, what is needed is a greater effort by the government to raise as many companies as possible closer to the current best-practice levels of K-based content (Shapira et al., 2006).

The use of the IC index developed in this present research provides a tool for the authorities to measure the extent of K-based content among Malaysian companies as a means to assess the progress of K-based initiatives. As illustrated in Chapter 6 of this research, in 2010 the Malaysian government, under a new prime minister, launched the NEM — which outlines eight SRIs. As one of the key players in the Malaysian economy, the private sector has been enlisted by the NEM as the main driver of growth in a market environment that rewards innovation and creativity. It is proposed that the IC index is one of the relevant tools that the government can utilise to assess the progress of this new plan. It is not the intention of this research to provide an analysis of the plan using the current IC index due to the sample used being from 2008, i.e. prior to the launch of this new model. However, Table 37 documents the suggestion for possible link between the current IC index and the relevant SRIs (refer to Chapter 3) listed under the NEM.

Table 37: IC categories and items and the relevant SRIs under the NEM

IC categories/items	Related SRIs*
Internal capital	
Intellectual properties	1.1,1.2, 6.6
Corporate culture	
Management philosophy	
Management and technological processes	6.7, 7.1, 7.7, 7.8, 8.1, 8.2, 8.3, 8.6
Information and networking systems	1.3, 7.7
Research and development	1.4, 6.8, 7.1, 7.2
External capital	
Financial relations	
Brands	7.3, 7.4, 7.6

IC categories/items	Related SRIs*
Customers	
Corporate reputation	3.1, 3.2, 8.4
Business partnering	2.1
Distribution channels	
Human capital	
Employee related measurements	6.4, 6.5, 8.5
Directors related measurements	
Training and development	2.2, 2.3, 2.5, 7.5
Equity issues	2.7
Employee relations	
Employee welfare	2.4, 2.6
Entrepreneurial skills	3.1
Employee safety	

*The complete list of SRIs under the New Economic Model is available in Chapter 3 of this research

9.3 Industry and ownership effects

9.3.1 Industry effects

Table 38: The extent of IC reporting and the effect on industry types (7 industry groups)

Industry types	M&T	Bank	CP	HRL	EGU	CIS	Plant.
Extent of IC reporting (overall)							
Mean	1504.00	2142.83	1132.00	659.00	863.86	1918.33	754.33
Std. Dev.	880.82	498.65	502.04	238.95	568.23	1237.63	149.86
F-value	3.693						
P-value	.010						
Extent of reporting (internal capital)							
Mean	381.50	518.33	291.25	102.33	206.71	337.67	164.00
Std. Dev.	247.42	138.13	145.38	14.15	178.27	201.44	55.11
F-value	3.400						
P-value	.015						
Extent of reporting (external capital)							
Mean	606.00	1066.50	360.25	292.67	278.71	480.00	245.33
Std.	269.05	444.20	176.90	208.30	200.52	92.63	120.79

Industry types	M&T	Bank	CP	HRL	EGU	CIS	Plant.
Dev.							
F-value	6.222						
P-value	.001						

Extent of reporting (human capital)

	M&T	Bank	CP	HRL	EGU	CIS	Plant.
Mean	516.50	558.00	480.50	264.00	378.43	1100.67	345.00
Std. Dev.	404.35	353.88	270.89	49.79	230.28	1109.25	106.97
F-value	1.339						
P-value	.281						

Key: IC, intellectual capital, M&T, media & telecommunication; Bank, banking; CP, consumer products; HRL, hotel, restaurant, & leisure; EGU, energy, gas, & utility; CIS, consumer and industrial services; Plant, plantation.

Table 39: The extent of IC reporting and the effect on industry types (knowledge-based versus non knowledge-based industries)

Industry types	K-based industry		Non-K-based industry			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**F-value**	**P-value**
Extent (overall)	1790.27	747.382	1039.47	711.546	7.481	0.011
Internal capital	432.91	206.785	226.21	157.440	9.538	0.005
External capital	829.18	449.785	323.58	179.770	19.144	0.000
Human capital	528.18	337.640	489.68	496.697	0.052	0.822

Key: K-based, knowledge-based.

Table 38 and Table 39 summarise the one-way ANOVA tests conducted to compare means of IC reporting between different industries types and between different types of ownership, either by overall IC reporting or by IC category. The mean represents means of IC counts found in the respective industries. The first test (Table 38) shows seven different types of industry classification used as the source of variation. The result shows a significant industry effect on the 30 companies' extent of IC reporting (overall), with $p < .05$. This result is to be expected given that each industry carries different attributes and relies on different levels of technology, as well as requiring different levels of knowledge workers. The result is supported by the study conducted by Shapira et al. (2006), which looks at the level of knowledge content among

different types of industries in Malaysia. It is concluded that industries vary by specific knowledge content components, reflecting differences in industrial characteristics and business strategies (Shapira et al., 2006). In this present research the banking industry has earned the highest mean, which could be explained by this industry becoming more reliant on technology to upgrade its services, as well as needing a much higher level of skill from knowledge workers to offer good financial service to their customers.

The banking industry is an industry that has been going through major changes over the past 20 years, with efforts being made to automate what was previously a manual process (Ali & Ahmad, 2006). The governor of Bank Negara Malaysia herself emphasised the importance of IC in the banking industry during the official launch of the *Towards a Knowledge-Based Organisation* program in October 2000,with the following statement:

> If we are to be a central bank, with farsightedness and an ability to face new challenges, we need to be equipped with the expertise and the means to implement appropriate policies, and have confidence in our actions. An important component of this future is that the Bank must fully embrace and employ the principles of knowledge management. Whilst the principle objectives of the central bank remain unchanged, the new knowledge management strategies refocus the Bank's policies and practices in managing knowledge as a key corporate asset and in leveraging and exploiting knowledge to better achieve these objectives (Ali & Ahmad, 2006).

Goh (2005), who measures the IC performance of commercial banks in Malaysia for the period 2001–2003, further claims that physical capital is crucial for financial institutions' operations, but eventually it is the IC that determines the quality of services provided to the customers.

This conclusion is further supported by an additional test on the effect of industry types, where all 30 companies were divided into two groups — K-based versus non-K-based industries (Table 39). Once again, the test shows a significant difference between these two groups ($p < .05$), where K-based industry earns a higher

mean level. However, with a more in depth analysis, where the extent of reporting is broken down into the three categories of IC, both industry effects were proven to have no significant impact on companies' human capital reporting ($p > .05$). The rationale may have been due to the fact that every company, regardless of industry, has to rely on humans to operate the business.

It is almost impossible to accurately determine which legitimacy strategy is intended by each industry by only looking at the extent of disclosure. However, with the Malaysian government explicitly promoting possible incentives for K-based industries, the higher reporting level of IC information, particularly by K-based industries, provides evidence of the proactive strategy taken by the companies. The disclosure of IC information in the absence of formal guidelines suggests that companies, particularly K-based companies, have taken the lead in providing the relevant information. While there is no evidence of Malaysian companies restructuring their organisational structure to suit the KBE, the k-based industries seem to be more proactive in investing in IC. This is reflected in the reporting of IC information in anticipation of future changes that will be made by the Malaysian government, as recommended in ST3 (3.14, 3.22, and 3.26) of the Master Plan. The three recommendations generally provide a list of potential incentives that Malaysian government plans to grant to k-based industries that are actively promoting k-based economy. In return, the industry may believe that it has further legitimised its position in society, particularly in the areas that previously could not be legitimised under the traditional reporting system. Therefore, the tests on the effect of industry on companies' extent of IC reporting have supported the propositions made by $H1_a$ and $H1_b$.

