

**A LONGITUDINAL AND CROSS-SECTIONAL
EXAMINATION OF INTELLECTUAL CAPITAL
INFORMATION DISCLOSURE IN SIX LARGE
FTSE 100 UK COMPANIES, 1974-2008**

MARA RIDHUAN CHE ABDUL RAHMAN

DOCTOR OF PHILOSOPHY

NEWCASTLE UNIVERSITY BUSINESS SCHOOL
NEWCASTLE UNIVERSITY

APRIL 2013

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 acknowledgement), 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.

Abstract

This study developed a multidimensional content analysis instrument for the cross sectional and longitudinal analysis of intellectual capital disclosures in the annual reports of six UK FTSE 100 companies over a period of 35 years (1974-2008 inclusive). Motivated by empirical deficits in intellectual capital disclosure studies over a lengthy longitudinal period and also in content analysis instruments capable of resolving the qualitative characteristics of intellectual capital disclosures, this study disaggregated content into three main categories and twenty six sub-categories. Recording took place at the level of the theme or clause, and data was captured using a volumetric measure (frequency of themes) and also using three interrogations for qualitative characteristics: the extent to which disclosures contained qualitative and quantitative content, the time orientation of disclosure and the division between fact and perception in reporting.

Representing the most detailed and complex analysis of ICR in UK companies so far, this study is also distinguished by having, by some distance, the longest longitudinal period of any IC study. The complexity of the content analysis instrument, unique to this study, enabled a number of original findings, deriving from the large sample size and unique content analysis instrument, to be offered.

Intellectual capital disclosure, as measured by the frequency of clauses, increased over the period of the study. Within this overall trend, relational capital was observed to be the highest frequency category of IC, when compared to human capital and structural capital. The rates of category growth varied by company, with the differentials between relational capital and other categories also varying by sector. Qualitative characteristics also showed longitudinal and cross-sectional effects. This study also found an appropriateness of the existing theories in explaining the study findings with no single theory explaining more than a small part of the observed reporting behaviour.

Acknowledgement

Praise be to Allah, most compassionate and most merciful, for endowing me with good health and perseverance to endure the tough process of searching wisdom.

I wish to express my deepest gratitude to the people and organisation that have contributed, directly and indirectly, to the completion of this thesis. Firstly, I would like to acknowledge my sponsor and employer, Universiti Kebangsaan Malaysia for opportunity and scholarship to pursue my doctoral studies. To my supervisor, Professor David Campbell, I wish to sincerely thank him for guidance and encouragement that has enabled me to successfully conduct the research and complete this thesis. His continuous intellectual efforts from generating research ideas in our first meeting until completing this thesis have been tremendously helpful. Also to my second supervisor, Dr Jane Gibbon, your advices and insights were very helpful too. To my beloved mum, Hasmah Hj Seman, wonderful wife, Nasriah Abdul Rahman and children, Sufi, Syabeel and Damia, I thank them for their support and understanding throughout the journey, they all always beside me, giving me inspirations and bundles of joy. To my late father, Che Abdul Rahman Wanik, I miss you so much.

To all my friends in Newcastle who have in no small measure offered their kindness, understanding and friendship, I wish to express my heartfelt appreciation. Living in Newcastle was the best memory in my life.

TABLE OF CONTENTS

Attestation of authorship	i
Abstract	ii
Acknowledgement	iii
List of tables	x
List of figures	xii
Abbreviations	xiv
Accompany material	xv

Chapter 1 Introduction

1.1	Overview	1
1.2	Definition of the problems	4
1.2.1	Longitudinal focus	4
1.2.2	Developing and enhancing a method for capturing qualitative characteristics of IC information	5
1.2.3	Analysis of the effect of sectoral membership on IC disclosure	6
1.2.4	IC disclosure evidence in United Kingdom-based companies	7
1.2.5	Theories underlying IC disclosure	7
1.3	Objectives of the study	8
1.3.1	To investigate IC disclosure practice in annual reports on a cross-sectional and longitudinal basis	8
1.3.2	To develop and enhance a method of capturing volume and the qualitative characteristics of IC disclosure	8
1.4	Research questions	8
1.5	Research design	9
1.6	Thesis outline	11
1.7	Chapter summary	12

Chapter 2	Background to the study: the knowledge economy and intellectual capital disclosure	
2.1	Introduction	13
2.2	Concepts of the knowledge economy and its characteristics	14
2.3	The Knowledge economy in the UK	17
2.4	The knowledge economy and its challenges to traditional financial disclosure	18
2.5	Effects of irrelevance of traditional financial disclosure	21
2.6	The need for a new disclosure system	22
2.7	Chapter summary	23
Chapter 3	Literature review: intellectual capital disclosure	
3.1	Introduction	24
3.2	Understanding the concept of intellectual capital	24
3.2.1	Definitions of intellectual capital	24
3.2.2	Categories of intellectual capital	28
3.3	Intellectual capital information disclosure	32
3.4	The history of intellectual capital disclosure studies	33
3.5	Accounting standards for intangible assets and intellectual capital disclosure	38
3.6	The rationale for intellectual capital disclosure	42
3.7	The practice of intellectual capital disclosure	44
3.7.1	Company practices in the stand-alone IC disclosure	44
3.7.2	Working groups on guidelines for IC disclosure	45
3.7.3	The investigation of intellectual capital disclosure in the corporate media	47
3.8	Prior studies of intellectual capital disclosure	48
3.8.1	Studies in a single country	48
3.8.2	Inter-country comparative studies	54

3.8.3	Studies of specific industries	55
3.9	The limitations of previous studies and rationale for longitudinal study	62
3.10	Cross sectional effect of intellectual capital disclosure	64
3.11	Underpinning theories of intellectual capital disclosure	71
3.11.1	Agency theory	73
3.11.2	Signalling theory	75
3.11.3	Legitimacy theory	77
3.11.4	Stakeholder theory	78
3.11.5	Decision usefulness	80
3.11.6	Impression management	82
3.12	Chapter summary	85
Chapter 4	Qualitative characteristics of IC information content	
4.1	Introduction	87
4.2	Different approaches to analysing content of corporate disclosure	87
4.3	Content analysis approaches used in IC disclosure studies	89
4.4	Limitations of the volumetric analysis of information disclosure	95
4.5	Calls for research into the qualitative characteristic analysis of disclosure	97
4.6	Chapter summary	99
Chapter 5	Content analysis: methodology and issues	
5.1	Introduction	100
5.2	Definitions of content analysis	101
5.3	Advantages and benefits of content analysis	102
5.4	An overview of the process of content analysis	103
5.5	Important issues in recording information	105

5.5.1	The construction of categories of information	105
5.5.2	The generic concept of unitising	107
5.5.3	Issues in recording units	109
5.5.4	Systems of counting information	111
5.6	The reliability and validity of content analysis	113
5.6.1	Reliability	113
5.6.2	Validity	115
5.7	Chapter Summary	116
Chapter 6	Method Development	
6.1	Introduction	117
6.2	Constructing the IC sub-categories	117
6.3	Recording for qualitative characteristics of IC information content	120
6.3.1	Qualitative characteristic type 1: the nature of IC information	121
6.3.2	Qualitative characteristic type 2: the timing orientation of IC information	124
6.3.3	Qualitative characteristic type 3: the factuality of IC information	127
6.4	Unitising	130
6.5	Media selection: annual reports	133
6.6	Locations covered in the annual reports	134
6.7	Reliability	135
6.8	The sample	138
6.9	Chapter summary	141
Chapter 7	Findings and discussion	
7.1	Introduction	143
7.2	Findings overview of IC information disclosure of all companies	144

8.6	Chapter summary	224
	References	225
	Appendix A	261
	Appendix B	267
	Appendix C	283
	Appendix D	299
	Appendix E	300
	Appendix F	301
	Appendix G	302
	Appendix H	308
	Appendix I	309
	Appendix K	310
	Appendix M	311
	Appendix N	312
	Appendix O	315
	Appendix P	316
	Appendix Q	317
	Appendix R	323
	Appendix S	324
	Glossary	325

List of Tables

Table 1.1	Research questions of study	9
Table 1.2	Research design	10
Table 3.1	Definitions of intellectual capital and intangible assets	26
Table 3.2	The categories developed in the prior studies of IC	29
Table 3.3	Summary of the history of IC disclosure studies	35
Table 3.4	An overview of accounting standards for intangible assets	39
Table 3.5	Geographical and temporal coverage of IC disclosure studies	57
Table 3.6	Previous studies concerning sectoral effect on IC disclosure	69
Table 3.7	The application of disclosure theories by previous IC disclosure studies	72
Table 4.1	Previous IC disclosure studies showing the approaches employed	90
Table 4.2	Levels and scores the qualitative characteristics capturing of IC disclosure in previous studies	93
Table 5.1	Overview of the process of content analysis	104
Table 6.1	IC disclosure categories and sub-categories	120
Table 6.2	Qualitative characteristics type 1: the nature of IC disclosure	123
Table 6.3	Qualitative characteristics type 2: time orientation of IC disclosure	127
Table 6.4	Qualitative characteristics type 3: factuality of IC disclosure	129
Table 6.5	Initial list of samples	139
Table 6.6	Final sample of 6 companies	140
Table 7.1	Summary of key findings	144

Table 7.2	The overview of findings by all companies (all years)	145
Table 7.3	Comparative percentages of IC information categories across studies	153
Table 7.4	The top ten ranking of IC sub-category information in 7 time periods based on frequency of total IC themes disclosed each period: all companies	161
Table 7.5	The most frequently disclosed IC sub-categories in the top ten by year. Emboldened pairs indicate key sectoral effects	175
Table 7.6	Labels and descriptions of qualitative characteristics of IC information content	181
Table 7.7	Low and high percentages of quantified IC disclosure (sum_QN2-QN4) by sub-categories: all years	198
Table 7.8	Low and high percentages of forward-looking IC disclosure (QT2) by IC sub-categories: all years	200
Table 7.9	Low and high percentages of factual IC disclosure (QF2) by IC sub-categories: all companies, all years	201
Table 8.1	Overview of research questions and answers	213

List of Figures

Figure 2.1	Changes in the economic context	19
Figure 7.1	Total frequencies of IC disclosure themes (all years)	145
Figure 7.2	Frequencies of IC disclosure by sub-categories (all companies, all years)	147
Figure 7.3	Total frequency of IC information disclosed by all companies, 1974-2008	148
Figure 7.4	Frequencies of IC disclosure themes by categories 1974-2008(all companies)	151
Figure 7.5	Percentages of SC, RC and HC disclosure themes, 1974-2008 (all companies)	152
Figure 7.6	Percentage of information on management philosophy disclosed by company (all years)	164
Figure 7.7	Percentages of information on technology disclosed by company (all years)	165
Figure 7.8	Percentage of information on IT/IS disclosed by company (all years)	165
Figure 7.9	Percentage of information on product innovation disclosed by company (all years)	166
Figure 7.10	Percentage of information on R&D disclosed by company (all years)	167
Figure 7.11	Percentage of frequency of information on brand by company (all years)	167
Figure 7.12	Percentage of information on customer disclosed by company (all years)	168
Figure 7.13	Percentage of information on business partners disclosed by company (all years)	169
Figure 7.14	Percentage of information on suppliers disclosed by company (all years)	169
Figure 7.15	Percentage of information on contracts/agreements disclosed by company (all years)	170

Figure 7.16	Percentage of information on environmental relationship disclosed by company (all years)	171
Figure 7.17	Percentage of information on employee training and development disclosed by company (all years)	171
Figure 7.18	Percentage of frequency of information on work-related knowledge and competencies (BoDs) by company (all years)	172
Figure 7.19	The frequency of brand disclosure by industry; 1974-2008	178
Figure 7.20	Percentage of qualitative characteristics type 1 (all companies)	182
Figure 7.21	Percentages of qualitative characteristics type 1 by company (all years)	183
Figure 7.22	Percentages of qualitative characteristics type 1, 1974-2008: all Companies	183
Figure 7.23	Percentages of qualitative characteristics type 2 (all companies)	187
Figure 7.24	Percentages of qualitative characteristics type 2 by company (all years)	188
Figure 7.25	Percentage of qualitative characteristic type 2 (QT2), 1974-2008: all companies	189
Figure 7.26	Percentages of qualitative characteristics type 3 (all companies)	192
Figure 7.27	Percentages of qualitative characteristics type 3, by company (all years)	193
Figure 7.28	Percentages of qualitative characteristic type 3 (QF2), 1974-2008: all companies	193

Abbreviations

AR	Annual reports
FASB	Financial Reporting Standards Board
IC	Intellectual capital
IAs	Intangible assets
SC	Structural capital
RC	Relational capital
HC	Human capital
WRK&C	Work-related knowledge and competencies
MERITUM	Measuring Intangibles to Understand and Improve Innovation Management
MV/BV	Market value/book value
DATI	Danish Agency of Trade and Industry
OECD	Organisation for Economic Cooperation and Development
PRISM	Policy-making, Measurement and Reporting Intangibles, Skill Development, Management
RICARDIS	Reporting of Intellectual Capital to Augment Research, Development & Innovation in SMEs
INCAS	Intellectual Capital Statement
IAS 38	International Accounting Standard No.38
IASB	International Accounting Standard Board
FTSE	Financial Times Stock Exchange
IPOs	Initial public offerings

Accompanying material

Campbell, D., & Rahman, M.R.A (2010), A longitudinal examination of intellectual capital reporting in Marks & Spencer annual reports, 1978-2008, The British Accounting Review, **42** (1): 56-70.

Chapter 1. Introduction

1.1 Overview

The term ‘the knowledge economy’ has become a catchphrase for many policymakers and management scholars over recent years due to its assumed contribution to regional and organisational value creation. The concept of the knowledge economy has been variously defined, usually contrasting it with the so-called ‘traditional economy’. In the knowledge economy, physical inputs or natural resources like labour, machines and land are no longer regarded as the primary sources of wealth creation (Drucker, 1993; Firer and Williams, 2003; Powell and Snellman, 2004). Rather, wealth creation is assumed to be shaped by knowledge embodied in workforces, technology, products and services (The Organisation for Economic Cooperation and Development, 1996; Clarke, 2001; Powell and Snellman, 2004).

In the knowledge economy, there appears to be a growing recognition among the business community of the importance of intellectual capital (IC) in creating value for shareholders (Brooking, 1996; Edvinsson and Malone, 1997; Brennan, 2001; Bontis, 2003). The IC embodied in a company’s internal structure, employees and strategic relationships is seen as sustaining the long-term competitive advantage of the company (Edvinsson and Malone, 1997; Sveiby, 1997). As a result, a number of organisations and working committees, mainly in the countries of northern Europe, have placed greater effort on the measuring and reporting of IC¹. These have included the project of ‘Measuring Intangibles to Understand and Improve Innovation Management’ (MERITUM project), Skandia AFS, ‘Policy-making, Measurement and Reporting Intangibles, Skill Development and Management’ (the PRISM project) and the ‘Intellectual capital statement – made in Europe’ approach² (the INCAS Project). (Also see Brennan and Connell, 2000; Garcia-Ayuso, 2003 and Polo, 2007 for further details).

At the same time, many authors have argued that the shift from traditional to knowledge-based companies has presented challenges to the relevance of traditional

¹ de Pablos (2003) drew a distinction between IC strategy and measurement. The former refers to the management stream that involves knowledge creation, acquisition, diffusion, conversion, transfer and storage, while the latter refers to knowledge measurement and reporting. This study deals with the latter.

² <http://www.incas-europe.org/European%20ICS%20Guideline.pdf>

financial reporting in reflecting the real market value of companies (Canibano et al., 2000; Vergauwen and van Alem, 2005; Guthrie et al., 2006; Bismuth and Tojo, 2008). Many studies have reported that the historical book value of a company as presented in traditional financial reporting was often far lower than its market value (Brennan, 2001; Lev, 2001; Roslender and Fincham, 2001; Whiting and Miller, 2008; Wilson and Stenson, 2008). The disparity between the two values was assumed to be partly due to unaccounted IC information in traditional financial reporting (Cordazzo, 2005; Edvinsson and Malone, 1997). Hence, it is thought that reporting IC information in the normal financial reporting cycle may partly explain this market to book disparity and, in turn, more accurately reflect the true value of companies.

Many empirical examinations have been conducted into IC disclosure practices in company annual reports (Guthrie and Petty, 2000; April et al., 2003; Bozzolan et al., 2003; Vandemaele et al., 2005; Striukova et al., 2008). Most of these studies indicated a growing interest in reporting IC information in annual reports among companies in different parts of the world. The main empirical studies have focussed on Australia (Guthrie and Petty, 2000), Ireland (Brennan, 2001), Italy (Bozzolan et al., 2003), the USA (Abdolmohammadi, 2005), the UK (Striukova et al., 2008; Campbell and Rahman, 2010) and also in some developing regions such as Africa (April et al., 2003), Malaysia (Goh and Lim, 2004), Sri Lanka (Abeysekera and Guthrie, 2005), Singapore (Abeysekera, 2008), India (Kamath, 2008) and China (An Yi and Davey, 2010). In most cases, prior studies have focused more on cross-sectional breadth rather than longitudinal depth. By arguing that the knowledge economy is a new phenomenon which has only recently affected business disclosure behaviour, existing empirical studies have mainly focused on cross sectional samples during recent periods rather than using retrospective longitudinal data.

It is interesting to note that notwithstanding the belief that the 'k-economy' is new, knowledge assets have long existed in society and organisations. But it is only very recently that this has been recognised at the organisational level as a driver of value (Stewart, 1997). Powell and Snellman (2004), for instance, suggested that knowledge driven by technology and information production had already emerged by the 1950s. Similarly, Roberts (2009, p.286) argued that the term knowledge economy originally emerged in the 1960s in the economics literature. Misconceptions about the genesis of the knowledge economy in studies of IC disclosure so far have given rise to the

examination only of those annual reports published from the mid 1990s onwards. Prior to this thesis, no evidence of IC disclosure prior to that time (the 1990s) has been reported even though knowledge resources are presumed to have already featured in economic activities before then. Therefore, the selection of retrospective longitudinal data allows this study to examine the existence of IC disclosure practice some years prior to the 1990s. In conducting this analysis, this study is also capable of facilitating the interrogation of reporting behaviour in response to changes in the macroeconomic context.

In contrast to prior studies that have mainly favoured cross-sectional coverage over longitudinal length, this study uses content analysis to interrogate the IC disclosures of six companies over a period of 35 consecutive and contiguous years from 1974 to 2008 inclusive. These companies were selected from three different sectors, comprising oil and gas (British Petroleum, Shell Transport and Trading), retail and drugs (Tesco Plc and Sainsbury Plc) and banking and finance sector (Barclays Bank and Lloyds TSB Bank). The advantage of this sample is that, whilst having obvious limitations of cross-sectional narrowness, it nevertheless enables patterns of reporting over time to be shown. The disaggregation of the totality of IC into 26 sub-categories then enables conclusions to be drawn about the way in which the companies in question have constructed their reporting. This, in turn, offers some insight into the manner in which value is internally perceived and how IC disclosure changes in response to market information demands.

This study also develops a method of capturing the qualitative characteristics of information content. Authors like Guthrie and Mathews (1985) and others subsequently, (e.g. Beattie et al., 2004; Beretta and Bozzolan, 2004; Beattie and Thomson, 2007; An Yi and Davey, 2010) have stressed the importance of measuring the qualitative aspects as opposed to merely capturing the volumes of disclosure. A review of the literature on IC disclosure suggests that many studies have focused on the volumetric measurement of IC related topics but little interest has hitherto been paid to interrogating the qualitative aspects of IC content. This study is intended to address that gap by developing and applying a method in capturing qualitative characteristics to IC information content.

1.2 Definition of the problems

The study was informed by two main problems. The first relates to the current focus in IC disclosure research on cross-sectional samples rather than longitudinal data. The second is the lack of a method that facilitates the investigation of the qualitative characteristics of information content. In addition to these main problems, the scarcity of relevant UK-based evidences was also a motivation for conducting this study. This study was also driven by the desire to examine cross sectional effects, such as industry membership, on IC disclosure behaviour. Finally, this study also sought to explore the fitness of the main existing disclosure theories to explain observed IC disclosure patterns and behaviours.

1.2.1 Longitudinal focus

It is evident that previous IC disclosure studies have privileged cross-sectional breadth over longitudinal depth with the majority having studied reporting behaviour from the mid-1990s onwards and for a small number of years (often one single year). Less is empirically known about IC disclosure prior to this time and there have been no contiguous longitudinal studies of IC disclosure behaviour over more extended periods. This thesis thus answers the calls for longitudinal research by, *inter alia*, Bozzolan et al. (2003), Vandemaele et al. (2005); Oliveras et al. (2008), Kamath (2008), and Abeysekera (2008). Bozzolan et al. (2003) and Abeysekera (2008), for example, suggested that extended longitudinal analysis would be capable of providing an in-depth analysis and monitoring of the progress and development of IC disclosure practices.

Some previous studies in IC disclosure may have been motivated by the belief that the knowledge economy emerged in the mid-1990s (Williams, 2001; Bozzolan et al., 2003; Oliveras et al., 2008; Schneider and Samkin, 2008; Whiting and Miller, 2008). As a result, companies have been assumed to have reported considerable amounts of IC information in annual reports ever since. For instance, Williams (2001, p.195) established a time period for a survey of annual reports between 1995 and 1999 suggesting that companies were more likely to disclose more IC information than in earlier years due to the growing recognition of IC materiality. Bozzolan et al. (2003) also found that more IC information was disclosed after 1999 due to the increasing incentives from government to promote investment in intangible assets. However, the

longer- term development of IC disclosure has not been investigated in previous studies, particularly in the UK context. The absence of empirical evidence of IC disclosure in the past does not necessarily indicate that it did not exist. Rather, it may have existed in different forms.

The contribution of the longitudinal interrogation described in this study rests partly upon it being the first such study of IC disclosure. In describing disclosure patterns over three decades (1974-2008), this study covers a period in which the sources of competitive advantage (at firm level) have, it is assumed, changed somewhat from tangible to knowledge assets. Questions of whether and how this change is reflected in IC disclosure practice can only be answered when a lengthy longitudinal sample is employed. Longitudinal study is manifestly more appropriate than cross-sectional sampling for studying small samples of company. Time effects have hitherto been inaccessible to researchers and this thesis now reports on such effects over a three-decade period in six UK-based companies. Such a longitudinal study has the advantage of being capable of providing an understanding of social and economic changes as well as changes in the dynamic processes of individuals or organisations over time which is definitely unobtainable from cross-sectional data.

1.2.2 Developing and enhancing a method for capturing qualitative characteristics of IC information

In addition to the volumetric analysis of IC disclosure, this study develops and enhances a method of capturing the qualitative characteristics of IC information content which have been neglected in previous studies. Past IC disclosure studies, and particularly those using content analysis, have focused more on volume of information and tended to avoid quasi-subjective judgements in recording information content (Brennan, 2001; April et al., 2003; Vergauwen et al., 2005; White et al., 2007; Oliveras et al., 2008; Sonnier et al., 2008). A simple binary scheme, for instance, has been widely used where 0 was awarded to a non-disclosed item and 1 to a disclosed item. In most studies, no interrogation of the qualitative characteristics of information content was conducted. Some other studies have considered a limited range of qualitative characteristics such as being discursive or numerical in nature where the latter carries more weight in terms of quality than the former (Bozzolan et al., 2003; Guthrie et al., 2006; Vandemaele et al., 2005). No wider dimensions of qualitative characteristics have so far been analysed.

Some authors have noted that attempting to assess the qualitative characteristic of content is complicated (e.g. Botosan, 1997). However, this study takes the view that the benefit of measuring it outweighs the complexity of so doing (Schneider and Samkin, 2008). Thus, many authors have called for future studies to pay serious attention to investigating qualitative characteristics of disclosure (Guthrie and Mathews, 1985; Wiseman, 1982; Beattie et al., 2004; Beretta and Bozzolan, 2004; Guthrie et al., 2004; Brammer and Pavelin, 2006; An Yi and Davey, 2010). Beattie et al. (2004, p.207), for instance, wrote that:

‘developing a richer set of objective measures relating to disclosure can permit much more powerful tests of many research questions that relate to narrative disclosure’

Therefore, the contribution of the method developed described in this study rests partly upon it being the first such study to capture information content in a more detailed analysis of qualitative characteristics.

1.2.3 Analysis of the effect of sectoral membership on IC disclosure.

It has been argued that each sector or industry has its own unique business model, intangible assets based and core competitive resources (Bozzolan et al., 2006). Several prior studies have found industry membership to affect levels of IC disclosure (Abdolmohammadi, 2005; Bruggen et al., 2009; Bozzolan et al., 2003; 2006; Guthrie et al., 2006). A lacuna in previous studies is a focus in greater detail on what and why companies in a particular industry disclose specific IC content compared to others. Previous studies have tended to examine the relationship between industry type and volume of disclosure, without discussing differences in terms of content specificity (e.g. Bruggen et al., 2009). Thus, determining which IC subjects are considered important and which provide value to shareholders in each industry warrants further research (Abhayawansa and Guthrie, 2010). Such a study could enrich our understanding about differences as well as similarities in disclosure trends and content between and within industries over long-term periods.

1.2.4 IC disclosure evidence in United Kingdom-based companies

The number of IC disclosure studies in the UK is somewhat limited, and those which do exist have tended to focus on cross-sectional analysis. Excepting Williams (2001, which covered 1995-1999) and Campbell & Rahman (2010, the pilot for this thesis), no longitudinal studies which cover lengthy periods have been conducted in the UK. In keeping with the aims of the studies by (Bozzolan et al., 2003; 2006), Beattie and Thomson (2007), Vandemaele et al. (2005), Striukova et al. (2008) and Li et al. (2008), this study sought to provide specifically UK-based evidence of IC disclosure practice from a longitudinal data analysis.

The systematic collection of annual reports archived in many accessible sources in the UK made this study possible. In addition, no substantive studies into the qualitative characteristics of IC disclosure have hitherto been carried out on UK companies. Accordingly, this study sought to provide further insight into how UK-based companies have reported the qualitative characteristics of IC information.

1.2.5 Theories underlying IC disclosure

It is noted that previous IC disclosure studies have been inconsistent in employing disclosure theories to understand and interpret their findings. Whilst several disclosure theories have been employed, no consensus has been achieved as to which theory is the most relevant and capable of predicting the voluntary behaviour of IC disclosure. Some theories have been applied in previous IC studies, including as stakeholder and legitimacy theory (Guthrie et al., 2006; Whiting and Miller, 2008), political economy theory (Abeysekera and Guthrie, 2005; Abeysekera, 2006), decision usefulness (Whiting and Miller, 2008) and signalling theory (Whiting and Miller, 2008), this study argues that none of the above have shown sufficiency as an adequate theoretical framework in understanding IC disclosure. Therefore, it was appropriate for this study to consider several of these prominent disclosure theories in helping to interpret the findings and in establishing how well the findings are explainable by existing disclosure theories.

1.3 Objectives of the study

1.3.1 To investigate IC disclosure practice in annual reports on a cross-sectional and longitudinal basis.

This study employed content analysis to investigate IC disclosure in six UK-based companies' annual reports over 35 contiguous years (1978 to 2008 inclusive). The volumetric analysis treated clauses/themes as the units of recording in capturing the volume (frequency) of IC disclosure. The frequencies of three main and 26 sub-categories of IC information were analysed to provide responses to questions about IC information disclosure over the period. The findings were interpreted in the light of the existing disclosure theories.

1.3.2 To develop and enhance the method of capturing volume and the qualitative characteristics of IC disclosure.

In addition to the volumetric analysis, this study also attempted to develop a method capable of capturing the qualitative characteristics of IC disclosure. Previous studies have tended to focus more on the volume of information disclosed rather than its qualitative characteristics (Beattie et al., 2004; Beretta and Bozzolan, 2004; An Yi and Davey, 2010). Although efforts to capture such qualitative characteristics have been conducted, the detail analysis has tended to be shallow and somewhat lacking in granularity. The analysis of qualitative characteristics conducted in this study was richer and more highly resolved than those employed in previous studies.

1.4 Research questions

Given that the present study is descriptive and exploratory in nature, no formal hypotheses were set out. It was deemed sufficient instead to formulate specific research questions which can be divided into five as presented in Table 1.1. The first, second and third related to understanding theory and practices of IC disclosure using cross-sectional and longitudinal perspectives, and the fourth and fifth related to developing and enhancing a method of capturing the qualitative characteristics of IC information disclosed.

Table 1.1 Research questions of study

RQ1	How can longitudinal effects of volumetric (frequency) IC disclosure of 6 UK companies from 1974 to 2008 be described?
RQ2	How can cross-sectional effects of IC sub categories disclosure (relative proportion of main/sub-categories themes) from 1974 to 2008 be described?
RQ3	How effectively are IC disclosure patterns explainable by existing disclosure theories?
RQ4	How can a method to facilitate the interrogation of the qualitative characteristics of IC disclosure be developed?
RQ5	How can the qualitative characteristics of the IC disclosure of 6 UK companies from 1974 to 2008 using the method developed in this study be described?

1.5 Research design

Having established the research objectives, the next step is to discuss the research design, which provides the structure and direction of this study. Table 1.2 indicates six design stages, beginning with identifying existing research gaps and formulating research problems in IC disclosure and content analysis. Once the problems to be tackled and questions to be answered have been clearly defined, then a method must be established. This was achieved in this study by examining the literature on the content analysis of IC and other types of disclosure. Issues and limitations in content analysis were identified, resolved and an appropriate method was then developed. Once recording rules had been set up, data from Marks and Spencer's annual reports over 31 years were collected in a pilot study. The recording rules and category schemes were then revised after a consideration of the limitations of the pilot study. The final recording rules were then employed with the main sample of annual reports. In order to examine longitudinal IC disclosure, annual reports from six companies from three different sectors were obtained from several sources. The companies were taken from the list of FTSE100 companies in order to control, as far as practicably possible, for size effects. The findings of the study are presented in tabular and graphic formats and are used to answer the research questions posed.

Table 1.2 Research design

Stage	Objective	Key-issues	Descriptions	Relevant chapters
1	Problem definition	<p><i>Strand 1:</i> Was IC information disclosed in annual reports over the few last decades? Has the volume of IC disclosure in annual reports increased over time? Was there any variability in specific IC categories disclosed over time and by companies/industries? How well do existing disclosure theories explain this development?</p> <p><i>Strand 2:</i> Why is the volumetric analysis of capturing information insufficient? Are current practices of capturing the qualitative characteristics of information adequate?</p>	<p>Current practices in IC disclosure studies appear to employ recent annual reports. Little is known about disclosure in previous decades.</p> <p>Current practices in capturing the information based on volume are limited to describing the power of the information. Previous studies that captured qualitative characteristics of content are limited and inadequate.</p>	1, 2, 3, 5
2	Methodology and method development	<p>What are the critical issues in content analysis? How should these issues be resolved? How can a method to capture the volume and qualitative characteristics of IC information be developed?</p>	Thorough review of content analysis methods in previous IC and other type of disclosure studies to find relevant issues and solutions in helping the development of method in this study.	4, 6
3	Pilot study	Does the method developed effectively capture the data?	Initial recording instrument used to examine IC reporting in 31 consecutive years of Marks and Spencer annual reports.	6 Pilot study (Campbell and Rahman, 2010)
4	Sampling generation	Longitudinal and cross-sectional selection.	Companies were selected from FTSE to control for size effects. Data for 35 consecutive years of annual reports of 6 companies across 3 industries were obtained to examine longitudinal and cross-sectional effects	6
5	Application of method	Data capture and analysis	Presentation of key findings	7
6	Summary evaluation and conclusions	Do findings answer research questions?	Evaluation of key findings, limitations, suggestions for future research and conclusions	8

1.6 Thesis outline

This thesis consists of eight chapters. Chapter 1 provides an overview of the study, which begins with the motivation for researching IC information disclosure in terms of the knowledge economy, followed by a description of the current state of IC disclosure studies. It then proceeds to identify research problems and questions as well as research objectives. A summary of the research design, justifications for the study and its scope are also presented in the chapter.

Chapter 2 discusses the background of the study which encompasses the concept of the knowledge economy and how the knowledge economy motivates the interest in studying IC. In particular, the intersection between the knowledge economy, IC and the challenges to traditional financial reporting are considered.

The relevant literature is reviewed in chapters 3, 4 and 5. Chapter 3 explains the concept, definitions and taxonomies of IC, followed by a discussion of relevant IC disclosure research and its relevant disclosure theories. The last section of the chapter identifies gaps in existing studies and the positioning of this study in the field of IC disclosure studies. Chapter 4 focuses on the description of procedures in content analysis. Issues and problems surrounding this method are identified and available solutions considered. The existing literature about methods of capturing meaning from narrative information is reviewed in chapter 5. In this chapter, the limitations of volumetric content analysis measurement instruments and the need to capture the qualitative characteristics of information content are evaluated.

Chapter 6 explains the development of an appropriate method to be used to answer the research questions of this study. The chapter gives details of sample selection, justifies the reporting media used and discusses the construction information categories, units of recording, issues of reliability and the rules used to capture the meaning of IC information.

The analysis and findings of the study are presented in chapter 7. In this chapter, a summary of key findings is presented and commented upon. The contributions, conclusions and self-reflections of this study are presented in the final chapter.

1.7 Chapter summary

This chapter has provided an overview of the study and explains the need to focus on longitudinal rather than cross-sectional data only. The chapter also discussed the necessity to develop a method of capturing the qualitative characteristics of information in addition to merely conducting volumetric analysis. The research problems, questions, objectives and design of the study were also considered in this chapter.

Chapter 2. Background to the study: the knowledge economy and intellectual capital disclosure

2.1 Introduction

This chapter seeks to describe the link between the knowledge economy and corporate disclosure concerning IC information. The development of the knowledge economy has been argued to be a main reason of why IC disclosure studies have been conducted by accounting researchers in the past. This chapter also explains the concept of the knowledge economy and its characteristics. The challenges it poses to corporate disclosure, as well as the need for new disclosure systems, are also addressed. The situation of the knowledge economy in the UK is briefly described in justifying the examination of this particular country in the present study.

In general, Adams (2002) suggested that there is a likely relationship between corporate disclosure behaviour and the economic and political situation in which the disclosure occurs. In particular, the types and volume of information disclosed are thought to be driven in large part by changes in the economic and political situation in which the reporting takes place. Therefore, it has been argued that one source of encouragement for researching IC is the assumed dramatic shift from the traditional to the knowledge economy where factors of competitive advantage are thought to rely more on knowledge than on physical and monetary assets (Brennan, 2001; Bontis, 2003; Lev and Daum, 2004).

It is thought, for example, that economic growth is partly underpinned by the wise use of the knowledge that is embodied in technology and human capital (Houghton and Sheehan, 2000; Seetharaman et al., 2002; Switzer, 2008). The relationship between knowledge performance and national and regional competitiveness has been widely discussed (see, for example, The Organisation for Economic Cooperation and Development, 1996). Within much of the scholarly literature about IC, there is an inherent assumption that the knowledge economy is a somewhat new phenomenon, which has dramatically changed many aspects of managing organisations and businesses (Botha, 2000; Boedker et al, 2008), including styles of managing human resources and collaborations between network of firms (Department of Trade and Industry, 1999; Hsu et al., 2008). Furthermore, according to Lev and Daum (2004), the

existence of the knowledge economy means that a company operates in a global buyer's market where product differentiation is pivotal in maintaining competitive advantage. As a result, more resources may be directed to innovation, customer services, research and development, brand building, employee education, developing flexible supply chain networks and the use of information technology, as these are prominent sources of competitive advantage.

Another facet of the knowledge economy has been a challenge to traditional financial reporting in dealing with the IC thought to be embedded within companies. Traditional financial reporting systems have been criticised as failing to capture the real value of a company, particularly one that heavily relies upon knowledge or intangible assets for its value adding (Lev and Daum, 2004; Yongvanich and Guthrie, 2005; Yeoh, 2010). In all jurisdictions of which the author of this thesis is aware, the reporting of most forms of strategic IC in the main body of financial statements is not mandatorily required. The absence of such mandatory requirements has been explained partly in term of the difficulty and subjectivity of measuring the value and scope of IC. The failure to account for IC in financial statements is thought to have contributed to the difference between the market value of equity and its book value (Caroll and Tansey, 2000; Dzinkowski, 2000; Lev and Daum, 2004; Whiting and Miller, 2008). In order to partly explain the market to book disparity, the reporting of IC has become prominent particularly in the narrative sections of annual reports. This, in turn, has stimulated the development of empirical studies of ICR in those reports.

2.2 Concepts of the knowledge economy and its characteristics

Despite some debate around the knowledge economy, there is still little agreement over its definition (Assudani, 2005; Ghosh and Ghosh, 2009; Roberts, 2009). Some authors have offered broad and possibly reductionist definitions where as others have offered more abstract formulations, which have been somewhat amorphous and vague at times and thus somewhat less useful to researchers (Smith, 2002). Definitions of the knowledge economy are in general based on the view that information and knowledge are central to national and global economic growth as well as to the creation of wealth by companies (Abramovitz and David, 1996; Savage, 1996; Department of Trade and Industry [DTI], 1998; uit Beijerse, 1999). This view certainly is ostensibly at variance with classical economics which has tended to view physical production factors such as

capital, land and machines, as the most important factors in creating wealth (Guthrie and Petty, 2000; Powell and Snellman, 2004; Switzer, 2008). Moreover, the knowledge economy is also considered by some to make effective use of knowledge for the benefit of society as a whole (Dahlman and Anderson, 2000).

The Organisation for Economic Cooperation and Development (1996) defined the knowledge economy as an economy directly based on the production, distribution and use of knowledge and information. Meanwhile, Powell and Snellman (2004, p.201) stated that:

'The key components of knowledge economy include a greater reliance on intellectual capabilities than on physical inputs and natural resources, combined with effort to integrate improvement in every stage of production process, from the R&D lab to the factory floor to the interface with the customers'.

Likewise, the UK's Economic and Social Research Council cited in Brinkley (2006) defined the knowledge economy as one where economic success depends on the effective utilisation of intangible assets such as knowledge, skills and innovative potential. Ghosh and Ghosh (2009) further defined the knowledge economy in terms of the ability of organisations in a society to bring together powerful technology and well-educated minds to create wealth. Furthermore, the activities in the knowledge economy primarily rely on the use of ideas rather than physical ability, and the application of ICT is more prominent than the transformation of raw materials or the exploitation of cheap labour.

Knowledge can be conceptualised in many ways. The different senses of the term 'knowledge' may be confused due to a failure to distinguish whether knowledge is an object or a process. In the management literature, the issue of whether knowledge is a process or a static resource is unclear (Assudani, 2005; Dzinkowski, 2000; Shapira et al., 2006). Some authors have, nevertheless, provided useful examples of a nested concept of knowledge. Shapira et al. (2006), for instance, clearly distinguished between three components of knowledge that facilitate its measurement; knowledge stocks, knowledge process and knowledge inputs. Firstly, knowledge stocks are inputs for knowledge process which include human capabilities, knowledge leadership and technology/info-structures. Secondly, the knowledge process means putting it to use, for

example, knowledge generation, acquisition, sharing and utilisation. Meanwhile, knowledge outcomes involve the interaction of knowledge stocks and processes to produce, for example, innovation and economic performance. In this study, knowledge (or IC) is referred to as both object and process. In particular, the meaning of IC information disclosure captured in this study refers to the IC assets, strategies, processes and activities used by companies.

Knowledge assets, especially human skills and technology have long been used in economic activities (Smith, 2002; Bontis, 2004; Shapira et al., 2006; Roberts, 2009). In fact, the power of knowledge is historically evident in the ancient Egyptian and Greek civilisations with the emergence of libraries and universities thousands of years ago, clearly demonstrating the ability to codify knowledge in those civilisations (Bontis, 2004). Similarly, Smith (2002) argued that economic activities resting on knowledge are not specifically attached to particular kinds of society and times but apply to all forms of human society in every age. Tribal people also evidently possessed sophisticated environmental and technical knowledge. It would come as no surprise, then that industrial economy of the nineteenth century was considered intensively knowledge-based. Supporting this view, Houghton and Sheehan (2000, p.1) stated that:

It is not a new idea that knowledge plays an important role in the economy, nor is it a new fact. All economies, however simple, are based on knowledge about how, for example, to farm, to mine and to build; and this use of knowledge has been increasing since the Industrial Revolution. But the degree of incorporation of knowledge and information into economic activity is now so great that it is inducing quite profound structural and qualitative changes in the operation of the economy and transforming the basis of competitive advantage.