This then supports the use of proactive legitimacy theory as the theoretical foundation for IC reporting among the 30 companies.

9.3.2 Ownership effects

Table 40: The extent of IC reporting and types of ownership

Types of ownership	GLCs		Non GLCs			
	Mean	Std. Dev.	Mean	Std. Dev.	F-value	P-value
Extent (Overall)	1595.18	892.578	1152.42	718.547	2.215	0.148
Internal capital	368.09	215.754	263.74	187.091	1.939	0.175
External capital	507.46	235.707	509.84	461.283	0.000	0.987
Human capital	719.64	618.998	378.84	229.779	4.738	0.038

Key: GLC, government linked company.

The second test looks at the effect of companies' ownership regarding whether or not GLCs have reported a higher level of IC as compared to non-GLCs (Table 34). Yau et al. (2009) show a significant relationship between companies' ownership and their level of IC reporting. In this research, as far as overall IC reporting is concerned, there is no significant difference between GLCs and non-GLCs. This is understandable given that this study was conducted on 2008 annual reports, five years after the Master Plan was launched in 2002. The gap should have given shareholders of non-GLCs time to exert pressure on non-GLCs in the same way that the government has done as the major shareholder of GLCs. Unfortunately, the same conclusion cannot be made for human capital reporting, as once more it provides the opposite outcome where companies' ownership plays a more significant role in their reporting. This proves that GLCs are more compelled to disclose human capital information and possibly more active in their quest for human capital development as compared to non-GLCs. Therefore, except for human capital reporting, the results do not support the proposition made by H2 and thus cannot be used to support proactive legitimacy theory.

9.4   Chapter summary

This chapter provides a discussion on how the extent of IC reporting among the 30 companies can be used to reflect the state of Malaysian initiatives towards setting up a KBE. The proposition is made in light of the use of proactive legitimacy theory as the potential explanatory factor for companies' behaviour towards IC reporting. The results on the extent of IC reporting and the one-way ANOVA test looking at industry effects has supported the proposition that companies — particularly those that rely more on knowledge content such as banking and telecommunication industries — are more proactive in disclosing IC information. It is assumed that their proactive strategy will help them to legitimise their operations. Furthermore, the growing popularity of the KBE concept has given the KBE the opportunity to legitimise part of their operations that cannot be legitimised under the traditional financial reporting system.

CHAPTER 10: CONCLUSION

10.1   Introduction

This chapter provides a brief overview on the contents of this thesis and evaluates its contribution to the existing literature. Section 10.2 briefly summarises the motivation behind the study and looks at the research objectives previously outlined in Chapter 2. Section 10.3 briefly summarises the research methodology and results. Section 10.4 discusses the contribution of this study in the context of IC reporting and the K-based initiatives implemented by the Malaysian government. Section 10.5 describes the limitations faced throughout the research process and Section 10.6 provides suggestions for possible future directions of research particularly in the area of IC.

10.2   Summary of motivation and research objectives

The literature review section (see Chapter 2) provides evidence of the increasing interest in IC as part of companies' value drivers that lead to the growing concern about how much IC information has been reported by companies. Numerous researchers have investigated IC reporting, but the review shows three definite gaps leading to three sets of research questions and eventually the three main research objectives that this thesis has ventured to achieve.

First, there has been a lack of IC research conducted in developing countries like Malaysia. IC in Malaysia, and possibly other nations, is closely related to the role of the government in introducing K-based initiatives in a paradigm that focuses on IC as a prime mover (Mustapha & Abdullah, 2004). The Malaysian government is expecting companies — particularly those in knowledge-intensive sectors —to respond by improving their approaches to managing their knowledge, applying information technology, and developing systems to enhance capability and

competency. Therefore, this thesis set out to analyse the state of IC reporting in Malaysia from different dimensions, i.e. the extent of IC reporting and the quality of IC reporting, as well as the types of IC management activities reported in companies' annual reports. Most importantly, this research aimed to use the findings to provide insight into the progress of Malaysian government initiatives towards developing a KBE.

Second, there appears to be lack of agreement, particularly among IC reporting studies, on what constitutes the IC framework and its components. This debate has motivated this research to provide a detailed discussion on the development of IC indices, and presents an alternative IC index. The aim is to have an IC index that not only can be used by future IC researchers to assess the state of IC reporting among companies, but can also be used to develop possible policy measures that regulators can use to assess the progress of their policies, particularly in relation to the KBE.

Lastly, the application of content analysis shows differences in the levels of complexity and opens up a discussion on specific methodological issues in IC reporting studies. Motivated by the debate made by prior studies (for example, Beattie & Thomson,2007; Steenkamp & Northcott, 2007; Steenkamp, 2007) and the suggestion made by Beattie and Thomson (2007) to make the methods themselves the focus of academic debate, this research set out to refine the usage of content analysis in IC reporting studies. While the three studies mentioned provide a good platform for the discussion on content analysis and IC, the discussion so far has been on investigating quantity of IC disclosure (extent of disclosure). Therefore, this research set out to further refine the use of content analysis by incorporating all forms of disclosure, i.e. narratives, numbers, and images, and extend the analysis to other types of analyses, such as quality and types of IC management activities.

To achieve the three main objectives, this research aims to advance the research on IC reporting, particularly for Malaysia, by using a more refined content analysis method.

10.3   Summary of research methodology and results

This research employed content analysis as its main research methodology. The content analysis was conducted on the 2008 annual reports of the top 30 Malaysian companies listed in the Bursa Malaysian stock exchange. The journey to explore the three main objectives has arrived at the following conclusions:

10.3.1 The application of the IC index

It is acknowledged that the choice of IC index depends on the research context and the view taken by the researchers on what constitutes IC. Through a review on previous IC reporting studies, this research concludes that most of the indices used in the content analysis studies originated from the frameworks of Guthrie et al. (1999) or Guthrie and Petty (2000). The terms *human capital, internal capital,* and *external capital* are used to represent the three categories of IC, and these versions were derived mainly from Stewart (1997) and Sveiby (1997a, 199b).

While it may be possible to have agreement on the use of the three categories of IC, this research argues that detailed items and indicators developed prior to the content analysis process should only be preliminary. Each category of IC will have to be applied individually to every situation, i.e. if there are preliminary items and indicators, there should be room for modification to capture differences, for example due to country and industry specific. In this research the preliminary index has been modified to include items and indicators that are considered relevant to Malaysian

publicly listed companies. The index has also been extended to measure the state of Malaysian initiatives towards the KBE.