It is possible, hence, to believe that the knowledge economy has long existed and the differences between now and the past are likely to concern the quantities, types and applications of knowledge. In the past, knowledge might have been embedded in physical assets such as technology in machines, but nowadays the site of knowledge might have shifted to become embedded in intangible assets such as customers, community relationships and brand equity. Accordingly, if knowledge has always existed in companies, it may be expected that some form of information about knowledge assets have been disclosed in corporate documents in the past. The quantity of knowledge assets disclosed might have gradually increased as the importance of the

knowledge economy in companies has also increased over time. It might also be expected that the focus in the disclosure of knowledge assets information might change depending on their relevance and usefulness at any given time.

2.3 The knowledge economy in the UK

The UK is an interesting case for the study of IC disclosure as it has been renowned for its innovation in technology, human development, IT and process efficiency. Along with many other developed countries in Europe, the USA and Japan, the UK has pursued excellence in the knowledge economy. This was shown, for example, when the UK joined the Lisbon European Council to set up the Lisbon Agenda in 2000. The Lisbon Agenda set a long-term plan from 2000 to 2010 to make the EU the most competitive, knowledge-based economy in the world (Johansson et al., 2007). The UK has expended effort to ensure that it does not lag behind other countries in achieving competitive advantage in the knowledge economy. In its Competitive Reports of 1999 and 2006 (The Department of Trade and Industry, 1999; 2006), the UK Department of Trade and Industry published economic facts and figures showing the encouraging progress made in the country to attain competitive advantage. The UK was said to have demonstrated strong achievements in science and engineering-based activities, business investment and the use of IT, education, R&D activities, technological collaboration, product and business innovation and research co-operation between universities and industry.

It is thus argued in this study that, given the increasing emphasis on the knowledge economy at the macro level in the UK, it becomes worthwhile, accordingly to examine knowledge-based activities at the micro level of individual organisations, particularly in terms of corporate disclosure practices. Such an examination might then provide preliminary insights into the relationship between the knowledge economy and corporate disclosure. One of the most important issues of the relationship between the knowledge economy and the behaviour of corporate disclosure is the challenge posed to traditional financial disclosure in dealing with knowledge assets. This is discussed in the following section.

2.4 The knowledge economy and its challenges to traditional financial disclosure

It is generally accepted that companies that operate in the knowledge economy rely substantially more on intangible than tangible assets in achieving long-term competitive advantage and the creation of shareholder value (Holland and Johanson, 2003; Vandemaele et al., 2005; Yongvanich and Guthrie, 2005). Such intangible assets include the capability of human capital in generating ideas and innovation (Arthur, 1994; Ruchala, 1997; Switzer, 2008), the ability to establish and maintain relationships with customers, suppliers and other business partners (Malmelin, 2007), technology, information systems and propriety management processes (Sveiby, 1997; Switzer, 2008; Ghosh and Ghosh, 2009) and brand connections with customers (Davey et al., 2009).

Seetharaman et al. (2002) reported that the ratio of intangible to tangible assets in value adding was 30:70 in 1929 but it had changed to 63:37 by 1990 (Figure 2.1). This change has led to profound challenges for corporate financial disclosure. When tangible assets were the principal sources of value creation, knowledge was managed to produce more new physical assets. During this time, financial accounting played the traditional role of recording and reporting on the historical operation, consumption and production of physical assets. In the knowledge economy conversely, knowledge assets in the companies are managed to create more knowledge and innovative assets rather than producing physical assets. Nonetheless, the knowledge assets are mostly intangible in nature and are thus unrecognised by traditional financial reporting standards. In consequence, the relevance of traditional financial disclosure in dealing with these assets has been questioned (Moore, 2000; Upton, 2001; Kang and Gray, 2011).

It is generally agreed that traditional financial disclosure recognises only financial and physical assets and does not offer an adequate means to capture and report the wider range of intangible assets (Edvinsson and Malone, 1997; Ittner and Larcker, 1998; Gallego and Rodriguez, 2005; Oliviera et al., 2006; Cordazzo, 2007; Boedker et al., 2008). Canibano et al. (2000) and Wayne (2001) argued that the narrow view and stringent criteria of traditional financial disclosure in recognising intangibles assets has reduced its relevance³. As such, traditional financial disclosure is becoming less

³ Existing accounting regulation is restricted to specific intangible assets such as purchase goodwill and R&D costs (Kang and Gray, 2011).

informative in the sense of giving an understanding about the role of intangible assets in creating value in a company (Canibano et al., 2000; Mouritsen et al., 2004).

Figure 2.1 Changes in the economic context

Time	Economic era	Economic structure	Business resource structure	Management challenges	Accounting challenges
The past	Production economy	Manufacturing base [70%]	Physical assets [70%]: labour, machines, money and materials	Operation management i.e. body of knowledge that produces and consumes physical assets	Accounting for operations and consumption of physical assets based on transactional framework
		Services base [30%]	Knowledge assets [30%]: Ideas, info, R&D, brands, software, customers, networking		
The present	Knowledge economy	Manufacturing base [37%]	Physical assets [37%]	Knowledge management, i.e. managing the body of knowledge that creates and consumes knowledge assets	Accounting for the creation and storing of knowledge assets and intellectual capital is in its infancy
		Services base [67%]	Knowledge assets [67%]: inventory of intellectual property, skills, etc		

Source: Seetharaman et al. (2002).

The lower assumed relevance of traditional financial disclosure was demonstrated in a study by PricewaterhouseCoopers (Eccles, et al., 2001), which sought the opinions of investors regarding the most important types of information needed. Among the ten

most important types of information that were perceived as important by investors, only three related to finance and the remainder could be considered as 'soft' information. Furthermore, all 14 types of information perceived as moderately important by investors could be classified as relating to IC. Interestingly, the findings suggested that many of the important types of information for investors were not actually disclosed in corporate reports. This study's findings thus corroborated assertions on the inadequacy of traditional financial disclosure in conveying the information about intangible assets and the assumption that it is highly valued by investors.

A survey by McKinsey Consulting (cited in Boedker et al., 2008) on a total of 1,016 company directors also indicated a shift in the information demanded, from matters of finance to those concerning intangible resources. According to the survey, company directors showed an increasing interest in the disclosure of intangible assets such as market health (concerning customers, market share, products, suppliers and brands), organisational health (relating to employees, skills, structure, culture and value) and network health (relationship with publics, communities and regulators). This sort of information is arguably not adequately reported in traditional financial disclosure.

Other studies demonstrating the decreasing relevance of traditional financial disclosure include Lev and Zarowin (1999), Amir and Lev (1996), Collins et al (1997), Ittner and Larcker (1998) and Francis and Schipper (1999). Lev and Zarowin (1999), for instance, demonstrated the increasing irrelevance of traditional financial indicators such as reported earnings, cash flow and book value over a 20 year period. The study furthermore asserted that the declining relevance of traditional reporting indicators has been caused at least in part by a radical shift of management processes and value creation from tangible to intangible assets. Similarly, Amir and Lev (1996) found that non-financial information such as growth and market penetration influenced the decision making of investors more than financial indicators such as earnings, book value and cash flows.

Abeysekera (2007) and van der Zahn (2007), similarly, argued that inadequacy of information in traditional financial disclosure can be explained by the increasing gap between the market and book value of a company. Other authors have argued that this gap was partly caused by the failure of traditional financial disclosure to account for the hidden intangible assets of companies which, in turn, contribute to a misrepresentation

of the real value (Fox and Schiff, 1996; Carroll and Tansey, 2000; Brennan, 2001; Allen, 2002; Seetharaman et al., 2002; de Pablos, 2005).

It was with regard to this argument that Professor Keith Bradley in his observations of the US stock market (cited in Edvinsson and Malone, 1997, p. 5), commented that:

Over the past twenty years there has been a significant widening of the gap between the value of the enterprise state in corporate balance sheets and investor assessment of those values. [The median market-to-book value ratio of US public corporations over twenty year period between 1973 to 1993 increased from 0.82 to 1.692]. The gap indicates that roughly forty percent of market value of the median US public corporation was missing from the balance sheet. For knowledge-intensive corporations, the percentage assets missing from balance sheet is over one hundred [percent].

The findings above have been part of the reason for envisaging a new type of corporate disclosure capable of capturing the real value of companies. Disregarding this requirement will, this thesis contends, contribute to the increasing irrelevance to users of traditional corporate disclosure. The consequent effects of not presenting relevant information such as information about intangibles assets are potentially profound and these issues are highlighted in following section.

2.5 Effects of irrelevance of traditional financial disclosure

In theory, the effect of a failure to present information relevant to shareholders is likely to lead to uncertainty among investors in allocating resources. Thus, investors may impose higher costs of investment and borrowing on the companies in order to trade off between the perceived risk of uncertainty and return on investment (Singhvi and Desai, 1971; Healy and Palepu, 1993; Lang and Lundholm, 1996; Botosan, 1997; Sengupta, 1998; Orens et al., 2009). In the knowledge economy, information about intangible assets has been found to be highly desired by investors (Eccles et al., 2001; Boedker et al., 2008).

Therefore, the exclusion of information about intangible assets in traditional financial disclosure is seen as not fulfilling the demand from investors because they would not be able to adequately assess the future wealth creation potential of companies (Williams, 2001). In that sense, traditional financial disclosure is less capable in reflecting

economic reality and it is not a very solid or reliable source of information for investors who want to invest in intangible assets (Dyckman and Zeff, 2000; Robertson and Lanfranconi, 2001). As a result, investors who have less information about a company's intangible assets could not be able to make accurate resource allocation decisions. Hence, the perceived risk to investors will increase, and this could have the effect of increasing the costs of capital. In order to resolve this problem, a new corporate disclosure system is needed or, if it not possible, the existing system needs to be reconfigured.

2.6 The need for a new disclosure system

There is a need, then, to establish a new form of corporate disclosure separately from traditional reporting system to serve investors who have shown increasing willingness to invest in knowledge-based companies (Ittner and Larcker, 1998; Blair and Wallman, 2000). Such a new disclosure system would be needed to address the lack of traditional financial disclosure in dealing with wider range of intangible assets (Cordazzo, 2007; Gelb, 2002; Kang and Gray, 2011, Vergauwen and van Alem, 2005). Canibano et al. (2000) pointed out that the need for improvement in traditional financial disclosure can be seen from various efforts made by professional and industrial parties.

In 1991, the American Institute of Certified Public Accountants (AICPA) set up a committee (the Jenkins Commission) to study the usefulness and relevance of current traditional business disclosure. The committee found that rapid changes had occurred in the nature of business, where competitive advantage and value creation had increasingly relied on intangible assets. However, traditional financial statements were considered to be less relevant due to not fully recognising the wider forms of intangible assets (The Jenkins Report, AICPA, 1994). In order to improve the relevance of statements, it was argued that the information about intangible assets, which transcended the traditional earning and cash flow figures, should be encouraged (Bozzolan et al., 2003; Beattie et al., 2004).

Meanwhile, a group of organisations was brought together by Leif Edvinsson met in Mill Valley, USA in 1994 to discuss the appropriate balance in presenting intangible assets in financial statements (Edvinsson and Malone, 1997). Also in 1994, the first known statement of intellectual capital was published by Skandia AFS in Sweden.

Several committees were also formed to produce guidelines in measuring and reporting intangible assets (Brennan and Connell, 2000; Bukh and Johanson, 2003, and Fincham and Roslender, 2003). These include, among others, MERITUM 1998, DATI 1998, OECD, 1998; PRISM 2001-2003, RICARDIS 2004-2006, INCAS 2006-2009, the Austrian University Act 2002 and the Japanese Government's IC Reporting Guidelines 2004 (DATI, 2000; Bukh and Johanson, 2003; RICARDIS, 2006; Bezhani, 2010; Polo, 2007). Further details of discussions about the development of disclosure of intangible or intellectual capital are presented in chapter 3.

2.7 Chapter summary

A consensus has been agreed among researchers that knowledge is now a more critical factor than physical assets in creating value for nations and corporate entities (Firer and Williams, 2005). This has affected the management of businesses and also posed challenges to the traditional financial disclosure. The latter has been argued to have increasingly lost its relevance because of the failure to capture and report the wider range of knowledge assets such as IC (Lev and Daum, 2004; Yongvanich and Guthrie, 2005). Consequently, there have been attempts to produce frameworks and guidelines on IC disclosure either in stand-alone reports or as a part of the front-end narrative in annual reports.

From an academic point of view, the phenomenon of the knowledge economy has provided a reason for studying the practice of IC disclosure, particularly in corporate annual reports. In several different international jurisdictions, effort has been invested in interrogating the volume and type of IC information disclosure (Brennan, 2001; Bozzolan et al., 2003; An Yi and Davey, 2010 etc.). The existing literature on IC disclosure and related issues is reviewed in the next chapter.

Chapter 3. Literature review: intellectual capital disclosure

3.1 Introduction

The debate about IC was initially driven more by industry than academia (Edvinsson and Malone, 1997). IC disclosure has only been a subject of academic investigation in the past ten years or so, starting in the early 2000s with the desire among researchers to investigate the volume of IC information disclosed in corporate annual reports (Guthrie and Petty, 2000; Brennan, 2001, Williams, 2001; Bozzolan et al., 2003). Since then, investigations into IC disclosure have been undertaken in several international contexts in different parts of the world.

This chapter seeks to review the literature on IC disclosure, beginning with a discussion of the basic concepts and categories of IC before providing an introduction to its disclosure. Definitions of IC disclosure and the history of its study are then briefly discussed. An outline of the rationale for disclosing IC is then followed by a review of literature on IC disclosure itself before specifically identifying the prior studies of IC disclosures which have employed content analysis (this being the method employed in this study). The limitations of prior studies are drawn after which a summary of the chapter is given.

3.2 Understanding the concept of intellectual capital

A number of definitions of IC have been offered in prior studies and the ways in which IC categories have been identified and resolved has also been the subject of some disagreement. This problem is mainly due to there being as many classifications as there are authors on the subject (Marr and Adams, 2004; Choong, 2008). Hence the following section briefly reviews existing definitions and classifications of IC with the aim of providing a workable understanding of the concept of IC.

3.2.1 Definitions of intellectual capital

The literature review for this thesis established the extent of the disagreements over the definition of IC and its constituents, whilst also noting some common themes (Petty and

Guthrie, 2000; Kaufman and Schneider, 2004; Bollen et al., 2005; Schneider and Samkin, 2008; Choong, 2008). The terms 'IC', 'intangible assets' (IAs), 'intellectual property' and 'knowledge assets' have often been used interchangeably across studies (Dzinkowski, 2000; Kaufmann and Schneider, 2004; Beattie and Thomson, 2007) even though these studies are usually thought to refer to similar kinds of assets. Meca and Martinez (2005), Oliveira et al. (2006) and Cordazzo (2007), for instance, used the term 'intangible assets' rather than 'IC', despite the fact that these studies examined IC disclosure. In this study, the terms IC and intangible assets will be used interchangeably, depending on the source of citation.

Table 3.1 shows the definition of IC or IAs, derived in part from Choong (2008) and Kaufmann and Schneider (2004). The definition of IC can be divided into five main themes. Firstly, it is defined according to its membership or sub-object comprising the totality of IC (Brooking, 1997; Sveiby, 1997; Gu and Lev, 2001; Edvinsson, 2002). In this case, the task of constructing a definition of IC has often been associated with categorising it (Huang et al., 2007). For example, Brooking (1997, p.13) defined IC as including market assets, human centred assets, intellectual property assets and infrastructure assets. Similarly, Sveiby (1997) defined IC as consisting of structural, human and relational capital. This type of definition is adopted in this study due to its objectivity and workability in IC information classification, which, in turn, facilitates the recording process.

Secondly, IC is defined as 'hidden value', that is the excess of the market value of the company over its book value of equity in the balance sheet (Caroll and Tansey, 2000; Brennan, 2001; de Pablos, 2005; Whiting and Miller, 2008). The two values are different, it is argued, due to IC unaccounted for in the balance sheet. This definition is less emphasised in this thesis for two reasons. First, the difference between the two values would only be able to represent IC in total, but not the IC by categories/sub-categories (Brennan, 2001; Oliveras et al., 2008) which was important for the content analysis adopted. Second, the market value of a firm is not always a realistic figure due to speculative activities and other market imperfections (Dzinkowski, 2000; Brennan, 2001; Kooistra and Zijlstra, 2001). Furthermore, Valladares Soler and Cuello de Oro Celestino (2007) have argued that not all overvaluations of companies can be explained by the existence of IC, but may partly be explained by external factors such as economic cycle in which the company operates.

Table 3.1 Definitions of intellectual capital and intangible assets

Authors	Term	Definition
Itami (1991)*	Invisible asset	Intangible assets include a wide range of activities such as technology, consumer trust, brand image, corporate culture and management skills.
Stewart (1991)	IC	The intellectual material that has been formalised, captured and leveraged to produce a higher-valued asset.
Hall (1992, p.136)	Intangibles resources	Value drivers that transform productive resources into value-added assets.
Stewart (1997, p.13)	IC	Knowledge, information, intellectual property and experience that can be put to use to create wealth
Sveiby (1997)	IC	Structural, human and relational capital.
Brooking (1997, p.13)	IC	Market assets, human centred assets, intellectual property assets and infrastructure assets.
Edvinsson and Malone (1997, p.22)	IC	Has no physical existence but is still of value to the company.
Granstrand (1999)*	Intellectual property	Property directly related to the creativity, knowledge and identity of an individual.
Brennan and Connell (2000, p.1)	IC	The knowledge-based equity of a company.
FASB (2001)**	Intangibles assets	Non-current, nonfinancial claims to future benefits that lack physical or financial term.
Bukh et al. (2005)	IC	Knowledge resources in the form of employees, customers, technology which the company can mobilise in its value creation process
de Pablos (2005, p.142)	IC	Difference between the market value of the firm and its book value

Table 3.1 Cont

Edvinsson (2002, p.8)	IC	Combination of human capital (the brain, skills, insight and potential of those in organisation) and structural capital (things like the capital wrapped in customers, process, databases, brands and IT).
Gu and Lev (2001, p.14)	Intangibles	RD, advertising, IT capital expenditure and human practise.
Sullivan (2000, p.228)	IC	Knowledge that is converted into profit.
Mouritsen et al. (2004, p.48)	IC	Mobilises ‘things’ such as employees, customers, IT, managerial work and knowledge. IC cannot stand by itself as it merely provides a mechanism that allows the various assets to be bonded together in the productive process of the firm.

Sources: *Choong (2008) **Kaufman and Schneider (2004)

Thirdly, IC can be defined according to its qualitative characteristics. This type of definition is most often suggested by the professional accountancy community. FASB (2001), for example, defined intangible assets as non-current, nonfinancial claim to future benefits that lack physical or financial term (cited in Choong, 2008). Meanwhile, under IAS 38, the IASB (2004) defined intangible assets a non-monetary asset without physical substance held for use in the production or supply of goods or services, for rental to others or for administrative purposes. Definitions by non-academic communities such as these are often not widely employed by academics due to their narrowness. For example, knowledge structure assets such as computers, laboratories and training centres may not be deemed IC assets from standard of accounting due to their physical existence. However, it is usually thought that IC has also to include physical assets as long as they are intellectual-based structures capable of generating knowledge to the firms.

Fourthly, IC is defined from a legal perspective as intellectual property which includes patents, trademarks and copyright (Caroll and Tansey, 2000; Dzikowski, 2000). This type of definition is also not adopted in this study, as it is too restrictive. Instead, IC

should also encompass abstract forms of intangible assets such as competencies, culture, philosophy and spirit.

Fifthly, IC may also be defined according to its function (Hall, 1992; Stewart, 1997; Bukh, 2005). Hall (1992; p.136), for instance, defined IC as value drivers that transform productive resources into value added assets. Similarly, Stewart (1997, p.13) defined IC as knowledge, information, intellectual property and experience that can be put to use to create wealth. This type of definition is not adopted in this study due to its subjectivity in facilitating the recording of IC information disclosed.

3.2.2 Categories of intellectual capital

Researchers have adopted different and sometimes contradictory views on the categories and elements of IC (Marr and Adams, 2004; Beattie and Thomson, 2007). There is no universally agreed classification of IC components.

The IC literature of IC had sometimes employed synonymous terms for IC categories. For example, the terms ‘process capital’, ‘internal capital’, ‘structural capital’ and ‘organisational capital’ have sometimes been used synonymously to reflect the IC internal to organisations. Similarly, the terms ‘human’, ‘employee competence’, ‘people’ and ‘human resources’ have been used to mean human capital. Meanwhile, ‘external capital’, ‘relational capital’, ‘customer capital’ or ‘external structural capital’, are different terms that have been used in the sense of expressing the organisation’s relationships with external parties (see Beattie and Thomson, 2007).

Furthermore, a varying number of IC categories have been proposed. Kaufmann and Schneider (2004) and Choong (2008) proposed that the number of main categories of IC suggested lay between two and seven. There was more of a consensus among Bontis (1998), Stewart (1997) and Sveiby (1997) who all divided IC into three main categories; structural capital; human capital and relational capital. Brooking (1996) divided IC into the four categories of assets relating to market, human-centred, intellectual property and infrastructure. Edvinsson and Malone (1997) categorised IC only into the two main headings of human and structural capital. Seven categories of IC were proposed by the American Financial Accounting Standard Board (FASB) and the German-based working group, the Schmalenbach Society. The FASB’s IC components included

technology, customers, markets, workforces, contracts, organisations and statutory. Meanwhile, the Schmalenbach Society categorised IC into human, customer, supplier, investor, process, location and innovation.

Notwithstanding such disparities, the majority of studies seeking to categorise IC have proposed the three categories of structural, relational and human capital (Kaufmann and Schneider, 2004; Beattie and Thomson, 2007; Choong 2008)⁴. Table 3.2 indicates the major studies of IC frameworks that employed the three main categories originally developed by pioneers in the field of IC in the late 1990s as shown in Table 3.2. Note, however, that the actual terms to describe the three categories does vary. These categories have had a strong influence on later studies and have been adopted in many studies of IC disclosure. Therefore, these three broad categories are also adopted in this study in order to preserve comparability between studies.

Table 3.2 The categories developed in the prior studies of IC

Authors	IC category
Edvinsson and Malone (1997)	Human capital Structural capital Customer capital
Stewart (1997)	Human capital Structural capital Customer capital
Saint-Onge (1996)	Human capital Structural capital Relational capital
Sveiby (1997)	Employee competence Internal structure External structure
Roos et al. (1997)	Structural capital Human capital Relational capital
O'Donnell and O'Regan (2000)	People Internal structure External structure

a) Human capital

The majority of authors in IC accept that the company's innovation, efficiency, quality of product and services is influenced by the capability and attributes of human capital (Arthur, 1994; Ruchala, 1997; Ulrich, 1998; Boedker et al., 2004). In fact, human

⁴ Castro and Saez (2008) conducted factor analysis have confirmed the fitness of 3 main IC categories in real industry setting.

capital is often considered to be more important than structural and relational capital in shaping the success of organisations (Sveiby, 2001). He also argued that employees can use their competence inwardly or outwardly in creating value. Inward competence would create strategic internal capital such as high technology machines and tools, while outward competence would create favourable relationships with customers. Stewart (1997) defined human capital as the capabilities of individuals who are the sources of innovation and renewal. Lynn (2000) regarded human capital as an inventory of skill sets and the knowledge of individuals within an organisation. Sa'nchez et al., (2000) and de Pablos (2002) differentiated human capital from structural capital with the former involving free knowledge assets which do not belong to organisations, where its holders go home at the end of the working day.

Human capital has been viewed in terms a wide range of indicators (Guthrie and Petty, 2000; Bontis, 2003; Carson, 2004; Abeysekera, 2007; Beattie and Thompson, 2007). Dzinkowski (2000) and Guthrie and Petty (2000), for example, adopting Sveiby's model, divided human capital into employee competence, know-how, education, vocational qualification, work-related knowledge, work-related competencies, occupational assessment, psychometric assessments and entrepreneurial spirit. Abeysekera (2007) argued that human capital should include training and development, entrepreneurial skills, employee equity, employee safety, employee relation and employee welfare. Bontis (2003) categorised human capital into eight qualitative factors involving employees' expertise, know-how, knowledge, productivity, skill, value, expert networks and expert teams. All of the indicators cited above are used in this study to capture information on human capital.

b) Relational capital

Relational capital is the knowledge and mutual trust that lies in the relationship between an organisation and its external parties. This knowledge and trust is shared and configured in reinforcing alliances, which lead to competitiveness and value creation for both parties. Malmelin (2007, p.306) suggested that external recognition from customers, investors, the media and other stakeholders were capable of strongly influencing business success and creating competitive advantage. Therefore, the building of relationship with these parties is thought to be significant in adding long-term value for shareholders (Edvinsson and Malone, 1997; Phillips, 2006).

Bontis (1998), MERITUM (2002) and Roos et al. (1997) defined relational capital as knowledge resources embedded in the relationships with external parties. Sveiby (2001) described relational capital as comprising of relationships with customers and suppliers, and the reputation of the company. It is interesting to note that much of the early literature on IC confined the definition of relational capital only to direct business-related parties such as customers (see Kaplan and Norton, 1992; Brooking, 1996; Edvinsson and Malone, 1997). However, this view later became seen to be too restrictive (de Castro et al., 2004, Malmelin, 2007). According to de Castro et al. (2004), relational capital should be extended to two broader groups based on the proximity of relationships with organisations. First is a group with direct relationships such as customers, suppliers, business allies and shareholders. Second are those with indirect relationships such as government agencies, market regulators, trade unions, communities and mass media.

The broader range of stakeholders captured in relational capital was discussed by de Pablos (2005), Moon and Kym (2006), Beattie and Thomson (2007) and Cortes et al. (2007) to include shareholders, governments, competitors, suppliers, brands, business partners, finance providers, communities, environmental and non-profit bodies and the media. Therefore, an extended view of relational capital is used in this study to capture the disclosure of relational capital information.

b) Structural capital

Structural capital can be variously defined, for example as knowledge assets that remains in the company when employees go home at the end of the working day (Roos et al., 1997; MERITUM, 2002; de Pablos, 2002), non-human storehouses (Bontis et al., 2000), the mechanisms and structures which support employees (Edvinsson and Malone, 1997; Bollen et al., 2005), the processes and procedures (Carson et al., 2004), and culture, processes and information systems (Moon and Kym, 2006). The components of structural capital therefore include databases, organisational charts, processes, manuals, strategies and routines (Bontis et al., 2000, MERITUM, 2002); information systems and technologies, company images, organisational concepts and documentation (Edvinsson and Malone, 1997) and also intellectual property, management philosophy, corporate cultures, infrastructure, technology, IT and process

(Guthrie and Petty, 2000). Bontis et al., (2000, p.88) described the importance of structural capital as follows:

'Organisation with strong structural capital will have supportive culture that allows individuals to try new things, to learn and to fail. Structural capital is the critical link that allows IC to be measured at the organisational level of analysis'.

Structural capital is derived from the intellectual input of employees (Stewart, 1997; Sveiby, 2001; Carson et al., 2004). Structural capital can also be used to produce other IC (Seetharanam et al., 2004a). For example, laboratories and high technology tools are important structural capital which are used in R&D activities to produce patentable innovations. Structural capital is also crucial in developing relationships with external parties, such as in customer relationship management and supply chain management. Furthermore, according to Carson et al. (2004), good structural capital such as training facilities and curricular may contribute to the development of human capital through the process of transferring knowledge and skills to employees.

3.3 Intellectual capital information disclosure

The awareness of, and desire to develop IC information disclosure has grown in the past decade or so. Although the International Accounting Standard Board (IASB) has offered an accounting treatment of intangibles assets under International Accounting Standard No.38 (IASB, 2004), this is limited in recognising the broader types of IC (see section 3.5 for discussion). However, according to Oliveras et al. (2008), the absence of regulatory standard for reporting of IC information does not prevent companies from finding alternative ways of presenting it. As a result, people in industry in the various parts of the world have experimented with developing IC disclosure systems (Edvinsson and Malone, 1997; Sveiby, 1997).

There is no universally accepted framework, format or content of IC disclosure (Bukh et al., 2001). As IC disclosure has no governing institution (Mouritsen et al., 2004), it has been prepared with a variety of approaches. The approaches of IC disclosures range from purely narrative, to quantitative information forms (Edvinsson and Malone, 1997; Guthrie and Petty, 2000; Warden, 2003). Regardless of the format of reporting, it is assumed that it has been prepared with the objectives of recording, managing and

reporting knowledge-based assets and processes to management and relevant stakeholders (Warden, 2003).

IC disclosure (as distinct from IC itself) is defined in various ways in the literature.⁵ Abeysekera and Guthrie (2005) defined it as external reporting intended to satisfy the demand of users who are unable to control the preparation of reports about IC, specifically to meet all of their information needs. The INCAS guidelines (p.7) defined IC information disclosure as a strategic instrument to assess and develop the IC of organisations⁶. This showed the linkages between corporate goals, business processes and the business success of an organisation using indicators to measure these interlinked elements. A similar meaning of IC disclosure is also given by Talukdar (2008), who defined it as a voluntary supplement to a company's financial report that provides detailed information about the intellectual assets of the organisation which also includes its management in succeeding and building the company's competitive advantage in the future. In the disclosure, the linkage between IC position and model of value creation is visualised. The RICARDIS Project (2006) defined IC disclosure as a story about value creation which presents how companies use knowledge resources within the context of their business model and strategy. In this regard, the combination of numbers, narrative and images is presumed to be helpful.

For the purpose of an operational definition, IC disclosure is defined for this study as narrative content that conveys information about pre-defined IC in annual reports. This disclosure includes information in stand-alone reports about IC which is intentionally dedicated exclusively to IC information as well as information mentioned throughout annual reports which may not intentionally concern IC but is considered to represent IC nevertheless.

3.4 The history of intellectual capital disclosure studies

Table 3.3 indicates the general history of IC disclosure studies, the earliest of which, as noted previously, were by people from industry rather than academia. There are a

⁵ The terms of IC disclosure and IC reporting have been used interchangeably. The term IC disclosure is used by Bruggen et al., (2009); Kamath (2008); Singh and van der Zahn (2007); Davey et al., (2009); Bozzolan et al., (2006), and the term IC reporting by Guthrie et al., (2006); Khan and Ali (2010); Goh and Lim (2004); Schneider and Samkin (2008); Abeysekera and Guthrie (2005); Abeysekera (2007).

⁶ <http://www.incas-europe.org/European%20ICS%20Guideline.pdf>

number of views about the emergence of IC (Petty and Guthrie, 2000; Sullivan, 2000; Theeke, 2005; Polo, 2007). Some authors have tended to argue that the history of IC disclosure commenced when the concept of IC was first articulated in Skandia AFS's IC reports in 1994 (Fincham and Roslender, 2003; de Pablos, 2005; Schneider and Samkin, 2008). Others have argued that the origin of IC can be traced to the first works of human resources accounting in the 1960s (Bontis, 2003; Theeke, 2005). Petty and Guthrie (2000), on the other hand, believed that IC disclosure originated in the 1980s when the general notion of 'goodwill' first appeared in the reporting debate. This section briefly discusses the history of IC in order to trace the beginnings and development of IC disclosure studies.

Bontis (2003) argued that studies of IC disclosure were effectively a continuation of the human resources accounting initiatives (HRA) that emerged in the 1960s. The history of HRA can be divided into four important phases (Flamholtz, 1999). The first phase (1960-1966) witnessed the interest of a few scholars in proposing the concept and asserting the importance of HRA. The second phase (1966-1970) involved development of HRA frameworks and methods. At this stage a company called R.G. Barry Corporation of Columbus, Ohio was the first to account for human capital in its financial statements. The third phase (1971 to 1976) saw the rapid growth of HRA in western countries, Australia and Japan, as well as the formation of a HRA committee in the American Accounting Association. In the subsequent phase (1976 to 1980), interest in HRA in the academic and corporate worlds declined due to the complexities of measurement and less co-operation from industry in developing HRA. Today, human resources can be considered as a part of IC under the category of human capital.

The 1980s appeared to be the first decade to see the emergence of broader concepts and ideas of knowledge capital. Hiroyuki Itami published what became an influential book entitled 'Mobilising invisible assets' in 1980 (an English edition with co-author by Thomas W. Roehl was published in 1987). According to Itami (1987), information-based assets (or IC here) including technology, customer loyalty, brand image, corporate culture and management style were important determinants of corporate success. Not long after this, Hall (1989; 1992) introduced the 'Framework of value technology' which outlined the use of IC in the strategic management process. In 1986, Karl Erik Sveiby and Ander Rislings published the first Swedish-language book on intellectual capital entitled '*kunskapsforetaget*' (the knowhow company). In 1989, Karl

Erick Sveiby published his second book ‘The Invisible Balance Sheet’ which proposed ideas for classifying, measuring and reporting IC. In other developments pertaining to intangible assets, accounting standard SSAP 22 and SSAP 13 were published that respectively dealt with goodwill and R&D in 1984. SSAP 22 was not accepted internationally and the increasing criticism over the standard led to formulation of Financial Reporting Standard 10 (FRS 10) some years later.

Table 3.3 Summary of the history of IC disclosure studies

Year	Development
Mid 1960s	Growing awareness of human resources accounting.
Late 1960s	<ul style="list-style-type: none"> • Development of methods of assessing human resources. • R.G. Barry Corporation for the first time included human assets in annual report.
Early 1970s	<ul style="list-style-type: none"> • Growing interest in HRA in the Western, Australia and Japan. • American Accounting Association formed committee on HRA.
Late 1970s	<ul style="list-style-type: none"> • Declining interest in HRA
Early 1980s	<ul style="list-style-type: none"> • The emergence of broader concepts of knowledge assets • Hiroyuki Itami published the book, ‘Mobilising Intangibles Assets’ in 1980 (English edition in 1987)
Late 1980s	<ul style="list-style-type: none"> • Karl Erik Sveiby published ‘The knowhow company’ in 1986. • Karl Erik Sveiby published ‘The invisible balance sheet’, in 1989. • Hall introduced framework of value technology in 1989. • Introduction of SSAP22 (Accounting for goodwill) and SSAP 13 (Accounting for R&D) in 1984.
Early 1990s	<ul style="list-style-type: none"> • Tom Stewart published the article ‘Brain power’ in 1991. • Kaplan and Norton introduced the balanced scorecard in 1992.
Mid 1990s	<ul style="list-style-type: none"> • Best-selling books published: Nonaka and Takeuchi (1995); Brooking (1996); Stewart (1997); Edvinsson and Malone (1997); Sullivan (1998). • Several notable IC models were introduced: ‘The intangible asset monitor’ (Sveiby, 1997); ‘Skandia navigator’ (Edvinsson and Malone; 1997); ‘Value platform model’ (Petrash, 1996). • The first IC report was published by Skandia AFS in 1994. • In 1994, Leif Edvinsson led pioneering group in US meeting in Mill Valley, San Francisco, obtaining the right balance of business report.
Late 1990s	<ul style="list-style-type: none"> • Several institutional projects were conducted: the MERITUM project in 1998, the DATI project in 1998. • The Organisation for Economic Cooperation and Development (OECD) organised a symposium on IC in Amsterdam in 1999. • The MAGIC Project (1998-2001) • Introduction of Financial Reporting Standard 10 (Intangibles and goodwill-FRS 10) in 1998.

Table 3.3 Cont

2000s onwards	<p>The study of IC information in various corporate reports gained the interest of academics.</p> <p>Major European IC projects:</p> <ul style="list-style-type: none"> • The PRISM project (2001-2003) • The RICARDIS project (2004-2006) • INCAS project (2006-2009) • IC reporting under Austrian University Act 2002 • The Japanese government’s IC reporting guidelines 2004 • Introduction of International Accounting Standards 38 (intangible assets – IAS 38) in 2004.
---------------	---

In the 1990s, much attention was paid to the identification and classification of IC (Brennan and Connell, 2000; Marr et al., 2003). The emergence of a number of studies, seminars, conferences, published papers, books and working committees on IC during the mid-1990s reflected the growing awareness of IC in both industry and academia. Another development of IC during the 1990s was the introduction and application of several frameworks for managing and reporting IC, such as the Intangible Asset Monitor, the Skandia Navigator and the Value Platform Model etc (Brooking, 1996; Petrash, 1996; Sveiby, 1997; Edvinsson and Malone, 1997). The first Skandia AFS IC report based on the Skandia Value Scheme was published in 1994 as a supplement to Skandia’s annual report. The success of the Skandia AFS IC report inspired many large companies to also produce reports on IC (Fincham and Roslender, 2003).

There were also four pioneer projects during the 1990s, namely Measuring Intangibles to Understand and Improve Innovation Management (MERITUM) in 1998; Measuring Accounting Intellectual Capital (MAGIC) in 1998, the Danish Agency for Trade and Industry project (DATI) in 1998; and an Organisation for Economic Cooperation and Development (OECD) project in 1999 that contributed significantly to the development of IC disclosure. All of these projects were formed with the aim of being able to provide guidelines for identifying, managing and reporting intangible assets (Brennan and Connell, 2000; Bukh and Johanson, 2003; Fincham and Roslender, 2003; Wilson and Stenson, 2008). In 1998, owing to increasing concern over the adequacy of existing accounting standards to deal effectively with broader items of intangibles such as brands, a new standard, FRS 10 (accounting for intangibles and goodwill), was introduced to replace SSAP 22 (accounting for goodwill). This issue will be further discussed in the next section.

The 2000s witnessed the emergence of a range of empirical studies of IC disclosure in the various media of corporate disclosure (e.g. Guthrie and Petty, 2000; Brennan, 2001; April et al., 2003; Bozzolan et al., 2003). Guthrie and Petty (2000), Brennan (2001) and Williams (2001) pioneered the examination of IC disclosure in annual reports.

These studies were then followed by a considerable number of similar studies in different countries including in Italy (Bozzolan et al., 2003), Malaysia (Goh and Lim, 2004), Africa (April et al., 2003) and Denmark (Bukh et al., 2005). Campbell and Rahman (2010) found that previous studies of IC disclosure had focused on three main strands: (i) descriptions of IC disclosure trends; (ii) investigations into the factors determining IC disclosure; and, (iii) examinations of the effects of IC disclosure on capital market variables.

The 2000s also witnessed the emergence of several large projects and working groups, legislation and guidelines such as the PRISM project, the RICARDI project, the INCAS project, Austrian IC reporting under the University Act 2002 and the Japanese Government IC reporting guidelines (Polo, 2007; RICARDIS, 2006; Bezhani, 2010). The aim of these projects was to continue previous efforts and to make improvements in developing guidelines for measuring and reporting IC.

Also in the 2000s, the business community witnessed the convergence of accounting standards all over the world under the IFRS 'project'. International reporting standards replaced many national-based standards in order to minimise diversity in financial reporting. Included in this convergence was the introduction of International Accounting Standard 38 (IAS 38 - accounting for intangible assets) in 2004, which superseded the previous FRS 10. IAS 38 was considered able to provide more latitude for discussion of the wider context of intangible assets. However, as a 'looser' concept, the number of IC types and companies' reliance on them has kept growing over time, and this has potentially limited the application and usefulness of IAS 38 in terms of its ability to facilitate accurate measurement and recognition of IC (Roslender and Fincham, 2001). This issue will be addressed in the next section.

The foregoing historical overview reflects the journey of IC disclosure in corporate practice and academic research. The efforts taken to develop it clearly show its

increasing importance in illuminating value creation for shareholders. Nonetheless, an empirical deficit exists in exploring the practices and potential benefits as well as to envisage a higher practicality and materiality of disclosure. This study is part of such an effort.