10.3.2 The application of content analysis

This research introduces a multidimensional coding framework that analyses IC information in three categories, i.e. extent of disclosure, types of management activities, and quality of disclosure. It is believed that this coding framework offers a more refined and richer level of analysis of IC disclosure. Most importantly, this research responds to Beattie and Thomson's (2007) suggestion of providing a detailed illustration of the content analysis process. Therefore, the use of the multidimensional coding framework is discussed and the content analysis process is illustrated through five specific methodological issues (see Chapter 7): (1) The concept boundaries problem and the modification of the index; (2) Utilising units of analysis —recording, context, and counting units; (3) Extent of disclosure: multiple disclosure vs. presence/absence; (4) Process of analysing IC management activities; and (5) Process of analysing quality of disclosures. In summary, this research proposed the usage of theme for both recording and counting units as an ideal solution to capture IC information found in the narratives, numbers, and, most importantly, visual images, of the annual reports. It argues that multiple disclosure provides a more appropriate and accurate calculation of extent of disclosure. There is also evidence that extent and quality are related, but extent only provides one-dimensional insight into IC disclosure in annual reports.

10.3.3 Summary and discussion of results

In summary, the main findings of this study are as follows. First, as far as extent of IC reporting is concern, the results are fairly consistent with most previous studies where

external capital has been the highest reported IC information. The findings are also more consistent with studies conducted in developing countries as compared to developed countries. This can be explained by the similarity that Malaysian companies have with developing countries such as Sri Lanka, particularly on their business culture and environment.

Second, an analysis on the way IC information is presented shows a lack of structure with very little IC information showing a resources-activities-effects relationship. The most reported information has been IC activities, followed by IC effects, and then IC resources. Third, the analysis on quality of disclosure has suggested that external reporting has been reported at the highest quality. The quality measure has also shown that most IC information found in the annual reports has been presented using all forms of disclosure and in all five sections of the annual reports, with *narrative* and the sections *others* being the most popular choice.

Fourth, in considering the Master Plan launched by the Malaysian government, IC information found in all 30 companies' annual reports suggests that there is progress towards developing the KBE and K-based nation. The findings show that the four focal points of the Master Plan, i.e. to have knowledge and skilled human capital, to have adequate support of education and training infrastructure, to develop R&D capability, and to develop a strong S&T base, can be found in almost all 30 companies' annual reports. However, given that the Master Plan was launched in 2002 and that there are areas such as innovation and R&D in which the companies are still lacking, there may be a long way to go before determining the success of the plan. Lastly, a one-way ANOVA test provides evidence that there is a significant variation in the extent of IC reporting among companies from different types of industries. The same conclusion cannot be made for companies' ownership as there is no difference between GLCs and non-GLCs, except for human capital reporting.

Overall, except for types of company ownership, the results support the proposition that the 30 companies proactively disclosed their IC information to legitimise their operation in an environment where the concept of the KBE is gaining popularity.

10.4   Contributions of the research

The contribution of this research is divided into two main areas. First, it is believed that the methodology and the findings of this research will contribute to the literature in general and in particular the IC literature. Second, throughout the process of conducting this research, several interesting observations, particularly regarding Malaysia's journey to transform itself into a KBE and K-based nation, have led to several possible policy implications. The contributions are discussed below.

10.4.1 Contribution to the literature

10.4.1.1   *Research methodology*

One of the main thrusts of this paper is to refine the usage of content analysis through the development of the multidimensional coding framework and a discussion on specific issues related to the application of content analysis in IC reporting studies. The transparency provided by this research in discussing and illustrating the methodological issues will benefit future researchers, particularly IC researchers, in regard to how IC information is found and captured in annual reports. Such transparency will assist researchers in designing a reliable coding instrument and eventually addressing the problems of comparability across IC reporting studies (Beattie & Johnson, 2007). What makes this research useful is the fact that a practical example is provided for future researchers as to how visual images, quality of disclosure, and types of IC management activities are recorded and counted. These are

two areas that have had less attention from other IC reporting studies, probably due to the complexity attached to them. However, such complexity of reporting seems to be gaining popularity in recent years. While the content of this paper may not have a direct impact on practitioners, it does provide insight into how IC researchers interpret the IC content of annual reports, regardless of whether the information is presented consciously or unconsciously. Such understanding will help preparers of annual reports to effectively choose the IC information that they want to promote.

10.4.1.2 *Filling research gaps*

As stated in Section 10.2 and discussed in detail in Chapter 2, there have been gaps, both in IC reporting research conducted in developing countries and in IC reporting studies that analyse extent and quality of IC reporting using all forms of disclosures, i.e. narratives, numbers, and images. In addition, to the knowledge of this researcher, there has been no attempt to examine whether or not information disclosed in companies' annual reports provides information on the three types of IC management activities. Through the analysis conducted on the 30 companies, this research has been able to close these research gaps. As this research is one of the few studies carried out in developing countries that looks at IC reporting from different perspectives, it can be used as a benchmark for future research conducted either in developed or developing countries.

10.4.1.3 *Theoretical framework*

Legitimacy theory is one of the most common theories used to explain IC reporting among companies. This research has extended the use of legitimacy theory in IC reporting by highlighting proactive legitimacy theory. The theory is supported with the findings of this research particularly when looking at the extent of IC reporting

and the types of industries that reported the information. Therefore, proactive legitimacy theory is a theoretical framework that future IC researchers can use as a potential foundation for their research.

10.4.2 Policy implications

The results of this research raise several policy issues that can be taken into consideration by regulators, particularly the Malaysian government. Even though the Malaysian government has initiated a Master Plan that outlines thrusts encouraging the embodiment of IC in companies' operations, there is still a lack of guidelines for companies as well as regulators. Therefore, the policy implications can be discussed from the perspective of these two users.

10.4.2.1 *Intellectual reporting guidelines — companies*

So far, the lack of guidelines on IC reporting has not stopped companies from reporting their IC information, regardless of the industry to which they belong, or whether or not they are GLCs. The results show that all 30 companies reported information on IC. The difference is more on the level of reporting they provided and what types of IC information they presented. However, the information found in the annual reports seems to be presented in ways that make it difficult for readers, particularly those that are not familiar with the term IC, to identify which of them represent IC. Having said this, as argued by Guthrie and Petty (2000), it is a big challenge to establish a consensus about the need to properly report IC and when it is does, what information to report and how to report it. Furthermore, given that companies are already preparing their annual corporate reports as well as a special section on CSR, is there really a need to have an IC report? Will this cause information overload?

One possible alternative is to proceed with what has been proposed in ST5 (5.2), i.e. to re-examine and revise accounting standards of the private sectors to recognise the importance of knowledge and intangible capital. It is important to highlight that the beauty of IC is that it covers information that is often already being reported in companies' annual reports, including in their financial statements and CSR sections. Therefore, what is needed is a process of disentangling the IC information already in existence, rather than asking companies to produce a separate section or report on IC containing information that is overlapping with what companies are already reporting. The development of the IC index used in this research provides the foundation for further work on the disentanglement process.

It is also crucial for companies to use a structure that is understandable by readers, and, most importantly, explicitly shows the users of company reports the potential value created by IC. Given the complexity involved in quantifying most of the IC assets, this research proposes a structure discussed mainly in Mouritsen et al. (2001a, 2001c) that shows a cause-and-effect relationship between IC as resources, activities, and the effects of the activities.

10.4.2.2 IC guidelines — regulators

The Malaysian government has presented several national economic plans. Most recently, in 2010, the NEM has been launched with the KBE still playing a crucial factor in the country's transformation process to become an industrialised nation. Unfortunately, however, there has been lack of evidence and research regarding the success level of the government initiatives. While the approach used by this research is exploratory, the findings do confirm that it is possible to develop measures, in this case through the use of an IC index, which can be used to track the level of knowledge content among Malaysian publicly listed companies as one of the key players in the

KBE. Therefore, the IC index provides a good foundation for the regulators to proceed with the development of a proper guideline that can be used not only by companies, but to inform the policy makers, on an ongoing basis, on the progress of certain KBE initiatives.