3.5 Accounting standards for intangible assets and intellectual capital disclosure

This section discusses the accounting standards relating to goodwill and intangible assets (FRS 10 and IAS 38) and their relationship with IC information disclosure. This discussion will particularly highlight the materiality of international accounting standards in encouraging IC information disclosure.

Accounting for intangible assets has evolved over the last thirty years or so. For example, the discussion of research and development cost under the publication of Exposure Draft 14 took place in 1975 before it came to be mandated in 1984⁷. The most discussion on aspects of intangible assets took place in FRS 10 (goodwill and intangible assets) and IAS 38 (intangible assets). As mentioned in the previous section, FRS 10 was mandated in 1998 with the aim to deal with the reporting of intangible assets and goodwill before it was replaced by IAS 38 in 2004.

FRS 10 defined intangible assets as non-financial assets that do not have physical substance but are identifiable and controlled by an entity through custody and legal rights. IAS 38 provided a similar definition, defining intangible assets as identifiable, non-monetary assets without physical substance. According to IAS 38, intangible assets are held for use in the production or supply of goods or services, for rental to others or for administrative purpose. Unlike in FRS10, however, custody and legal right of the intangible assets was not mentioned specifically in the definition in IAS 38 but it is referred as 'control' elsewhere in the standard. 'Control' in this context means legal right as in FRS10.

In terms of initial recognition, FRS 10 mentioned that an internally developed intangible asset may be capitalised only if it has readily ascertainable market value. Therefore, intangible assets such as licences, quotas, patents, copyrights, franchises and trademarks

⁷ This section does not intend to discuss accounting for R&D in detail.

can only be capitalised if there is an open market that can value the asset reliably. Meanwhile, IAS 38 set two criteria in which intangible assets can be capitalised: first, that it is probable that future economic benefits that are attributable to the assets will flow to the company; and second, that the cost of the assets can be measured reliably. These criteria apply to both internally developed and externally purchased intangible assets. Unless the capitalisation criteria set by the both standards are met, then all the costs to obtain the intangible assets have to be expensed to the profit and loss account in the period in which the cost was incurred.

The subsequent treatment after capitalisation is amortisation. Both standards specified that the cost of capitalised intangible assets should be amortised on a systematic basis over the best-estimated useful life. However, FRS 10 mentioned that intangible assets should not be amortised if it has an indefinite useful economic life. The summary of both standards is presented in Table 3.4.

Table 3.4 An overview of accounting standards for intangible assets

	FRS10	IAS 38
Definition	<ul style="list-style-type: none"> • Non financial assets that do not have physical substance • Under custody and legal rights 	<ul style="list-style-type: none"> • An identifiable, non-monetary asset without physical substance.
Criteria for recognition	<ul style="list-style-type: none"> • Readily market value 	<ul style="list-style-type: none"> • Identifiable • Controlled • Probable give future benefit to company • Cost can be reliably measured
Amortisation	<ul style="list-style-type: none"> • Over systematic useful life • No amortisation for undefinite asset 	<ul style="list-style-type: none"> • Over systematic useful life

The challenge to be further addressed here is whether all categories of IC used in this study would pass the stringent criteria for recognition set out by the both accounting standards. According to the standards, the capitalisation for intangible assets value on a balance sheet is predicated on three principles. First, the intangible assets must be separable. In other words it must be identified as a uniquely separate item that can be sold, transferred or licensed. Second, it has to be in the control of the company which

means that the benefit accrued from the assets are legally owned by the company. Third, it has a market where its value can be determined reliably. In cases where no market exists upon which to base its value, the discounted present value of expected net cash flows generated by the assets can be used for valuing the assets (Mouritsen et al., 2001b; Abeysekera, 2008; Brannstrom and Giuliani, 2009).

The two criteria above appeared to make the recognition of intangible assets very particular and difficult (Brennan and Connell, 2000; Striukova et al., 2008). It is arguable that it could be even more difficult to assign IC categories into such a framework. This is because the elements of IC are broader than intangible assets; there can be said to be more intangible assets than those as defined in the accounting standards which means that many IC categories are susceptible to being recognised as assets in a financial statement. Seetharaman et al. (2002), in responding to this issue commented that (p. 134):

'Despite this positive development, IASC (International Accounting Standard Committee) has not largely departed from its old "industrialised" paradigm in tackling the capitalisation of IAs and IC when it sets unwarranted criteria for the purpose.'

In particular, the incongruity between the accounting standards' criteria for recognition and the true nature of IC are highlighted in the following points:

- *Non-physical substance* – IC can have both non-physical and physical substance. The physical-based IC includes laboratories, training and development centres, high technology machines, computers which contribute indirectly to value creation through effective and efficient management processes, human resources development and product research development.
- *Identifiable* – Many IC cannot be identified as they reside in the mind and thoughts of people such as ideas, corporate cultures, management processes, management philosophy, customer satisfaction, etc. These kinds of assets can only be accessible through final outcomes that have been produced by people, cultures or systems.
- *Separable* – Although some IC passes this test, there are still many elements of IC are not separable and distinguishable from others. Rather, IC elements are often interrelated and interwoven into each other. Most IC forms a single 'generating unit' in creating value to a company but become of little use if they

work individually. For example, structural capital such as innovative systems or management processes can only be meaningfully used by highly skill workers. It would be less useful if one element of the unit is absent.

- *Controllable/custody or legal right* – IC is not controllable or does not legally belong to organisations. It is very difficult to demonstrate the company’s legal control or ownership over their employee and customers. Employee is a free knowledge asset who goes home at the end of a working day or may change their employment to another company if there is a better offer.
- *Reliably measureable* – There are some elements of IC that have no market in which the value or cost could be based (at purchase price). Many intellectual assets are developed internally rather externally purchased, such as company reputation, customer loyalty and brand. These are all difficult to measure financially and reliably.
- *Reported as cost* – IC is more effectively reported through the lens of future value creation (e.g. performance-based reporting such value-added intellectual capital) rather than reported at historical cost (or fair value). In addition, narrative, images and visual presentations of value creation flow is presumed to be very useful in some cases (RICARDIS, 2006).
- *Amortisation* – Some IC has no definite useful life, and instead can be renewable over time, thus not being subject to amortisation.

The alternative way to account for IC is as goodwill (also under FRS10). There is a lack of agreement over definition of goodwill, however in general terms it represents the present value of abnormal returns (Seetharaman et al., 2004b). The definition and recognition of goodwill under the accounting standard is limited to the ‘purchased goodwill’ which is defined as the difference between the price paid to acquire a company and the total of the fair value of the company’s identifiable assets. The excessive price paid over the fair value of the assets is capitalised as goodwill under the section of intangible assets in the financial statement. The reason for the excess value of a company over the reported fair value of identifiable assets is do with a number of non-financial factors such as expertise of the employees, brands, product quality, customer base, location, reputation, networks and so on. These are not recognised in the financial statement of the company. This definition is similar to the IC definition with regard to

the difference between the book value of equity and the company's market value (see section 3.2.1).

However, the appropriateness of accounting for goodwill as an instrument for IC accounting is challenged firstly on the grounds that goodwill valuation is a 'catch-all account'. This means that the account not only lumps together the all IC value but also fails to consider the individual component of IC that comprises the goodwill. A single account of goodwill would not allow management navigate, measure and manage IC components individually. Secondly, the standards only recognise purchased goodwill whereas there are many IC components that are internally generated.

In sum, many authors have concluded that neither previous nor present accounting standards are able to adequately and effectively accommodate IC reporting in the main body of annual reports due to the constraints of the standards (Edvinsson and Malone, 1997; Dzinkowski, 2000; Roslender and Fincham, 2001; Lev and Daum, 2004; Cordazzo, 2005; Yongvanich and Guthrie, 2005; Striukova et al., 2008; Abeysekera, 2007). These two standards are arguably still based on the 'industrial-age model', which does not adequately accommodate the reporting requirements of knowledge-based industries. Therefore, and importantly for the purposes of this thesis, it seems unlikely that accounting standards would have any materially positive effect on IC information disclosure, other than effects on the reporting of limited intangible assets required to meet the provisions of the standards.

3.6 The rationale for intellectual capital disclosure

Previous empirical studies have suggested that rationales for disclosing IC information can be viewed from three perspectives. All such rationales are premised on the common assumption of the inadequacy of traditional financial disclosure in dealing with IC information (Marr et al., 2003; Yongvanich and Guthrie, 2005; Singh and van der Zahn, 2007). Accordingly, it is claimed that the exclusion of IC information and value from a balance sheet means *ipso facto* that the value of that company is inadequately described, which in turn could have a negative impact on the cost of capital and the relevance of financial reporting (Lev and Daum, 2004; Vergauwen and van Alem, 2005; Dumay and Tull, 2007) as well as leading to poor management and control of knowledge activities (Mouritsen et al., 2004; Guimon, 2005).

The first rationale for disclosing IC information is to reduce the cost of capital or to achieve a cost of capital commensurate with the true future cash flows of the business. The most convincing explanation of the link between cost of capital and volume of disclosure is contained in a cohort of oft-cited papers, most notably Singhvi and Desai (1971), Healy and Palepu (1993), Lang and Lundholm (1996), Botosan (1997) and Sengupta (1998). Botosan (1997), for example, found that the level of non-financial disclosure content was inversely associated with the cost of equity capital. A similar relationship was also demonstrated in a study that investigated the cost of debt capital (Sengupta, 1998). Similar theoretical arguments and predictions of the relationships have also been tested in studies of IC disclosure (Singh and van der Zahn, 2007; Orens et al., 2009). Orens et al. (2009), for example, conducted a study of 267 listed companies from European countries and found that increasing volume of IC disclosure in company web-pages reduced the cost of capital. It has been argued that a deficit of IC information could give rise to an information asymmetry about the true value adding potential picture of a company. This, in turn, would be capable of undervaluing a company and making the investment appear to be of higher risk than is actually the case. Consequently, investors will demand higher projected returns on investment in order to compensate for potential risk of investment (Guimon, 2005; Cordazzo, 2007; Singh and van der Zahn, 2007; Orens et al., 2009) with a concomitant effect of the cost of capital to the company.

Secondly, the inclusion of IC information would increase the relevance of financial statements in influencing the decision making of investors. Since IC is considered the most strategically important asset types in creating future value (Lev and Daum, 2004, Marr et al., 2003), incorporating information about it in the financial statements would enable investors to more accurately determine the economic value of companies (Bruggen et al., 2009; Vergauwen and van Alem, 2005). A number of empirical studies have supported the relevance and materiality of IC information. Marr et al. (2003, p.451) reported a study by Brynjolfsson and Yang (1999), which demonstrated that information about R&D expenditure and investment in computers had a positive impact on the market value of 1000 companies. Meanwhile, Kallapur and Kwan (2004) found that IC information such as brand assets mentioned in the financial statement had value relevance as it influenced the market price of shares. Similarly, a study by Ghosh and

Wu (2007) suggested that IC information concerning IT expenditure, information system, R&D and patents significantly explained variations in market value.

The third rationale for IC information disclosure relates to internal use particularly in the area of controlling and managing the performance of knowledge activities. Guimon (2005) and Mouritsen et al. (2004) argued that the internal disclosure of IC could be an effective mechanism in managing and controlling the use of, and activities involving, intangible resources which leading to the future innovation and value creation. Lev and Daum (2004) added that internal disclosure of IC permits users to consider the future of a company rather than merely making prudent assessments on historical performance. Such disclosure could conceivably be able to clarify the mechanism that underpins the relationships between internal resources, external business partners and the structural capital of companies to create value for customers, shareholders and other stakeholders. Similarly, the RICARDIS project (2006, p.11) stated that IC disclosure could represent an internal navigation tool helping the company to develop and allocate resources, create strategy and facilitate decision-making. Good examples of the use of IC disclosure as part of management tool kit were Skandia Navigator and the Balanced Scorecard (Brennan and Connell, 2000).

3.7 The practice of intellectual capital disclosure

The increase in knowledge-related activities and strategies has precipitated a number of calls to measure and report IC. To date, however, apart from the initiatives of individual companies and regional working groups, no universal guidelines and standards of disclosure have been agreed. Thus, the current motivations for disclosure remain principally voluntarily. This section reviews practices of IC disclosure based on three different types of entities that have contributed to awareness about IC disclosure practices. The first entity comprises companies that have pioneered IC disclosure, the second are groups of institutions and the third are academics interested in investigating corporate practices of IC disclosure.

3.7.1 Company practices in stand-alone IC disclosures

There are several examples of the managing and reporting of IC that have been practiced by companies such as Skandia AFS, Hewlett Packard, Microsoft, Siemens and

Alemania, etc. (for detail, see Bounfour, 2003). In general, this IC disclosure has been internally-oriented, company-specific, creativity-driven and not standardised. This section however concentrates on what has become the relatively influential IC report of Skandia Financial Services (Skandia AFS).

This first case of IC disclosure as a supplement to financial statements was prepared by the Swedish company, Skandia AFS from the financial year of 1994 onwards (Edvinsson and Malone, 1997). Overall, the reports provided a balanced picture of Skandia's value creation based on five related focuses of IC which were collectively referred to as the Skandia Navigator. These focuses included finance, customers, process, renewal and development, and human factors. The company's strategy to create long-run value was driven by these five focuses. Success or failure of the company was measured and reported based on 91 numerical indicators distributed across the five focuses. For instance, performance of customer focus was evaluated based on customer rating, the number of customer visits, market coverage and customer satisfaction. According to Mouritsen et al. (2001a), in addition to numerical-based indicators, the report also employed a narrative approach in illustrating the knowledge embedded in humans, structures and relations as well as showing the value created by integrating and mobilising all of the five focuses. The experience of Skandia AFS in disclosing IC paved the way for the significant development of IC reporting in Denmark, Spain, Sweden, Austria, Germany, and Italy (de Pablos, 2005).

3.7.2 Working groups on guidelines for IC disclosure

Several large projects have been conducted by institutions or groups of institutions, particularly in EU countries, with the aim of preparing guidelines for managing and reporting IC (Polo, 2007). For example, there were five prominent working groups of IC were formed between 1998 and 2006 such as the MERITUM project, the MAGIC Project, the PRISM Project, the INCAS Project and RICARDIS project.

The Measuring Intangibles to Understand and Improve Innovation Management (also known as MERITUM) project was jointly organised by Spain, France, Finland, Denmark, Norway and Sweden in 1998. The project published guidelines on managing and reporting intangible assets in 2002. These guidelines essentially provide a roadmap for the identification of IC, helping management to integrate it into daily management

processes and also to facilitate the disclosure of IC. The MERITUM guidelines described IC disclosure in term of vision of the firm, its IC resources and activities, and a system of indicators to reflect these activities (MERITUM, 2002).

The MAGIC project (1998-2001) involved partners from five entities from various European countries such as QPR software (Finland), the Institute for Human Factors and Technology Management IAT (Germany), Profactor (Austria), CDN (Spain), ISD (Portugal) and Invenio (Germany). In order to ensure the effectiveness of the project, there were another 40 interest groups involved to test and give feedback. The project sought to develop a low-cost and pragmatic IT-Solution for measuring and accounting for IC, particularly for companies operating in engineering and manufacturing sectors. It outlined four deliverables outcomes which were: (i) benchmarking a study of 'best practice' in measuring IC; (ii) production of a knowledge management handbook; (iii) IT-tools for measurement and accounting IC; and, (iv) a 'road map' for evaluating and managing IC (MAGIC, 2001).

The PRISM (Policy-making, Measurement and Reporting Intangibles, Skill Development, Management) project was conducted for eighteen months between 2001 and 2003 by eight business schools in seven EU countries. Funded by the EU Commission on Information Society Technologies, the project produced two recommendations for expanding the disclosure of intangibles: (i) maintaining historical-based data that have position and momentum in providing a basis for future prediction (e.g. R&D and ICT spending, training and development); and, (ii) shifting from 'hard' to 'soft' indicators such as the profile of workforce qualifications (Eustace, 2003).

Another attempt to provide guidelines for IC disclosure was made by the INCAS project (Intellectual Capital Statement – Made in Europe) between 2006 and 2009⁸. Participants in this project included members of leading academics institutes and 25 small and medium industries from five European countries, aiming to create guidelines for IC statements capable of benefitting small and medium companies and financial institutions. ICS – Made in Europe essentially provided a toolkit for reporting which explained value creation based on the vision of organisations and their intellectual capital, business processes and external impact (Polo, 2007).

⁸ <http://www.incas-europe.org/European%20ICS%20Guideline.pdf>

In 2004, the Reporting of Intellectual Capital to Augment Research, Development & Innovation in SMEs project (known as RICARDIS), was set up to develop guidelines for IC disclosure in the area of R&D (RICARDIS, 2006). It recommended piloting the preparation of IC statements where linking IC with company objectives, producing knowledge narratives and selecting appropriate indicators are the most important functions.

3.7.3 The investigation of intellectual capital disclosure in the corporate media

In addition to the above initiatives, a number of investigations have sought to analyse the nature of IC disclosure in various corporate media, including annual reports, web pages, initial public offering reports (IPOs) and market analysis reports. Such investigations are thought to be important for analysing the status of IC disclosure practice and its usefulness for establishing frameworks and for drafting policy for disclosing IC (Guthrie et al., 2006).

Several common findings about IC disclosure can be drawn from these previous studies. Firstly, the volume of IC disclosure has increased from year to year, suggesting a growing awareness by producers in disclosing IC (Williams, 2001; Abdolmohammadi, 2005; Cordazzo, 2007; Sonnier et al., 2008). Secondly, IC has hitherto been mainly reported without using any established frameworks, and substantially has tended to be in a discursive rather than a quantitative manner (Guthrie and Petty, 2000; Brennan, 2001; Abeysekera, 2007). Thirdly, comparative studies have demonstrated that the volume of IC disclosure has significantly differed between countries and between industrial sectors (Bozzolan et al., 2003: 2006; Vandemaele et al., 2005; Guthrie et al., 2006; Cordazzo, 2007). Fourthly, information on relational capital has usually represented the largest proportion of IC disclosure compared to structural and human capital (Bozzolan et al., 2003; Goh and Lim, 2004).

This study is positioned within this stream, aiming to extend knowledge of IC disclosure practices. As such, it is important to review the relevant literatures in greater detail in order to identify the gaps that may exist, and this is presented in the following section.

3.8 Prior studies of intellectual capital disclosure

This section reviews prior studies of IC disclosure that have employed content analysis, separately considering studies on single countries, cross-country comparisons and industry-specific investigation. Table 3.5 summarises the characteristic of the most prominent empirical studies that have been conducted over the last ten years.

3.8.1 Studies in a single country

The first attempts at studying IC disclosure sought to examine the amounts, types and trends of IC disclosure in single countries. The following sections discuss selected studies of IC disclosure from single countries.

a) Studies in the UK

A limited number of such studies have been conducted in the UK (Williams, 2001; Bozzolan et al., 2006; Li et al., 2008; Striukova et al., 2008; Campbell and Rahman, 2010; Bezhani, 2010). The first such study in the UK was conducted by Williams (2001), who examined the relationship between the amount of IC disclosure and IC performance, as calculated using the Value Added Intellectual Capital (VAIC) method⁹. The study analysed the content of annual reports of 40 FTSE 100 companies from 1996 to 2000 and it was found that the amount of IC disclosure significantly increased every year. There was found to be no positive relationship between IC disclosure and IC performance, which led to the conclusion that the companies did not report IC information in order to protect competitive advantages or to avoid the costs of rivalry.

Striukova et al. (2008) compared IC disclosure in a wide range of corporate media such as annual reports, analyst reports, corporate social responsibility reports, annual reviews, interim reports, websites and preliminary reports. The study found that IC was reported substantially more on websites than other media. The authors criticised previous studies for simply overlooking the importance of different corporate media in conveying IC information. It was then concluded that annual reports were not a single proxy for conveying IC information. It was also found that the size of company

⁹ VAIC is a method to measure IC performance in adding value to company (Kujansivu and Lonnqvist, 2007)

positively influenced the volume of IC disclosure, with FTSE 100 companies disclosing more than companies in FTSE 250 and FTSE small capital. Although a positive relationship between industry membership and volume of IC disclosure was expected, the finding that companies in the retail sector disclosed more IC information than knowledge-based sectors was considered noteworthy.

The effect of corporate governance on the level of IC disclosure was the focus of a study by Li et al. (2008). The content of 100 companies' annual reports for the year ended 2005 were analysed using three different methods of content measurement: (i) disclosure index; (ii) word count; and, (iii) word count percentages. The findings suggested an unsystematic pattern of IC disclosure that derived from three different methods of measurement. Data from the disclosure index method showed that information on structural capital was most frequently reported, whereas the use of a word count volumetric method suggested that information on relational capital was the most reported. Meanwhile, the use of the 'percentage of word' method demonstrated that information on structural capital and relational capital had similar proportions by reporting frequency. Furthermore, the study found that all variables of corporate governance (apart from director role duality) including board composition, ownership, listing age, audit committee size and frequency of audit committee meetings showed significant associations with the level of IC disclosure. The conclusion drawn was that in the absence of mandatory IC reporting, good corporate governance such as the presence of audit committees in companies could be a good mechanism to encourage IC information disclosure.

b) Studies in other European countries

Study of IC disclosure in other European countries is interesting because they have often been innovative in terms of method and scope. A number of studies in individual European countries have been conducted, for example, in Ireland (Brennan, 2001), Italy (Bozzolan et al., 2003; Cordazzo, 2007); Spain (Meca and Mertinez, 2005; Oliveras et al., 2008; de Castro and Saez, 2008), Germany (Gerpott et al., 2008); Portugal (Oliveira et al., 2006) and Denmark (Bukh et al., 2005). Several comparative studies have also been conducted, such as in the Netherlands, Sweden and the UK (Vandemaele et al., 2005), Netherlands, France and Germany (Vergauwen and van Alem, 2005), Italy and

the UK (Bozzolan et al., 2006) and the UK, Denmark and Sweden (Vergauwen et al., 2007).

Brennan (2001) investigated differences between the market value and book value of eleven Irish knowledge-based companies and the IC information disclosed in their 1999 annual reports. Her study demonstrated that the market value of nine of the companies significantly exceeded their book value. Nonetheless, the same companies had shown slow progress in term of the volume of IC disclosure. The conclusion was that Irish companies showed little interest in disclosing IC information, and the gap between the two values (market and book) could not be explained by their non-disclosure of IC information.

Bozzolan et al. (2003) analysed the content of 10 annual reports from high-tech companies and 20 annual reports from traditional companies for the financial year ending 2001. The study found that relational capital information was found to be the most reported (at 49% of disclosures), followed by internal capital (30%) and human capital (at 21% of total IC information). The relational capital information that was most reported concerned customers, distribution channels, business collaborations and brands. Furthermore, the high technology companies disclosed more IC information than traditional companies both overall and in each category. Nevertheless, in terms of the content specificity of IC disclosure, no sectoral difference was found. However, company size and industry membership were found to significantly influence the volume of IC disclosure.

Oliveras et al. (2008) examined longitudinal IC disclosure in 12 Spanish company annual reports for three consecutive financial years from 2000 to 2002 inclusive. A measure of 'concordance' was used to identify words relating to IC. The findings suggested that ten of the companies showed their market value between 40% and 90% higher than book value (which the authors referred to as 'hiding value'). It seemed that IC disclosure of 10 of the 12 companies substantially increased every year with 3,406, 5,028 and 6,095 words relating to IC recorded during the respective periods. It was concluded that the 'hiding value' had a positive relationship with the volume of IC disclosure.

Bukh et al. (2005) studied IC information in the initial public offering prospectuses of Danish companies, examining longitudinal variations in the volumes of IC disclosure and its relationship with industry membership, managerial ownership and the size and age of the companies. The study employed a disclosure index method to capture the content of 78 pre-defined IC components from 68 IPO prospectuses issued between 1990 and 2001. The results showed that the volume of IC disclosure increased throughout the period except for minor declines in 1999, 2000 and 2001. Furthermore, only industry membership and managerial ownership were shown to significantly affect volumes of disclosure.

c) Studies in America

Abdolmohammadi (2005) used a self-constructed IC framework to investigate IC information in the annual reports of Fortune 500 companies from 1993-1997. The overall results suggested insignificant increases in disclosure from 1993 to 1997. Only information about brands and proprietary processes showed definitive significant upward trends over the period, however. Meanwhile, industry membership was shown to significantly explain variations in volumes of IC disclosure. A regression analysis indicated that IC disclosure was significantly correlated with the market capitalisation value of companies (in other words, a size effect).

Sonnier et al. (2008) analysed the content of a total of 141 annual reports of 'traditional' companies for the financial years ending 2000 and 2004 in order to gather evidence of longitudinal IC disclosure. The capture of IC information was based on a list of 121 pre-defined IC keywords. The results indicated that the volume of disclosure in 2004 was larger than in 2000. Information about backlogs, patents, brands, trademarks and joint ventures was the most often disclosed. It was suggested that traditional companies were similar to high technology companies in term of their awareness of and practice in disclosing IC information.

d) Studies in Asia

Studies of IC disclosure in Asian countries have been conducted in Malaysia (Goh and Lim, 2004; Rahim et al., 2011; Ousama et al., 2012), Sri Lanka (Abeysekera and Guthrie, 2005), India (Kamath, 2008; Singh and Kansal, 2011), Singapore (Singh and

Van der Zahn, 2007), Bangladesh (Khan and Ali, 2010; Nurunnabi et al., 2011); mainland China (An Yi and Davey, 2010) and Japan (Rimmel, et al., 2009).

Goh and Lim (2004) investigated IC disclosure in the annual reports of 20 Malaysian companies for the year ended 2001. Based on 24 pre-defined elements of IC across three categories, the study found that relational capital information was the most frequently reported category at 41%, followed by structural capital at 37% and finally human capital at 22% of total IC information. Meanwhile, the most frequently disclosed IC sub-categories were management philosophy, corporate culture, entrepreneurship, licensing agreements, information systems and networking. It was suggested that Malaysian companies were following the trends in Western countries in disclosing IC information.

Abeyssekera and Guthrie (2005) examined two years of IC disclosure among 30 Sri Lankan companies in their annual reports of 1999 and 2000. The study found an inverse relationship between volumes of IC disclosure and values of market capitalisation of the companies (a finding at variance with several other studies finding the opposite). They suggested that political economy theory (PET) was better than signalling theory in explaining the results. According to PET, voluntary corporate disclosure is a proactive rather than reactive process. This means that IC disclosures are aimed primarily at enhancing the value of the companies as perceived by shareholders, rather than to manage pressure from external stakeholders.

In India, Kamath (2008) conducted a content analysis on annual reports for the year 2005/2006 of 30 technology-based companies in order to examine the volume of voluntary IC disclosure and its relationship to company size. The overall findings showed that the companies disclosed little volume and small scope of IC disclosure. It was concluded that IC disclosure practices in India were far behind those in Western and European countries. Furthermore, the size of companies was found to be not significantly related to the volume of disclosure.

e) Studies in Australia and New Zealand

A numbers of IC disclosure studies have been conducted in Australia and New Zealand (Guthrie and Petty, 2000; White et al., 2007; Whiting and Miller, 2008; Bruggen et al.,

2009; Schneider and Samkin, 2008). In fact, the first such study, by Guthrie and Petty (2000) in Australia, has been widely cited and has paved the way for other studies worldwide. Adopting Sveiby's framework for IC, Guthrie and Petty (2000) investigated IC information disclosure in the 1998 annual reports of 20 Australian companies. The findings suggested that relational capital information was most reported followed by, respectively, human and structural capital information. The study then concluded that IC information was rhetorical, discursive and lacked an appropriate framework. The authors concluded that IC disclosure in Australia was not satisfactorily developed, poorly understood and inadequately identified.

Whiting and Miller (2008) examined the extent and nature of IC disclosure in the 2003 annual reports of New Zealand companies and its relationship with the hidden value of companies (as measured ratio of market value to book value), taking into account the effect of tangible asset revaluations and growth expectations¹⁰. Their findings suggested that information about brand, customers and business collaboration were the most popular. Because an unrealistic valuation of historical tangible assets might confound the relationship between IC disclosure and the ratio of MV to BV, the study only included a total of 20 revaluing companies in the analysis. The result indicated that there was a significant positive relationship between IC disclosure and the ratio of MV to BV for the revaluing companies.

Bruggen et al. (2009) investigated the determining factors of IC disclosure volume in the annual reports of 125 Australian companies for the years ending 2002, 2003 and 2004. The findings suggested that size and industry membership affected the volume and specificity of IC disclosure. It was found that more IC information was disclosed in the annual reports of knowledge-based than traditional industries. Company size also influenced the volume of IC disclosure, with larger companies disclosing more than smaller ones. The study argued that decisions about disclosing IC were more likely to be a matter of common practice in specific industries rather than from a desire to bridge information asymmetries between managers and investors.

¹⁰ The historical values of intangible assets and speculative factors on shares price have been argued to partly contribute to large ratio of MV and BV (e.g. Brennan, 2001). In order to control these effects, asset revaluation and growth expectation were adjusted.

Schneider and Samkin (2008) engaged with 14 members of stakeholder panels to construct a disclosure index of IC disclosure applicable to local authorities. The index contained 26 IC items to study the extent of IC disclosure practices in the 2004/05 annual reports of 82 local authorities in New Zealand. The findings suggested that the volume of IC disclosure varied between local authorities, with the highest and lowest disclosure score being 76% and 33% of 26 items respectively. The most reported items concerned joint ventures, business collaboration and management processes, while the least reported items related to intellectual property, licensing and business agreements. The study also found that volume of IC disclosure was also significantly related to the size and type of the local authorities, their revenue and total assets, and the number of pages in the annual report.

3.8.2 Inter-country comparative studies

Vandemaele et al. (2005) conducted an inter-country longitudinal comparative study to investigate the trends in IC disclosure in three European countries; the Netherlands, Sweden and the UK. Annual reports of a total 20 companies were selected from each country for the financial years 1998, 2000 and 2002, giving a total sample of 180 annual reports. The findings demonstrated that the volume of IC information increased over time in all countries, although the longitudinal changes were not statistically significant. Swedish companies disclosed most information followed by those in the Netherlands and the lowest disclosure was found among the UK companies.

A comparative study of IC disclosure in the UK and Italy was conducted by Bozzolan et al. (2006). A total of 60 annual reports for the year ending 2001 were examined, and the influence of country and industry membership factors (traditional and knowledge-based companies) was tested. The results showed no significant differences in volumes of disclosure between Italian and British companies. Accordingly, the findings do not support the argument that differences in culture, legal requirements and ownership structures between the countries would influence the volume of disclosure. However, an industry effect was noted where the volume of IC disclosure in knowledge-based companies was substantially higher than in traditional companies. The prominent disclosure in relational capital concerned customers, brands, distribution channels and business collaboration. Meanwhile, the disclosure about structural capital information concentrated on patents, information systems, management processes, research and

market knowledge. Disclosure information about human capital focussed on employees and work-related knowledge and competencies.

Relatively few comparative studies have so far investigated developing nations. Abeysekera (2007) compared IC disclosure in developed and developing nations. The study investigated IC information reported by 30 Sri Lanka companies in 1999 and 2000. The results were then compared with those of a similar study undertaken in Australia during the same period by Guthrie and Petty (2000)¹¹. Several conclusions were drawn. Firstly, the manner in which IC was presented by Sri Lankan companies was very similar to that of Australian companies (Guthrie and Petty, 2000), mainly disclosed in an ad-hoc fashion and discursive style and without being guided or underpinned by any established frameworks. Secondly, the ranking order of IC information categories in both countries were similar with relational capital information being the most frequent followed by human and then structural capital information¹². With regard to relational capital, information about brands was most reported in Sri Lankan companies but least reported by those in Australia. In terms of human capital, Australian companies placed a greater emphasis on information about entrepreneurship while Sri Lankan companies tended to disclose more on employee relations. There were also differences in the disclosure of information on structural capital where Sri Lankan companies focused more on management processes than Australian companies.

3.8.3 Studies of specific industries

A few industry-specific studies of IC disclosure have been conducted, such as in football (Shareef and Davey, 2005), fashion (Davey et al., 2009), pharmaceuticals (Boekestin, 2006), telecommunications (Gerpott et al., 2008), biotechnology (White et al., 2010); universities (Bezhani, 2010) and banking (Khan and Ali, 2010). These studies aimed to gain insights into the peculiarities of IC disclosure in specific sectors.

¹¹ Four methodological differences between the two studies were acknowledged by the author to have possibly influenced the differences in reporting: (i) number of IC elements; (ii) years of sampling; (iii) sample size; and, (iv) differences in sector composition.

¹² Sri Lankan companies disclosed more on relational capital information because such information would be able to counter the negative effect of socio-political factors and protective labour legislation on capital reproduction as well as to attract foreign direct investment (p.337).

Davey et al. (2009) investigated the nature and volume of IC disclosure in the fashion industry. A total of 30 annual reports for the year ending 2005 were obtained from 15 fashion houses, designer-wear and street fashion companies each in Europe and North America. The findings suggested that relational capital information was the most reported category, making up 50% of disclosures, followed by structural capital at 34% and human capital at 16% of total IC information. With regard to structural capital, information about management processes was the most disclosed while information about management philosophy and corporate culture were least disclosed. Information about brands accounted for 50% of relational capital disclosure and one-third of the total IC disclosure. Meanwhile, information about distribution channels was the second most reported, making up 27% of relational capital. Innovation and creativity was the most emphasised in the human capital category.

IC disclosure in the banking industry in Bangladesh was investigated by Khan and Ali (2010)¹³. The study analysed the annual reports of 20 banks for the year ending 2007/08. A total of 255 words related to IC were found in the annual reports with 65% concerning human capital, 21% relational capital and 14% structural capital. The least reported information concerned relational capital, a finding at variance with most previous studies. Instead, information concerning human capital such as work-related knowledge and competencies, education and employee training dominated the content of disclosure. Overall, the results suggested that the Bangladeshi banking companies showed low levels of IC disclosure.

¹³ The study also conducted interview with bank managers to obtain the importance of IC disclosure. The results are omitted in this thesis.

Table 3.5 Geographical and temporal coverage of IC disclosure studies

Study	Country	Years coverage	Media and its size	General study comments
Guthrie and Petty (2000)	Australia	1998	AR 20	<ul style="list-style-type: none"> • IC disclosure was rhetorical and poorly understood.
Williams (2001)	UK	1996-2000	AR 31	<ul style="list-style-type: none"> • Increased disclosure volume over time. • Negative relationship between IC disclosure and performance which reflect low tendency to signal IC due to competition.
Brennan (2001)	Ireland	1999	AR 11	<ul style="list-style-type: none"> • No relationship between MV/BV and IC disclosure volume. • There was little interest in disclosing IC.
Bontis (2003)	Canada	N/A	AR 10,000	<ul style="list-style-type: none"> • IC largely ignored in financial reporting. • Longitudinal study was suggested.
Bozzolan et al. (2003)	Italy	2001	AR 30	<ul style="list-style-type: none"> • Size and industry membership explained IC disclosure volume. • Longitudinal study and larger sample size were suggested.
Goh and Lim (2004)	Malaysia	2001	AR 20	<ul style="list-style-type: none"> • Malaysian companies followed world trends in disclosing IC.
Bukh et al. (2005)	Denmark	1990-2001	IPO 68	<ul style="list-style-type: none"> • IC disclosure increased over time. • IC disclosure gives important information in capital market assessment of company value.
Meca and Mertinez (2005)	Spain	2000-2001	Reports to financial analysts 257	<ul style="list-style-type: none"> • IC disclosure was still low. • There was variation of quality disclosure across component IC.

Table 3.5 Cont

Study	Country	Years coverage	Media and size media	Study comments
Abdolmohammadi (2005)	USA	1993-1997	AR 284	<ul style="list-style-type: none"> Increasing IC disclosure volume over time. Industry membership and market value were related to IC disclosure.
Abeyssekera and Guthrie (2005)	Sri Lanka	1999-2000	AR 60	<ul style="list-style-type: none"> Volume of disclosure increased over time. Sri Lanka lacked IC disclosure framework. Political economy theory explained IC disclosure.
Vandemaele et al. (2005)	Netherlands Sweden UK	1998 2000 2002	AR 180	<ul style="list-style-type: none"> Increasing volume of disclosure over time. The volume of disclosure was affected by country. Future study should focus on small companies, longitudinal study and comparison with other countries.
Guthrie et al. (2006)	Hong Kong Australia	2002 -HK 1998 - AUS	AR 100 -HK 50-AUS	<ul style="list-style-type: none"> There was awareness of disclosing IC information. Continued gap between reality and rhetorical of IC information.
Bozzolan et al. (2006)	UK Italy	2001	AR 60	<ul style="list-style-type: none"> No significant country effect on volume of IC disclosure. Knowledge companies disclosed more IC. Future study should expand sample size and collect longitudinal data.
Cordazzo (2007)	Italy	1999-2002	AR 86	<ul style="list-style-type: none"> Volume of disclosure increased over time. High tech companies disclosed more IC information. Company size affected volume of disclosures. The capital markets valued IC disclosure. Comparative study of disclosure media was suggested.

Table 3.5 Cont

Study	Country	Years coverage	Media and size media	Study comments
White et al. (2007)	Australia	2005	AR 96	<ul style="list-style-type: none"> • The volume of disclosure low due to company desire to protect IC information from unwanted actions. • Factors such as board independence, age and leverage influenced the volume of disclosure. • Longitudinal study was proposed.
Lee et al. (2007)	Australia	2005	Web pages 128	<ul style="list-style-type: none"> • The volume of disclosure significantly differed between types of hospital. • Longitudinal and regional study of IC disclosure was suggested.
Gerpott et al. (2008)	Germany	2003	ARs Web pages 29	<ul style="list-style-type: none"> • Volume of IC disclosure in annual reports and web pages were highly correlated. • Size, leverage and home country affected volume of disclosure. • Not only volume but also qualitative characteristics are important in IC disclosure.
Striukova et al. (2008)	UK	n/a	15	<ul style="list-style-type: none"> • Broad range of corporate reports was used to disclose IC and annual reports are not a single proxy to disclose IC. • Size and industry affected the volume of disclosure.
Li et al. (2008)	UK	2005	AR 100	<ul style="list-style-type: none"> • Corporate governance would be an effective mechanism to encourage greater disclosure.
Oliveras et al. (2008)	Spain	2000-2003	AR 36	<ul style="list-style-type: none"> • The increase volume of disclosure consistent with general movement of IC internationally. • Longitudinal study was suggested.

Table 3.5 Cont

Study	Country	Years coverage	Media and size media	Study comments
Sonnier et al. (2008)	USA	2000 and 2004	AR 141	<ul style="list-style-type: none"> • Volume of disclosure significantly increased. • Traditional companies also recognised the importance of IC information.
Whiting and Miller (2008)	New Zealand	2003	AR 75	<ul style="list-style-type: none"> • There was a significant relationship between companies re-valuing their assets and volume of disclosure. • New Zealand companies used two mechanisms to reconcile the differences between market value and book value: (i) revalue tangibles and (ii) disclose IC.
Schneider and Samkin (2008)	Australia	2004	AR 82	<ul style="list-style-type: none"> • Local authorities acknowledged the importance of IC disclosure. • The volume of IC disclosure differed according to type, size, and level of revenue and assets of local authorities.
Kamath (2008)	India	2005	AR 30	<ul style="list-style-type: none"> • Volumes of disclosure too low. • Size did not affect volume of disclosure. • IC disclosure in Indian technology companies lagged far behind those in America and European countries.
Rimmel et al., (2009)	Japan	2003	IPO 120	<ul style="list-style-type: none"> • Disclosure was still low. • Sector, managerial and company size did not influence volume of disclosure. • Japan companies showed little interest in disclosing IC information.