The findings of this research also confirm the value of pursuing a sector level approach when establishing IC/K-based policies or guidelines for private sector companies.

10.5   Limitations of the research

While this research has contributed to the existing research, it does have four inherent limitations. First, while every measure has been reviewed to make the analysis more objective, the use of content analysis itself will always involve judgments being made by coders. Therefore, there will always be the possibility that another coder will interpret particular IC information differently.

Second, it is important to highlight that the research methodology proposed in this research may not offer the best solutions for other researchers due to several issues, such as the choice between different unitising methods and differences in measuring disclosure quality. However, it does lead to a richer level of analysis of IC disclosure in companies' reports. What is more important is that this research offers transparency in the way the analysis is conducted, so that a shared meaning can be developed and the methodology used can be better understood. Further research that extends the ideas presented in this research is essential.

Third, in conjunction to several issues with the usage of content analysis highlighted in previous paragraphs, particularly on the choices that researchers have when conducting content analysis, care must be exercised when comparing the findings of this research with other IC reporting research.

Fourth, even though the results of this research have provided insights on the state of IC reporting among Malaysian publicly listed companies, the small sample size of only 30 companies may not be sufficient to generalise its findings.

10.6   Suggestions for future research

This research identifies four potential areas for future research. First, the Master Plan was one of the initiatives introduced by the Malaysian government when the idea of the KBE was first introduced. Recently, in 2010, the Malaysian government launched a new plan (the NEM) that might be of interest for future research. While there are many similarities with the Master Plan, as far as the KBE is concerned, the new model can be utilised for future studies, possibly with a larger sample size and a wider range of corporate reports. It was impossible for this study to utilise the latest model as it was launched in 2010 and some of the 2010 annual reports were yet to be published.

Second, research that explores the longitudinal trend of IC reporting that ranges from the year prior to the introduction of the Master Plan to the present will provide more insight on how IC reporting has changed over the years. In addition, a cross-country study comparing Malaysia, either with other developing nations or with developed nations and utilising similar research methodology, could also provide more insight on the state of Malaysian companies' IC reporting.

Third, this research focuses on IC information that is available in companies' annual reports. Therefore there is no direct engagement with the preparers of the annual reports to analyse their perceptions of the importance and value of the respective elements of IC reporting. It would be very interesting to have direct insight from the preparers of the annual reports on what has been disclosed in their annual reports.

Fourth, this research utilises two measures of quality of disclosure. The quality measures can be further extended to include other types of quality such as the level of factuality of judgment conveyed by the IC information. Different types of quality measures will help to expand the analysis on companies' behaviour when IC information is reported.

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APPENDICES

Appendix 1: The Knowledge-based Economy Development Index (KDI)

Components	Explanation	Indicators
Computer Infrastructure	Examines the extent of availability of computers, specifically personal computers and the Internet, as a means of accessing the information superhighway.	• Share of worldwide computers in use • Computers per 1,000 people • Share of total worldwide millions of infrastructure per second • Computer power per capita • Connection to the Internet
Infostructure	Comprises networks, appliances and legislation necessary to provide the conduit and enabling environment for the seamless flow of information for learning and advancement at the personal, organisational, and national levels.	• Investment in telecommunications • Main telephones in use per 1,000 people • Cellular mobile telephone subscribers per 1,000 people • Television sets per 1,000 people • Radios per 1,000 people • Fax machines per 1,000 people • International call costs • Newspaper circulation
Education and training	Critical to produce the core input of a knowledge-based economy, i.e. human resources.	• Total expenditure on education per capita • Literacy rate • Student-teacher ratio (primary) • Student-teacher ratio (secondary) • Secondary enrolment • Higher education enrolment
Research & Development (R&D) and technology	Examines the level of R&D and technology development in the country. R&D essentially reflects the capacity to innovate and apply new technology.	• High-technology exports as a proportion of manufacturing exports • Number of scientists and engineers in research & development (R&D) • Number of R&D personnel nationwide per capita • Total expenditure on R&D as a percentage of GDP • Average annual number of

Components	Explanation	Indicators
		patents granted to residents • Business expenditure on R&D per capita

Appendix 2: IC items used in prior literature

Paper/book	IC items/indicators		
Guthrie, Petty, Ferrier, & Wells (1999); Guthrie & Petty (2000) – used by Petty & Guthrie (2000); Brennan (2001); Sujan & Abeysekera (2007); Guthrie et al. (2006); Goh & Lim (2004); April et al. (2003)	*Internal:* Intellectual property- Patents Copyrights Trademarks Infrastructure assets- Management philosophy Corporate culture Management processes Information systems Networking systems Financial relations	*External:* Brands Customers Customer loyalty Company names Distribution channels Business collaborations Licensing agreements Favourable contracts Franchising agreements	*Human:* Know-how Education Vocational qualification Work-related knowledge Work-related competencies Entrepreneurial spirit Training (only in Sujan & Abeysekera, 2007)
Bontis (2003) – used byVergauwen & Alem (2005)	Business knowledge Company reputation Competitive intelligence Corporate learning Corporate university Cultural diversity Customer capital Customer knowledge Economic value added Employee expertise Employee know-how Employee knowledge Employee productivity Employee skill Employee value	Expert networks Expert teams Human assets Human capital Human value Information systems Intellectual assets Intellectual capital Intellectual material Intellectual property Intellectual resources	KM Knowledge assets Knowledge management Knowledge stock Management quality Organisational culture Organisational learning Relational capital Structural capital Supplier knowledge

Paper/book	IC items/indicators		

Campbell & Abdul Rahman (2010) – a modification of Guthrie & Petty (2000)	*Structural capital:*
	
	Intellectual properties-
	  Patents
	  Trademarks
	  Copyright
	  Internet domain names
	  Design
	Corporate culture-
	  Vision
	  Mission
	  Code of ethics
	  Code of conduct
	  Code of practice
	  Principles of operation
	Management philosophy-
	  Create value to shareholders
	  Sustain growth
	  Listen to customers
	  Protect environment
	  Caring society
	Management & technological processes-
	  Control stock
	  Quality control
	  Performance appraisal
	Information & networking systems-
	  Computer networks
	  Databases
	  Software
	  Network
	  Hardware
	  Intranet
		Relational capital:
		
		Financial relationships-
		  Relationship with shareholders, bankers and other fund suppliers
		Brands-
		  Brands
		  Sub-brands
		  Range of products and services
		  Market share
		  Product awards
		Customers-
		  Customers named
		  Customer loyalty
		  Customer trust
		  Customer feedback
		  Customer services
		  Customer satisfaction
		  No. of customers
		  Customer segment
		  Customer convenience
		Distribution channel-
		  Supply chain
		  Business network
		  Development of new stores
		  Delivery systems
		  Marketing and advertising
		  Carry out market research
		  Online selling
		  Catalogue
		  Promotion activities & strategies
		  Liaison offices
		Business partnering-
		  Franchising
		  Licensing
		  Collaboration
		  Outsourcing
			Human capital:
			