Table 3.5 Cont

Study	Country	Years coverage	Media and size media	Study Comments
Bruggen et al. (2009)	Australia	2002-2004	AR 125	<ul style="list-style-type: none"> • Size and industry affected volume of disclosure. • IC disclosure was not related to information asymmetry.
Davey et al. (2009)	Europe and North America	2005	AR 30	<ul style="list-style-type: none"> • Disclosure volume concerning brand, distribution channel, process, trademark, innovation and creativity was high in the fashion industry.
An Yi and Davey (2010)	China	2008	AR 49	<ul style="list-style-type: none"> • Volume and quality of disclosure was low. • Chinese companies were still in the stage of understanding IC disclosures. • Longitudinal study and assessment on quality of disclosure was suggested.
Campbell and Rahman (2010)	UK (Marks and Spencer Plc)	1978-2008	AR 31	<ul style="list-style-type: none"> • Increase in volume of disclosure over 31 years. • Change in emphasis on information of IC sub categories over time. • Annual reports reflected a wider change in market demand for information.
Khan and Ali (2010)	Bangladesh	2007-2008	AR 20	<ul style="list-style-type: none"> • Low volume of disclosure. • No established framework used for disclosing IC.
Bezhani (2010)	UK	2005	AR 30	<ul style="list-style-type: none"> • Low volume of disclosure. • University ranking did not correlate with volume of disclosure. • UK universities should follow Austrian Universities in disclosing IC.

Table 3.5 Cont

Study	Country	Years coverage	Media and size media	Study Comments
Nurunnabi et al. (2011)	Bangladesh	2008-2009	AR 90	<ul style="list-style-type: none"> • Size and industry are important attribute to explain IC disclosure. • Bangladesh companies were reluctant to disclose IC.
Ousama et al. (2012)	Malaysia	2006	91	Firm size, profitability, industry type influenced the level of disclosure.

3.9 The limitations of previous studies and rationale for longitudinal Study

Having reviewed the applications of content analysis in studies of IC disclosure in the various corporate documents, this section highlights the limitations of previous studies specifically concerning the time coverage of the annual reports being analysed.

Table 3.5 describes the main previous IC disclosure studies in terms of country, type and size of reporting media, and time frames used. The periods of times for which IC disclosure in corporate documents were investigated can be considered a major motivation for the longitudinal study reported on in this thesis. Previous studies have clearly privileged cross-sectional breadth over longitudinal depth with research focusing on a single year being the most typical among previous IC disclosure studies. Most of the prior studies have looked at annual reports or other reporting media from the mid-1990s onwards (Guthrie and Petty, 2000; Brennan, 2001; Bozzolan et al., 2003; Goh and Lim, 2004; Khan and Ali, 2010; Nurunnabi et al., 2011; Ousama et al., 2012). Using large sample sizes of media in a single year, cross-sectional effects have often been sought rather than longitudinal trends in disclosure. Given the incremental evolution in information content (Riffe et al., 2005), only longitudinal data sets lead have the capability of leading to an enhanced understanding of long-term changes in disclosure of IC information over time.

However, long-term IC disclosure patterns has not been completely neglected in previous studies (e.g. Williams, 2001; Abdolmohammadi, 2005; Bukh et al., 2005; Cordazzo, 2007; Meca and Mertinez, 2005; Sonnier et al., 2008; Oliveras et al., 2008;

Bruggen et al., 2009; Nurunnabi et al., 2011). Nevertheless, the time periods have usually been shallow, typically between two and five years, with most studies concentrating on the period of the mid-1990s onwards. So, little or nothing is known about IC disclosure prior to these dates. It is proposed that a longitudinal study will offer the advantage of providing an understanding of long-term social and economic changes as well as changes in the dynamic processes affecting individuals or organisations over time. Such an understanding is manifestly unobtainable from an analysis of longitudinally shallow cross-sectional data. Since (it is believed) IC disclosure is partly responding to the transformation from a traditional to a knowledge economy, the time coverage of annual reports employed in previous studies is insufficient to gain an understand of the long-term changes in IC disclosure content. In other words, how IC disclosure behaviour has been affected by changes in the economic context will only be tractable if data for sufficient lengthy periods is employed. This study therefore seeks to answer the first and second research questions stated in Table 1.1 concerning the transformation to the knowledge economy has been reflected in the growing inclusion of IC disclosure incorporate annual reports.

In addition, researchers have increasingly called for longitudinal studies (Guthrie and Petty, 2000; Bontis, 2003; Vandemaele et al., 2005; Bozzolan et al., 2006; Lee et al., 2007; White et al., 2007; Oliveras et al., 2008; Bruggen et al., 2009; Abhayawansa and Guthrie, 2010). Abeysekera (2008) and Bozzolan et al. (2003), for instance, suggested that an extended longitudinal study would be capable of providing in-depth analysis and monitoring the progress and development of IC disclosure practices. Similarly, Bruggen et al. (2009) contended that longitudinal study would facilitate an understanding of not only the levels but also changes in IC disclosure. This study was framed in response to these calls.

The present study is an extension of the pilot study conducted by the author (Campbell and Rahman, 2010, published in the *British Accounting Review*). This pilot study investigated longitudinal trends in IC disclosure and the qualitative characteristics of IC disclosure in Marks and Spencer annual reports from 1978-2008. The changes from the production economy to the knowledge economy and a desire to discover how reporting behaviour responded were pivotal motivations for that study. The study demonstrated an overall increase in the volume of IC disclosure over the 31 years, which was largely made up of an increase in information about relational capital.

There were also changes of emphasis among IC sub-categories overtime, for example, information about the brand became increasingly popular in the 2000s. The study concluded that narrative annual reports have reflected the wider changes in the economic context in the UK.

Another gap that has been clearly identified in previous IC disclosure studies is the lack of focus on qualitative characteristics of information disclosed. The substantive focus on capturing information content has been on volumetric rather than its qualitative characteristics. This issue is often deemed important but has been somewhat neglected in prior studies. A detailed discussion of this issue is presented in the next chapter.

3.10 Cross sectional effects of intellectual capital disclosure

In addition to the literature on past IC disclosure studies (discussed in section 3.8 above), this section specifically reviews inter-sectoral or inter-industrial effects in IC disclosure. This section begins a discussion on theorising industry effects and then proceeds to discuss the empirical findings of industry membership effects on IC disclosure in particular.

It has been argued by proponents of political economy theory that each industry has a distinct activity template as a result of an associated political cost. In particular, companies that operates in similar industries are thought to share similar political costs which include similar business pressures, business competition, and the threats and opportunities of entry (Watts and Zimmerman, 1986; Flostrand, 2006; Patten, 1992). Likewise, a company in a similar industry will also depend on the same drivers of business performances and value creation (Bozzolan et al., 2006).

In an effort to manage such industry-related political costs effectively (pressure, threat and opportunities), a company in that industry has to configure its activities according to the distinct pattern of practice of that industry. A company needs to operate using the similar broad business idea and model, which, in turn, confers exclusivity compared to companies operating in other industries. The exclusiveness of the business model also leads to the formation of distinct strategies and policies for corporate disclosure. This means that the strategies of disclosure must be industry-related and relevant so that the

information demands of specific users of that industry can be meaningfully satisfied (Wallace and Nasser, 1995; Watson et al., 2002; Ousama and Fatima, 2010). In relation to signalling theory, a company may send out similar information to signal their compliance with the best practice of an industry (Craven and Marston, 1999).

If a company does not employ a similar strategy of disclosure (failing to signal similar industry-related information), the company may be considered to be trying to hide bad information important to that industry, with the consequence that the company could be perceived to be conveying 'bad news'. The failure of this information signalling may then eventually contribute to increasing agency costs (Watts and Zimmerman, 1986; Inchausti, 1997; Giner, 1997; Craven and Marston, 1999).

These theoretical observations are consistent with the longstanding conception of environmental disclosure theory in which environmental sensitive industries are thought to disclose more information about the environment compared to less-sensitive industries (Hackston and Milne, 1996; Campbell, 2004). Similarly, in the fashion industry, Yeoh (2010) found that brand and customers was the most important elements of value creation in the fashion business model. As a result, Davey et al. (2009) discovered that companies operating in the fashion industry disclosed extensively on information about brand and customers thus showing the industry specificity of these types of disclosure. Similarly, Branco et al. (2011) and Khan and Ali (2010) found a prominence of human capital disclosure (e.g. work-related knowledge, employees, training, skills) in the banking industry, and commented that this disclosure could be related to the high importance of human assets in the banking and financial industries.

The research literature in IC has indicated that the level disclosure of IC information is also partly industry driven (Bozzolan et al., 2003; Oliveira et al., 2006). As shown in Table 3.6, the majority of previous studies of IC disclosure have tended to divide type of industry dichotomously, perhaps based on the intensity of knowledge or technology focus (being high tech vs. low tech or knowledge-based vs. traditional-based). As IC is usually considered to be concentrated in, and important to, high-tech companies, it has been found that hi-tech companies such as IT, biotechnology and pharmaceuticals disclose more such IC information than their low-tech counterparts (Rimmel et al., 2009; Ousama et al., 2012). The positive effect of technology-based industry on IC

disclosure has been empirically evidenced in many past studies and the following paragraphs discuss some of these in more detail.

Bozzolan et al. (2003) postulated that high technology industry usually operates in high environmental variability which causes forecasting to become complicated and difficult. Mandatory financial disclosure appears to be limited and less informative as a result. As such, managers in such industries (having heavily invested in IC) have a strong motivation to disclose more IC information voluntarily compared to low tech companies. To test this association, the sample of their study was grouped into high profile industries (high tech) and low profile industries (low tech). As expected, the result suggested that high profile companies disclosed considerably more IC information compared to low tech companies.

Abdolmohammadi (2005) investigated the intersectoral effects of IC disclosure in the USA. The study involved 10 industries bifurcated into two sectors; 'old' and 'new' economy. The old economy consisted of 35 companies from industries related to aircraft parts, banks, chemicals, motor vehicles and parts, metals, petroleum and natural gas, pharmaceuticals and pumping equipment. Meanwhile, the new economy comprised 23 companies from industries related to computers and office equipment, electronics and electric equipment, semiconductors and software. The study reported that the differences in IC disclosure between old and new economy companies was not strong. Out of 10 category items, only 4 showed significant variations between old and new economy companies. In term of IC specificity, the companies from the new economy disclosed more on intellectual property and information technology. Meanwhile companies from the old economy disclosed more on brands and partnerships. The study suggested that guidelines on IC disclosure may need to be industry-specific in order to cope with different information user needs.

Bozzolan et al. (2006) argued that the uniqueness and peculiarity of a particular industry in terms of its intangible asset base, business model, core business resources and business pressures all collectively influence corporate disclosure policy. The argument led them to hypothesise that the level of IC disclosure could also be determined by industry type. Therefore, in their study (using a 30 matched-pair sample in UK and Italy), a total of 20 companies were classified as knowledge intensive companies (i.e.

internet provider, biotechnology, entertainment, IT distribution, high-tech manufacturing, media, retail, software, telecommunications and web services) meanwhile a total of 10 companies were classified as traditional companies (i.e. food, automobiles, chemicals, construction, electronic, manufacturing, oil, textiles and tourism). The study suggested that knowledge-based companies disclosed more IC than traditional companies. The study did not find industry membership effects on some on some specific IC disclosure items.

Oliveira et al. (2006) examined the influence of industry membership on IC disclosure in Portugal. The sample was bifurcated into intangible intensive industries and non-intangible intensive industries which comprised 48% and 52% of the total sample respectively. The result suggested that type of industry had a significant influence on the level of IC disclosure in annual reports. Branco et al. (2011) also conducted a study in Portugal and classified the sample into two broad sectors namely knowledge intensive sector (media, banks and technology industry) and traditional sector (basic resources, construction, materials, industrial goods and services) in order to test for sectoral effects on IC disclosure in annual reports and webpages. Each sector consisted of 12 companies. This study found an influence of sectoral membership on IC disclosure level in internet disclosures but not in annual report disclosures.

Flostrand (2006) investigated whether the use of IC indicators in analyst reports was influenced by industry factor. The study divided industries into eight types, namely energy, materials, industrial, consumer discretionary, consumer staples, health care, information technology and telecommunication services. It was suggested in the study that the type of industry had a significant influence on the IC indicators used in the analysts' reports. The reports in respect of companies from health care and telecommuncations services used most IC indicators, while the reports in respect of companies from energy and material industry used the least IC indicators. The study concluded that the companies in similar industries depend on similar IC in creating value thus it would be unsurprising if all the companies in an industry displayed similar patterns of IC disclosure.

Striukova et al. (2008) examined the influence of industry membership on IC disclosure in various reporting media in the UK. The sample was divided into sectors with high

reliance on IC such as software/information technology and pharmaceuticals or biotechnology companies, and sectors with less reliance on IC such as real estates/utilities and retailing companies. The finding was contrast to prior expectation and with findings in the previous studies (e.g. Bozzolan et al., 2003; Oliveira et al., 2006). The result suggested that retail companies with less reliance on IC disclosed more IC than pharmaceutical/biotechnology and ICT/software companies that relied more on IC. Meanwhile real estate companies were found to disclose the least. The study also reported significant sectoral effect on specific categories of IC content.

In Australia, the association between types of industry and level of IC disclosure was reported on in a study by Bruggen et al. (2009). In the study, a total of 125 companies across 9 industries were selected (see Table 3.6). The results indicated the different level of IC disclosure among companies from different industries. In particular, industries that rely heavily on IC such as healthcare, IT and telecommunication were found to disclose more IC information. The study also found that the types of industries affected not only the level but also the content specificity of IC disclosure.

A similar examination in Australia was conducted by Whiting and Woodcock (2011). In the study, sample companies were classified into 2 divisions consisting of a total of 35 companies respectively from high-tech industry and low-tech industry. It was found that the high-tech companies disclosed a total of 259 information sections of IC compared to the low-tech companies which accounted for 184 information sections. In term of IC content specificity, high-tech companies were relatively prominent in disclosure about networking system, brands, customers, distribution channel, education and entrepreneurship.

In a similar investigation, Rimmel et al. (2009) examined the influence of types of industry on level of IC disclosure in Japanese IPO prospectuses. In the study, companies from IT, technology, pharmaceutical and research were classified as high-tech industry while companies from production, trade and services were classified as low-tech industry. The study found that the difference of IC disclosure by sector was observed with respect to disclosure between high-tech and low-tech sector.

Table 3.6 Previous studies concerning sectoral effect on IC disclosure

Study	Sectoral division at which analysis was conducted	Sectoral effects on IC disclosure
Bozzolan et al. (2003)	High profile industry Low profile industry	High profile company disclosed more IC information than low profile companies.
Abdolmohammadi (2005)	Old economy industry New economy industry 10 industries	The difference in IC disclosure on the basis of old and new economy was less significant. The difference was strong when analysis was tested at the level of the 10 industries.
Bozzolan et al. (2006)	Knowledge intensive industry Traditional industry	The sectoral membership showed modest effect on the level of IC disclosure.
Flostrand (2006)	Energy, materials, industrials, consumers, healthcare, IT and telecommunications	Type of industry significantly affected the level of IC disclosure. Companies from IT and telecommunication industry showed highest disclosure while lowest disclosure were from energy and material companies.
Oliveira et al., (2006)	Intangible intensive industry 'Others'	Intangible intensive industry disclosed more IC.
Cordazzo (2007)	High-tech industry Low-tech industry	High-tech companies disclosed more IC than low-tech companies.
Striukova et al. (2008)	ICT/software, pharma/biotech, retail, real estate/utilities	Company less reliant on IC (retail) disclosed more than companies more reliant on IC (pharma/biotech and ICT/software)

Table 3.6 cont

Study	Sectoral division at which analysis was conducted	Sectoral effects on IC disclosure
Bruggen et al. (2009)	Industrial, energy, telecommunications, utilities, materials consumer, IT healthcare, financial	Companies from high tech disclosed more IC disclosure. The type of industry also affected the content specificity.
Rimmel et al. (2009)	High-tech Low-tech 4 industry (IT & technology, pharma & research, production and trade & services	Companies from high tech disclosed more IC disclosure than low tech companies. The difference of IC disclosure was minimal when analysis was conducted by type of industry.
Branco et al. (2011)	Knowledge intensive industry Traditional industry	The sectoral membership only significantly determined the level of IC disclosure in internet but not in annual reports.
Whiting and Woodcock (2011)	High-tech industry Low-tech industry	High-tech companies disclosed more IC than low-tech companies. High tech-companies prominent in disclosure about networking system, brands, customers, distribution channel, education and entrepreneurial.
Ousama et al. (2012)	High-tech industry Low-tech industry	High-tech companies disclosed more IC than low-tech companies.

Based on the brief literature above, this study also suggests there would be some variation of IC disclosure in term of volume and content specificity by industries as stated in the second research question (see Table 1.1). Although the membership effects on IC disclosure have been tested in previous studies as shown in Table 3.6, the contribution of this study is that it is the first such study to capture the cross-sectional effects on IC disclosure over a substantial longitudinal time period. This study is useful in understanding the intertwining effects of industry membership factors and longitudinal time on IC disclosure. The cross-sectional effects will be observed at the level of total, categories and individual items of IC information. It is expected that the

cross-sectional effect on IC disclosure will not be consistent but might differ over the 35 years period depending on changes in business models and the focus of the industries over time.

This study only employed samples from traditional industries such as oil and gas, retail, and banking and finance (see section 6.8 for the sample selection). Although industries selected in this study were presumably not knowledge-based companies in accordance with the definitions and divisions set out in the previous studies, it was observed through some previous studies (e.g. Campbell and Rahman, 2010; Sonnier et al., 2008; Striukova et al., 2008) that there are considerable driving forces of corporate value reported by the traditional companies that can be considered to be IC-related. This means that traditional companies are also involved in IC related activities and recognise the importance of IC disclosure. Probably, the investment and development of IC in these traditional companies outnumbered their knowledge-based counterparts. This is because these traditional companies are of a large size in term of resources and capital and these size effects are likely to drive disclosure.

3.11 Underpinning theories of intellectual capital disclosure

Since IC information disclosure is made on a voluntary basis rather than by mandate, other disclosure motives than jurisdictional enforcement are likely to be key drivers. In this regard, a number of prominent theoretical frameworks may offer some explanation. The most commonly applied in understanding voluntary corporate disclosure are agency theory (Chow and Boren, 1987), legitimacy theory (Cormier and Gordon, 2001), stakeholder theory (Guthrie et al., 2006), signalling theory (Sengupta, 1998; Healy and Palepu, 1993), decision usefulness (Whiting and Miller, 2008); impression management (Abhayawansa and Guthrie, 2012) and political economy of accounting theory (Abeysekera and Guthrie, 2005). Nevertheless, few of these theories have been employed in IC disclosure studies (see table 3.7).

This deficit motivated this study to consider some of these theories in the light of its findings. Certainly, no theory has emerged as a single most convincing explainer but some previous studies have incorporated more than one explanatory theory in shaping their understanding of IC disclosure (e.g. Whiting and Miller, 2008; Guthrie et al., 2006

etc.). In like manner, this study took as its starting point the assumption that the existing disclosure theories could not be taken separately in explaining IC disclosure development over time. Thus, this study has identified that at least, but not limited to, six theories could be partial explanations of observed IC disclosure behaviour:

- ❖ Agency theory,
- ❖ Legitimacy theory,
- ❖ Signalling theory,
- ❖ Stakeholders theory,
- ❖ Decision usefulness theory; and
- ❖ Impression management theory.

Table 3.7 The application of disclosure theories by previous IC disclosure studies.

Theory applied	Studies	Conceptual relationship with IC disclosure
Agency	White et al., (2007), Ousama et al. (2012), Nurunnabi et al. (2011).	The agency will vary according to company characteristics. Therefore, the variables of company characteristics such as board independence, leverage, industry, age, profit and size may affect the volume of IC disclosure.
Legitimacy	Whiting and Miller (2008), Guthrie et al., (2006), Whiting and Woodcock (2011), Khan and Ali (2010), Ousama et al. (2012), Nurunnabi et al. (2011)	Firms with high level of IC will be more inclined to disclose IC information as they cannot legitimise their status through traditional symbols of corporate assets.
Stakeholders	Whiting and Miller (2008), Guthrie et al., (2006), Whiting and Woodcock (2011), Khan and Ali (2010)	Stakeholders require information about important corporate assets (e.g. IC). The high level of IC in a company would lead to a high level of IC disclosure in annual reports.

Table 3.7 Cont

Theory applied	Studies	Conceptual relationship with IC disclosure
Signalling	Whiting and Miller (2008), Abhayawansa and Abeysekera (2009), Ousama et al. (2012), Nurunnabi et al. (2011).	Signalling of IC disclosures would enable investor to better assess the firm's future wealth creation and allow precise valuation of firm value and reduce the perceived risk of investment.
Decision usefulness	Whiting and Miller (2008)	The economic transition towards a knowledge economy makes IC disclosure more useful for investors to make investment decisions and hence maintain or attract the inflow of valuable resources.
Political economy	Abeysekera (2006), Abeysekera and Guthrie (2005)	IC disclosure practice is not driven by any external group as with, for example, social and environmental disclosure. Rather it is more influenced by firm's own interest to report such information to enhance the perceived value of the firm.
Impression management	Abhayawansa and Guthrie (2012)	Analysts engage in impression management in order to be optimistic and maintain perceived credibility. Not just the type of IC but also how the IC is reported, is motivated by impression management.

The next section discusses the main features of each theory and its possible relationship with IC disclosure.

3.11.1 Agency theory

Agency theory (Jensen and Meckling, 1976; Fama and Jensen, 1983) is a prominent theory in inquiring into the role of financial reporting to resolve potential conflicts that arise from the separation of ownership, risk bearing, and the management of a corporation. In the corporation setting, the theory purports that the shareholders of company (principals) require stewardship from those entrusted with management (agents) and to conduct the business pursuant to the expectations and best interests of principal as stipulated in the agency contractual agreement (Chow and Boren, 1987;

Eisenhardt, 1989; Briker and Chandar, 1998; Watson et al., 2002). In return, the agents are rewarded based on the extent to which they serve the interests and values of the shareholders. Although the contractual agreement is ideally established on a co-operative basis, the agents more often than not act more for their own personal interest rather than prioritising the welfare and the goal of the principal, and this means that the interests of the both parties cannot be aligned. This gives rise to the agency problem (Leftwich et al., 1981; Miller, 2002). These assumptions have been a motivation for many previous studies in conducting empirical investigations into identifying and resolving agency problems.

In agency theory, information asymmetry is thought to exacerbate the agency problem. This occurs when managers who are involved directly in the daily operation of the company make internal information his or her private property. The manager not only conceals this information from shareholders but also may abuse the information to maximise their own benefit. Consequently, the concealment of relevant information by management (or so called insider) could increase the cost of capital (cost of equity) imposed by shareholders. This is because the deficit of relevant information could give rise to uncertainty for shareholders in valuing the true picture of the company (White et al., 2007; Orens et al., 2009).

Effective corporate disclosure mechanisms (being capable of influencing shareholders perception), for example through voluntary disclosure in annual reports, play important roles in resolving the agency problems that result from information asymmetry (Brammer and Pavelin, 2006). The fact that shareholders cannot observe the actions of management directly, drives corporate disclosure as a channel to monitor the manager's activities and to appraise their performance (Bricker and Chandar, 1998). In conjunction with this, the increased volume of disclosure could also reduce cost imposed by shareholders to management. The classic example of this relationship is between the cost of capital and the volume of disclosure (Singhvi and Desai, 1971; Healy and Palepu, 1993; Lang and Lundholm, 1996; Botosan, 1997).

In relation with IC disclosure, the annual report has a critical role in communicating and shaping the reality of the corporation in the minds of the general public or shareholders (Coy and Pratt, 1998). It is contended that in the knowledge economy, where IC has

replaced traditional assets as the main source of value creation, shareholders demand more information about IC related activity to be disclosed in the annual report. The demands for the IC information could reduce the information asymmetry about the 'real value' of the company. Therefore, management should understand and address valuable IC related information in annual reports to increase certainty, reduce agency cost and maximise their own rewards (Ousama et al., 2012). The IC disclosure may demonstrate that the company is 'up to date' as far as knowledge economy is concerned.

3.11.2 Signalling theory

Signalling theory is useful in informing capital market behaviour particularly with regard to corporate disclosure (Watson et al., 2002; Whiting and Miller, 2008, Nurunnabi et al., 2011). Like agency theory, the theory of signalling purports that information asymmetry exists when companies have relevant information that investors do not. The disparity of ownership of information may then cause an imperfect situation in capital markets likely to increase perceived risk and cost of capital (Healy and Palepu, 1993; Botosan, 1997; Sengupta, 1998). In order to narrow the information asymmetry, companies will signal information explicitly to outsiders, which eventually gains more economic benefit and reputation than other companies that fail to do so (Campbell et al., 2001; Watson et al., 2002). A greater signal is also capable distinguishing between the higher and lower quality companies (Celik et al., 2006; Nurunnabi et al., 2011). A higher quality company has a stronger motivation than a lower quality company to signal their strengths and attract more investors. The costs of a failure to signal the strength is deemed to be greater in a high quality company than a lower quality company (An Yi et al., 2011). In achieving this benefit, the companies typically use annual reports to disclose a wider range of information including information that is not required by mandate. However, Williams (2001) suggested that some companies may be reluctant to make their information more visible to the public because of the strategic nature of the information which may in turn harm the competitive advantages of the company. Meanwhile, the risk of litigation resulting from a misrepresentation of information may also cause the low level of information signalling activities (Pave and Epstein, 1993).

In relation to IC disclosure, the transformation from traditional economy to knowledge economy has intensified the level of information asymmetry between capital market players and managers due to the limited account of knowledge assets in traditional financial reporting (Lev and Daum, 2004; Yeoh, 2010). Consequently, the real economic value of knowledge-based companies has been undervalued (Edvinsson and Malone, 1997; Seetharaman et al., 2002). Thus, signalling to capital markets through IC disclosure seems to be a resolution for IC information asymmetry problems, particularly for companies who rely heavily on IC (Ousama et al., 2012). Voluntary IC disclosure may signal the companies' capability in creating future value and at the same time allow more precise valuation of the company, decrease the perceived risk by potential investors, improving corporate image and more importantly improve relationships with various stakeholders (Vergauwen and van Alem, 2005; Rodgers, 2007; Whiting and Miller, 2008; Bruggen et al., 2009). Those companies with high levels of IC may signal the internal and external strength of the company by conveying information about its knowledge assets such as technology, R&D activities, corporate culture, employee skills, brand, customers, and business partners, etc. thus distinguishing them from other less knowledge-based companies. Therefore, in examining signalling theory, this study argues that the increasing important of knowledge assets in value creation over time has strongly motivated companies to increasingly signal positive information about IC in annual reports in order to ensure they have not been undervalued.

Hasseldine et al. (2005) argued that an information signal will have high quality when it is costly and difficult to replicate. In other words, a low quality information signal is usually associated with cheaper production, is easy to be produced and replicated, and is disclosed in large volume without intellectual commitment. A low information signal quality implies a low quality of reporting company which eventually may fail to convince the investors. Consistent with this argument, Watson et al. (2002) stated that to achieve signal quality, the signal content (information disclosure) must be credible and verifiable. If a company falsely signals that they are high quality (while they are not), and if the fallacy is discovered, no subsequent disclosure will be deemed credible by users. Therefore, the quality of the signal relies not merely on the information presence but also on its quality. In other words the way in which the information is signalled also matters. In assessing information signal quality, the common content analysis approach relying information frequency is manifestly inadequate. Attempts to assess the signal quality of IC reporting using a scoring system based on qualitative

measures was employed by (2002), Beretta and Bozzolan (2004) and Beattie and Thomson (2007).

3.11.3 Legitimacy theory

The concept of legitimate success states that a company's economic performance such as its ability to deliver profit and capital gain to shareholders is no longer considered to be sufficient (Patten, 1991; Magness, 2006). Rather, given the increasing community awareness and concern as well as the diversity of stakeholders' interest, the survival of company also substantially depends upon public acceptance of the company's activities (Patten, 1991; Cormier and Gordon, 2001). The company can only be allowed to continue its operation if it complies with the expectation and norms of that society in which it operates (Wilmshurst and Frost, 2000; Campbell et al., 2006). The costs of not fulfilling the expectations of society includes boycotting campaigns by customers, limited access to labour and capital by suppliers, and lobbying for legislation that may give rise to compliance costs (Magness, 2006).

The status of organisation legitimacy is not static but it is deemed to be location and time driven (Deegan, 2000; Stanton and Stanton, 2002). This means that legitimacy changes according to changes in public attitudes and values in different locations and times. Therefore, to ensure the survival of public acceptance, thus maintaining legitimacy, it is important for organisations to be more responsive by having strategies and activities congruent with changes in public attitudes and values over time and place. Nonetheless, perfect congruence between the norms of the public and organisation goals are difficult to achieve and this gives rise to a legitimacy gap. Additionally, the existence of multiple stakeholders with different understandings and expectations of how organisations should act can also widen the legitimacy gap (Ogden and Clarke, 2005).

An attempt to be seen to act in a manner that is consistent with societal values and in turn shape the community's perception towards management's responsibility to social and environment related issues can be done through the corporate annual reporting mechanism (Cormier and Gordon, 2001; Campbell, 2004; Branco and Rodrigues, 2006; Magness, 2006). This is because corporate reporting, particularly of social

responsibilities, is thought to be capable of constructing and shaping the legitimacy reality in the stakeholders' perceptions towards a company (Gray et al, 1995a). In fact, several empirical studies have found evidence that the increasing concern over social has contributed to an increasing level of community and environmental disclosure in annual reports (Deegan and Rankin, 2002; Campbell, 2004; Campbell et al., 2006).

The relevance of legitimacy theory in IC disclosure study is apparent when it comes to the human and relational capital information disclosure such as employee, community, environment, suppliers and customer information. Otherwise the theory appears to be somewhat less appropriate for IC studies¹⁴. The theory therefore provides a partial view of understanding IC disclosures because some other parts of IC such as technology, brand, IT, product innovation, etc. have little connection to maintaining legitimacy in reporting companies. Nonetheless, there has been some attempt to link legitimacy theory and IC disclosure, for example Guthrie et al (2004; 2006), Whiting and Miller (2008), Whiting and Woodcock (2011) and Nurunnabi et al. (2011). Some of these suggested that companies may legitimate their corporate success through IC disclosure if they find difficult to do so through traditional symbols of success such as tangible and financial assets. Partly grounded on legitimacy theory, this study also makes the assumption that an effort to build favourable relationships with employees, customers, communities and suppliers would not only be able to attain public acceptance and achieve good social performance but also give rise to economic competitive advantages like continued inflows of capital, knowledge, labour and customers.

3.11.4 Stakeholders theory

Stakeholder theory is concerned with the various stakeholders' approval over an organisation's activities. Guthrie et al. (2006, p.256) stated that:

“According to stakeholder theory, an organisation's management is expected to undertake activities deemed important by their stakeholders and to report on those activities back to the stakeholders... stakeholder theory highlights organisational accountability beyond simple economic and financial performance”.

¹⁴ These disclosures have been extensively examined on individual basis using legitimacy theory. The discussion can be found in Abhayawansa and Guthrie (2010).

This study also follows this line of thinking which explains that the accountability of organisation is not limited to maximising the wealth of shareholders (as suggested in agency theory). Rather, the organisation must also be able to meet and account for the multiple goals of diverse stakeholders. Gray et al. (1995b) remarked that the continued existence of organisations largely depends on approval by surrounding stakeholders and the more powerful the stakeholders, the more the organisation must adapt their activities to comply with those stakeholders. The groups that can affect and be affected by an organisation's activities apart from shareholders are employees, customers, suppliers, lenders, the government and society (Belkaoui, 2003). The organisation has an obligation to provide information about how its activities affect the stakeholders (Deegan, 2000; Vergauwen and van Alem, 2005). In this regard, social and environmental disclosure has been found to be part of mechanism for organisations to dialogue with stakeholders (Gray et al., 1995b).

Stakeholder theory has two branches; i) an ethical (moral) branch; and ii) a positive (moral) branch, each of which demonstrate a different discharge of accountability to various stakeholders (Guthrie et al., 2006). The ethical branch states that each class of stakeholders must be treated fairly and the organisation must engage in activities that could satisfy the demand of all stakeholders equally (Deegan, 2000). From a disclosure perspective for instance, it specifies that less powerful stakeholders (normally smaller group) with lower accessibility management, should also be provided with the same information report as disseminated to the more powerful stakeholders in the private meeting (Whiting and Miller, 2008). Meanwhile, instead of discharging accountability equally as suggested in the first branch, the positive branch on the other hand attempts to identify which group of stakeholders have significant or powerful influence over the survival of an organisation. The most powerful stakeholders are deemed to have a critical influence over the control of an organisation's resources such as supply of labour, material, finance, access to media and customers, which in turn determine the long term success of the organisations (Deegan, 2000; Li et al., 2008). This means that the more powerful the stakeholders the more the expectations of that stakeholder will be fulfilled by the organisation (Guthrie et al., 2006).

With regard to IC disclosure studies, it is argued that organisations form a part of broader social system. After the emergence of the knowledge economy where external

approval (e.g. community demand, customer loyalty and brand recognition) determines value creation (Malmelin, 2007; Whiting and Woodcock, 2011), it is important for organisations to be accountable to the various groups of stakeholders. Therefore, IC disclosure is considered to be an effective means of discharging accountability by conveying stakeholder-related information that could improve relationships with those stakeholders.

Meanwhile, Guthrie et al. (2006) contended that the positive branch of the theory can be used to determine whether companies show a different way of communicating with diverse stakeholders that have different types of control over the company. By employing content analysis to determine the volume of IC disclosure in annual reports, this study can explain whether the different degrees of influence of certain stakeholders. That means, the more powerful the stakeholders, the more information about the stakeholders is disclosed in annual reports. Previous studies have showed that significantly different volumes of disclosure occurred within relational capital information (Bozzolan et al., 2003; An Yi and Davey, 2010; Campbell and Rahman, 2010) and this may be explained by the positive branch of stakeholder theory.

3.11.5 Decision usefulness

Research in financial reporting has often been centred on 'decision usefulness'. It is argued that in order to be effective financial reporting, information disclosed in it must be decision useful, that is, capable of providing relevant and reliable information to assist users to make economic decisions (Hooks and van Staden, 2004). They furthermore noted that the usefulness of accounting information has been largely investigated from two perspectives. First is efficient capital market (ECM); an approach that studies on how stock prices react with accounting information. Second is behavioural accounting research (BAR); an approach that focuses on decision usefulness of accounting information at an individual level, that is, it focuses on how individuals makes decisions from accounting information.

Decision usefulness has been a motivator for increasing practice of IC disclosure. The transformation from traditional economy to knowledge economy has changed the sources of corporate value creation from hard to intangible assets (Arthur, 1994;

Yongvanic and Guthrie, 2005; Switzer, 2008). As such, traditional financial reporting, largely conveying hard and financial assets is believed to become less decision useful in evaluating the real value of companies (Eccles et al., 2001; Lev and Daum, 2004). The ongoing decreasing usefulness of traditional financial reporting in reflecting real value can be explained by the increasing disparity between the book value and market value of assets (Edvinsson and Malone, 1997; Brennan, 2001; Seetharanam et al., 2002). A way of resolving this is a new reporting system, capable of identifying and reporting knowledge assets, for example IC reporting (Ittner and Larcker, 1998; Blair and Wallman, 2000). This demand rests upon the belief that IC information disclosure is increasingly useful and relevant for decision-making. Incorporating IC information in corporate disclosure would enable a reporting company to attract the inflow of more valuable resources, for example skilled employees and technology partners (Whiting and Miller, 2008).

The capital market approach to researching IC disclosure has been performed in several prior studies and these demonstrate the material effect of IC information (at IC component level) on stock price changes. (e.g. Kallapur and Kwan, 2004; Ghosh and Wu, 2007; Orens et al., 2009). Meanwhile, the application of a behavioural approach in previous studies (survey on investors and company directors) also reveals that industry people view IC or intangible related information as increasingly useful and important (Eccles et al., 2001; Boedker et al., 2008).

This study also makes the assumption that the decision usefulness of information is not static. Rather, it is dynamic and determined by many contingent factors. For example, the location, time and specific industry demand all may, to some extent, influence the degree to which the information being disclosed is useful (see Campbell and Rahman, 2010). In particular, the usefulness of information disclosed can be argued to be time contingent.

Furthermore, decision usefulness of information is not solely reliant on the presence of information but also rely upon the 'quality' of information being conveyed. Here, what is reported and how it is reported is seen to be capable of influencing how the quality of reported content is perceived and how its usefulness is valued. Put in other words, the decision usefulness of information can be enhanced if it is disclosed in a higher quality

form. This argument was made by Van Beest et al. (2009) who pointed out that high quality financial reporting can be a basis for decision usefulness. He then defined quality information as that which has relevance and faithful representation as well as enhanced qualitative characteristics which include understandability, comparability, verifiability and timeliness. Likewise, Singhvi and Desai (1971, p.131) defined quality reporting as completeness, accuracy and reliability of reporting. Similarly, Imhoff (1992, p.101) defined quality in terms of relevance, reliability and comparability. Cormier et al. (2005, p.5) in investigating environmental disclosure, defined disclosure quality as the sum of perceived precision, relevance and usefulness for decision-making. Meanwhile, Hutton et al. (2003) referred to ‘soft talk’ information as low quality because this sort of information is conveyed in a qualitative and non-verifiable manner whilst high quality information is characterised by verifiability and forward-looking character, which eventually may impact on its usefulness. This theory therefore also partly informs the relevance measurement of disclosure quality developed in this study (as discussed in chapters 4 and 6).

3.11.6 Impression management

Impression management occurs in conscious or unconscious manner and is an attempt to control image in social interactions. Being the keeper of information within this interaction, organisations control and manage information in a persuasive and influential manner which can, in turn, affect an audience’s attitudes, opinions and behaviour towards the organisation (Stanton et. al., 2004). Clatworthy and Jones (2006, p.494) said that, “*impression management is a tendency for organisations to use data selectively so as to present themselves in a favourable light*”. Previous literatures indicate that impression management commonly occurs in corporate annual reports (Stanton and Stanton, 2002). Because the organisation has editorial control over the annual report, they are often regarded as instruments of impression management through which a desired identity of a reporting firm is constructed (Ogden and Clarke, 2005). Merk et al. (2011, p.318) contended that:

“impression management in corporate reporting, mainly in annual reports, entails managers opportunistically taking advantage of information asymmetries to bias readers’ perception of firm performance either by making clear depiction of organisation’s positive outcome or by obfuscating its negative outcome”.

Prior studies have found impression management activity in annual reports in narrative disclosure (Smith and Taffler, 1992; Clatworthy and Jones, 2006), in the use of graphs (Beattie and Jones, 1992:1997; Cho et al., 2012) and in photographs (McKinstry, 1996; Hooks et al., 2010; Cho et al., 2012).

Impression management techniques using graphs appear to be fairly common among companies (Beattie and Jones, 2002). Beattie and Jones (1997) found that 92% and 80% of major public listed companies in US and UK respectively employed colourful and 'eye catching' graphs as method to impress investors. It was reported that 65% of companies preferred to hire external professional graphic and visual designers to design annual reports that could enhance positive impressions among investors towards the companies. Cho et al. (2012) pointed out that graphs were used in an attempt to manipulate and obfuscate information to shareholders. In general, they suggested that managers have an incentive, using graphs, to obfuscate failure but to underscore successes in the company. It was found that enhancement took place in graph presentation. The sample companies obviously showed a favourable bias of choice of items to be graphed (selectivity) as evidenced by the fact that 70% of graphs depicted items with a favourable trend while unfavourable items was mainly graphed in an obfuscative manner.

The occurrences of impression management in the narrative parts of annual reports have also been found in a number of previous studies (Ogden and Clarke, 2005; Clatworthy and Jones, 2006). Ogden and Clarke (2005) found that impression management in the annual reports of water companies during the course of privatisation took place in both 'assertive' and 'defensive' forms. These techniques were employed with the aims to maintain, repair and renew organisational legitimacy, primarily in the aspect of water leakage. The assertive impression management form involves the construction of specific identity and building reputational characteristics of organisations (e.g. ingratiation, self-promotion, exemplification, entitlements and enhancement). On the other hand, the defensive form involves a technique to prevent the organisations from being associated with undesirable and negative attributes (e.g. dissociation, apologies, excuse and justification). The selection of technique was varied and conditional upon the issues to be addressed.