			Employees-
			  Employee profile
			  Employee equity
			  Equal opportunities
			  Employee safety
			  Employee relationships
			  Employees featured
			  Employee representation
			  Employee welfare
			  Employee recognition
			  Compensation plans, bonuses, better pay
			  Loyalty& retention
			  Duties & responsibilities
			  Good employees attitude
			  Employee morale
			Training-
			  Vocational development
			  Career development
			  Induction programmes
			  In-house training
			  Recruitment
			  Employee assistance programmes
			  Continuing education for employees
			  Any training
			Education-
			  Bachelor's degrees
			  Master's degrees
			  PhDs
			  Professional qualifications
			Work-related knowledge-

Paper/book	IC items/indicators		

	Servers etc.
	Infrastructure-
	  Portfolio of
	  properties
	  Store
	  modernization
	  and
	  refurbishment
	  Floor
	  extension
	  Store safety
	  Machines
	  Plants etc.
		Suppliers
		External
		experts/consultants
		Agents
		Government
		Local authorities
		Media/press
		Corporate reputation-
		  Company name
		  Sponsorship
		  Community
		  involvement
		  Environmental
		  protection
		  measures
		  Social
		  responsibilities
		  Any activities that
		  could raise
		  company profile
		  and result in
		  favorable
		  contracts
			Seniority
			Experience
			Expertise
			Innovation-
			  Development of
			  new products
			  R&D
			  New technology
			  Creative marketing
			  strategies
			  Adding new product
			  line

Abeysekera &
Guthrie
(2005);
Abeysekera
(2008c)
	Internal capital:
	
	Processes-
	  Management
	  processes
	  Technological
	  processes
	Systems-
	  Information
	  systems
	  Networking
	  systems
	Philosophy &
	culture
	Intellectual
	property
	  Patent
	  Copyrights
	  Trademarks
	Financial relations
		External capital:
		
		Brand building-
		  Brands
		  Customer
		  satisfaction
		  Quality standards
		Corporate image
		building-
		  Company names
		  Favourable
		  contracts
		Business partnering-
		  Business
		  collaborations
		  Licensing
		  agreements
		  Franchising
		  agreements
		Distribution channels
		Market share
			Human capital:
			
			Training &
			development-
			  Know-how
			  Vocational
			  qualifications
			  Career development
			  Training
			  programmes
			  Education*
			Equity issues-
			  Race
			  Gender
			  Religion
			  Disability issues
			Employee relations-
			  Union activities
			  Employees thanked
			  Employees featured
			  in annual reports
			  Employee
			  involvement with
			  the community
			Employee welfare-
			  Executive and

Paper/book	IC items/indicators		
			employee compensation plans
			Employee benefits
			Employee shares and options, ownership plans
			Employee related measurements-
			Value-added statements
			Employee numbers
			Professional experience (growth/renewal ratios: average professional experience*)
			Education levels (growth/renewal ratios: average education level*)
			Expert seniority (stability ratios: expert seniority*)
			Age of employees (stability ratios: median age of employee*)
			Efficiency ratios: V.A./ expert*
			Efficiency ratios: V.A./ expert*
			Entrepreneurial skills
			Employee safety
			*Recorded in Abeysekera (2008c) only
Oliveira, Rodrigues, & Craig (2006)	*Structural capital/ organisational capital:*	*Relational capital:*	*Human capital:*
		Brands & perception about products/services of the company	Employee know-how & experience
	Management philosophy	Customers	Education
	Corporate culture	Customer loyalty	Formal training
	Management processes	Portfolio orders	Incentives and remuneration
	Information systems	Company image Distribution Channels/structures	Initiative, motivation, and

Paper/book	IC items/indicators		
	Networking systems R&D activities Patents, copyrights, & trademarks Corporate know-how	Business collaborations Agreements and favourable contracts Suppliers Competitors Investors Community involvement Environmental activities Financial entities	dedication Teamwork capacity/spirit Flexibility Productivity Occupational health & safety

Steenkamp (2007) – A modification of Guthrie et al. (2004) that originated from Guthrie & Petty (2000)	*Internal capital:*
	
	Intellectual property-
	  Patents
	  Copyrights
	  Trademarks
	Management philosophy-
	Corporate culture
	Management & technological processes-
	  Management processes
	  Technological processes
	  Quality standards
	Information / networking systems-
	  Information systems
	  Networking systems
		External capital:
		
		Financial relations
		Brands-
		  Market share
		Customers/customer satisfaction-
		  Customers
		  Customer satisfaction
		Corporate image building-
		  Company profile
		  Favourable contracts
		Distribution channels
		Business collaborations
		Licensing & franchising agreements-
		  Licensing agreements
		  Franchising agreements
			Human capital:
			
			Employees-
			  Employee involvement in the community
			  Industrial relations/union activity
			  Employees thanked
			  Employees featured in annual reports
			  Value added
			  Employee safety
			  Equity issues
			  Executive and employee compensation plans
			Education-
			  Education
			  Average education level
			  Vocational qualifications
			Training-
			  Training
			  Career planning & development
			Work-related knowledge-
			  Know-how
			  Professional experience
			  Senior experts
			  Senior executive performances

Paper/book	IC items/indicators
	and results
	Entrepreneurial
	spirit

Appendix 3: Example of attributes used to measure the quality of reporting in IC studies.

Studies	Quality of reporting
Guthrie et al. (2004) – IC reporting	Three types of quality measures: i- Reporting theme (relative emphasis on each theme) ii- Forms of disclosure (quantified or not) iii- Location of disclosure (see for example chairman report versus a general section on operational activity) iv-
Guthrie et al. (1999); Bozzolan et al. (2003) – IC reporting	Forms of disclosure: i- Monetary disclosure (score 3) ii- Numerical disclosure(score 2) iii- Narrative disclosure (score 1)
Schneider & Samkin (2008) – IC reporting	Forms of disclosure: i- Immaterial (score 1) –If it is stated in the annual report that the item is immaterial to the financial wellbeing and results of the local authority ii- Obscure (score 2) – The disclosure item was discussed in limited references or value comments whilst discussing other topics or themes iii- Descriptive (score 3) – The disclosure item was discussed clearly showing its impact on the local authority iv- Quantitative/monetary (score 4) – The disclosure item is clearly defined in monetary or actual physical quantities v- Quantitative/monetary and descriptive (score 5) – The disclosure item is clearly defined in monetary or actual physical quantities and descriptive statements are made
Campbell & Abdul Rahman (2010)	Two different types of quality measures: i- Nature of information – narrative or quantitative/financial ii- Level of factuality or judgment conveyed by the information
Yi & Davey (2010)	Forms of disclosure: i- Quantitative/monetary with narrative (5): the disclosure is clearly defined in monetary or actual physical quantities and narrative statements are made. ii- Quantitative/monetary (4): the disclosure item is clearly defined in monetary terms or actual physical quantities. iii- Narrative (3): the disclosure item is discussed clearly showing its influence on the company or its policies. iv- Obscure (2): the disclosure item is discussed with limited reference or value comments while discussing other topics and themes.

Studies	Quality of reporting
	v- Immaterial (1): the company states that the disclosure item is immaterial to the financial well-being and results of the company.
	vi- Non-disclosure (0): the disclosure item does not appear in the annual report.