Another approach examining impression management at the narrative level of disclosure was performed by Clatworthy and Jones (2006). The study employed analysis of textual characteristics (which can be referred to as qualitative characteristics in this study) which encompass the difference lengths of words to communicate success and failure; active or passive voice; the extent of personal and singular reference used; the extent of key financial indicators reported; the quantitative references and soft qualitative discussions and future orientation of content reported in chairman statements. The study reported that there was a different technique of impression management in the chairman's statements between profitable and unprofitable companies. Similar findings were reported in impression management studies of analysts' reports (Ho and Harris, 2000; Bradshaw, 2002).

The only study so far that specifically incorporated impression management theory into IC disclosure study was conducted by Abhayawansa and Guthrie (2012). The study found that analyst reports with favourable recommendations disclosed a broader type of IC information with most of that being on external capital, with more references to future orientation disclosure and with more positive references. For less favourable recommendations reports (sell or holds), it was found that more volume of IC information was disclosed numerically or with past orientation and discursive IC references. The study concluded that IC information in analyst reports was managed to impress investors in such a way to moderate pessimism with unfavourable recommendations and at the same time to enhance the perceived credibility of analysts.

It is thus argued in this thesis that companies may engage in impression management in respect of IC information disclosure in annual reports. IC disclosure might be used as an impression technique to celebrate and communicate value creation, as companies may not be able to describe value creation using conventional information that is typically disclosed in the annual report such as information about earnings per share, cash flows and profit figures. The voluntary nature of IC disclosure gives some companies the option to make IC disclosure in the forms of 'superficial', 'soft' and 'sketchy' which are largely incompatible with hard and number-based financial reporting (i.e. being objective and reliable).

The aforementioned six theories above may have some potential useful to inform the IC disclosures practice of UK companies over 35 years. This may have some traction on the third research question of this study as presented in Table 1.1. In summary:

- *Agency Theory*
 - ❖ IC disclosure would reduce information asymmetry about ‘true value’ of the company in the presence of knowledge-based assets. This in turn to increase certainty, reduce agency cost and maximize management rewards.
- *Signalling theory*
 - ❖ IC disclosure would signal company’s capability in creating future value and allow precise valuation of the company which in turn decrease the perceived risk and improving corporate image.
- *Legitimacy theory*
 - ❖ Legitimatised corporate success through IC disclosure as opposed to do so through traditional symbol of success such as tangible and financial assets.
- *Stakeholder theory*
 - ❖ Discharge company’s accountability to diverse group of stakeholders through IC disclosure as the approval of these stakeholders would affect company’s value creation.
- *Decision usefulness theory*
 - ❖ IC disclosure would increase decision usefulness of annual report information that has been deteriorated by traditional reporting system.
- *Impression management theory*
 - ❖ Voluntary IC disclosure seeks to impress and make shareholders to believe that the company have been creating value through consumption of IC.

3.12 Chapter summary

The term ‘IC’ has been variously defined and there is no agreement on a universal definition. The categories of IC applied also vary across studies but have been accepted as generally comprising structural capital, relational capital and human capital. The absence of mandatory regulations for IC disclosure has caused a number of institutions

to develop their own IC disclosure systems. The disclosures have been prepared using varying approaches based on a company's creativity and self-purpose either in forms of purely narrative or using quantitative indicators. Regardless of the format of disclosure, IC is intended to report knowledge-based assets and processes to shareholders and relevant stakeholders.

Rationales for disclosing IC information centre on two reasons: (i) the importance of IC in creating value to shareholders; and, (ii) the failure of traditional financial disclosure to deal with IC. As a result, new business reporting models capable of conveying IC information are required to resolve the deficiencies in traditional financial reporting. Three general rationales for disclosing IC have been identified. Firstly to reduce information asymmetries between companies and investors which could lead to a lower of cost capital. Secondly, IC information disclosed will assist in increasing the relevance of financial statements in the sense of facilitating the process of share valuation. The third benefit relates to the internal management purposes particularly in the area of controlling and managing the performance of knowledge activities.

Given that much attention has been paid to the multi-disciplinary studies of IC, investigating the practice of IC disclosure in corporate reports using content analysis has been fruitful as well. Such studies have been conducted in many countries, seeking to determine the nature and extent of disclosure in the various corporate reports. Nonetheless, there are few previous studies involving a longitudinal examination of IC disclosures. The transformation over a long period from the traditional to knowledge economy is considered to be a prominent motivation for conducting a longitudinal examination because it would permit an understanding of how reporting behaviour, particularly concerning IC information, has responded to such a transformation. In tandem with this objective, this study also incorporate industry membership influence on IC disclosure through a longitudinal lens.

The dearth of published studies that has integrated reporting theoretical frameworks in interpreting IC reporting has led this study to incorporate a number of theories. It was hoped that the findings of this study could be interpreted in the light of these theories comprehensively rather than individually. Another gap is the lack of focus of the interrogation of qualitative characteristics of IC information. This topic is detailed in the next chapter.

Chapter 4. Qualitative characteristics of IC information content

4.1 Introduction

The discussion in this chapter concerns methods of capturing the qualitative characteristics of IC information content as addressed in the fourth and fifth research question of this study (see section 1.4 of this thesis). This method has been deemed important in the content analysis of IC information disclosure (Beattie et al., 2004; Beretta and Bozzolan, 2004; Beattie and Thomson, 2007; An Yi and Davey, 2010). In this chapter, different approaches to analysing information in corporate disclosure are reviewed. This discussion is then followed by the specific review of the analysis of qualitative characteristics in IC disclosure studies. The limitations of volumetric analysis and motivations for analysing qualitative characteristics of information content are presented in the last section. These discussions are considered important before proceeding to the method development of capturing information content in Chapter 6.

4.2 Different approaches to analysing information content of corporate disclosure

The application of content analysis in the study of corporate disclosures can be broadly divided into two types: (i) the volumetric analysis of information; and (ii) the analysis of qualitative characteristics of information content. The volumetric analysis normally involves counting the frequency or volume of information disclosed at the level of words, sentences or paragraphs (Milne and Adler, 1999; Bontis, 2003; Guthrie et al., 2004). This approach is helpful in drawing conclusions about how many particular types of information are disclosed and also to test relationships between amounts of disclosure and organisational or market variables. In this method, the amount of information disclosure is emphasised before its qualitative attributes (quantity rather than quality). The examination of disclosure practice based on volumetric analysis is informed by the semiotic assumption that volume signifies the level of importance placed on the information by the discloser (Unerman, 2000; Krippendorff, 2004; Beattie and Thomson, 2007; Campbell and Rahman, 2010). A particular type of information is said to be more important to disclosers if it is disclosed or covered more than other types of information. In a similar sense, the differences in the quantities of information

disclosed could also highlight differences between high and low reporters (Coy et al., 1993; Vandemaele et al., 2005). Beck et al. (2010), showed that studies that employ frequency analysis are those that use unweighted disclosure indices. In this approach, information disclosure is dichotomously rated by a score of 1 for information present and 0 for no information present. The aim of the approach is to establish the level of importance of a disclosure item by frequency score as well as completeness of a disclosure by final score.

The second approach to investigate the qualitative characteristics of information content (Wiseman, 1982; Beretta and Bozzolan, 2004:2008; Boesso and Kumar, 2007; Beck et al., 2010). This approach investigates the information content of disclosures rather than just the volume (Beretta and Bozzolan, 2004; Guthrie et al., 2004; Brammer and Pavelin, 2006). Beck et al. (2010) referred to this as 'interpretative analysis' where information content is interrogated for its 'quality', 'richness' and 'qualitative characteristics' rather than just depending on the mechanical counting of volume. Some previous research has applied a mixed approach, investigating not only the volume of disclosure but also investigating the ways in which companies present particular information content whether in forms of general narrative, quantitative or monetary (Wiseman, 1982; Beretta and Bozzolan, 2004; Schneider and Samkin, 2008; Beck et al., 2010; An Yi and Davey, 2010). In the mixed approach, a higher score is given to information that possesses a higher level of qualitative characteristics (means higher 'quality').

Among the earliest contributions to the content analysis of qualitative characteristics was Wiseman (1982), who examined environmental disclosure. She analysed the content of 33 annual reports from 26 USA companies in environmentally-sensitive sectors using a disclosure index containing 18 items of environmental information. These were weighted to three levels of qualitative characteristics scores: 1 for information mentioned in general term; 2 for company-specific information in non-quantitative terms; and 3 for information mentioned in monetary or quantitative forms. The total index scores reflecting quality were obtained by aggregating the scores given to individual disclosure items. The results suggested that only a few companies disclosed environmental information in their annual report and even fewer companies disclosed such information in monetary or quantitative forms.

Likewise, Beretta and Bozzolan (2004) conducted so-called ‘semantic content analysis’ of the annual reports of 85 Italian companies, aiming to investigate multiple dimensions of the qualitative characteristics of risk factor disclosures. Apart from quantity and density of topic spread¹⁵, three dimensions of the characteristics of risk disclosure were examined: (i) economic sign –referring to negative, positive or neutral economic impact upon future performance; (ii) type of measure – referring to qualitative or quantitative forms of information; and, (iii) outlook profile -concerning about how management communicated the approach that they had adopted to deal with the risk. Their study argued that measurement based on qualitative characteristics should be combined with a volume-based measurement. This was deemed to be more likely to have predictive power in answering research questions concerning, for instance, the effect of different qualitative characteristics of disclosure on the cost of capital.

Following this line of inquiry, Boesso and Kumar (2007) developed an integrated analysis tool for the volumetric and qualitative characteristics of information content. Their index of disclosure quality (called ‘IDQ’) was developed to simultaneously address issues of quantity, quality and the significance of topics reported in annual reports. Based on 42 key performance index items, the study analysed the information content of management discussion and analysis (MD&A) in the annual reports of 72 companies from the USA and Italy. In addition to the scope and volume of content, three levels of quality characteristics were assessed: quantitative or qualitative information, financial or non-financial and forward looking or historical. Generally, the findings suggested that qualitative, historical-based and non-financial characteristics dominated disclosure of information concerning intangible assets.

4.3 Content analysis approaches used in IC disclosure studies

Table 4.1 presents the widespread employment of volumetric analysis to study IC disclosure and shows the minority that combined it with analysis of qualitative characteristics. The volumetric analysis method has been preferred by most authors because it avoided the complexity of determining the qualitative characteristics of information content (Beattie and Thomson, 2007). In most cases, such studies simply used a binary scheme where a score of 0 was given for non-disclosure and 1 for

¹⁵ Topic spread of risk factor disclosure was categorised into company characteristic, company strategy and environmental around the company.

disclosure. In these cases, every piece of information disclosed, whether purely narrative or quantified, was equally weighted (Brennan, 2001; Goh and Lim, 2004; Abdolmohammadi, 2005; Lee et al., 2007; Singh and van der Zahn, 2007; White et al., 2007; Li et al., 2008; Davey et al., 2009; Khan and Ali, 2010).

Table 4.1 Previous IC disclosure studies showing the approaches employed

Study	Approaches to studying IC disclosure
Williams (2001)	Volumetric analysis
Bontis (2003)	Volumetric analysis
Brennan (2001)	Volumetric analysis
Goh and Lim (2004)	Volumetric analysis
Bozzolan et al. (2003)	Volume and qualitative characteristic analysis
Vandemaele et al. (2005)	Volume and qualitative characteristic analysis
Bukh et al. (2005)	Volumetric analysis
Yongvanich and Guthrie (2005)	Volumetric analysis
Abdolmohammadi (2005)	Volumetric analysis
Abeysekera and Guthrie (2005)	Volumetric analysis
Guthrie et al. (2006)	Volumetric and qualitative characteristic analysis
White et al. (2007)	Volumetric analysis
Lee et al. (2007)	Volumetric analysis
Singh and van der Zahn (2007)	Volumetric analysis
Cordazzo et al. (2007)	Volumetric and qualitative characteristic analysis
Sonnier et al. (2008)	Volumetric analysis
Gerpott et al. (2008)	Volumetric and qualitative characteristic analysis
Striukova et al. (2008)	Volumetric and qualitative characteristic analysis
Schneider and Samkin (2008)	Volumetric and qualitative characteristic analysis
Whiting and Miller (2008)	Volumetric and qualitative characteristic analysis
Li et al. (2008)	Volumetric analysis
Oliveras et al. (2008)	Volumetric analysis
Kamath (2008)	Volumetric analysis
Bruggen et al. (2009)	Volumetric analysis
Rimmel et al. (2009)	Volumetric analysis
Davey et al. (2009)	Volumetric analysis
Khan and Ali (2010)	Volumetric analysis
An Yi and Davey (2010)	Volumetric and qualitative characteristic analysis
Bezhani (2010)	Volumetric and qualitative characteristic analysis
Kang and Gray (2011)	Volumetric analysis

Some studies have incorporated an analysis of qualitative characteristics in addition to volumetric analysis as shown in Table 4.2. The analysis of qualitative characteristics can be differentiated from volumetric analysis by the complexity in assessing the ‘quality’ of information content. In the analysis of qualitative characteristics, score is given not only on the presence of information, but in addition, score is also based on the diversity of the characteristics or attributes of the information. In other words, score is proportionately awarded to the levels of information qualitative characteristics (Wiseman, 1982; Beretta and Bozzolan, 2004; Boesso and Kumar, 2007). The score levels of qualitative characteristics of information content vary, for example, score of 0 for non-disclosure, score of 1 for disclosure in ‘purely narrative forms’ and score of 2 for disclosure in ‘quantitative forms’ and so on. Table 4.2 summarises the types and scores given to qualitative characteristics in previous studies of IC disclosure. The following paragraphs briefly review selected IC disclosure studies that have incorporated an analysis of qualitative characteristics.

Gerpott et al. (2008) investigated IC disclosures in the annual reports and websites of 29 international telecommunications companies listed on the German Stock Exchange. Three levels of qualitative characteristics were assessed and given scores of 1-3 respectively: the lowest level was general information; the intermediate level was substantial qualitative information or some quantitative measure; and the highest level was substantial qualitative and quantitative information. The study found that the qualitative characteristics scoring highest overall concerned information about customers, suppliers and investors, while in websites the highest scores were achieved for information about investors, customers and human capital. Furthermore, the level of qualitative characteristics of IC information in annual reports was higher than websites. The study concluded that companies needed to disclose not only more information about IC but also qualitatively better information in order to gain positive reactions in capital markets.

Striukova et al. (2008) also attempted to assess qualitative characteristics of IC information content in various reporting media at three levels: a score of 1 was given if IC information was reported in a narrative or discursive manner, a score of 2 was given if IC information was reported in non-monetary quantified terms and a score of 3 was given when it was reported in monetary terms. The method was applied to various reports from 15 companies from the FTSE100, FTSE250 and small capital markets. The

study found that the percentage of purely discursive form of IC disclosure was highest in all media, making up between 77% and 90% of total IC disclosures. The results also suggested that disclosure by large companies was of higher ‘quality’ than that of smaller companies.

Cordazzo (2007) incorporated analysis of qualitative characteristics in weighted disclosure indexes of IC information. The study also tested whether the indexes of disclosure were affected by firm-specific variables. Three scores for qualitative characteristics of IC information were constructed: 1 for qualitative information, 2 for quantitative information and 3 for both qualitative and quantitative information. The findings suggested that older and high technology companies disclosed more quantitative IC information than younger and traditional companies.

Beattie and Thomson (2007) developed an interrogative method to capture IC information content based on two types of qualitative characteristic; (i) qualitative or quantitative; and, (ii) factual or judgment. The method was applied to the annual report of Next Plc for the year ending 2004. The study found that 51 % of the information was quantified and 68% was factual.

Likewise, in addition to measuring importance of IC disclosure based on the volumetric analysis, Campbell and Rahman (2010) also investigated the qualitative characteristics of IC disclosure in Marks and Spencer Plc annual reports for the years ending from 1974 to 2008. There were two forms of qualitative characteristics of IC information were examined; (i) ‘nature of information’ which referred to quantitative or qualitative; and, (ii) ‘factuality of information’ that referred to facts or perceptions. The former was intended to record the hardness of the disclosure while the latter examined whether the information concerned facts or merely managerial perceptions. The study found that between 60% and 90 % information was reported in narrative forms. It was also found that the company tended to disclose IC in terms of its own perceptions rather than presenting facts or verifiable information.

Several other studies used dichotomous levels of assessment where a score of 1 is given to qualitative information and 2 is given to quantitative information (Bozzolan et al., 2003; 2006; Meca and Mertinez, 2005; Whiting and Miller, 2008; Kang and Gray, 2011). Meca and Mertinez (2005), for example, investigated the qualitative

characteristics of IC disclosure in reports presented by analysts and whether or not the characteristics were affected by company specific-variables. The disclosure index of 71 pre-selected IC items was weighted based on two levels of qualitative characteristics. A score of 1 was given to qualitative information and 2 to quantitative information. The study found that the disclosure of information about customers, strategy and technology was of the highest quality because it was more often reported in quantitative forms. Meanwhile, the disclosure of information on human capital such as the experience of managers and employees was usually disclosed in qualitative form.

The discussion above shows that studies interrogating the qualitative characteristics of information content have been much in evidence in the field of IC disclosure. Nonetheless, as shown in Table 4.2, the dimensions of the qualitative aspects of disclosure investigated are still somewhat limited, in the sense that numerically and financially quantified data have been so far the only proxies for quality information. Apart from those of Campbell and Rahman (2010) and Beattie and Thomson (2007), no studies have carried out an extended analysis of IC qualitative characteristics of information content. Therefore, little is known about the other dimensions of qualitative characteristics in IC disclosures. Hence, extending the analysis of qualitative characteristics is a key aim of this thesis.

Table 4.2 Levels and scores the qualitative characteristics capturing of IC disclosure in previous studies

Study	Level and score capturing qualitative characteristics
Bozzolan et al. (2003)	1 = Qualitative disclosure 2 = Quantitative disclosure
Meca & Martinez (2005)	1 = Qualitative disclosure 2 = Quantitative disclosure
Vandemaele et al. (2005)	0 = No information 1 = Qualitative information 2 = Quantitative information 2 = Graphic information
Oliveira et al. (2006)	0 = No information 1 = Qualitative information 2 = Quantitative information

Table 4.2 Cont

Study	Level and score capturing qualitative characteristics
Guthrie et al. (2006)	1 = Discursive 2 = Numerical terms 3 = Monetary terms
Cordazzo (2007)	0 = None disclosure 1 = Qualitative disclosure 2 = Quantitative disclosure 3 = Qualitative and quantitative
Whiting & Miller (2008)	1 = Qualitative disclosure 2 = Quantitative disclosure
Gerpott et al. (2008)	0 = No information 1 = General information 2 = Substantial qualitative or quantified measure. 3 = Combination qualitative and quantitative
Striukova et al. (2008)	1 = Narrative/discursive 2 = Non-monetary quantified 3 = Monetary quantified
Cerbioni and Parbonetti (2007)	Economic sign 0 = No disclosure 1 = Negative 3 = Positive
	Outlook orientation 1 = Historical 2 = Forward looking
Bezhani (2010)	0 = No information 1 = Discursive form 2 = Numerical form 3 = Monetary form
Campbell & Rahman (2010)	<i>Nature of information</i> 1 = Purely narrative information. 2 = Narrative information with reference to numerical data. 3 = Narrative information with reference to monetary data. 4 = Narrative information with reference to numerical and monetary data
	<i>Factuality of information</i> 1 = The information is general, opinions and beliefs. 2 = The information is factual, verified or verifiable.

Table 4.2 Cont

Study	Level and score capturing qualitative characteristics
An Yi & Davey (2010); Schneider & Samkin (2008)	0 = Non disclosure 1 = Immaterial – Disclosure item is immaterial to the financial well-being and results of the company. 2 = Obscure – Disclosure is discussed within limited reference or value comments while discussing other topics and themes. 3 = Narrative – disclosure is discussed showing clearly its influence on the company or its policies. 4 = Quantitative/monetary – Disclosure is clearly defined in monetary terms or actual physical quantities. 5 = Quantitative/monetary with narrative – disclosure is clearly defined in monetary or actual physical quantities and narrative statements are made.

4.4 Limitations of the volumetric analysis of information disclosure

The assumption that the volume of disclosure is commensurate with ‘disclosure quality’ has been widely criticised (Marston and Shrivess, 1991; Coy et al., 1993; Toms, 2002; Beretta and Bozzolan, 2004; Hammond and Miles, 2004; Meca and Mertinez, 2005; Hasseldine et al., 2005; Beattie and Thomson, 2007; Boesso and Kumar, 2007; An Yi and Davey, 2010) and has been empirically shown to be an incorrect assumption (Wiseman, 1982; An Yi and Davey, 2010). Hammond and Miles (2004), for example, found support that the assumption that the significance of disclosure can be meaningfully represented by the volume of information is incorrect. Beretta and Bozzolan (2004) also argued that the volume of disclosure, particularly when in purely discursive forms, is not a satisfactory proxy for quality. Furthermore, an excessive dependence on volumetric measurement could restrict the power to describe content and trends in disclosure (April et al, 2003; Campbell and Rahman, 2010). This is because volumetric analysis is considered ‘form-oriented’, depending predominantly on the routine counting of words or sentences without analysing deeper layers of the content (Smith and Taffler, 2000; Beck et al., 2010).

Toms (2002) stressed the real meaning of ‘quality’ in terms of information signalling to stakeholders. The quality of information signalling should, he argued, not depend only

on its presence or volume, but rather, on the credibility of information disclosed. Although the term 'credibility' was not clearly explained by Toms (2002), it is thought to refer to the qualitative characteristics of the information content. Likewise, Hasseldine et al. (2005) argued that information is of higher quality when it is costly to produce and difficult to replicate. Conversely, information of lower quality is usually associated with cheaper production and easy replication, which can lead to the production of large volumes of disclosure with less intellectual commitment by companies. It is argued here that the large volume of low quality information disclosed somewhat signifies a lower credibility of the reporting company. In this respect, typical content analysis that relies on counting of volume is deemed less capable of capturing this real quality of information content. This, in turn, makes volumetric content analysis less capable of distinguishing between poor and excellent companies in term of disclosing information. Hence, in order to evaluate the disclosure performance other than volume-based resolution, a more capable method must be pursued.

Employing volumetric analysis, Wilmshurst and Frost (2000) assumed that quantity of information disclosure reflects the general responsiveness of management in constructing legitimacy status. According to them, given the limited space in annual reports to accommodate all information, management with editorial control over content would decide on inclusion of information based on its levels of importance to users. As a result, only the most important information is allocated space. The fact that space in an annual report is limited would tend to lead the companies to carefully consider the ways in which the information deemed important enough to disclose is actually disclosed. Companies may, for example, to choose to disclose information rhetorically and verbosely, without hard and fact figures. Therefore, the presence of any given information would reflect its importance to users (more important more disclosed) but not necessarily the 'quality' of the information content presented. Rather, the 'quality' of information content should be evaluated by its qualitative characteristics.

From an empirical point of view, Wiseman (1982) compared volume (by sentence length) with the scores of her qualitative characteristics of environmental information disclosure. She found that the increase in sentence length in disclosure was not correlated with increases in the scores of qualitative characteristic. The study concluded that volume of disclosure (sentence length) was not a good indicator of the quality of information disclosure. A similar conclusion was reached by An Yi and Davey (2010)

in studying IC disclosure by Chinese companies. They found that a higher frequency of sentences of IC information was not positively correlated with the scores of qualitative characteristics of the information. In another empirical study, Coy et al. (1993) showed that the scores in a weighted disclosure index (also known as a qualitative characteristic-based disclosure index) were significantly lower than those in an unweighted disclosure index (dichotomous disclosure index) and this led to the conclusion that dichotomous scoring fails to reflect the commitment of management to provide higher quality information disclosure¹⁶. A survey conducted by Robertson and Nicholson (1996), as cited in Toms (2002), showed evidence that some qualitative characteristics of information content were influential in decision making. According to the results of the study, investment professional did not value volume-based and non-quantified information in environmental reports. Instead, they placed higher values on the quantified, specific and externally monitored information.

In summary, then, it is argued here that the ‘quality’ of information disclosure should not be judged according to its volume *per se* but it must instead be determined from its qualitative characteristics. In other words, the totality of a disclosure comprises both its volume and its qualitative characteristics (Beretta and Bozzolan, 2004; Guthrie et al., 2004; Brammer and Pavelin, 2006). Therefore, integrating both approaches will allow a more complete capture of IC information disclosed. This belief underpins the method employed in this study.

4.5 Calls for research into the qualitative characteristic analysis of disclosure

Given the scarcity of prior studies and the value of investigating qualitative characteristics of information content, a number of authors have called for future studies to pay serious attention on this investigation and these have been important in motivating this study (Wiseman, 1982; Guthrie and Mathews, 1985; Core, 2001; Beattie et al., 2004; Beretta and Bozzolan, 2004; Guthrie et al., 2004; An Yi and Davey, 2010). Although Botosan (1997) on one hand warned that attempting to assess the qualitative characteristics of content would be complicated, Schneider and Samkin (2008) on the other hand asserted that the importance of such measurement would outweigh its complexities. According to Beattie et al. (2004), narrative contents are multifaceted and

¹⁶ Dichotomous disclosure index is based on binary score which a score of 1 given to information disclosed and 0 to non disclosure.

require studies to carry out deeper layers of content analysis. This begins with identifying the presence of information, followed by an examination of its qualitative attributes. Additionally, developing a richer content analysis instrument can permit much more powerful tests of many research questions that relate to narrative disclosure.

Guthrie et al. (2004, p.289) who also advocated this approach into IC disclosure studies, commented that:

This approach not only provides a description of the disclosure practices of organisations, but also indicates the key issues that need to be focused on in subsequent in-depth investigations on how these organisations identify, measure, and report their IC.

Wiseman (1982) suggested that future research could examine the quality of information disclosed, especially if it is related to investment decision making and market-related research. Since IC is thought to be capable of investment-materiality (Guimon, 2005; Dumay and Tull, 2007; Singh and van der Zahn, 2007; Orens et al., 2009), investigating its qualitative characteristics can conceivably provide new insights about IC information to market capital participants.

Beattie et al. (2004) argued that having a measurement tool to examine qualitative characteristics would permit the benchmark of disclosure quality performance between company and industry as well as making allowance for inter country and longitudinal comparison. Similarly, Beretta and Bozzolan (2004) argued that the scores obtained from a qualitative characteristics-based disclosure index would be able to convey impressions about the extent to which companies have emphasised quality in their information disclosure. Coy et al. (1993) were also proponents of this approach and suggested that qualitative measurement could be used as an indicative tool to evaluate the performance of companies in term of disclosure practice and to encourage an improvement in the information quality of annual reports. This is because any effort to improve quality would be likely to reflect management responsibilities towards stakeholders. Likewise, some stakeholder information demands require the composition of different information types. Van Beest et al. (2009), for example, developed a tool to measure informational qualities material to professional accounting bodies.

The arguments discussed above have motivated the present study to examine qualitative characteristic of IC information content. A discussion of method development in investigating qualitative characteristics is given in Chapter 6.

4.6 Chapter summary

This chapter responds to authors (Beretta and Bozzolan, 2004; Beattie et al., 2004; Beattie and Thomson, 2007, An Yi and Davey, 2010; Beck et al., 2010, etc.) who have raised the importance of measuring the qualitative characteristics of information content. A review of IC disclosure studies suggests many have extensively focused on volumetric analysis and limited interest has been devoted to interrogating the qualitative characteristics of disclosure. Therefore, keeping the objective of Beattie and Thomson (2007), Beattie et al. (2004) and Campbell and Rahman (2010), this study is intended to address this empirical gap by developing and enhancing a method of capturing the multi-dimensional qualitative characteristics of IC information. The development of this method is discussed in the Chapter 6 and it was applied in investigating the IC disclosure of six UK companies from 1974-2008.

Chapter 5. Content analysis: methodology and issues

5.1 Introduction

The term ‘content analysis’ is about sixty years old (Krippendorff, 2004, p. xvii) although its intellectual roots can be traced far back in human history where forms of analysis were used to examine symbols and voices of communication. These included the ancient disciplines of philosophy, rhetoric and cryptography. Today, content analysis as an empirical method has been institutionalised in arts, literature, education, mass media communication and the internet (Krippendorff, 2004). In the wide range of studies that have employed content analysis, the mass media communication studies (which include studies in corporate disclosure) are considered fairly new (Riffe et al., 2005). Kuhn (1953,p.15) as cited in Holsti (1969) asserted that communication is at the heart of civilisation. Concurring with this belief, Holsti (1969, p.1) wrote:

“The study of the process and product of communication is basic to the student of man’s history, behaviour, thought, art and institution. Often the surviving artefacts that may be used to study human activity are to be found in documents.”

For the purpose of this study, content analysis is considered to be the most appropriate technique to discover the extent to which reporting companies have responded to the long-term changes in economic context, using ‘surviving artefacts’ such as annual reports. These are among many written documents that are available to understand changes in corporate information disclosure.

It is important to review some methodological issues pertaining to content analysis before proceeding to its application. The importance of methodology was stated by Krippendorff (2004, p.xxi), the author of what has become the definitive textbook on the subject. He stated that, “methodology is not a value in itself. The purpose of the methodology is to enable researchers to plan and examine critically the logic, composition and protocols of research methods; to evaluate the performance of individual techniques; and to estimate the likelihood of particular research design to contribute to the knowledge”. The following sections provide an overview of the

definitions, advantages and processes of content analysis as well as discussing a range of related but relevant issues.

5.2 Definitions of content analysis

Some authors subscribe to the view that truth about text content can only be arrived at using scientific approaches of observation and verification. This approach essentially begins with a systematic sampling and a supposedly objective procedure of measurement from which valid inferences may be drawn (Neuendorf, 2002; Riffe et al., 2005). The procedure of measurement in content analysis specifically involves detailed considerations of objectivity, reliability, validity, generalisability, replicability and the formation of testable hypotheses (Holsti, 1969; Neuendorf, 2002; Riffe et al., 2005). The following definitions are derived in part from this premise, which clearly gives an emphasis on objective and systematic procedures as well as quantification in content analysis.

Berelson (1952, p.18) argued that content analysis is a research technique for the objective, systematic and quantitative description of the manifest content of communication. Holsti (1969, p.14) defined content analysis as any technique for making inference by objectively and systematically identifying specified characteristics of messages. Similarly, Neuendorf (2002, p.1) defined content analysis as a systematic, objective and quantitative analysis of message characteristics, whereas Weber (1990, p.9) regarded content analysis as a research method that uses a set of procedures to make valid inferences from text. Following suit were Harwood and Gary (2003, p.479), who defined content analysis as a technique that enables the analysis of 'open-ended' data to be structured for the purpose of diagnosis. The 'structured' term in this definition refers to the systematic and objective process of reducing and categorising data into a manageable format.

The most commonly-cited definition is given by Krippendorff (2004, p.18), who described content analysis as a research technique for making replicable and valid inferences from text (or other meaningful matter) to the context of their use. He further added that it is a scientific tool which involves very specialised and reliable procedures. The method is expected, using 'normal' narratives, to provide replicable and valid

findings. In order to achieve these two requirements, according to Krippendorff (2004), content analysis must be 'objective' and 'systematic'.

Perhaps, the most comprehensive definition of content analysis is that of Riffe et al. (2005, p.25), who stated:

'Quantitative content analysis is the systematic and replicable examination of symbols of communication, which has been assigned numeric value according to valid measurement rules and the analysis of relationships involving those values using statistical methods, to describe the communication, draw inferences about its meaning, or infer from communication to its context, both of production and consumption'.

The definition adopted in this study is based on the view that content analysis is a robust scientific tool which requires systematic processes, proper research design and operational transparency in order to ensure objectivity and replicability. Hence, the definitions of Berelson (1952), Holsti (1969), Weber (1990), Nuendorff (2002), Krippendorff (2004) and Riffe et al. (2005) are probably the most relevant for this study.

5.3 Advantages and benefits of content analysis

There are many advantages of content analysis. Firstly, it is capable of answering a variety of questions in many disciplines. As long as a text message is the central object under investigation, content analysis may prove to be a useful method to study that text message and its interaction between senders and receivers (Kassarjian, 1977; Weber, 1990; Riffe et al., 2005).

Secondly, content analysis is useful when direct accessibility of data through questionnaires, interviews, etc. are problematic, or data are limited to documentary evidence (Holsti, 1969). The difficulties of accessing direct data arise when subjects are unwilling to participate or cannot to be examined (Riffe et al., 2005), cannot be easily located (Kassarjian, 1977) or are no longer alive (Holsti, 1969). Messages must be then studied at a distance through the records of their activities either set down by contemporaries or in any written material left behind (Holsti, 1969).

Thirdly, the content analysis methods may involve unobtrusive measure (Holsti, 1969; Weber, 1990; Kassarjian, 1997; Krippendorff, 2004; Riffe et al., 2005). An obtrusive measure is a measurement that interferes with the phenomena being assessed and which creates contaminated or biased observations (Krippendorff, 2004: p.40). As content analysis is conducted 'at a distance' and the researcher's interest is concealed, the original producers and receivers of the communication are not aware that the message is being analysed and do not alter their behaviour accordingly.

Fourthly, according to Holsti (1969), content analysis may act as a supplement to other methods such as surveys or interviews allowing the comparison of other results with those of the content analysis. This combination of methods is capable of enhancing the reliability of findings.

Finally, communication content may have a long life, exceeding the life of its original producers and recipients. Various types of communication content that existed in the past time can be retrieved later for investigation (Weber, 1990; Riffe et al., 2005). In accounting studies, longitudinal content analysis has proved to be useful in studying, for example, environmental disclosure (Campbell, 2004; Tilling and Tilt, 2010), social disclosure (Slack and Shrives, 2008); portrayal of women in annual reports (Tinker and Neimark, 1987) and corporate social and environmental reporting (Gray et al., 1995b).

The content analysis method is preferred here, then, as it is a practical method for the current study, which examines historical documentary evidence in company annual reports. Direct observation such as from interviews is impossible because subjects that could discuss the content of annual reports are likely to be no longer in the organisations being studied. The method is also useful since this study seeks only to describe and make inferences about IC information in its own right and not about its reporters and users.

5.4 An overview of the process of content analysis

It is important to understand the common process for arriving at reliable data. The process used in content analysis can be broadly divided into three steps; i) conceptual definition; ii) operationalisation; iii) data analysis and reporting. These steps are shown in Table 5.1.

The first step is to establish a conceptual definition, which is a declaration about what the study is going to achieve (Neuendorf, 2002). This can be achieved by reviewing the relevant literature and theories, to frame phenomena of interest and the choice of method (Holsti, 1969; Riffe et al., 2005). In this study, the conceptual definitions and background of the phenomena of interest, which led to the statement of research problems and questions, were addressed in Chapters 2, 3 and 4.

Table 5.1 Overview of the process of content analysis

Conceptualisation	<ul style="list-style-type: none"> • Define concept of study. • Identify the scope of phenomena being studied • Critically review relevant theories and existing literature • Define specific research questions and hypotheses
Operationalisation	<ul style="list-style-type: none"> • Define population and draw sample from it • Construct content categories • Develop coding scheme and enumeration rules (units of analysis) • Establish rules for making inferences about text • Manual or automated coding • Conduct pilot test and train coders • Test for reliability and validity of coding. • Revise coding rules and achieve agreement between coders • Commence final coding
Data analysis and reporting	<ul style="list-style-type: none"> • Summarise and describe data • Apply relevant statistical procedures to answer research questions and hypotheses • Interpret and report findings

The second step is the operationalisation of the research which begins with the obtaining data within the messages or texts. Krippendorff (2004) argued that data are made, not found, and researchers have an obligation to explicitly state how data is derived. It is commonly agreed that data in messages or texts is derived through the systematic processes which include sampling, unitising, constructing content categories, developing coding schemes, making inference about texts; training coders, testing for

reliability and validity and revising coding rules (Kassarjian, 1977; Wimmer and Dominick, 2003; Riffe et al., 2005). The detail operations for deriving data in this study are given in Chapter 6.

The third step is the analysis of data. Content analysis involves the employment of statistical procedures to summarise and analyse data. The analysis should be able to find the answers to research questions or test hypotheses. Finally, the data needs to be interpreted on theoretical grounds and reported in a representative way (Neuendorf, 2002; Krippendorff, 2004; Riffe et al., 2005). The analysis, findings and its discussions of this study can be found in Chapters 7.

The steps in Table 5.1 are not absolute in term of completeness, but may provide a helpful guideline for understanding data in this study. Compliance with these steps is important to ensure the success of this study. Every step has been followed and is explicitly discussed throughout the chapters of this thesis.

5.5 Important issues in recording information

Holsti (1969) argued that three important issues have to be resolved prior to the commencement of recording information. These are the construction of information categories, deciding on the units of recording to record, and the classification of content and a system of enumeration to measure content. These have all been sources of debate around the design of content analysis in corporate disclosure studies (e.g. Beattie et al, 2004; Beattie and Thomson, 2007; Steenkamp and Northcott, 2007). The following points discuss each of these issues which are considered to be critical for the development of method used in this study.

5.5.1 The construction of categories of information

It is important, prior to commencing a content analysis, to construct a valid and adequate number of categories of information. Holsti (1969, p.95) defined information categories as a set of 'pigeon holes' into which content units will be classified (p.95). All the content classified into the same category must refer to the same object, event or attribute (Harwood and Gary, 2003). The information categories can be established before the recording commences or established or during the process of recording

(Carley, 1993). There are three important sub-issues in constructing information categories: (i) the operational definition of categories; (ii) the principle of mutual exclusiveness; and, (iii) the exhaustiveness of categories.

The first challenge is to determine the definitions for main categories and sub-categories of information into which narrative will be recorded. The operational definition of sub-categories is specific to each study but in each case, it is important to provide indicators that are helpful in categorising information (Holsti, 1969; Riffe et al., 2005). The definitions for the main categories and sub-categories of information to be captured must be designed to work in tandem so that the internal validity of information capture can be satisfactorily achieved. In this regard, this study used established (in earlier studies) definitions of IC categories and sub-categories. A considerable number of studies in this area have clearly defined the concepts and indicators used in IC categories and sub-categories and this study borrows from these (e.g Beattie and Thomson, 2007, Abdolmohammadi, 2005. See also Appendix A and B).

The second important issue is that information categories must be mutually exclusive. This means that each unit of information content should not be placed in more than one category (Holsti, 1969; Krippendorff; 2004; Riffe et al., 2005; Beattie and Thomson, 2007). Once the information has been assigned to a category, no other categories at a similar level of classification should be open to it.

Problems of mutual exclusiveness exist when a piece of information unit may be too large such as paragraph or the whole text, which may mean a given piece of coded disclosure may belong to more than one category. Therefore, a coder sometimes needs to make semi-subjective judgements in deciding which category the information fits into (Beattie and Thomson, 2007; Steenkamp and Northcott, 2007). It would contravene the principles of mutual exclusiveness as well as statistical procedures for a given disclosures to be double counted (Holsti, 1969; Beattie and Thomson, 2007). Under these circumstances, Riffe et al. (2005), Holsti (1969) and Beattie and Thomson (2007) suggested the breaking down of large units of information into smaller units as this facilitates categorising and avoids the problems of contravention of the mutual exclusiveness rule. This study resolved disclosure at the level of thematic units which proved helpful in avoiding the problems of mutual exclusiveness. This issue is addressed further in Chapter 6.

The requirement of category exhaustiveness is the third important issue. It is important to ensure that the number of categories is sufficient so that no relevant information is excluded due to a lack of suitable categories to fit into. Holsti (1969) and Riffe et al. (2005) stressed that each relevant content unit must be capable of fitting into a category, so that none should be left behind. In other words, all information units must have equal chances of being included in the analysis (Wimmer and Dominick, 2003). Category exhaustiveness has received a great deal of attention in prior empirical studies. As the popularity of the ICR research field has grown, more relevant and valid categories have been devised, with later studies benefitting from these developments. The set of categories used in the present study is therefore not independent of those that emerged in previous studies (Carley, 1993). In contrast, newer empirical areas are more likely to experience problems of category exhaustiveness. Nonetheless, the level of exhaustiveness of IC information categories as given in the literature is generally considered sufficient to ensure the completeness of data capture (e.g. Kaufman and Schneider, 2004; Guthrie et al., 2006; Beattie and Thomson, 2007; Choong, 2008; Li et al., 2008 etc).

5.5.2 The generic concept of unitising

In social science research generally, the unit is an individual ‘thing’ that is referred to as the subject of study, such as a segment or an individual in an organisation (Neuendorf, 2002). In content analysis, the unit is a small part of the whole text that is subject to counting and analysis. Neuendorf (2002, p.71) defined a unit as an ‘identifiable message or message component, (a) which serves as a basis for identifying the population and drawing a sample, (b) on which variables are measured, or (c) which serves as basis for reporting analyses.

Unitising generally refers to the process of breaking down a whole text or narrative into smaller units, which in practice enables the content to be recordable, computable and presentable. The unit of text could be physically or symbolically identifiable and countable such as words, sentences, paragraphs, proportions of page, assertions, columns, minute of speeches, characters, subjects, images or even whole written documents (Kassarjian, 1977; Weber, 1990; Neuendorf, 2002; Krippendorff, 2004). As the approach to unitisation affects the analysis of data and findings, it must be handled with caution (Holsti, 1969; Beattie and Thomson, 2007).

Some confusion is evident in the literatures in terms of terminology used and concepts of text unit employed. Weber (1990) merely discussed the choice of recording unit, which included words, word senses, sentences and themes. Meanwhile, Holsti (1969) divided text units into recording units and context units. Krippendorff (2004) categorised types of unit into sampling units, recording/coding units and context units. Meanwhile, Neuendorf (2002) categorised text units into sampling units, data collection units and analysis units. However, the concept of text unit can be broadly considered as comprising three distinct types namely sampling units, context units and recording units.

Krippendorff (2004) stated that a text may be too large to be examined as a whole, and thus it must accordingly be reduced to small bodies of text through a sampling process. The sampling units are defined as discrete elements of content that will be selected from the entire content of interest (Riffe et al., 2005, p.70). Those units may be drawn from a larger population, for example, newspapers (Krippendorff, 2004), political speeches, web URLs, episodes of television programmes or other, similar, media (Riffe et al., 2005). Previous IC disclosure studies have used corporate annual reports as the primary sampling unit (e.g. Sonnier et al., 2008; Li et al., 2008; An Yi and Davey, 2010, etc.) and this study took a similar approach. The use of annual reports (rather than other media for investigating IC disclosures) is justified in Chapter 6.

Once the sampling unit has been determined, the next stage is to decide the unit of recording. Recording units are smaller segments of text which are separated from the sampling unit and they are then placed into appropriate categories, counted and described (Holsti, 1969; Krippendorff, 2004)¹⁷. Unlike sampling units, recording units need to be analysed statistically in testing hypotheses and answering research questions (Riffe et al., 2005). Many small segments of sampling units could serve as recording units. For example, words or sentences could be treated as recording units taken from the entire text of written documents. Recording units could be entire sampling units, but can never exceed them in content (Krippendorff, 2004; Riffe et al., 2005). Recording units range from being small to large and physically or symbolically identifiable. They include words, sentences, paragraphs, pages, entire documents, images, times of speeches, themes, items, subjects, assertions, etc. (Unerman, 2000; Riffe et al., 2005).

¹⁷ The terms 'unit of analysis' and 'unit of recording' have been used synonymously (e.g. Beattie et al., 2004; Beattie and Thomson, 2007).

Each recording unit has pros and cons and these issues are separately discussed in section 5.5.3 below.

The context unit has rarely been employed in studies of IC disclosure. This unit is helpful in drawing accurate meanings of information contained in recording units. Holsti (1969, p. 118) defined the context unit as the largest body of content that may be searched to characterise the recording unit. Similarly, Krippendorff (2004) suggested that the context unit is the limit of information in which the description of recording units are described. Holsti (1969) warned that inferences cannot be made from references solely to specific words. Instead, the words must be considered in the larger context in which they appear in order to draw more accurate meaning, for example, through sentences or paragraphs. The context units should be able to give clues to the content analyst in assigning content (recording unit) to categories. Krippendorff (2004), and Riffe et al., (2005) pointed out that context units can be the same as, or larger than, recording units but obviously cannot be smaller. Furthermore, Krippendorff (2004) argued that context units are not independent of each other, and thus examining a few preceding and/or following context units may be required to infer accurate meanings. This study employed the paragraph as a context unit in inferring the accurate meaning of the themes of IC therein. The role of the paragraph as context unit is also explained in Chapter 6.

5.5.3 Issues in recording units

Every choice of recording unit has advantages and disadvantages and when limitations have been identified in recording units, suggestions for refinement are often self-suggesting (Unerman, 2000; Beattie and Thomson, 2007; Steenkamp and Northcott, 2007). Moreover, the volume of information mentioned in a text is influenced by the choice of recording (words, sentences, paragraphs or themes). As the quantity of disclosure is generally assumed to denote the importance of the information to the conveyor of the information (Krippendorff, 2004), variations in unitising techniques used to count information can render findings and conclusions non-comparable across studies (Beattie and Thomson, 2007; Abhayawansa and Abeysekera, 2009).

Words, terms or phrases are the smallest recording units to have been widely employed to count occurrences of IC information (Bontis, 2003; Sonnier et al., 2008; Oliveras et

al., 2008). The use of words as recording units is deemed to be more reliable and robust than sentences or paragraphs, as it assists reliability among coders (Zeghal and Ahmed, 1990; Campbell, 2004). This is because words are more precise (Holsti, 1969) and simpler to code, and this reduces the need to make subjective judgements about meanings as might be more required for recording sentences or paragraphs (Smith and Taffler, 2000; Abdulmohammadi, 2005).

However, the use of words as recording units also poses some challenges. Carney (1972) listed three characteristics of words that may confuse coders in recording information. Firstly, a word may carry a number of meanings simultaneously. Secondly, words can be ambiguous and their meanings can shift in the course of time. Thirdly, there is no ideal reality, basic essence, or inner picture for which a word is a label. Sonnier et al. (2006) also warned that the use of words as units of recording is problematic, particularly in studies using computer-aided searches because the specific words used by disclosers and words listed in computer dictionaries can be different. Furthermore, the words are usually inferred based purely on form without the context unit in which the words appear. This likely contributes to the inaccuracy of intended meaning of the words (Milne and Adler, 1999; Holland and Foo, 2003; Linsley and Shrivs, 2006; Steenkamp and Northcott, 2007; Abhayawansa and Abeysekera, 2009).

These problems with the choice of words as recording units can be partly resolved by using sentences (Hackston and Milne, 1996; Milne and Adler, 1999). This can be justified on the basis that sentences allow more precise meanings to be inferred than words (Carney, 1972; Gray et al, 1995a; Milne and Adler, 1999; Linsley and Shrivs, 2006). Milne and Adler (1999) and Hackston and Milne (1996) suggested that sentences provide complete, reliable and meaningful units of data for further analysis. However, a problem with the use of sentences as recording units is the presence of multiple categories of information in a single sentence (Holsti, 1969; Weber, 1990; Beattie and Thomson, 2007; Steenkamp and Northcott, 2007; Abhayawansa and Abeysekera, 2009). To code information in a single sentence to more than one category would be a contradiction to the principle of mutual exclusiveness. In these circumstances, difficult and semi-subjective judgements have to be made as to which category dominates the sentence and this may eventually distort the reliability of data captured. Additionally, sentences vary in length, depending on grammatical choice and stylistic variation (Unerman, 2000). A sentence of information made of three words should not be

weighted equally as a sentence made up of twenty words because the different number of words may denote the difference importance attached to the information.

Paragraphs may be the preferred recording units whenever effort and time are significant constraints (Weber, 1990). Guthrie et al. (2004) and Guthrie and Abeysekera (2006) suggested that the use of paragraphs as recording units is a more appropriate method for drawing inferences about information contained in text than words or sentences. This is because meaning is commonly established at the level of paragraphs.

However, taking paragraphs as recording units also poses some problems. Firstly, the presence of lists of points violates the typographical conventions of paragraphs (Steenkamp and Northcott, 2007). Secondly, as with sentences, the paragraphs sometimes do not lend themselves to classification into single categories (Holsti, 1969). Since multiple categories of information may be more commonly found in larger units of text, the use of paragraphs as recording units could potentially exacerbate the problems of mutual exclusiveness (Holsti, 1969; Beattie and Thomson, 2007).

It was decided, when designing this research, that the use of units of themes or clauses was the most helpful in resolving the problems implicit in other recording units. Carney (1972) viewed the theme as a conceptual entity which can be seen as a coherent whole. The theme is also referred to an assertion about subject (Berelson, 1952; Holsti, 1969). Assertions about subjects in texts are not confined to specific syntactical units such as sentences or paragraphs. An assertion about a single subject may lie in several articulated sentences or paragraphs, which depend on where the discussion about that subject begins and ends (Campbell and Rahman, 2010). This method provides researchers with a means to respond to nuances of meaning without being restricted by the presence of syntactical units. In cases where multiple categories do exist, the text can be broken down into any size according to the number of categories (Holsti, 1969, Zhang and Wildemuth, 2009, Beck et al., 2010). A practical example with the theme as units of recording is presented in Chapter 6.

5.5.4 Systems of counting information

Quantitative content analysis requires recording units to be appropriately counted (Riffe et al., 2005). In the literature on corporate disclosure studies, two main forms of

counting information can be found. The first involves a check to establish whether a certain category of information is there or not (Carney, 1972; Abhayawansa and Abeysekera, 2009). This approach, which is also characterised as the ‘virginity principle’, ‘appearance approach’ or ‘non-frequencies method’ of counting information is based on information presence or absence in the text (Carney, 1972; Krippendorff, 2004; Riffe et al., 2005). This approach has largely been employed in studies using disclosure indices (e.g. Coy et al., 1993; Boesso and Kumar, 2007). Here, the count stops as soon as the information items are found. In other words, information items are counted only once although they may appear more often (Abhayawansa and Abeysekera, 2009). Since the examination and counting for similar items of information is not repeated, the total amount of information items recorded must be equal to or less than the total number of pre-defined information items.

Beattie and Thomson (2007) challenged the use of the appearance approach to evaluate disclosure performance, arguing that it goes against the fundamental premises of content analysis. Krippendorff (2004) and Riffe et al. (2005) argued that the importance attached to information is reflected by the *volume* disclosed. If information is deemed to be important to senders and receivers, it tends to be repeated in the text. Hence, a failure to record and count repeated information would not be capable of facilitating an analysis of the importance of particular information categories to the discloser (Beattie and Thomson, 2007). Similarly, Hackston and Milne (1996) warned that applying the appearance approach could be misleading as companies that disclose one piece of information are weighted equally to those who disclose fifty pieces of information (p.89). Instead, this method may be appropriate in detecting the range or variety of information only, but not its level of importance (Beattie and Thomson, 2007).

The second form of counting information is volumetric analysis, which has also been widely used to measure information (Holsti, 1969). Volumetric analysis not only captures the appearance of information but also measures the frequency of the appearance. Meanwhile, Krippendorff (2004) stated that volumetric analysis can refer to the number of times a particular phenomenon is mentioned or the number of chapters, pages and paragraphs in which it is mentioned, or the number of sentences devoted to it. Marston and Shrivs (1991) criticised volumetric analysis because it would capture the simple repetition of the same information if disclosed more than once in the sampling unit. However, the repetition of information may also signify the importance attached to

it (Krippendorff, 2004; Beattie and Thomson, 2007). In the similar vein, Abhayawansa and Abeyssekera (2009, p.302) mentioned that the importance of a particular item relative to others is interpreted by its total frequency count in the whole sample. Hence, counting the repeated information is considered a valid method capable of demonstrating the relative importance placed on particular information by the discloser.

In addition to an analysis of the qualitative characteristics of disclosure, this study employed volumetric analysis to count the occurrence IC information appearing in annual reports. Information was recorded and counted until entire sections of these documents were covered. The volumetric method was chosen on the grounds that it is a valid method of reflecting the concern, importance, attention or emphasis placed on the IC information. In discussing the findings of the study, the term of frequency (volume) indicates that every single appearance of that IC information would have been recorded and counted.

5.6 The reliability and validity of content analysis

In content analysis, subjectivity does exist in many decisions made throughout the process of recording and this, in turn, can affect the reliability of findings. Hence, it is important in any study using content analysis that appropriate measures are taken to enhance the reliability of data captured by addressing common content analysis sources of error. Requirements for the assessment for reliability and validity are discussed in great detail in content analysis text books (Holsti, 1969; Neuendorf, 2002; Krippendorff, 2004; Riffe et al., 2005) and have also been addressed in several studies of corporate disclosure (Guthrie and Parker, 1990; Milne and Adler, 1999; Bozzolan et al., 2003; Guthrie et al., 2004; Beattie and Thomson, 2007). Beattie and Thomson (2007) argued that reliability and validity testing were inadequately reported in many existing studies of IC disclosure.

5.6.1 Reliability

The question of reliability concern show the quality of data can be optimised (Riffe et al., 2005). Holsti (1969) stated that, to satisfy the requirements of objectivity, the measures and procedures used must be reliable (p.135). He furthermore defined 'reliable' as meaning that repeated measurement using the same instrument with a given

sample of data should yield similar results. Moreover, Krippendorff (2004) and Riffe et al. (2005) agreed that a reliable instrument of measurement is independent of time, events, places or persons. It must be consistent in producing the same results even if the analysis is undertaken in different time and by different coders.

The actions of coders and the measurement procedures used are major factors in determining the reliability of data (Holsti, 1969; Milne and Adler, 1999; Riffe et al., 2005). Skill, experience and insight in coders are able to enhance the reliability of data (Holsti, 1969) and this can be achieved by adequately training of coders (Harwood and Garry, 2003). Second, a clarity of procedures for recording and the use of well-defined categories can assist coders in achieving high levels of agreement in recording and this, in turn, enhances reliability (Holsti, 1969; Milne and Adler, 1999).

The literature generally considers three forms of reliability: stability, reproducibility and accuracy (Carney, 1972; Weber, 1990; Harwood and Garry, 2003; Wimmer and Dominick, 2003; Krippendorff, 2004). Stability refers the extent to which recording consistency could be achieved over time (Weber, 1990; Krippendorff, 2004). It is also referred to as intra-coder reliability, where the same coder achieves consistency of recording at different points in time (Wimmer and Dominick, 2003). The stability of recording by the same coder is assessed through a 'test-retest' mechanism where the same coder analyses the content of the same text more than once (Weber, 1990; Wimmer and Dominick, 2003; Krippendorff, 2004). Stability is then calculated based on the ratio of agreement between the first and subsequent recordings. Stability is low if intra-coder disagreement is significant, hence indicating the low reliability of the data.

Reproducibility is a stronger form of reliability than stability. It is a mechanism where different coders achieve agreement on the same text being analysed (Holsti, 1969; Weber, 1990; Wimmer and Dominick, 2003). Kassirjian (1977) referred to reproducibility as 'inter-judge reliability', measuring the percentage of agreement between several judges processing the same communication material. Krippendorff (2004) stated that reproducibility of recording is assessed through a 'test-test' mechanism. Here, two or more individuals, work independently of each other and apply the same recording instruction to the same recording units. Usually, a higher level of agreement between different coders is achieved if they significantly share understanding

in interpretation of meaning of given recording units (Weber, 1990; Krippendorff, 2004).

The strongest form of reliability is accuracy (Milne and Adler, 1999, Harwood and Garry, 2003; Krippendorff, 2004). This refers to the process of comparing recording results with a well-known established standard, if such a standard exists in the context of a given study (Milne and Adler, 1999; Harwood and Garry, 2003). Weber (1990, p.17) referred to accuracy as the extent to which the classification of text corresponds to a standard or norm. Accuracy of recording is assessed under 'test-standard' conditions. It refers to a process of comparing the performance of one or more data making procedures with performance of procedures that is taken to be correct (Krippendorff, 2004, p.215). Although accuracy is useful in monitoring the performance of coders against the standards (Harwood and Garry, 2003), in reality accuracy is difficult to achieve due to difficulty in obtaining standards of recording particularly in newly developed research. Thus, Krippendorff (2004) suggested that the assessment of accuracy is only appropriate in recording training or in situations where objective standards are readily available (which are rare).

Milne and Adler (1999) criticised previous studies for not explicitly addressing the issues of reliability. Beattie and Thomson (2007) also found little discussion and test evidence of the assessment of reliability in the literature on IC disclosure. It can be concluded that completely ignoring the issues of reliability demonstrates an inability of a study to ensure the quality of data. Consequently, this reflects badly on the credibility of the study and the reliability of the findings. The method of assessing reliability employed is discussed in Chapter 6.

5.6.2 Validity

Validity is a term used to describe the extent to which the measurement tool is actually measuring what it is intended to measure¹⁸ (Holsti, 1969; Kassirjian, 1977; Krippendorff, 2004). Neuendorf (2002) described it as demonstrating the interconnectedness between a conceptual definition and its measurement. Similarly,

¹⁸ Neuendorf (2002); Harwood and Garry (2003) Weber (1990) generally suggest two type of validity. Firstly, external or generalizability validity is where findings could be generalised to the population and confirm theory. Secondly, internal validity relates to the correspondence between a concept and a measure.

Weber (1990) and Harwood and Garry (2003) referred to validity as the representativeness of a category or variable to its abstract concept. The most common type of validity is ‘face validity’ which is the weakest form of validity but is still deemed sufficient for descriptive content analysis (Holsti, 1969). Face validity means that the measure makes sense or is plausible on the first face (*prima facie*) without having to give detail on attention (Krippendorff, 2004). For instance, it may make sense to measure the importance of certain information by its relative frequency.

5.7 Chapter summary

This chapter has reviewed the concepts, processes and relevant issues of content analysis in investigating text. The quantitative approach to content analysis stresses the use of systematic protocols, objective measures and the quantification of information. There are several advantages of content analysis and in principle the method is employed in this study because it is capable of examining historical documentary evidence found in company annual reports.

This chapter also briefly outlined the basic steps involved in analysing content and also discussed the main issues surrounding the method discussed in the literature. The process of content analysis normally includes three interrelated stages: the conceptualisation, operationalisation and data analysis and reporting. Furthermore, the generation of categories, unitisation and methods of counting information are common issues that significantly affect the findings. These issues need to be resolved prior that commencing the investigation of text. The chapter also demonstrated the importance of the reliability and validity of data in ensuring the credibility of the findings drawn. In summary, this chapter provided a theoretical insight into the development of the method used in this research.

Chapter 6. Method development

6.1 Introduction

Beattie and Thomson (2007) and Unerman (2000) criticised previous studies of corporate disclosure for not publishing the detailed aspects of methods employed which, in turn, made it impossible to understand exactly how the studies were conducted. Hence, this chapter clarifies the development of the method used in the present research. This allows the reliability and validity of the study to be examined to ensure the quality of data and the validity of findings. Furthermore, the clarity also facilitates replication of the method in future studies (Krippendorff, 2004).

This chapter is divided into five sections. Sections 6.2 and 6.3 discuss the construction of sub-categories of IC disclosure and its qualitative characteristics. Section 6.4 elaborates on the unitising process employed in this study. Section 6.5 briefly justifies the use of annual reports as the medium studied. The assessment of reliability is addressed in section 6.6 and the sampling method is clarified in the final section. Experience gained while conducting the pilot test of this research (which was later published: Campbell and Rahman, 2010) provides guidelines for the refinement of methods used in this study.

6.2 Constructing the IC sub-categories

The diversity of frameworks used to construct IC categories and sub-categories can make comparability between studies of disclosure problematic (Beattie and Thomson, 2007; Abhayawansa and Abeysekera, 2009). In order to increase comparability between studies, it is important to use a framework that has commonly been employed in disclosure of IC studies. This approach was also recommended by Carley (1993), who noted that the construction of information categories is usually based on those developed by previous researchers.

Sveiby's influential framework of IC (Sveiby, 1997) was applied for the first time by Guthrie and Petty (2000) in investigating IC disclosure in Australia. The framework then achieved mainstream acceptance and been regularly adopted in many subsequent studies of IC disclosure (see Appendix A). Over time, the consistent use of this

framework could explain its emergent validity in measuring IC information. The refinements and amendments that have been made from time to time have enhanced its exhaustiveness in capturing information on IC. Although the extent of modification differs between studies, most prior studies, following Sveiby (1997), divided IC into three main categories, namely: structural capital, relational capital and human capital.¹⁹ However, the number of sub-categories of IC slightly varies between studies. The use of this framework in the UK has been shown to be reliable by Striukova et al., (2008). Therefore, this same framework was applied in this study, albeit with modifications in certain areas.

Several modifications were made during the pilot study (Campbell and Rahman, 2010) and in the initial stage of final recording. Some new IC sub-categories were added in the final recording stage due to limitations noted in the pilot study, which focused only on a single retail company (Marks and Spencer). This meant that IC sub-categories not related to that sector were not identified. New IC sub-categories emerged during the final recording of annual reports, particularly in the banking and oil and gas companies. Those which were deemed to be important were included. The final sub-categories of IC used, were confirmed after the first twenty-five annual reports from companies in different sectors had been completely analysed. After which, no further sub-categories were added to the framework. All twenty-five of those initially coded annual reports were then reread and recoded according to the final set of sub-categories.

The following areas of modifications emerged after the pilot study and the initial stage of final recording:

- a) Patents, trademarks and copyrights were grouped under intellectual property;
- b) Information systems and information technologies were combined;
- c) The infrastructure category was renamed knowledge-based infrastructure, with the aim to focus on infrastructure that facilitates the production and use of knowledge instead of traditional infrastructure which only produces physical products;
- d) A product innovation category was added under structural capital;

¹⁹ Internal capital, customer/external capital and employee capital respectively are terms used synonymously for these categories.

- e) R&D was added to structural capital category as part of knowledge-gaining activities embedded in the companies;
- f) Financial relationships were reclassified from structural to relational capital category in order to reflect accurately the external nature of relationship;
- g) Market presence was added to the relational capital category, describing firms' ability to reach international market;
- h) Business collaboration, franchises, consortiums, alliances were combined to the business partnering category;
- i) Contract, agreement and licence were combined;
- j) Social capital was added to the relational capital category and was divided into community and environmental relationships;
- k) Relationships with other stakeholders were added;
- l) The work-related knowledge and competencies category was separated between employee and board of directors.

Table 6.1 shows the final framework of IC categories and sub-categories disclosure used in this study. IC information is divided into three broad categories and twenty-six sub-categories. The structural capital category consists of nine sub-categories, while the relational capital category consists of twelve sub-categories and the remaining five fall into the human capital category. The labelling of each category and sub-category facilitated the recording process. The indicative words and literature comments for each sub-category are shown but not limited in Appendix B. The example of IC sub-categories disclosure from various annual reports were reproduced and are presented in Appendix C.

Table 6.1 IC disclosure categories and sub-categories

Structural capital	Relational capital	Human capital
<ul style="list-style-type: none"> • Intellectual property • Corporate culture • Management philosophy • Management process • Technology • Product innovation • Information systems • Knowledge-based infrastructure • Research and development (R&D) 	<ul style="list-style-type: none"> • Financial relationship • Brands • Market presence • Customers • Distribution channels • Business partners/alliances • Suppliers • Licence/contract/agreement • Communities • Environmental • Other stakeholders • Corporate reputation/images 	<ul style="list-style-type: none"> • Employees • Training and development • Work related knowledge and competences (employees) • Work related knowledge and competences (board of directors) • Entrepreneurship

6.3 Recording for qualitative characteristics of IC information content.

Having decided on the categories and sub-categories of IC disclosure to be used, the next step was to develop categories of the qualitative characteristics of information. In this section, the relevant types of qualitative characteristics are discussed and categories constructed with the aim of answering the challenges addressed in chapter 5. Finally, the qualitative characteristics chosen are incorporated into twenty-six IC sub-categories in order to answer the fourth and fifth research questions as stated in Chapter 1.

Three types of the qualitative characteristics of information were considered relevant and important in capturing IC disclosure, as follows:

- Qualitative characteristic type 1: the nature of IC disclosure.
- Qualitative characteristic type 2: the timing orientation of IC disclosure.
- Qualitative characteristic type 3: the factuality of IC disclosure.

These categories are mutually inclusive in the sense that all these types of characteristics may contain in the same piece of information. While attempts to measure the first type of qualitative characteristic have been common in IC disclosure studies,

the second and third type have never been seriously examined before and are part of the original contribution of this thesis.

6.3.1 *Qualitative characteristic type 1: the nature of IC information*

The nature of IC information refers to whether information about IC is disclosed in qualitative or quantitative forms (Guthrie and Petty, 2000; Kang and Gray, 2011). Many studies that examined the nature of IC disclosure have found the prominent of qualitative forms. Guthrie et al. (2006) found that only 10% of IC information was disclosed in quantitative form. However, Beattie and Thomson (2007) found that quantitative information accounted for 51% of total information disclosures by Next Plc. A lower proportion of quantitative IC disclosure was also demonstrated in Marks and Spencer's annual reports between 1978 and 2008, comprising of 29% of total IC information disclosed (Campbell and Rahman, 2010).

Ax and Marston (2008) agreed that the disclosure in the form of quantitative and monetary data is the best indication of the importance placed on the information, since preparing quantitative hard data requires more resources than providing qualitative information. This argument has also been defended by Hasseldine et al. (2005) and Ernst and Ernst (1978) as cited in (Tsang, 1998) who believed that quantified information is the best signal of information as it reflects the actual activities and amount of efforts taken by companies. Similarly, Botosan (1997) and Milne and Chan (1999) found that quantitative disclosure had a stronger impact on capital markets and decision making by investors. Quantitative terms such as numerical and monetary measures are also considered to give more value to users (Raar, 2007; Kang and Gray, 2011). In another study, Hammond and Miles (2004) investigated the quality of environmental and social disclosure in the UK, and found that forty-six executives took a similar view, supporting the belief that numerical information is of a higher quality. Commenting on this issue, Kang and Gray (2011, p.116) stated that;

“While we believe that the use of numbers in disclosures should not automatically be considered superior to disclosure without numerical components, there is a longstanding argument that when corporation are able to put a number, either financial or non-financial, on the disclosed item, they are relatively sure of the value that such an item is adding to the corporation, and, subsequently, the disclosure should be considered of more importance than qualitative data.”

Due to the greater credibility of quantified information, previous studies have awarded higher scores to quantitative and monetary disclosures than to discursive types of information disclosed. (Brennan, 2001; Hasseldine et al., 2005; Vandemaele et al., 2005; Beattie and Thomson, 2007; Boesso and Kumar, 2007; Cordazzo, 2007; Gerpott et al., 2008; Striukova et al., 2008; An Yi and Davey, 2010; Kang and Gray, 2011). As indicated in Table 4.2, previous studies have varied in term of how they scored disclosures. Some studies applied a binary scoring system where 1 was awarded to qualitative and 2 to quantitative information (Bozzolan et al., 2003; Meca and Mertinez, 2005; Vandemaele et al., 2005; Oliveira et al., 2006). Meanwhile, other studies have used more than two levels of score, with, for example, a score of 1 being awarded for discursive terms, 2 for numerical terms and 3 for monetary terms (Guthrie et al., 2006; Striukova et al., 2008; Bezhani, 2010).

Nonetheless, the discrete classification between discursive, numerical and monetary in previous studies has arguably ignored the combination of all level of characteristics that may emerge in a single piece of information. For example, a single piece of IC information may include numerical and monetary terms simultaneously, giving rise to the problem of mutual exclusiveness. Therefore, it is important to establish a set of categories able to represent the mixed qualitative characteristics of type 1.

The terms used to describe the nature of IC information vary, and this can lead to confusion among content analysts. The terms ‘narrative’, ‘discursive’, ‘declarative’ and ‘qualitative’ have often been used synonymously to describe the same characteristic. Guthrie and Petty (2000) and Brennan (2001) used the term ‘discursive’ when commenting on unsatisfactorily performance of IC reporting in Australia and Ireland respectively. The term ‘declarative’ was used in Guthrie and Parker (1990). The term, ‘narrative’ was used by Striukova et al., (2008), An Yi and Davey (2010) and Schneider and Samkin (2008). *Inter alia*, others, such as Gerpott et al. (2008), Cordazzo (2007), Vandameale et al. (2005), Oliveira et al. (2006), Bozzolan et al. (2003), and Whiting and Miller (2008) preferred to use the term ‘qualitative’ when describing the non-quantified information (Table 4.2). Given these different terms, ‘narrative’ is adopted here as a suitable term to describe the story telling about IC. Narrative disclosure is assumed to include soft information or anecdotes, which differ from ‘hard’ information that normally contains quantitative data (Bjurklo, 2006).

Furthermore, in this research, the terms ‘numerical’ and ‘monetary’ are applied separately as opposed to the single ‘quantitative’ term as in Brennan (2001), Bozzolan et al. (2003), Whiting and Miller (2008) and several others. This separation is justified on the grounds that the monetary form is more credible than other numerical form as also preferred in Brennan (2001) and Boesso and Kumar (2007).

Table 6.2 presents the four levels of type 1 qualitative characteristics associated with four different scores. The lowest score is for ‘purely narrative information’ and the highest is for a combination of ‘numerical and monetary’ data. In the table, each category is accompanied by an operational definition and an example of information reproduced from one of the annual reports studied.

Table 6.2 Qualitative characteristics type 1: the nature of IC disclosure

Nature score	Operational definition of nature of IC disclosure	Example of disclosure
1	IC information was disclosed in purely narrative form. No numerical or monetary terms were included.	In a study by Corporate Research International, US consumers ranked BP’s convenience chains in the US as the best customer services. (BP annual report, 2006,p.28)
2	IC information was disclosed in narrative form and numerical terms were also included.	We have increased the number of our own brand lines available with over 1,400 value lines across our central European stores. In Poland, our 1,200 own brand products now account for over 14% of total sales. Over 95% of customers recognise value as unique Tesco range. (Tesco annual report, 2003, p.13)
3	IC information was disclosed in narrative form and monetary terms were also included	In 1989, our total expenditure on information technology was £506 million. Our continued success is dependent on the flexible use of information technology in support of business objectives. Over the years we have become expert in the use of technology for handling large volumes of transactions. (Barclays Bank annual report, 1989, p.8)

Table 6.2 Cont

4	IC information was disclosed in narrative form and both numerical and monetary terms were also included	Shell activities draw upon a research programme which cost £448 million in 1986 and was conducted in 13 laboratories around the world. The programme aims both to support current technological activities and to provide innovative options for the future. (Shell Transport and Trading annual report, 1986, p.1.9)
---	---	--

Note: Numerical references excluded the dates and years.

6.3.2 *Qualitative characteristics type 2: the timing orientation of IC information*

The qualitative characteristics type 2 refers to the time orientation of IC information disclosed. The so-called ‘temporal context’ (Kristandl and Bontis, 2007) is another important facet in reflecting the ‘quality’ of narrative information disclosure. It reflects both the forward-looking and backward-looking nature of information being reported. It has long been a source of criticism that the primary orientation of corporate disclosure is to report information on a backward-looking basis merely to satisfy the stewardship requirements of management (Ittner and Larcker, 1998; Lev and Daum, 2004; Aljifri and Hussainey, 2007; Bismuth and Tojo, 2008). This type of disclosure only focuses on how companies have obtained and employed resources in the past with little future-orientated information given which could give insights into how companies will be able to generate future revenues and cash flows (Bismuth and Tojo, 2008). Cumby and Conrod (2001) also mentioned that, with the knowledge economy increasingly in evidence, management and boards of directors’ demand for forward-looking of non-financial information, such as processes and activities capable of generating long-term value, would increase. In such a situation, historically-based financial information as traditionally embedded in financial reporting is arguably no longer adequate.

Aljifri and Hussainey (2007) defined forward-looking information as that which contains those details of current plans and future forecasts that enable investors and other users to better predict future financial performance. Such information reflects the capabilities of management to tackle critical issues or take advantages of emerging situations to plan and develop strategies for the future (Beretta and Bozzolan, 2008).

Incorporating forward-looking information into corporate IC disclosure could give rise to several benefits. Aljifri and Hussainey (2007) stated that the presence of forward-looking information in corporate disclosure influences the accuracy of forecasts and stock prices. Kristandl and Bontis (2007), for example, conducted a study on a total of 95 companies in the European Union and found that the relationship between the level of voluntary disclosure and cost of capital was not as straightforward as previous studies had assumed. This is because this relationship depended on the ‘temporal context’ in which the voluntary information was reported; in other words whether it was forward-looking or historical. The study found evidence that forward-looking information was negatively correlated with cost of equity capital. The conclusion drawn was that traditional financial reporting is not capable of reducing information asymmetries about future prospects. As a result, investors tended to increase the cost of capital in compensating for the absence of forward-looking information.

In another study, Flostrand and Strom (2006) investigated reports by analysts pertaining to the valuation relevance of 200 companies.²⁰ Based on 36 items of forward-looking and 34 items of historical information, it was found that reports by analysts contained significantly more forward-looking than historical information. Accordingly, it was concluded that forward-looking information was valuation-relevant and was used by analysts to assess the future prospects of companies. Meanwhile, Barron et al. (1999) examined the relationship between the quality of management discussion and analysis (MD&A) disclosure and analysts’ earnings forecasts. It was found that MD&A disclosure that contain forward-looking information about capital expenditure and operation influenced significantly the accuracy of analysts’ forecasts.

Previous studies have used different approaches to measuring the forward-looking nature of information. Kristandl and Bontis (2007) treated 19 items of information related to capital markets, intellectual capital, strategy and performance, as having forward-looking characteristics. Meanwhile, Flostrand and Strom (2006) employed categories suggested by the Jenkins Committee Reports where information assumed to represent a forward-looking perspective included management plans, opportunities, risks and measurement uncertainties. Aljifri and Hussainey (2007) and Hussainey and Eisa (2009), on the other hand, applied a grammatical approach in measuring

²⁰ Valuation relevance is defined as inclusion of the voluntary information in the analyst’s valuation process reports (Flostrand and Strom, 2006).

information of forward looking. Information that contained the simple future tense to express plans, actions and activities, was assumed to have forward-looking characteristics. More specifically, words such as ‘will’, ‘shall’, ‘anticipate’ and ‘plan’ were used as signifiers. This study also considered the narrative nature of IC information disclosure, and so it seemed appropriate to adopt the method used by Aljifri and Hussainey (2007) and Hussainey and Eisa (2009) in this study. Since it had the advantages of simplicity and straightforwardness, it was deemed to be the best method for dealing with disclosure narratives on various issues such as risk, sustainability, strategy and IC disclosure. A list of indicative words was used to signify forward looking characteristic embedded in IC themes recorded. These indicative words included ‘accelerate’, ‘anticipate’, ‘await’, ‘coming (financial) year(s)’, ‘coming months’, ‘confidence’, ‘convince’, ‘envisage’, ‘estimate’, ‘eventual’, ‘expect’, ‘forecast’, ‘forthcoming’, ‘hope’, ‘intend’, ‘likely’, ‘look forward’, ‘look ahead’, ‘next’, ‘novel’, ‘continue’, ‘optimistic’, ‘outlook’, ‘planned’, ‘predict’, ‘prospect’ and ‘will’.

Table 6.3 shows the operational definitions used in qualitative characteristic type 2 and also shows examples of forward-looking forms of IC disclosure. No forward-looking characteristics means that the IC information may either be backward-looking or neutral, and such type was given a score of 1. On the other hand, a score of 2 was given to IC information that displayed a forward-looking characteristic. Since this study is not ‘form oriented’, the presence of these indicative words alone does not necessarily result in the characteristic of forward-looking being recorded. It is important, rather, to ensure that the presence of the words is linked to IC themes²¹. If the presence of these indicative words did not relate to IC themes, then the information was not counted.

²¹ For example, forward looking information about cash flow and profit or any other non-IC information was not counted.

Table 6.3 Qualitative characteristics type 2: time orientation of IC disclosure

Scores levels	Indicative words	Operational definition	Example of disclosures
1	n/a	IC information containing no forward looking content	Listening to customers is central to club card development. Since the launch, the customer free phone (0800 591 688) has answered over half a million enquiries. (Tesco annual report, 1996, p.7)
2	Anticipate look forward, forecast, expect, look ahead, predict, prospect, outlook, etc.	IC information containing forward looking content	BP also announced plans to invest \$500 million over the next years to establish a dedicated bioscience research laboratory. The BP Energy Biosciences Institute (EBI) is planned to be the first of its kind in the world and to be attached to a major academic centre. (BP annual report, 2006, p.27)

6.3.3 Qualitative characteristics type 3: the factuality of IC information

The third type of qualitative characteristics is factuality, which refers to the ‘quality’ of information in terms of being factual rather than (merely) containing opinion or conjecture. Previous studies of IC disclosure have not differentiated between statements of fact, which can be proven or are provable, and the statements of perception, which only reflect managerial opinion, judgment and belief about the IC information being conveyed. Beattie and Thomson (2007) criticised previous studies for not explicitly mentioning whether statements based on perception were counted or not. In discussing about the quality of corporate reporting, Toms (2002) suggested that perception and rhetorical information are non-verifiable and thus should carry less weight than factual information. He also added that such information is usually disclosed in large quantity. Therefore, while it is believed that perception-based IC information is also important and relevant (Campbell and Rahman, 2010), the view is taken here that being able to differentiate between statements of fact or judgment can give insight into the credibility of companies in conveying IC information. Those companies that provide greater factually information are assumed to have more credibility than those providing more

perception-based information. This is because producing factual information normally involves more resources, is more prepared, presented with greater caution and sourced from, or verified by, external parties

Beattie and Thomson (2007, p.152) defined factual information as information capable of being verified while judgements or opinion-based information is unsubstantiated. Campbell and Rahman (2010, p.62) argued that factual information is typically expressed as something that actually happened or something that is expressed in a proven or verifiable manner. Conversely, perceptions are unverified but may possibly be verifiable. Santos and Garcia (2006, p.7) defined non-factual content as that which expresses perceptions or impressions. It also tends to be expressed in terms of awareness, beliefs, cognition, estimations or sense-making (Mezias and Starbuck, 2003, p.5). It is assumed that factual IC information refers to information that is proven or provable according to evidence that readers would believe to be true. This is in contrast to opinions or perceptions that are not backed up by evidence and are only perceived to be true by those who prepare the information, but not necessarily by readers.

There have been few studies that have investigated the factuality of IC information. Guthrie and Petty (2000) investigated the practice of IC disclosure in Australia and criticised companies for not seriously attempting to report on IC within a robust framework. They found that there was no attempt to turn rhetorical data into factual benchmark measures and that companies used their perception as opposed to verifiable quantified or dollar value data to explain the value of their IC. This situation reflected poor understanding, inadequate identification and inefficient managing of IC in the country. Guthrie et al. (2006) subsequently investigated IC reporting in Hong Kong also provided evident about rhetoric as opposed to reality in measuring and reporting IC.

Campbell and Rahman (2010) investigated the percentage of factual themes (clauses) of IC information disclosed by Marks and Spencer in annual reports from 1978 to 2008 and found a downward trend of its percentage overtime. The overall percentage of factual-based of IC information themes was only 23% while perception-based represented 77% of total IC themes. It was argued that the prominence of perception-based IC information was partly attributable to the complexity of IC information. Compared to physical assets, IC assets are, by their nature, sometimes more complex to describe in a factual manner.

As factual information brings greater ‘quality’ (Beattie and Thomson, 2007; Campbell and Rahman, 2010), it was weighted more highly than perception-based information in this present study. Table 6.4 provides the scoring scheme, operational definitions and examples of these types of information. Factuality is categorised on a binary basis of being either factual or perception-based. A score of 1 was assigned to IC information that was substantially characterised by the perceptions of management, whilst a score of 2 was assigned to IC information that was substantially disclosed in a factual manner. Factual information might be reported in a purely narrative manner or in quantified terms. Therefore, quantified information would not necessarily indicate its factuality.