Appendix 4: A summary of previous literature on location of disclosure

Studies	Type of study	Type of users/stakeholders	Conclusion
De Villiers & Van Staden (2010)	Environmental reporting – A survey in South Africa	Shareholders	Rank of location to report environmental information: - Separate environmental section (1) - Chairman's report (2) - Management overview (3) - Directors' report (4) - Notes to the financial statements (5)
De Soyza & Rudkin (2010)	Annual reports in general – A survey in Sri Lanka	Accountants Executives/managers Bankers Assessors/tax officers Academics Financial analysts Investors	Users' perception on the importance of annual reports' sections: - Balance sheet (1) - Profit and loss account (2) - Cash flow statement (3) - Accounting policies (4) - Notes to accounts (5) - Movement in shareholders' funds (6) - Auditors' report (7) - Chairman's report (8) - Directors' report (9) - Value added statements (10) - Statistical data/summary/history (11)
Jaffar (2006)	Environmental reporting	Not specified	Each location in the annual report is weighted (5 as the highest while 1 is the lowest): - Financial Statements (5) - Environmental Policy Statements (4) - Mission or Strategic Statements (4) - Letter to the Shareholders (4) - Front Page (3) - Chairman's Statement (2) - Social Responsibility Statements (2)

Studies	Type of study	Type of users/stakeholders	Conclusion
			- Yearly Calendar/Events (1) - Review of Operations (1)
ProShare (1999)	Annual report in general – A survey in UK	Shareholders	9 out of 17 distinct sections have attracted over 50% readership: - Dividend information (1) - Summary information (2) - Profit/loss (2) - Balance sheet (3) - Shareholder information (4) - Chairman's statement (5) - Directors' earnings (6) - Operational review (7) - Chief executive review (8)
Bartlett & Chandler (1997)	Annual reports in general – A survey in UK	Shareholders	Top 5 (out of 17) most read sections: - Chairman's statement (1) - Financial summary (2) - Chief Executive Review (3) - Review of operation (4) - Financial review (5) Top 5 (out of 17) most important sections: - Financial summary (1) - Chairman's statement (2) - Profit & loss account (3) - Chief Executive review (4) - Financial review (5)

Appendix 5: The distribution of the 30 largest publicly listed Malaysian companies' IC themes - extent of disclosure, presence/absence, and proportion of pages.

IC categories, items, and indicators	Extent (with multiples disclosure)	Presence/ absence	Proportion of pages
Internal capital (total)	**9,060**	**455**	**32,872**
Intellectual property			
1- Patents	14	3	10
2- Trademarks	50	5	691
3- Copyright	1	1	1
4- Intellectual property	28	2	43
Total	93	11	745
Management culture			
5- Vision	108	19	482
6- Mission	42	13	158
7- Code of conduct/practice	88	8	123
8- Principles of operation	79	7	452
9- Culture	54	8	203
10- Code of ethics	79	8	132
11- Objectives	50	8	91
12- Values	190	15	789
13- Strategic direction	206	16	1,968
14- Motto	66	9	462
15- Promise	11	2	12
Total	973	113	4,872
Management philosophy			
16- Create value to shareholders	46	16	580
17- Protect the environment	83	14	1,204
18- Caring society/community	47	9	551
19- Philosophy - Customers	140	19	2,510
20- Philosophy - Employees	121	21	886
21- Company's growth	232	20	2,893
22- Philosophy - Business community	15	2	266
23- Philosophy - Nation	37	2	886
24- CSR (in general)	111	22	1102
Total	832	125	10,878
Management & Technological process			
25- Quality control process	496	23	1,230
26- Performance appraisal	240	14	313
27- Organisational structure	7	7	540
28- Management Committee (e.g. CSR committee)	127	6	219
29- Business control framework	3,203	30	7,841
30- Business procedure	59	2	118

IC categories, items, and indicators	Extent (with multiples disclosure)	Presence/ absence	Proportion of pages
31- Technological &production process	267	20	1358
32- Business model	206	6	387
33- Shariah committee	115	5	287
Total	4,720	113	12,293
Information & networking system			
34- Network (e.g. Internet & Intranet)	426	12	683
35- Database	22	4	40
36- Hardware & software	1,287	20	2,062
37- Information technology system & program	269	18	431
38- Bandwidth	19	1	41
39- Support & recovery system	183	3	314
Total	2,206	58	3,571
Research & development (R&D)			
40- R&D policies	60	11	118
41- R&D budget	62	10	96
42- Output/success rate	15	2	20
43- Research quality & awards	31	2	48
44- R&D infrastructure	12	3	54
45- Projects to date	56	7	177
Total	236	35	513
External capital (Total)	**15,269**	**561**	**39,512**
Financial relations			
46- Shareholders	695	30	1,418
47- Bankers	5	5	5
Total	700	35	1,423
Brand building			
48- Brands	425	27	2,885
49- Sub-brands	671	19	2,315
50- Product quality	1,514	30	6,269
51- Market share	417	23	913
52- Product awards	891	24	1,780
Total	3,918	123	14,162
Customers			
53- Customers named	125	7	478
54- Customer loyalty/support	93	13	250
55- Customer thrust	26	9	87
56- Customer feedback	92	8	148
57- Customer services	415	25	1,503
58- Customer satisfaction	39	9	396

IC categories, items, and indicators	Extent (with multiples disclosure)	Presence/ absence	Proportion of pages
59- Customer numbers	89	14	153
60- Customer segmentation	290	17	581
61- Customer appreciation (e.g. rewards)	92	24	165
Total	1,261	126	3,761
Corporate reputation			
62- Company name	452	24	1,454
63- Favourable contract	239	18	726
64- Awards (not related to employees, research or products)	657	23	1,520
65- Corporate social responsibility activities	2,584	30	8,138
66- Media coverage & relations	186	12	849
67- Relationships with regulators	88	24	210
68- Relationships with stakeholders	32	3	43
Total	4,238	134	12,940
Business partnering			
69- Research collaboration	14	3	44
70- Licensing agreements	234	13	366
71- Franchising agreements	0	0	0
72- Suppliers	34	5	61
73- Government collaboration	109	6	219
74- Rights agreements	203	6	305
75- Business partnerships	298	28	763
76- Charter agreements	8	1	38
77- Marketing partnerships	2	1	4
78- Expertise sharing	1	1	2
79- Industry development collaboration	9	1	10
80- Memorandums of understanding	21	2	68
81- Joint ventures	768	23	1,945
82- Training collaboration	3	1	11
83- Strategic alliances	48	2	139
Total	1,752	90	3,975
Distribution channels			
84- Supply & distribution channels	96	15	277
85- Marketing, advertising, and promotional activities	350	22	878
86- Store network/location	2,821	9	1,333
87- Delivery systems	113	4	684
88- Electronic channels	20	3	79