The presence of quantified information must be interpreted within its context units in order to determine factuality. Importantly, words such as believe, feel, think, should, consider, deem, etc. serve as useful signifiers in identifying perceptions-based information. The excerpt in Example 1 below shows that quantified information is not necessarily factual. Coded as ‘managerial perception’ rather than ‘factual’, the example is typical of how managerial perception about employees is conveyed, in this case discussing the creation of success through the number of employees.

Example 1

‘Our successful performance in all aspects, result from the work of the 110,000 people in BP and leadership by John Browne and his team. Their experience, commitment, and creativity have shaped the success described in this report.’

(BP annual report, 2001, p.10)

Table 6.4 Qualitative characteristics type 3: factuality of IC disclosure

Score levels	Indicative words	Operational definition	Example of information
1	Believe, feel, thinks, should, consider, deem, etc.	The IC information was substantially management perception	We are also committed to training. These activities help our employees at all levels of the organisation to develop new skills and to meet the demands of restructuring and new technologies. (BP annual report, 1985, p.31)

Table 6.4 Cont

2	n/a	The IC information was substantially factual or verifiably factual.	We now have 297 convenience stores, trading under the brand Sainsbury's Local, Sainsbury's@Bells and Sainsbury's@Jackson. Last year we opened 20 stores. (Sainsbury annual report, 2006, p.20)
---	-----	---	---

6.4 Unitising

The primary concern of this section is to establish practical recording and context units for this study. More specifically, the disadvantages of using words, sentences and paragraphs in capturing of IC information are reviewed here. The practicality of themes/clause and the role of context units are also addressed.

Context units are important in deciding which sub-categories to code IC information into, it disclosures must be understood according to the context units in which they occur. Since the context units are the same as, or are larger than, recording units, it is helpful to determine the accurate meaning of IC in the information being conveyed (Holsti, 1969, Krippendorff, 2004; Riffe et al., 2005; Steenkamp and Northcott, 2007). The paragraph was used as the context unit in this study since, according to Guthrie et al. (2004) and Guthrie and Abeysekera (2006), meaning is most commonly established within a paragraph.

Furthermore, one of the reasons why words are less capable of inferring meaning is that words are capable of interpretation without context. As a word is usually taken as it is, the actual meaning of message in which the word appear cannot be captured (Milne and Adler, 1999; Beattie and Thomson, 2007). This problem was identified in the pilot study (Campbell and Rahman, 2010) as shown below.

Why ask two manufactures to make nearly identical sweaters? Now we use one and avoid duplication. Why buy t-shirt cotton separately for ladies, mens and childrenswear? Now we use one fabric supplier and save millions of pounds a year. Why have ten managers approve a collection and why maintain five layers of interface with a supplier? Now we've cut overheads to make swifter decisions.

Marks and Spencer annual report, 2006

At a glance, the information in this excerpt is likely to be conveying a message about relational capital because of instances of the word ‘supplier’. If words were taken as the recording unit, two pieces of information in the ‘relations with suppliers’ sub-category would be recorded. Nonetheless, the context (paragraph) where the words appear does not permit the message to be interpreted as conveying about ‘relationship with suppliers’. Rather, when read within context, the word of supplier is more accurately understood as conveying a message about the ‘management processes’ (this being another sub-category) of buying from suppliers in order to enhance efficiency and cut costs. It is evident, the, that words are less reliable in capturing the meaning of a message since their significance can be inferred out of context.

Some have argued that the problem of using words as recording units can be addressed by using sentences instead (Carney, 1972; Gray et al., 1995a; Milne and Adler, 1999; Bozzolan et al., 2003). Employing sentences as recording units can, however, lead to the problem of double-recording because many categories of information may exist in a single sentence, as exemplified below.

We will continue to expand our franchise operation overseas, where the M&S brand is well known and popular.

Marks and Spencer’s annual report, 2006

In this excerpt, two different categories of IC information can be identified in the sentence. Franchise operations fall under the ‘business partner’ sub-category but the ‘brand’ sub-category is also mentioned. If this sentence was taken as a single recording unit, it could be classified either into the business partner or brand categories. A subjective judgment would have to be made to select the dominant category (Beattie et al., 2004; Beattie and Thomson, 2007). Furthermore, allowing the sentence to be broken down into two separate categories would violate the principle of mutual exclusiveness.

The use of paragraphs as recording units is relatively uncommon, and for good reason. This would also challenge the requirement for mutual exclusiveness (Holsti, 1969; Beattie and Thomson, 2007). The excerpt below indicates a paragraph conveying more than one sub-category of IC information.

The supply chain was one of the original strengths of Marks and Spencer and the foundation from which we developed our 100% own brand policy. We have been driving efficiency in this area and as reported in previous years, to remain competitive, we have been working with our suppliers to relocate much of our manufacturing abroad and consolidate our supply base. This work, overtime has enabled us to offer our customers a combination of better quality products, delivered faster to market at lower cost, in that order of priority.

Marks and Spencer's annual report, 1998

This paragraph is clearly about relational capital categories. However, a problem arose in categorising it into sub-categories of relational capital. More than one sub-category of relational capital appears in the paragraph: the supply chain (distribution channel), relationships with suppliers and customer satisfaction. It is very difficult to select the dominant sub-category. Evidently then, like sentences, paragraphs are not an appropriate recording unit to due to the problem of multiple categories.

Due to these problems with words, sentences and paragraphs, it was decided that themes or clauses would be used as the recording unit in this study. The recording by themes/clauses resolves problems of mutual exclusiveness and at the same time allows for the accurate inference of meaning. A theme does not exist in a word, sentence or paragraph but its existence rather lies between the beginning and end of a discussion without being restricted to punctuation. Themes may exist across several words, one or more sentences or even in a whole paragraph. If a theme is presented in small number of words, it is recorded as effectively as if it were an entire paragraph (Beck et al., 2010).

By ignoring punctuation, the existence of multiple categories can be solved by clustering information into different pieces, and recording them into the most relevant sub-categories. The words, *'we will continue to expand our franchise operation overseas'* (the first theme in the example given above), were classified in the business partnering category, while the words, *'where the M&S brand is well known and popular'* was classified into the 'brand' sub-category. Although this method poses practical challenges and is more difficult to administer, having clear rules for dealing with ambiguities as well as adequate training of the coder can minimise the risk of unreliable recording.

Finally, despite their significance (Unerman, 2000; Beattie and Thomson, 2007; Hooks et al., 2010), non-narrative items such as charts, tables and photos were excluded from the present analysis due to the complexity of their interpretation (Wilmshurst and Frost,

2000; Guthrie et al., 2004; Hooks et al., 2010). Moreover, Li et al. (2008) found that most IC disclosure in the UK was presented in the form of text rather than visual images. The present study, however, included the analysis of textual captions attached to photograph/pictures.

6.5 Media selection: annual reports

While it is acknowledged that other kinds of corporate documents may be important (Craven and Marston, 1999; Bukh et al., 2005; Flostrand, 2006; Cordazzo, 2007; Gerpott et al., 2008; Striukova et al., 2008; Abhayawansa and Abeysekera, 2009; Rimmel et al., 2009; Branco et al., 2011), company annual reports were used in this study as a source of longitudinal evidence on IC disclosure for the following reasons.

Firstly, due to mandatory requirements, annual reports are the only type of document produced on a regular basis (Hooks et al., 2002; Campbell, 2004; Aljifri and Hussainey, 2007; White et al., 2007:2010; Campbell and Rahman, 2010). These reports are also considered to be influential sources of information for various stakeholders.

Furthermore, annual reports can be used as single proxy for a wider range of corporate reporting intent given that amount of disclosure in annual reports have been shown to be positively correlated with other media (Bozzolan et al., 2003; Aljifri and Hussainey, 2007). Gerpott et al. (2008), for instance, demonstrated that IC disclosure in annual reports and websites were positively correlated.

Secondly, Campbell (2004) and White et al. (2007) stressed that, apart from the audited financial sections, information in annual reports are prepared with a high degree of discretion and are editorially controlled by company management. Hence, management concerns, interests, attitudes and policies are thought to be well-reflected in annual reports, and it is this assumption that provides the avenues for empirical studies (Abeysekera and Guthrie, 2005). Furthermore, Aljifiri and Hussainey (2007) contended that the standard format of the annual report, as opposed to less formal communication documents such as press release or reports by analysts, facilitate comparison across companies. Furthermore, annual reports are published regularly, on time and consistently in comparison to other documents such as IPOs that are normally published on an intermittently basis (Campbell and Rahman, 2010) or websites where contents

change rapidly (Adam and Frost, 2004; Striukova et al., 2008; Campbell and Rahman, 2010).

Thirdly, a convincing argument for selecting annual reports for analysis, when investigating IC disclosure over lengthy periods, was advanced by Campbell (2004) and Campbell et al. (2006). Because the aim of the study is to examine IC disclosure longitudinally, it is necessary to analyse documents capable of recording and retaining historical detail. The use of websites or IPOs would not serve the purposes of this study due to their irregular and intermittent production. Therefore, annual reports were identified as the most appropriate documents to retrospectively capture IC disclosure over lengthy periods. Furthermore, employing annual reports also offer the advantage of maintaining consistency with the majority of previous studies on IC disclosure (Davey et al., 2009). In obtaining the annual reports used, various sources were accessed such as the archives held in Northumbria and Newcastle Universities, at UK Companies House and on the websites of the companies themselves.

6.6 *Locations covered in the annual reports*

The sections within annual reports covered in previous studies of IC disclosure have varied. The studies by Boekestein (2006), Yongvanich and Guthrie (2005), Davey et al. (2009) and Kamath (2008) gave no indication of which sections were analysed. Other studies looked at voluntary sections (Abeysekera and Guthrie, 2005; Schneider and Samkin, 2008). Abeysekera (2006) and Beattie and Thomson (2007) warned that the comparability of findings between studies could be diminished if the sections of annual report analysed are not explicitly stated. This is because of the number of sections analysed will affect the volume of disclosure recorded. It is therefore important to state which of the report sections were examined in this study so that valid comparison between studies can be made. This study looked at:

- The chairman's statement or letter from the chairman
- Chief executive reviews
- Directors' reviews, directors' report, board of directors sections
- Financial overview and commentaries or similar pages
- Operational reviews and highlights or similar pages

- Textual captions to photographs
- Corporate governance reports
- Outer and inner cover pages
- Remuneration reports

The sections that were ignored were:

- Financial statements
- Notes to financial statements
- Summary of accounting policies
- Auditor's report

6.7 Reliability

Reliability is a vital quality of any instrument used in content analysis. Milne and Adler (1999) and Beattie and Thomson (2007) noted that few prior papers in corporate disclosures studies commented on this important quality. Failure to acknowledge issues or tests of reliability may be explained in two ways; perhaps no such test was conducted and thus there was nothing to report, or perhaps the tests were conducted but were not reported owing to word limit restrictions imposed by journals (Mckinnon, 1998; Beattie and Thomson, 2007). However, it is important to discuss reliability issues in studies adopting content analysis.

It has been found that discussions of reliability do not appear in the majority of previous IC disclosure studies (e.g. Brennan, 2001; Abeysekera and Guthrie, 2005; Bukh et al., 2005; Meca and Mertinez, 2005; Vandemeale et al., 2005; Cordazzo, 2007; Lee et al., 2007; Bruggen et al., 2009; Davey et al., 2009; An Yi and Davey, 2010). Only a handful of studies conducted and reported the result of reliability tests, for example, Bozzolan et al., (2003), Boesso and Kumar (2007), White et al., (2007) and Li et al., (2008).

Li et al., (2008) conducted reproducibility and stability tests to ensure reliability between different coders. Reproducibility was achieved with the Krippendorff alpha value of 0.80. In order to increase the reliability through stability testing, the same ten annual reports (analysed by Li et al., 2008) were re-analysed three months after the initial study,

resulting the standard of stability of 0.90. Boesso and Kumar (2007) also conducted accuracy, reproducibility and stability tests. Accuracy was tested to ascertain whether or not the recording deviated from the standards and the resulting alpha value of 0.87 exceeded the minimum standard suggested by Krippendorff. Reproducibility was assessed to confirm inter-coders agreement, and the results also exceeded Krippendorff's acceptable limits. Meanwhile, the result for stability was 0.97, which showed consistency in recording within coders.

Other IC disclosure studies have ascertained reliability based on cruder techniques. In some studies, after recording disagreements were identified, coders agreed in principle to revise the recording rules and reach shared understanding before the final recording was set (e.g. Abeysekera, 2007; White et al, 2007; Guthrie and Petty, 2000; Striukova et al., 2008). No specific reliability test was undertaken in these cases to prove any minimal standard of reliability. For example, Guthrie and Petty (2000, p.245) merely stated that a second researcher independently confirmed the recording of the first. Likewise, Striukova et al. (2008) mentioned that the second coder only checked the recorded information from the first coder at random and the final recording proceeded since no substantial differences were found.

Whilst tests of reliability can enable claims to be made of the robustness of a given study, a lack of reported tests should not necessarily undermine the value of other studies. It is widely believed by content analysts that the robustness of a content analysis instrument is not entirely dependent on how many people agree on the meaning of the messages being recorded. It is also partly dependent on the robustness and clarity of the rules of recording. According to Milne and Adler (1999), reliability tests involve two different aspects. Firstly, reliability can be achieved if inter-coder variance in recording similar information is minimal. Secondly, reliability is also associated with the coding instrument itself. Having properly specific rules of disambiguation and categorisation in recording could be an alternative to the test of inter-coder agreement. The latter seems an important criterion for studies involving single coders or where inter-coder tests are not possible. Similarly, Guthrie et al. (2004) also tended to rely more on robust instruments to achieve reliability rather than conducting inter-coder tests.

Since of necessity (being a component of a research degree by the author) the present study involved a single coder, no inter-coder reliability test could be conducted.

Therefore, it was decided to increase reliability by: (i) conducting stability tests to check differences in recording at two points in time; and (ii) to establish a clear and specific recording scheme. Firstly, during the initial stage of final recording, an annual report of BP was re-recorded two weeks later to test the stability of recording. All of the information recorded in the first and second round of recording was transferred to coding sheets. The data were compared and no substantial difference was identified in the two rounds.

Secondly, a specific coding scheme was established during the pilot test (Campbell and Rahman, 2010) and this was improved again during the recording of first 25 annual reports in the final coding. The present author and research supervisor co-operated to establish a clear categories construction, recording instructions and rules of disambiguation. The supervisor double-checked the recording to confirm that the decision rules were followed. The reliability of this study was assumed to have been reasonably assured by the following rules:

- i) The indicative terms for each IC category were derived from literatures in order to achieve validity of recording. It is of utmost important to ensure the study measures what it was intended to measure (see Appendix B).
- ii) The recording sheets were user-friendly and well-organised. They contained multiple columns to allow for the investigation of multiple variables such as IC categories, IC sub-categories and qualitative characteristics types 1, 2 and 3. Each sheet was headed with the name of company, the financial year of the annual reports and the total of themes coded. This was important for later double-checking (see Appendix D).
- iii) The procedure for recording was designed with clarity. In general, recording involved reading between the lines. This means that prior and subsequent sentences and paragraphs were also read in order to establish the closest meaning of themes. The main IC categories were first recorded, followed by IC sub-categories. The final recording was of qualitative characteristics types 1, 2 and 3. In the sheets, all variables were represented by 5 identification label/number (see Appendix D and E).
- iv) The data from recording sheets were transferred on computer immediately upon completion (to reduce the likelihood of loss or damage to the sheets).

- v) Rigorous familiarisation with the instrument was undertaken, by the author, during the pilot study of 31 Marks and Spencer annual reports.
- vi) In order to reduce coder fatigue which could reduce reliability (Riffe et al., 2005), the amount of recording per day was limited, on average, to one annual report. It took approximately 6 months to accomplish the recording total of 210 annual reports.

6.8 The sample

The selection of sample companies in integrated longitudinal and cross-sectional studies such as this one can be complicated. Given time and energy constraints, it is important, therefore, to fix in advance a representative number of companies and time frames. In particular, employing large samples over a lengthy period would enhance the representativeness of the sample. However, it is costly and time consuming and in most cases (including this study) an element of compromise is necessary. Whether a small size of sample over a lengthy period is used, or the other way around, is a matter of judgment (Campbell, 2004). This section therefore is dedicated to discussing the judgement of selecting the number of companies and time frame in this study.

Many studies have demonstrated size effects in disclosure studies (Meek et al, 1995; White et al., 2007; Branco et al., 2011). The assumption has often been made that selecting annual reports from large companies is necessary in order to control for these size effects, so that amounts of disclosure can be explained by other factors measured (Campbell, 2004; Abdolmohammadi, 2005; Campbell et al., 2006). In addition, selecting large companies could allow comparison with other studies investigating companies of similar size (Oliveras et al., 2008). In the UK, companies listed in the FTSE100 are often assumed to be 'large' companies and this study made the same broad assumption (Campbell, 2004). At the end of 2008 (when this study commenced) membership of FTSE100 was identified via DataStream in order to initially select prospective sample companies. The availability and accessibility of annual reports, particularly for the financial period prior to the year 2000, was the main criterion for filtering FTSE 100 members.

In order to investigate the inter-sectoral effects on IC disclosures, companies were selected from various sectors. In initial selection, 22 companies across different sectors

were identified from the membership of FTSE100 as shown in Table 6.5. These were selected based on contiguous membership of the FTSE 100 between 1974 and 2008.

Based on the membership list in Table 6.5, an initial search was conducted in order to identify the availability of annual reports for the time frame between 1968 and 2008. The financial year of 1968 was chosen because it was the earliest periods of annual reports were stored in the electronic database at UK Companies House. A manual and electronic search was conducted in the annual reports archive of Northumbria and Newcastle Universities, various websites and the Companies House database. It was found that many annual reports were not all available, thus necessitating the removal of that company as a candidate for the final sample. At the end, a total of 210 contiguous annual reports from 1974 to 2008 of 6 companies were successfully obtained as shown in Table 6.6. The year 1974 was selected because it is the earliest year where the contiguous years of annual reports was obtainable. Based on prior longitudinal content analysis studies in the same genre, this sample was considered sufficiently representative to be used for meaningful longitudinal and cross-sectional examination.

Table 6.5 Initial list of samples

	Company names		Company names
1	Barclays Bank Plc	12	Prudential
2	Unilever	13	Rio Tinto
3	AVIVA	14	Royal Bank of Scotland
4	Anglo American	15	J Sainsbury
5	British Petroleum (BP)	16	Tesco Plc
6	British Land Company	17	Wolseley
7	Bunzl Plc	18	Lloyds TSB
8	Cadbury UK	19	BHP Billiton
9	Land Securities	20	Standard Chartered
10	Legal and General	21	Royal Dutch Shell *
11	Old Mutual	22	Rio Tinto

*Formerly known as Shell Transport and Trading

Table 6.6 Final sample of 6 companies

Sector/Companies	Abbreviation	No. of annual reports
Oil and gas sector		
1) British Petroleum	BP	35
2) Shell Trading and Transport	Shell	35
Retail and drug sector		
3) Tesco Plc	Tesco	35
4) J Sainsbury Plc	Sainsbury	35
Banking and finance sector		
5) Barclays Bank	Barclays	35
6) Lloyds TSB Bank	Lloyds	35
Total		210

There was a potential bias in the sample from two potential sources: size effects and sample bias. First, this study did not select any smaller companies for its analysis. This was to control for size effects (size was not intended to be independent variable). Also, the sample would allow for more useful and valid comparison because most of the previous similar studies tended to employ large companies only. The inclusion of large companies in the previous study of corporate disclosure was based on broad assumption that large companies are more visible and are thus more exposed to political costs (Bozzolan et al., 2006).

Second, many knowledge-based companies such as information technology companies, biotechnology companies, fashion companies, services companies, pharmaceutical companies etc. were excluded in the sample. This limited range of sectors could give rise to a possible bias in terms of sectoral variety of IC disclosure that may exist in other sectors not included in this study (see section 3.10). However, it is reasonable to argue that the nature of longitudinal study makes the trade-off between longitudinal focus and breath of sectors acceptable (Campbell et al., 2006). Therefore, in this study a broader range of sectors (other than three sectors in the final sample) must be foregone in order to increase the effectiveness and validity of the data collection.

In addition, other constraints applied to the data collection. The start date of 1974 was chosen because this was the year in which contiguous years of annual reports became

obtainable. Many companies did not meet this criterion and these were necessarily excluded from the sample. In addition, there may have been fewer technology-based companies in the 1970s and 1980s and so selection of such companies would be problematic at that time.

6.9 Chapter summary

This chapter has discussed the development of the method used in this study including aspects of categorising, unitising, sampling and issues of reliability. In allowing for comparison between studies, it was decided to employ a method based substantially on the widely adopted IC framework developed by Guthrie and Petty (2000). This framework comprises three main categories and twenty-six sub-categories of IC. There are nine sub-categories of structural capital, twelve sub-categories of relational capital and five sub-categories of human capital. Once the IC categories had been decided, the next step was to develop a list of the qualitative characteristics of IC information. Three types of qualitative characteristics of IC disclosure were identified *viz.* the nature (type 1), time orientation (type 2) and factuality of information (type 3).

The chapter then addressed the development of practical units of recording. Providing resolution to infer meaning is limited to the levels of words, sentences and paragraphs, it was therefore determined that themes were used as recording units and paragraphs as context units. The use of themes was preferred due to its capability of allowing the inference of meaning beyond the limits of punctuation as well as resolving problems of double categories. Annual reports were used as sampling units as opposed to other corporate media, principally on the grounds that they are the only media which record and retain historical details. No stringent reproducibility test was conducted in this study due to the absence of multiple coders. The reliability of this study was assured, as far as possible, through the setting of clear rules for disambiguation and an assessment of stability.

Finally, a total of 210 annual reports published across 35 years (1974-2008) were sampled from FTSE100 companies. The annual reports were from 6 companies from 3 sectors: the oil and gas sector (BP and Shell), retail and drug sector (Tesco and J Sainsbury) and the banking sector (Barclays Bank and Lloyds TSB Bank). The sample

of 35 annual reports from each of 6 companies, is considered sufficiently representative for the examination of longitudinal and cross-sectional effects in IC disclosure.

Chapter 7. Findings and discussion

7.1 Introduction

Following the presentation of the method development in chapter 6, this chapter presents and discusses the analysis of the volumetric and qualitative characteristics of IC information disclosure in 210 annual reports from 6 companies between 1974 and 2008 inclusive. Also in this chapter, the main contributions of this study, particularly on the changing role of the annual report in responding to the change in the economic context from traditional to the knowledge economy is highlighted. In general, the main contributions of this study are twofold: firstly, the IC information disclosure was found to vary according to time and sector; and secondly, the study provides insights into the qualitative characteristics of ICR rather than merely reporting on volumetric variability.

The findings and discussions of this study are summarised into eight main key findings as shown in Table 7.1. The supplemental data to these key findings can be found in tables and figures in appendices. The key findings summarised in this chapter are considered to be capable of answering the research questions that were put forward in Chapter 1 (section 1.4). The next paragraphs overview the findings and these are then followed by a discussion of the key findings.

Table 7.1 Summary of key findings

No.	Key findings and/or contribution of this study
1	An overall longitudinal increase in the volume (frequency) of IC disclosure themes and a particularly marked increase since the late 1980s.
2	A disproportionately higher representation of information concerning RC over other categories of IC information and marked increase in RC since the mid 1990s.
3	Longitudinal sub-category analysis revealed changes in the relative proportion of IC sub-categories over time. Some sub-categories were frequently disclosed in all periods whilst others varied over time (all companies).
4	There were marked sectoral effects in the proportions of the IC sub-category information disclosed.
5	There were marked longitudinal and sectoral effects in brand information disclosed.
6	IC disclosure was substantially narrative in nature, demonstrated a slight proportionate longitudinal increase in forward-looking characteristic, with the majority of disclosure being factual rather than opinion.
7	The qualitative characteristics of IC information varied by sub-category.
8	No single theory adequately explains the observed behaviour. The appropriateness of existing theories to explain the finding of this study are limited and rest in part upon the level of analysis.

7.2 Findings overview of IC information disclosure of all companies

The descriptive analysis in Table 7.2 presents a broad view of the findings for all six companies gathered from 210 annual reports from 1974 to 2008. A total (all companies, all years) of 16,461 themes related to IC were found, at an average of 78.38 themes per annual report. The lowest frequency of themes in an annual report was 8 and the highest was 227. From the total of 16,461 themes (all companies, all years), 3,643 concerned SC information (average 17.35 themes per annual report)²², 8,152 concerned RC (average 38.82 themes per annual report) and 4,666 concerned HC (average was 22.22 themes per annual report).

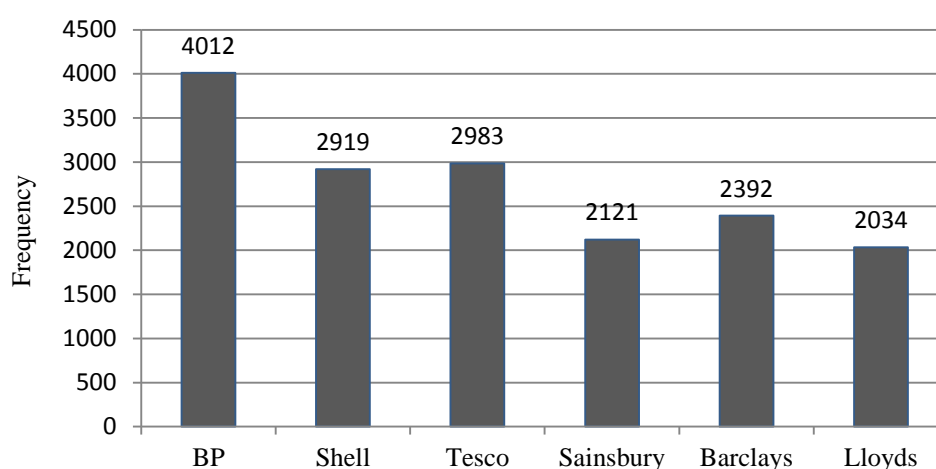
²² Total themes divided by number of annual reports, 210, for all companies, all years.

Table 7.2 The overview of findings by all companies (all years)

	Total	mean	min	max
No. of annual reports	210	-	-	-
No. pages in annual report	17,185	81.83	20	325
Frequency of IC themes	16,461	78.38	8	227
Frequency of SC themes	3,643	17.35	0	69
Frequency of RC themes	8,152	38.82	1	128
Frequency of HC themes	4,666	22.22	1	52

Figure 7.1 displays the total frequency of IC information disclosed by each company over the 35 years (see Appendix G). The highest frequency of IC information (all years) was found for BP, accounting for 4,012 themes or 24.8% of the total of all companies. Tesco ranked second highest, disclosing 2,983 themes (all years) or 18.12% of the total and then Shell, with 2,919 themes (all years) or 17.73% of the total. Barclays was ranked fourth with a disclosure frequency of 2,392 themes (14.53% of the total). Sainsbury only recorded 2,121 themes (14.53%) and the lowest frequency was recorded for Lloyds which disclosed 2,034 themes (12.36% of total). In term of IC reporting volume, BP was top performer while Sainsbury was least performer.

Figure 7.1 Total frequencies of IC disclosure themes (all years)

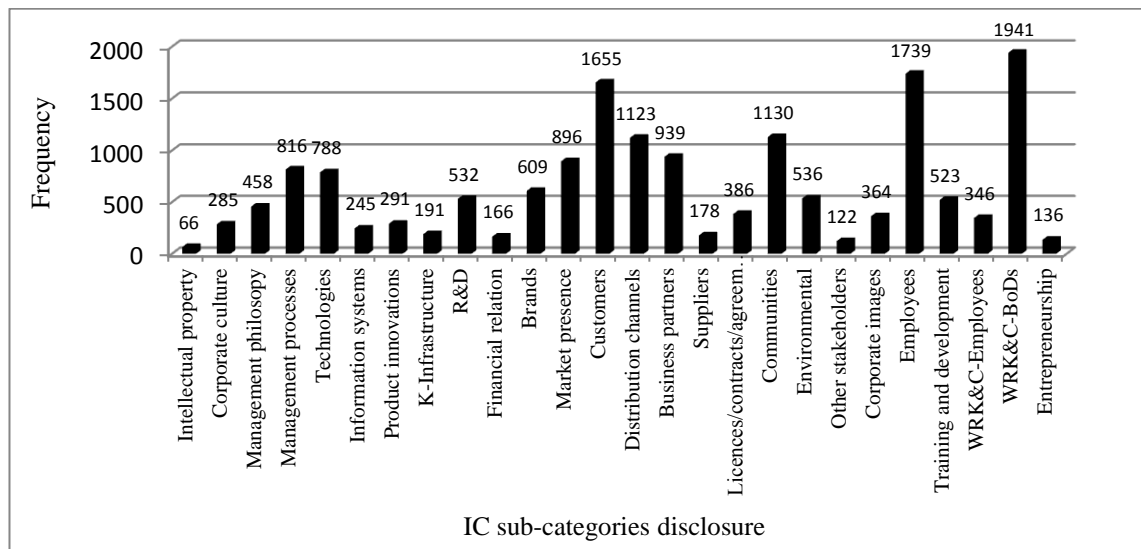


Meanwhile, Figure 7.2 illustrates the frequencies of IC disclosure and its percentages in the twenty six sub-categories for all companies (percentage figures are omitted in Figure 7.13, see Appendix H).

Based on the total of 16,461 IC themes disclosed by the six companies for all years, the most popular information concerned board of directors' work-related knowledge and competences (WRK&C-BoDs) which made up 11.8% (1,941 themes) of total IC themes. General information about employees was ranked second (1,739 themes or 10.6% of the total) followed by customer information (10.1%; 1,655 themes). The information on communities and distribution channels from the RC category received very similar shares of 6.9% (1,130) and 6.8% (1,123) of total themes respectively. The fifth and sixth highest ranking sub-categories of disclosure were also from the RC category; business partners (5.7%; 939 themes) and market presence (5.4%; 896 themes). Within the SC category, information about management processes and technologies received more attention, with frequencies of 816 (5%) and 788 (4.8%) respectively of total themes.

Moderately popular sub-categories concerned brand (3.7%; 609 themes), environment (3.3%; 536 themes), R&D (3.2%; 532 themes), training and development (2.2%; 523 themes), management philosophy (2.8%; 458 themes) and contracts (2.3%; 386 themes). Meanwhile, the lowest frequencies of IC sub-categories recorded accounted for less than 2%, such as information about intellectual property (0.4%; 66 themes), other stakeholders (0.7%, 122 themes), financial relationships (1%, 166 themes), entrepreneurship (0.8%; 136 themes), corporate culture (1.7%; 285 themes), IT/IS (1.5%; 245), suppliers (1.1%; 178 themes) and k-infrastructure (1.2%; 191 themes).

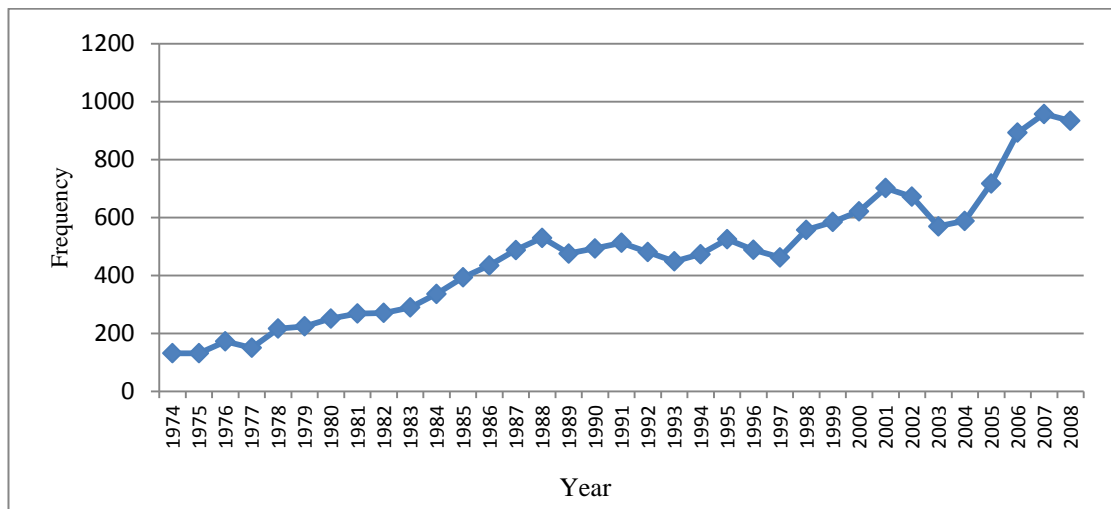
Figure 7.2 Frequencies of IC disclosure by sub-categories (all companies, all years)



7.3 Key finding 1: an overall longitudinal increase in the volume of total IC disclosure, 1974-2008 (all companies).

Figure 7.3 shows the total frequency of IC themes disclosed, by year, for all companies, showing a significant upward trend from 1974 to 2008 (see Appendix F). From 132 themes in 1974 and 1975 respectively, the frequency of IC themes steadily increased each year, reaching 530 themes in 1988. However, there were temporary slight declines in the frequencies of themes between 1988 and 1997 and in 2003. From 1998, the frequency increased in most years reaching 702 themes in 2001 and 934 themes in 2008. Broadly speaking, IC themes disclosed in 2008 were more than six times higher than in 1974.

Figure 7.3 Total frequency of IC information disclosed by all companies, 1974-2008



A marked longitudinal increase of IC information disclosure by the UK companies since late 1980s, shown in Figure 7.3, is consistent with a general increase internationally in disclosure of IC information overtime as evident in previous longitudinal studies (e.g. Williams, 2001; Bukh et al., 2005; Vandemaele et al., 2005; Abdolmohammadi, 2005; Cordazzo, 2007; Abeysekera, 2008; Sonnier et al., 2008; Oliveras et al., 2008; Kang and Gray, 2011). While Williams (2001) provided evidence that FSTE 100 companies in the UK showed a significant increase in their IC information disclosure from 1996 to 2000, this study has extended the time frame significantly to show a much longer period over which to examine disclosures.

The findings of this study challenge the presumption that the practice of IC disclosure is a new phenomenon that emerged during or after the 1990s (e.g. Williams 2001; Abdolmohammadi, 2005). Rather, this study has discovered that IC information has been disclosed in annual reports over the 35-year period being analysed. The early years (1970s, 1980s) contrasted somewhat with the later years (1990s and 2000s) in that whilst IC was disclosed in each year, the volumes substantially increased against time. Most of the years record an increase against the previous year and the findings as shown in Figure 7.3 comprehensively rebut the assertion that IC is a late or recent phenomenon.

It is conceivable, and perhaps likely, that these findings describe the long-term importance of knowledge assets in the sample organisations as sources of value creation (Powell and Snellman, 2004; Shapira et al., 2006) and if this is the case, then this study

that such value description has been taking place since at least the 1970s and 1980s. The results may also suggest that the awareness about importance of IC information disclosure among the six companies has also existed somewhat earlier than the academic discussion about this topic in the literature on corporate disclosure.

The overall increase of IC information disclosure over time can be partly explained by some element of responding to the economic changes from, as this study discussed in chapter 1, the transition from a traditional to a knowledge economy. As a first world country, the UK has experienced a significant shift in its source of domestic product (GDP) and investment from the traditional commodities and manufacturing based to one that is rather more service and technology-based (Marrano et al., 2007). It is reasonable to claim therefore that the shift of economic base has been an impetus for gradual change in the reporting behaviour for companies in order to cope with the changes in corporate strategies and value creation. It is conceivable that the companies used IC information as an effective strategy of corporate disclosure to signal to stakeholders their responses to value and to the importance of the knowledge-based assets and activities. In such a case, as suggested by legitimacy theory, the disclosure strategy might have been seemed less effective through the traditional symbol of corporate success, for example, through mandatory disclosure of financial and hard assets (Guthrie et al., 2004; Whiting and Miller, 2008).

The emergence of knowledge management as a systematic discipline under the notion of ‘knowledge management and organisational learning’ in the 1990s (see Table 3.3), particularly in European countries might have prompted the companies in the UK to increasing the management and reporting of IC-based assets (see also; Brennan and Connel, 2000; de Pablos, 2003; Boedker et al., 2008; Bezhani, 2010)²³. For example, the initiatives of identifying, measuring and reporting IC at the organisation level by MERITUM in 1998, DATI project in 1998, The MAGIC Project in 1998, OECD in 1987, together with models such as Intangible Assets Monitor (Sveiby, 1997) that occurred in mainland Europe might have paved a way to an increasing awareness of IC issues among UK companies.

²³ Sveiby (2000) cited in de Pablos (2003) divide the emergence of knowledge management in organisations into three phases; i) 1985-1990 -an effort to leverage skills of people and their knowledge which inspired by the works of Polanyi and Wittgenstein; ii) 1991-1997-the revolution of internet and IT driving the organisational changes and emergence of IC term in USA and Europe iii) 1998 onwards – the emergence of organisational creation and innovation management.

To some degree, the increased awareness and effort in disclosing IC information over the 35 years could be a manifestation of increasing disillusionment over the lack of decision usefulness of traditional financial reporting in dealing with a wider range of intangible assets (Edvinsson and Malone, 1997; Ittner and Larcker, 1998; Lev and Zarowin, 1999; Eustace, 2003; Lev and Daum, 2004; Petty et al., 2008; Yeoh, 2010). In the absence of guidance and regulation pertaining to the accounting of IC information, the UK companies may have taken somewhat proactive action in identifying, recognising and reporting IC in their annual reports. This study can posit that companies resolved this problem by increasing the voluntarily communication of non-financial information such as IC (to stakeholders). The companies might have been long aware of the decision usefulness and other positive impact of reporting IC information which are, inter alia, to reduce the cost of capital, to reduce information asymmetry and to facilitate more precise valuations of the companies (Guimon, 2005; RICARDIS, 2006; Cordazzo, 2007; Singh and van der Zahn, 2007; Orens et al., 2009).

7.4 Key finding 2: findings on IC information categories and the predominance of RC information disclosure over SC and HC.

Figure 7.4 presents the frequencies of IC themes in the SC, RC and HC categories from 1974 to 2008 (see also Appendix F). IC information concerning RC was the most reported over the 35 years, followed by the HC and then SC categories. Even though the frequency of RC themes was higher than for SC and HC in all years, this difference was insignificant between 1974 and 1993. Between these periods, the themes frequency for all three categories rose with only minor variations (except in 1988, 1989 and 1990 where the frequencies of RC themes were significantly higher than those for SC and HC). However, a switch point clearly occurred in 1994 when the frequency of RC information disclosed increased more sharply, rising from 208 themes in 1994 to 380 in 2001. Meanwhile, the frequencies of SC and HC information remained level in the same period between 100 and 200 themes. A temporary decline in RC information can be observed in 2002 and 2003, after which a pronounced increase can be clearly observed, reaching 506 themes in 2008. In the same period, the frequencies of SC and HC information also increased but at lower rates of increase. It can be concluded that the trends clearly signify the increasing prominence of RC information disclosure over the 35 years. The clear overall increasing trend of RC information disclosure over time was

also demonstrated by every company (see Appendix I for the trends of IC disclosure by main categories, 1974-2008, by company).