IC categories, items, and indicators	Extent (with multiples disclosure)	Presence/ absence	Proportion of pages
Total	3,400	53	3,251
Human capital (Total)	**15,114**	**528**	**35,686**
Employee measurements			
89- Employee numbers	130	24	447
90- Value added per employee	11	1	14
91- Vocational qualifications	1	1	2
92- Know-how	45	16	833
93- Employee morale& attitudes	118	29	1,417
94- Duties & responsibilities	93	1	209
95- Revenue per employee	5	1	12
96- Staff production	1	1	2
97- Employee competency index	11	1	17
98- Productivity per employee	5	1	5
99- Pre-tax profit per employee	1	1	1
100- Years of service in the organisation	4	1	3
101- Median age of employees	4	1	3
102- Turnover rate	2	1	3
103- Assets per employee	1	1	1
104- Profiles of top management	1,860	26	5,927
Total	2,292	107	8,896
Directors' measurement			
105- Profile of directors	6,568	30	12,983
106- Training received	420	27	1,167
107- Duties & responsibilities	560	28	877
108- Awards received	47	5	74
Total	7,595	90	15,101
Training & development			
109- Continuing education offered to employees	6	2	15
110- Vocational development	239	13	546
111- Career development	125	16	250
112- Training	117	17	286
113- International exposure	6	1	14
114- Exchange program	2	1	4
115- Knowledge sharing program	7	2	17
116- Recruitment/retention	53	12	108
Total	555	64	1,240
Equity issues			
117- Number of employees by gender, race, or religion	36	10	122
118- Management by gender	2	1	3
119- Meritocracy issues	4	1	7

IC categories, items, and indicators	Extent (with multiples disclosure)	Presence/ absence	Proportion of pages
120- Diversity issues	1	1	1
121- Disabled issues	2	1	3
Total	45	14	136
Employee relations			
122- Union/club activities	126	15	307
123- Employees thanked	43	25	80
124- Opportunity to involve with community	117	17	496
125- Engagement with business community	2	1	8
126- Recognition from employer	126	14	296
127- Engagement with employer	110	12	230
128- External recognition	70	10	96
Total	594	94	1,513
Employee welfare			
129- Working environment	31	10	103
130- Short term benefits	228	30	416
131- Post-employment benefits	1,067	30	2,186
132- Loan for employees	32	6	70
133- Family welfare	21	5	40
134- Employee shares& options plan	1,979	19	4,609
135- Termination benefits	26	10	67
Total	3,384	110	7,491
Entrepreneurial skills			
136- Employee innovation	51	7	64
137- Entrepreneurial skills	0	0	0
Total	51	7	64
Employee health & safety			
138- Policy & procedures	66	9	133
139- Quality	39	6	70
140- Activities	409	18	891
141- Awards	84	9	151
Total	598	42	1,245

Appendix 6: The distribution of IC information according to quality of disclosure

IC categories/items/indicators	Forms of disclosure				Locations of disclosure					
	1	2	3	∑	1	2	3	4	5	∑
Internal capital										
Intellectual property										
1- Patent	1	0	1	4	0	0	0	0	4	20
2- Trademarks	2	0	2	8	2	0	1	3	1	22
3- Copyrights	0	0	1	3	0	0	1	0	0	3
4- Intellectual property	2	0	1	5	0	0	0	0	3	15
Total	5	0	5	20	2	0	2	3	8	60
Management culture										
5- Vision	13	14	3	50	7	6	7	19	1	121
6- Mission	8	7	2	28	5	0	3	9	0	50
7- Code of conduct	3	6	1	18	6	3	0	1	0	16
8- Principles of operation	1	5	3	20	5	1	2	2	0	21
9- Culture	1	5	2	17	1	2	5	1	1	29
10- Code of ethics	2	5	1	15	7	5	0	0	0	17
11- Objectives	4	7	2	24	4	2	3	7	0	45
12- Values	8	10	4	40	6	3	2	7	0	46
13- Strategic direction	5	9	7	44	8	1	6	10	4	88
14- Motto	5	7	4	31	7	2	3	4	1	41
15- Promise	0	2	0	4	0	0	0	2	0	8
Total	50	77	29	291	56	25	31	62	7	482
Management philosophy										
16- Shareholders	3	13	5	44	9	2	1	10	4	76
17- Environment	8	5	6	36	3	6	3	7	3	67
18- Society/community	2	6	4	26	3	5	1	4	0	32
19- Customers	9	9	13	66	8	5	10	16	0	112
20- Employees	3	17	11	70	3	17	5	14	0	108
21- Company's growth	13	10	10	63	19	5	6	15	0	107
22- Business community	1	0	1	4	1	0	0	1	0	5
23- Nation	0	1	2	8	2	0	2	1	0	12
24- Corporate social responsibility (in general)	5	20	6	63	5	18	0	9	0	77
Total	44	81	58	380	53	58	28	77	7	596
Management & Technological processes										
25- Quality control	4	15	19	91	9	1	16	11	1	108

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IC categories/items/ indicators	Forms of disclosure					Locations of disclosure				
processes										
26- Performance appraisals	3	9	4	33	3	3	7	2	0	38
27- Organisational structure	6	3	0	12	6	0	0	1	1	15
28- Management committee (e.g. financial)	0	2	1	7	3	0	0	1	0	7
29- Business control framework	4	31	27	147	54	4	3	2	3	94
30- Business procedure		1	2	8	2			1		6
31- Technological & Production process	15	7	11	62	12		15	11	1	106
32- Business model	1	4	5	24	2	0	4	4	0	30
33- Shariah committee	0	2	4	16	3	1	1	0	2	18
Total	33	74	73	400	94	9	46	33	8	422
Information & networking systems										
34- Network (e.g. Internet & Intranet)	8	7	3	31	2	2	6	2	8	72
35- Database	2	2	4	18	0	1	2	0	2	18
36- Hardware & software	16	12	16	88	1	0	6	0	25	144
37- IT system & program	10	13	10	66	4	2	10	8	6	100
38- Bandwidth	1	1	1	6	0	0	0	0	1	5
39- Support & recovery system	1	0	2	7	0	0	1	0	2	13
Total	38	35	36	216	7	5	25	10	44	352
Research & development (R&D)										
40- R&D policies	2	10	0	22	0	1	4	4	8	70
41- R&D budget	8	2	3	21	0	1	0	0	12	62
42- Output/success rate	1	2	0	5	0	0	1	1	0	7
43- Research quality & awards	2	1	0	4	0	1	1	0	0	5
44- R&D infrastructure	1	0	2	7	1	1	2	0	0	9
45- Projects to date	1	3	3	16	0	0	7	0	0	21
Total	15	18	8	75	1	4	15	5	20	174
External capital										
Financial relations										
46- Shareholders	26	20	13	105	34	5	3	30	1	178

IC categories/items/indicators	Forms of disclosure					Locations of disclosure				
47- Bankers	5	0	0	5	0	0	0	5	0	20
Total	31	20	13	110	34	5	3	35	1	198
Brand building										
48- Brands	22	20	18	116	42	3	18	18	2	184
49- Sub-brands	16	10	15	81	20	1	17	7	2	111
50- Product quality	21	16	27	134	20	2	22	24	12	246
51- Market share	12	14	20	100	13	1	19	16	6	166
52- Product awards	13	16	16	93	30	1	11	11	1	114
Total	84	76	96	524	125	8	87	76	23	821
Customers										
53- Customers named	1	3	3	16	3	0	4	0	0	15
54- Customer loyalty/support	7	6	9	46	6	2	7	6	4	75
55- Customer thrust	4	4	3	21	4	0	5	3	1	36
56- Customer feedback	1	5	2	17	1	4	2	1	0	19
57- Customer services	18	13	16	92	24	7	17	14	2	155
58- Customer satisfaction	7	4	1	18	5	2	6	2	1	40
59- Customer numbers	8	0	10	38	7	0	10	4	6	83
60- Customer segmentation	15	3	8	45	0	0	9	3	13	104
61- Customer appreciation (e.g. rewards)	20	4	9	55	8	0	3	20	1	102
Total	81	42	61	348	58	15	63	53	28	629
Corporate reputation										
62- Company name	12	16	17	95	28	3	11	9	3	118
63- Favourable contract	4	9	17	73	12	0	10	10	4	102
64- Awards (not related to employees, research or products)	14	14	16	90	33	3	8	15	1	128
65- CSR activities	19	23	30	155	24	26	16	23	7	251
66- Media coverage & relation	11	2	3	24	12	2	2	2	0	30
67- Relationship with regulators	22	7	6	54	7	2	8	22	1	128
68- Relationship with stakeholders	3	2	1	10	0	2	0	2	0	12
Total	73	90	501	116	38	55	83	16	769	73
Business partnering										
69- Research collaboration	0	2	2	10	1	1	1	1	0	10

IC categories/items/indicators	Forms of disclosure				Locations of disclosure					
70- Licensing agreements	6	9	11	57	1	0	6	4	10	85
71- Franchising agreements	0	0	0	0	0	0	0	0	0	0
72- Suppliers	1	3	3	16	1	3	2	2	0	21
73- Government collaboration	3	2	4	19	3	1	5	2	1	33
74- Rights agreements	5	3	6	29	0	0	0	0	6	30
75- Business partnerships	29	12	15	98	21	0	12	28	5	194
76- Charter agreements	0	0	1	3	0	0	0	0	1	5
77- Marketing partnerships	0	0	1	3	0	0	1	0	0	3
78- Expertise sharing	0	1	0	2	0	0	1	0	0	3
79- Industry development collaboration	1	0	0	1	1	0	0	0	0	1
80- Memorandums of understanding	0	2	1	7	3	0	2	0	2	19
81- Joint ventures	15	18	20	111	10	1	11	6	32	229
82- Training collaborations	0	1	0	2	1	0	0	0	0	1
83- Strategic alliances	1	5	5	26	7	0	5	3	3	49
Total	61	58	69	384	49	6	46	46	60	683
Distribution channel										
84- Supply & distribution channels	11	9	7	50	5	1	8	2	9	84
85- Marketing, advertising, and promotional activities	18	15	14	90	10	2	15	8	23	206
86- Store network/locations	5	3	6	29	9	0	6	2	2	45
87- Delivery systems	1	3	1	10	1	0	2	0	1	12
88- Electronic channels	4	3	4	22	4	0	5	2	2	37
Total	39	33	32	201	29	3	36	14	37	384
Human capital										
Employee measurements										
89- Employee numbers	17	1	17	70	14	9	10	4	12	138
90- Value added per employee	1	0	1	4	1	0	0	1	1	10

IC categories/items/ indicators	Forms of disclosure				Locations of disclosure					
91- Vocational qualifications	0	0	1	3	0	0	1	0	0	3
92- Know-how	13	2	2	23	9	0	8	6	0	57
93- Employee morale& attitudes	25	14	4	65	11	2	12	34	0	187
94- Duties & responsibilities	2	2	2	12	1	0	3	2	0	18
95- Revenue per employee	1	0	0	1	0	0	0	0	1	5
96- Staff production	0	0	1	3	0	0	1	0	0	3
97- Employee competency index	1	1	1	6	0	0	1	0	0	3
98- Productivity per employee	1	0	0	1	0	0	1	0	0	3
99- Pre-tax profit per employee	1	0	0	1	0	0	0	0	1	5
100- Years of services in the group	1	0	0	1	0	1	0	0	0	2
101- Median age of employee	1	0	0	1	0	1	0	0	0	2
102- Turnover rate	1	0	0	1	0	1	0	0	0	2
103- Assets per employee	1	0	0	1	0	0	0	0	1	5
104- Profiles of top management	27	0	13	66	28	0	7	8	5	106
Total	93	20	42	259	64	14	44	55	21	549
Directors measurements										
105- Profile of directors	27	6	29	126	63	1	1	18	19	235
106- Training received	2	20	6	60	28	0	0	0	0	28
107- Duties & responsibilities	2	24	5	65	30	1	0	0	4	52
108- Awards received	2	2	5	21	6	0	0	0	0	6
Total	33	52	45	272	127	2	1	18	23	321
Training & development										
109- Continuing education offered to employee	0	1	0	2	0	1	0	0	0	2
110- Vocational development	1	8	12	53	2	13	7	3	0	61
111- Career development	7	10	10	57	5	9	8	7	0	75

IC categories/items/indicators	Forms of disclosure					Locations of disclosure				
112- Training	7	9	13	64	3	9	8	4	3	76
113- International exposure	0	1	1	5	0	1	1	0	0	5
114- Exchange programmes	1	0	1	4	0	0	0	2	1	13
115- Knowledge sharing programmes	1	0	1	4	0	2	0	0	0	4
116- Recruitment/ retention	3	7	6	35	2	6	7	1	2	49
Total	20	36	44	224	12	41	31	17	6	285
Equity issues										
117- Number of employees by gender, race, or religion	7	1	3	18	0	8	1	1	0	23
118- Management by gender	1	0	0	1	0	1	0	0	0	2
119- Meritocracy issues	0	1	0	2	0	1	0	0	0	2
120- Diversity issues	1	0	0	1	0	0	1	0	0	3
121- Disabled issues	0	0	1	3	0	1	0	0	0	2
Total	9	2	4	25	0	11	2	1	0	32
Employee relations										
122- Union/club activities	4	6	10	46	4	13	1	1	1	42
123- Employees thanked	20	9	3	47	2	1	4	30	1	141
124- Opportunity to involve with community	3	8	13	58	9	11	1	3	2	56
125- Engagement with business community	0	0	1	3	0	1	0	0	0	2
126- Recognition from employer	4	5	6	32	6	4	5	2	0	37
127- Engagement with employer	0	8	9	43	3	11	3	3	0	46
128- External recognition	11	4	3	28	13	2	4	0	1	34
Total	42	40	45	257	37	43	18	39	5	358
Employee welfare										
129- Working environment	3	5	3	22	2	4	4	2	0	30
130- Short-term benefits	26	31	9	115	3	5	1	0	38	206

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IC categories/items/ indicators	Forms of disclosure				Locations of disclosure					
131- Post-employment benefits	26	32	15	135	0	2	0	0	41	209
132- Loans for employees	4	2	3	17	0	2	0	0	5	29
133- Family welfare	0	0	4	12	3	1	0	1	0	9
134- Employee shares& options plans	18	19	17	107	3	0	2	0	33	174
135- Termination benefit	4	9	1	25	0	0	0	0	12	60
Total	81	98	52	433	11	14	7	3	129	717
Entrepreneurial skills										
136- Employee innovation	1	4	6	27	3	3	3	1	1	27
137- Entrepreneurial skills	0	0	0	0	0	0	0	0	0	0
Total	1	4	6	27	3	3	3	1	1	27
Employee health & safety										
138- Policy & procedures	0	7	5	29	2	5	2	4	0	34
139- Quality	2	3	2	14	0	4	2	3	0	26
140- Activities	4	13	10	60	3	15	4	5	1	70
141- Awards	4	6	5	31	7	5	4	4	0	45
Total	10	29	22	134	12	29	12	16	1	175
Overall total quality	857	869	832	5091	893	333	555	651	445	8,053