Figure 7.4 Frequencies of IC disclosure themes by categories 1974-2008(all companies)

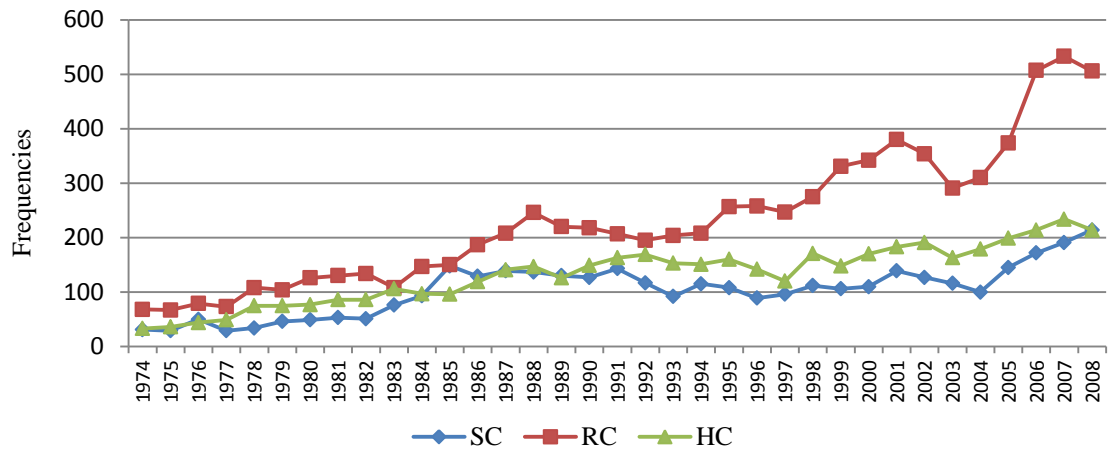
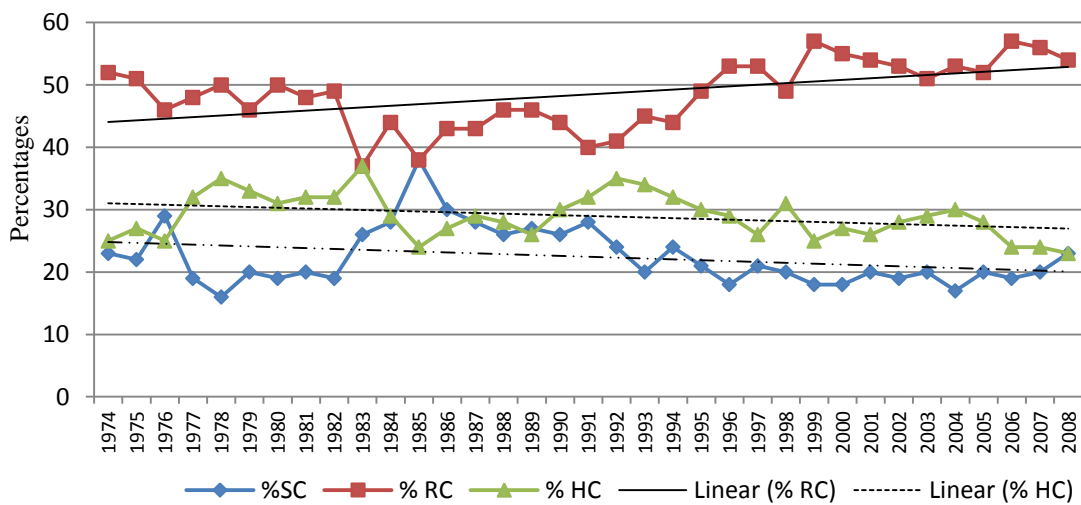


Figure 7.5 demonstrates the increasing prominence of RC information disclosed using a percentage (of all disclosure themes) method. The figure shows that the highest percentages of information disclosed in all years concerned RC (apart from 1983, when RC=HC and 1985, when RC=SC) with a more marked increase starting in 1994. In fact, after 1995, RC information accounted for more than 50% of total IC in almost every year. Whilst the percentages of RC information disclosed increased significantly, the percentages of SC and HC information marginally declined over time. The analysis of the percentage shares of disclosure categories (themes) clearly demonstrates that RC information was consistently disclosed more than SC and HC information over the period, particularly since 1994.

Figure 7.5 Percentages of SC, RC and HC disclosure themes, 1974-2008 (all companies)



In terms of IC the main categories, the findings of this study have corroborated findings in some previous studies with regard to the frequency and/or volumetric order of IC category disclosures (Table 7.3). The table displays systematic comparisons in the percentages of IC categories where IC information disclosure is often dominated by relational capital (RC) information, reflecting its predominant value and relevance to shareholders. Most studies conducted in various parts of the world have found, with some consistency, evidence that RC information was the most frequently disclosed by companies, in comparison to SC and HC. In the UK, the highest percentage of RC information were found by Striukova et al. (2008), representing for 61% of total IC information, followed by Bozzolan et al. (2006) at 56%. This study however found that the proportion of RC information disclosed somewhat lower (over the extended longitudinal period), comprising 48% of total IC information (all companies, all years). The lowest percentage of RC information disclosed was reported by Li et al. (2008), accounting for only 38% of total IC information. A similar predominance of RC information disclosure has also been found in other countries, for example, in China at 46% (An Yi and Davey, 2010), Australia at 40% (Guthrie and Petty, 2000), Italy at 49% (Bozzolan et al., 2003), New Zealand at 47% (Whiting and Miller, 2008) and Spain at 60% (Oliveras et al., 2008). In sum, comparable percentages of RC information disclosure across studies are evident, showing that companies across the world have a convergent view that RC information is strategically more important compared to HC and SC information.

Table 7.3 Comparative percentages of IC information categories across studies

Study	Country	Structural capital %	Relational capital %	Human capital %
This study	UK	22	50	28
Guthrie and Petty (2000)	Australia	30	40	30
April et al. (2003)	Africa	30	40	30
Bozzolan et al. (2003)	Italy	30	49	21
Abeysekera and Guthrie (2005)	Sri Lanka	20	44	20
Bozzolan et al. (2006)	The UK	26	56	18
Guthrie et al. (2006)	Hong Kong	28	37	35
Vergauwen et al. (2007)	Sweden, UK and Denmark	22	46	32
Striukova et al. (2008)	UK	17	61	17
Li et al. (2008)	UK	34	38	28
Oliveras et al. (2008)	Spain	18	60	22
Whiting and Miller (2008)	New Zealand	20	47	33
Davey et al. (2009)	Europe and North America	34	50	16
An Yi and Davey (2010)	China	30	46	24

Note: These are indicative comparisons only. Methods are not necessarily directly equivalent or comparable.

A clear shift in RC information disclosure, compared to SC and HC, predominantly occurred in the mid-1990s as shown in Figure 7.4 and 7.5. This demonstrates that the frequency of RC information disclosed grew at a somewhat higher rate, year in year, compared to SC and HC information. Guthrie and Petty (2000) and April et al. (2003) argued that this significant shift of focus onto RC information disclosure was partly due to the change in business strategies from internal to external strengths in creating business and shareholders values. These included elements of business collaborations, recognition of brand, existence of global customers and alignments of distribution channels. These arguments were supported by Rowley (2005), who contended that the modern business has changed from a situation in which value was resident in internal transactions to one where external relationships were more important, typically in the form of a broad customer base and brand loyalty. Therefore, it could be argued that these changes in the business strategy have been a result of, and partly driven by, a higher perceived value of relationships with external parties, and these have precipitated a change in disclosure in the form of higher relational capital reporting.

This study also found that the highest proportions of RC information disclosure occurred in retail companies, making up 54% of total IC. This compared to oil and

banking companies at 47% and 49% respectively (see Appendix K). The longitudinal analysis also showed an increasing prominence of RC information disclosure over time in retail companies, over and above oil and banking companies (see Appendix I). The retail companies demonstrated a comparable overall longitudinal pattern where RC information disclosure volumes in both supermarkets significantly outnumbered SC and HC disclosure since the early 1990s. The prominent IC disclosure in RC included information about brands, suppliers, customers, communities and distribution channels with these being more relevant to the supermarkets than the other sectors (discussed in later section of this chapter). Meanwhile, oil and banking companies showed modest overall longitudinal trends in disclosing RC information compared to retail companies.

The predominance of RC information disclosure shown by the six companies of this study is consistent with arguments for stakeholder theory. The fact that most of the stakeholders are external (customers, community, business partners) and the companies appeared to recognise the importance of the relationship with these external parties (in creating value) has led the companies to predominantly disclose more RC related information in annual reports. The companies may have partly discharged their accountability to the various groups of external stakeholders through IC disclosure. This has been performed with the aim of seeking confirmation of their activities or to describe the value of their external relationships. The results also imply the power of external stakeholder influences on the operation of companies, which, in turn, affected the increased volume of information disclosure about them.

Figure 7.4 shows that SC information was the least frequently disclosed, making up only 22% of total IC information. However, Table 7.3 shows that the ranking order of SC information varied somewhat. Some studies found SC to be ranked second after RC information (Bozzolan, 2003; Bozzolan et al., 2006; Li et al., 2008; An Yi and Davey, 2010 etc) and some others found it ranked third after RC and HC (Guthrie et al., 2006; Vergauwen et al., 2007; Whiting and Miller, 2008). With RC being most frequent in all cases, the order of SC after that is a matter of disagreement in previous studies. This study has discovered that the greatest proportion of SC information disclosure occurred in the oil and gas companies making up 28% compared to the retail companies at 19% and banking companies at 16% (both companies in sector, all years, see Appendix K). The high frequency of information concerning technologies, R&D, K-infrastructure and

product innovation was the cause of the prominence of SC information in the two oil companies.

The second highest proportion of IC information disclosed concerned HC information, representing 28% of total IC information (all companies, all years). The proportion of HC information found in this study is similar to those found by Guthrie et al. (2006) at 30%, Whiting and Miller (2008) at 33% and Vergauwen et al., (2007) at 32%.

Interestingly, the highest proportion of HC information disclosed occurred in the banking companies, comprising 35% of total IC information, and this was followed by the retail companies at 27% and oil and gas companies at 25% (see Appendix K). The volume of HC information disclosed in the two banks at times exceeded the percentage of RC information (see Appendix I). The predominance of HC information disclosure in the banking companies can be partly explained by the high frequency of disclosure about employee and work-related knowledge and competencies for boards of directors and employees (WRK&C-employee, WRK&C-BoDs). It could be argued that commentary on staff capabilities, skills and professional services are more important in services industries like banking because human assets are considered essential in consulting and serving customers on financial-related matters. Accordingly, disclosing more information on HC is sometimes considered as part of a strategy to attract potential employees or to signal that employees are being acknowledged as assets in the companies as well as signalling to investors about the high calibre staff being hired in those companies (Bontis, 2003; Abeysekera, 2008). These findings corroborate the findings of Khan and Ali (2010) who found a predominance of HC information disclosure in Bangladeshi banking companies. Similarly, Branco et al. (2011) discovered a high proportion of HC information disclosure in the banking industry, both in the annual reports and on websites. Also related to this finding is a study by Lee et al. (2007) who found that for the hospital sector in which professional medical services was important, HC information was more frequently disclosed than SC and RC.

Having found in this study that different industries differ in the proportion of IC category disclosure (with retail companies disclosing more on RC, oil and gas companies more on SC disclosure and banking companies more on HC disclosure, see Appendix K), it can be concluded here that sectoral membership has affected the categories of IC disclosure by sector. This effect is consistent with the argument raised by previous authors as discussed in section 3.10, where differences in political costs and

the business models of different industries are factors in the variability of disclosure strategies. Nonetheless, this interpretation is only based on analysis at aggregate level (volume of disclosure for all years). The longitudinal analysis of the disclosure (by company, by year) indicates the RC information disclosure for all sectors became increasingly more prominent than SC and HC disclosure over time.

7.5 Key finding 3: findings on longitudinal effect IC sub-category ranking order (all companies).

This analysis was conducted to examine the longitudinal effects of disclosure strategy within IC sub-categories. These effects can be observed by examining changes in the ranking order of IC sub-category frequencies over 35 years. The IC sub-category information is considered to be more popular (less popular) over time if the information disclosure is relatively higher ranked (lower ranked) than other sub-categories over 7 designated periods. In order to increase the resolution of the longitudinal analysis, the overall period of 35 years was disaggregated into seven reporting periods, consisting of 5 years each as follows:

1. Period 1 (1974-1978)
2. Period 2 (1979-1983)
3. Period 3 (1984-1988)
4. Period 4 (1989-1993)
5. Period 5 (1994-1998)
6. Period 6 (1999-2003)
7. Period 7 (2004-2008)

Table 7.4 indicates the top 10 ranking order of IC sub-categories information based on frequency in each period. Several discernible longitudinal effects of IC sub-category information disclosure rankings were observed and these are summarised in the following paragraphs.

This study found that the increasing prominence disclosure of board of directors' work-related knowledge and competencies (WRK&C-BoDs) occurred in the period 4 onwards (first ranking in all periods). Prior to the periods (before 1989), information or comments about board of directors' names, profile, competencies and skills were not

much conveyed in the annual reports. Only after period 4 onwards such information disclosure took place at unprecedented volume throughout the annual reports particularly in the chairman statements, board of directors and report of corporate governance sections. This result can be related to increasing concern over corporate governance issues, which later caused increasing disclosure and comment about the capability and profile of directors.

Meanwhile, information about employees is shown to be a long-established disclosure sub-category as it was maintained in the top ten ranking in every period, ranging between second and third position in ranking in each period. It can be concluded that the relevance of information about employees to the companies and their annual report users were somewhat consistent over time, among other included information pertaining to employee numbers, welfare, representation, retention, equity, health and safety, etc. The longstanding incidence of employee disclosure may be partly attributable to the early emergence of human resource accounting (HRA) in the 1960s and 1970s in many developed countries. The importance placed upon HRA in the early decades of the study was the likely motivation for the large volumes of employee disclosure in annual reports in the 1970s and 1980s in the six large companies analysed (see Appendix K for retail and gas companies). At that time, HRA was unsystematic and illustrative, with the majority of disclosures being made (voluntarily) in a narrative manner. Despite the interest of academics and industry, HRA declined in later decades (as mentioned in section 3.4), whilst the disclosure volumes on employees remain consistent over time. Nonetheless, HC disclosure (which includes employee disclosure) declined against RC over time as indicated in Figure 7.5.

This study found that the disclosures on R&D information and information technology (both in the SC category) became decreasingly frequent over time. The popularity of disclosure about R&D dropped over time from being ranked second in period 1, third in period 2 and 4, ninth in period 4, before disappearing from the top ten ranked positions in subsequent periods.

Information concerning technology was also relatively less frequent over time. In period 1, technology information was at sixth in the ranking and dropped to eighth place in period 2 before moving back to the second ranked position in period 3. It dropped again

to fourth and fifth position in periods 4 and 5 respectively. The information then was not in the top ten in subsequent periods.

Information concerning licences/agreements/contracts (also from SC category) significantly decreased over time in terms of ranking, from being ranked fourth in period 1 to fifth place in period 2 and ninth place in period 3, after which it was absent from the top ten list.

This study also discovered that there were increasing popularity in many IC information that belong to RC category, for example, disclosure about community, distribution channels, brand and customers. For example, there was an overall increase in the ranking of community information from tenth place in period 1 to sixth place in period 4 and fifth ranking in the final period. Meanwhile, disclosures about distribution channels also rose over time, from eight place in period 1 to ninth place in period 2. Afterward, the ranking order for the information continued to generally increase such as in period 3 (rank #6), period 4 and 5 (rank #5), period 6 (rank #4) and period 7 (rank #6).

Perhaps the most significant changes in rank order were those for brand disclosure where periods 6 and 7 saw a higher disclosure on information about brand than the previous periods. Brand information disclosure was ranked sixth and ninth in the periods 6 and 7 respectively. A further clear longitudinal effect can also be observed in customer disclosure which witnessed an increasing rank order of frequency over time. It increased from a position below the top 10 in periods 1 and 2 to tenth place in period 3, third place in period 4 and second place in all subsequent periods.

Information on business partners reduced over time. The information disclosure was ranked first in periods 1 and 2 before significantly dropping to eighth ranking in the period 3, tenth place in period 4 and eighth place in the period 5. It then was not in the top ten ranked places in periods 6 and 7.

In sum, this study found that no IC sub-category information was consistently disclosed more than any other over time. The results imply that the perceived relevance of different IC sub categories was somewhat period-dependent. The relative importance placed on particular information sub-categories (the semiotic assumption is more

information equates to more important) was not necessarily constant overtime. Despite the overall frequency of information disclosed increasing over the time, the relative importance of different IC sub-categories was variable over time.

The overall relative increase (by rank order) in certain sub-categories of RC category disclosure such as communities, environment, customers, brands and distribution channels in the later years of the study, findings somewhat similar to evidence offered by Guthrie and Petty (2000), Bukh et al. (2005), Striukova et al. (2008) and Branco et al. (2011). These observed changes may be partially explainable by decision usefulness factors. Some literature has suggested that shareholder value creation in a contemporary business mainly relies on the quality of relationships with a wide range of external parties (Kaplan and Norton, 1992; Brooking, 1996, Edvinsson and Malone, 1997; Philips, 2006; Cortes et al., 2007; Malmelin, 2007). Therefore, disclosures explaining (to shareholders) the nature and quality of such relationships is seen as important. As such, shareholders and other users of the annual reports might expect growing volumetric narrative over time to explain the increasing important of these relationships. A survey by McKinsey Consulting covering 1,016 directors showed an increasing demand for disclosures on customers, competitors, market share, supplier and brands (Boedker et al., 2008). It is conceivably that, the increased RC disclosures in term of customers, environmental, community, brand and distribution channels may, therefore, be a reaction to this expectation.

Disclosure on SC category such as R&D, technologies, and contract information (SC category) increased in frequency over time but showed a relative decline against other RC subcategories such as brand, customers, environment, communities and distribution channels disclosures²⁴. This might be explainable by the relative irrelevance of such SC category disclosures later in the longitudinal periods of the study compared to the earlier periods. For example, there is some evidence that some R&D activities and technology development was outsourced to third parties in the 2000s with less R&D information being accordingly disclosed (Gerpott et al., 2008). In addition, the decreased emphasis may be connected to proprietary cost factors (Verrecchia, 1983; Depoers, 2000). R&D and technology, for example, are a major source of company competitive advantage. Such information is sometimes considered to be highly strategic and there may be a belief that too much R&D disclosure may lead to a disclosure of ‘too much’ information

²⁴ The decline of this group of information was mainly seen in the oil sector, i.e. BP and Shell.

that may, in turn, reduce the company's competitive advantage. This belief was supported by Williams (2001) who pointed out that some IC information disclosure might attract unwanted attention particularly from strongly IC-intensive companies. Withholding or reducing this information may be seen to be the best action in protecting the company from these propriety costs. Therefore, the alternative RC content on brand, customers, distribution channels, environment and communities may be observed to rise in proportion against others.

A restructuring of business focus and strategy might partly explain the shift in reporting behaviour towards RC information, particularly in the oil companies. It is conceivable that an increased focus, by the oil companies on customer, community, distribution channels and brand building may have been considered necessary in order to explain its changed sources of competitive advantage to shareholders. The opening of thousands of consumer retail shops in fuel stations over the course of the longitudinal period, for example, significantly broadened the customer base, increased the importance of the company brand, and widened distribution channels for BP and Shell. Between 1974 and 2008, petrol stations changed from being places to refuel a car to places where customers could obtain a wide range of travel-related products and shopping goods. Hence, explaining such issues as loyalty cards, customer facilities, and product offers became important and useful matters for shareholders to know about in valuing companies. The presence of competition in oil related products such as petrol and lubricants may also have contributed to brand creation among oil companies including increased co-operation with brand partners. In order to gain more market and customer shares, the networks of fuel station and retail shop was significantly widened and it became important, also, to have more efficient distribution channels to facilitate the transportation of products. Therefore, it is likely that these long-term changes in business structures and focuses would have led to the observed changes in reporting behaviour of the companies over time.

Table 7.4 The top ten ranking of IC sub-category information in 7 time periods based on frequency of total IC themes disclosed each period: all companies.

Rank		Period 1 1974-1978		Period 2 1979-1983		Period 3 1984-1988
1	Business partner	64	Business partner	74	R&D	137
2	R&D	54	Employees	70	Technologies	114
3	Employees	53	R&D	64	Employees	100
4	Licence/contract/agreement	34	Work related competencies	60	Work related competencies	94
5	Market presence	30	Licence/contract/agreement	42	Market presence	86
6	Technologies	28	Community	41	Distribution channels	72
7	Environmental matters	24	Market presence	35	Community	67
8	Distribution channels	20	Technologies	30	Business partner	65
9	Work related competencies	19	Distribution channels	18	Licence/contract/agreement	39
10	Community	18	Information system	15	Customers	36

Rank		Period 4 1989-1993		Period 5 1994-1998		Period 6 1999-2003
1	BoD's work related competencies	297	BoD's work related competencies	377	BoDs' work related competencies	436
2	Employees	234	Customers	283	Customers	370
3	Customers	176	Employees	221	Employees	277
4	Technologies	138	Community	180	Distribution channels	259
5	Distribution channels	130	Distribution channels	162	Community	235
6	Community	129	Technologies	144	Brands	200
7	Management process	120	Market presence	130	Market presence	185
8	Market presence	113	Business partner	126	Management process	155
9	R&D	95	Management process	112	Business partner	124
10	Business partner	95	Environmental matters	110	Management philosophy	111

Table 7.4 cont

Rank		Period 7 2004-2008
	BoD's work related	
1	competencies	466
2	Customers	449
3	Employees	375
4	Business partner	309
5	Management process	289
6	Distribution channels	270
7	Community	267
8	Market presence	202
9	Brands	183
10	Environmental matters	162

7.6 Key finding 4: findings of sectoral membership effects on the IC sub-categories information disclosure

The cross-sectional analysis in this study compared the level of disclosure of 26 IC sub-categories in different companies to test whether relative importance (measured by percentage of frequency of sub-categories over total IC information in each companies) of each sub-category was significantly resolved by sector. However, the analysis and findings of sectoral membership effects on the IC disclosure that are shown in this section focus only on 13 IC sub-categories of information that are considered to be significantly sectorally driven (the full findings of 26 sub-categories can be found in Appendix H) such as information about:

- 1) Management philosophy
- 2) Technologies
- 3) Information system/information technology (IS/IT)
- 4) Innovation
- 5) Contracts
- 6) Research and development (R&D)
- 7) Brands
- 8) Customers
- 9) Environment
- 10) Business partners
- 11) Suppliers
- 12) Training
- 13) Work related knowledge and competencies of board of directors (WKC-BoDs)

At the end of this section, the discussion will provide some insights on the differences in IC disclosure practice among companies from the different sectors analysed (oil, banking and retail). Prior evidence showing that sectoral membership has been shown to be a factor in affecting the level of different voluntary disclosures (e.g. Cowen et al., 1987; Meek et al., 1995; Oliveira et al., 2006; Rimmel et al., 2009; Kang and Gray, 2011) was supported by this study.

Information about management philosophy was disclosed proportionately more often in retail than in oil and gas and banking companies (Figure 7.6). The percentages of total themes of this information in Tesco and Sainsbury were 3.5% (103 themes) and 4.9% (103 themes) of their total IC disclosed respectively, which were both higher than those for BP (2.3%: 92 themes), Shell (2.2%: 63 themes), Barclays (2.1%: 51 themes) and Lloyds (2.3%: 46 themes).

Figure 7.6 Percentage of information on management philosophy disclosed by company (all years)

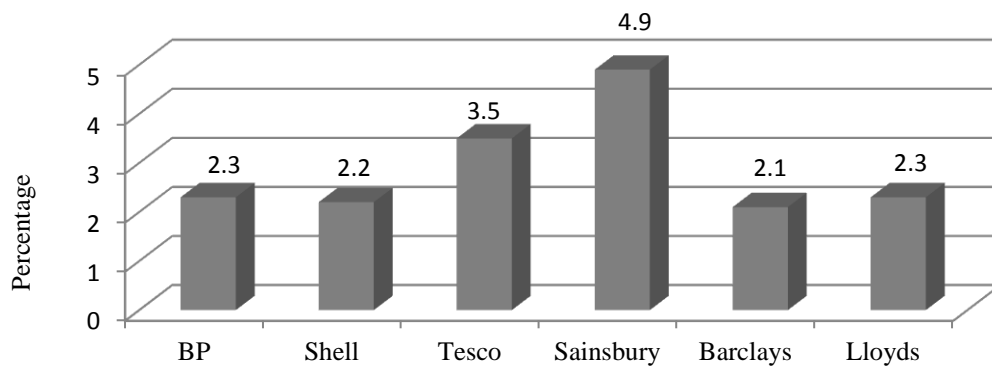
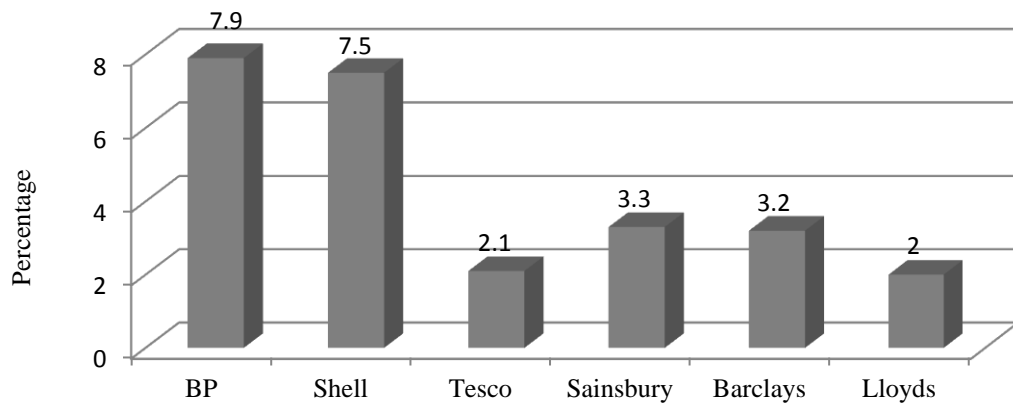


Figure 7.7 shows that information about technology was more prominent in BP and Shell compared to the other sectors. This information in both oil companies accounted for 7.9% (317 themes) and 7.5% (220 themes) respectively of their total IC information disclosed. The respective levels for other companies were significantly lower. Sainsbury and Tesco disclosed information concerning technology at rates of only 3.3% (70 themes) and 2.1% (64 themes) of their total IC information whereas for Barclays and Lloyds, the figures were at 3.2% (77 themes) and 2% (40 themes).

Figure 7.7 Percentages of information on technology disclosed by company (all years)



Perhaps surprisingly, although the disclosure information about technology was highest in BP and Shell, these companies showed the lowest percentages of themes regarding IT/IS, at only 0.8% (33 themes) and 1% (30 themes) respectively of their total IC information. Instead, the highest percentages of information concerning IT/IS were found in Tesco (2.4%; 72 themes) and Sainsbury (2.1%; 45 themes) annual reports. While, Barclays and Lloyds disclosed IT/IS information at levels intermediate between the oil and retail companies at 1.4% (34 themes) and 1.5% (31 themes) respectively of their total IC (Figure 7.8).

Figure 7.8 Percentage of information on IT/IS disclosed by company (all years)

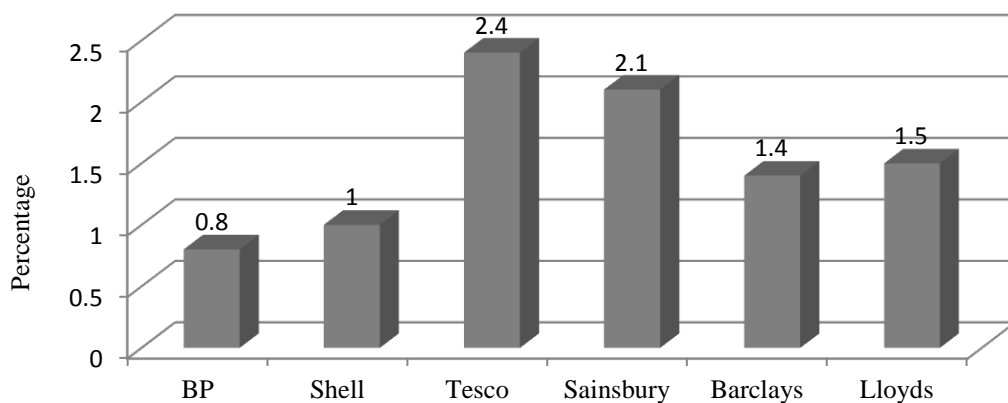
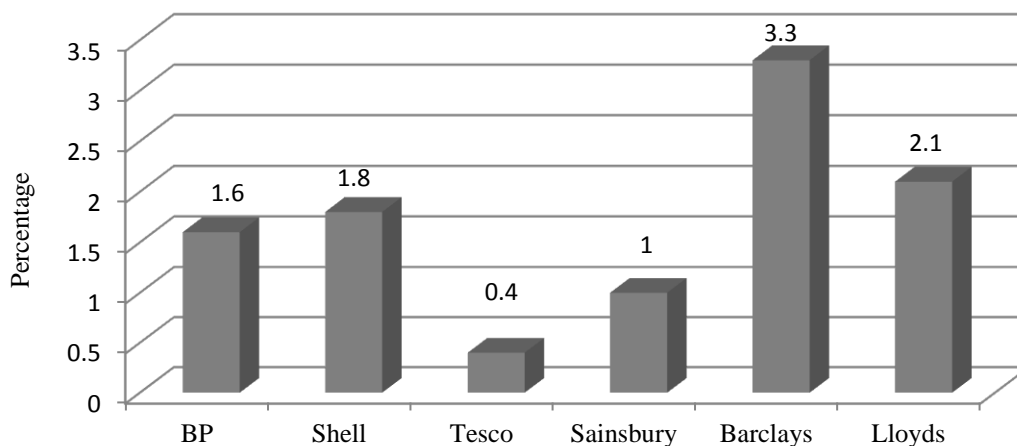


Figure 7.9 shows clear sectoral effects in the IC disclosure of information concerning product innovation. This appeared to be more important in Barclays and Lloyds than other companies, representing 3.3% (78 themes) and 2.1% (42 themes) of their total IC information respectively. Tesco and Sainsbury placed least emphasis on this type of information, accounting for 0.4% (11 themes) and 1.0% (42 themes) respectively.

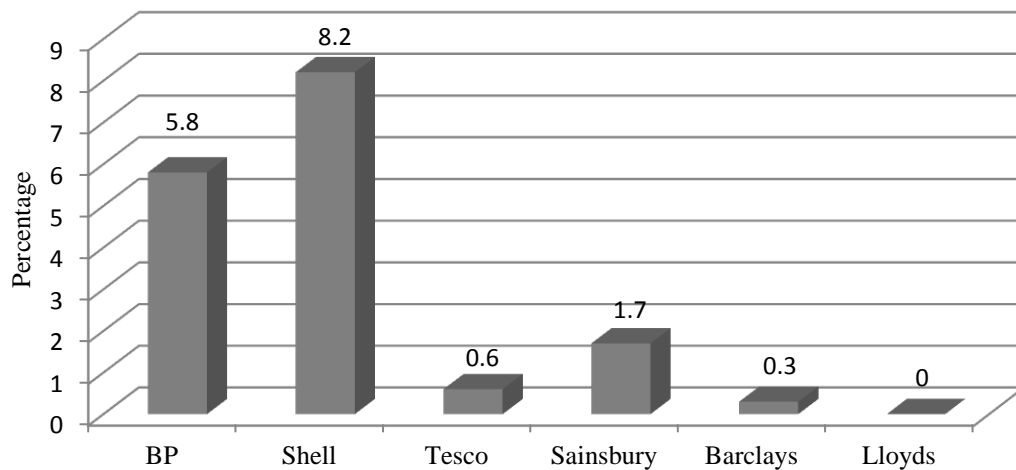
Again, perhaps surprisingly, given that they are technology-based companies, the percentages of product innovation themes disclosed by BP and Shell were only 1.6% (64 themes) and 1.8% (54 themes) of their total IC information.

Figure 7.9 Percentage of information on product innovation disclosed by company (all years)



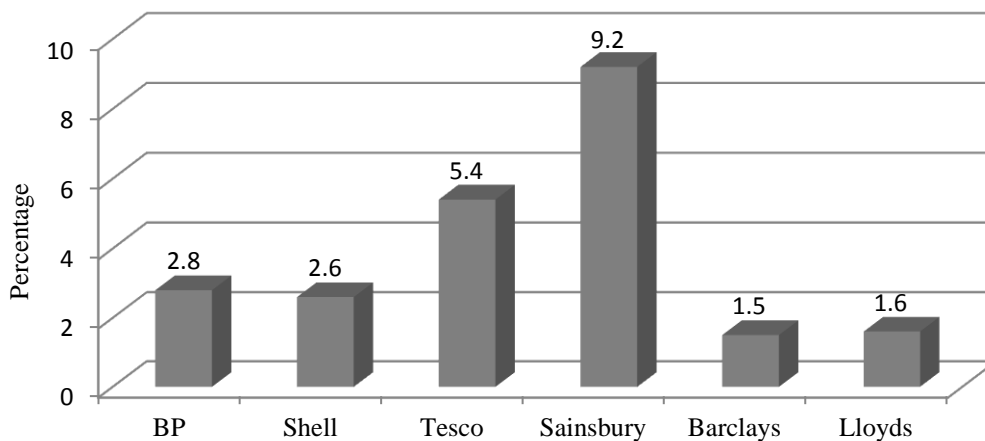
The predominance of R&D disclosure also differed by sector. Figure 7.10 shows that highest percentage R&D information was disclosed by BP at 5.8% (232 themes) and Shell at 8.2% (238 themes) respectively of their total IC information (all years). This might be expected since the oil and gas industry relies on R&D activities and so such information is considered to be important to shareholders. Predictably, then lower-technology-based companies like Tesco, Sainsbury, Barclays and Lloyds showed lower levels of R&D information disclosure. At Tesco it only accounted for 0.6% (19 themes), Sainsbury 1.7% (36 themes), Barclays 0.3% (6 themes) and Lloyds less than 1% (1 theme) of their total IC information.

Figure 7.10 Percentage of information on R&D disclosed by company (all years)



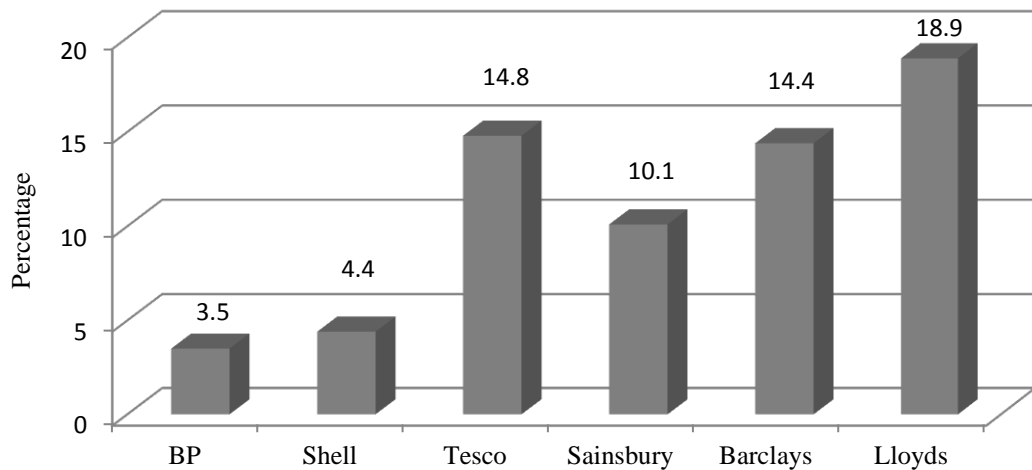
Inter-sectoral effects are also significant in reporting information about brand. It is clear from Figure 7.11 that brand information was deemed substantially more important in retail than in the other two other sectors. Tesco and Sainsbury showed the highest percentages of themes involving brands. At Tesco, these accounted for 5.4% (161 themes) and at Sainsbury a higher level of 9.1% (193 themes) of their total IC disclosure (all years). The lowest disclosure levels for such information were shown by Barclays (1.5%; 35 themes) and Lloyds (1.6%; 33 themes), while in the oil sector the percentages were slightly higher with BP at 2.8% (111 themes) and Shell 2.6% (76 themes). Further discussion about brand information disclosure is specifically presented in section 7.7 of this chapter.

Figure 7.11 Percentage of frequency of information on brand by company (all years)



Information about customers was among the most popular for all companies. However, it was apparently more important to companies in the retail and banking sectors as shown, in Figure 7.12. Customer information from Tesco accounted for 14.8% (442 themes) and from Sainsbury 10.1% (214 themes) of their total IC information disclosed (all years). Likewise, the high levels of information were disclosed by banking companies at Barclays accounting for 14.4% (345 themes) and Lloyds 18.9% (385 themes) of their totals. The lowest shares of customer information were in BP and Shell, respectively making up only 3.5% (140 themes) and 4.4% (129 themes) of their total IC information.

Figure 7.12 Percentage of information on customer disclosed by company (all years)



Another clear inter-sectoral effect on IC disclosure practice can be observed on disclosures about business partners, as shown in Figure 7.13. The largest percentages of disclosure of such information were found in oil companies, representing 8.5% (343 themes) and 12.8% (375 themes) at BP and Shell respectively. These companies seemingly perceived that this information was far more important than did the other companies, where it accounted for less than 3% of total IC disclosure.

Figure 7.13 Percentage of information on business partners disclosed by company (all years)

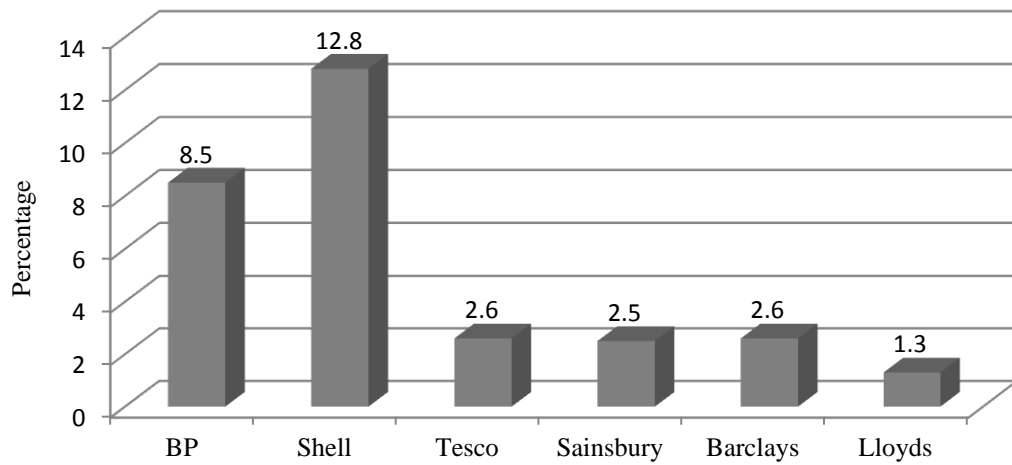
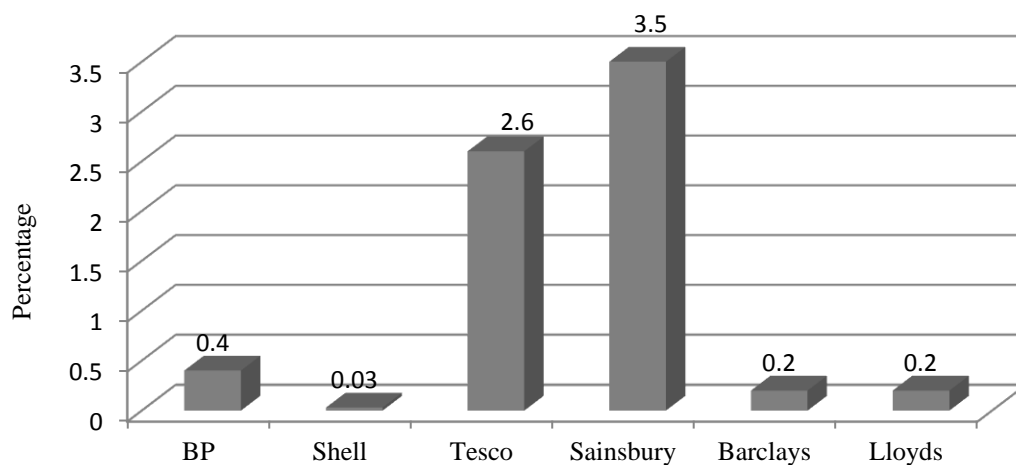


Figure 7.14 suggests that low levels of information about suppliers were disclosed overall. This low disclosure notwithstanding, it is evident that retail companies placed more importance on it compared to others, with Tesco disclosing 2.6% (77 themes) and Sainsbury 3.5% (75 themes) of their total IC information. These figures are substantially higher than for BP where it only accounted for 0.4% (16 themes) and Shell at 0.03% (1 theme). Similarly, information about suppliers at Barclays and Lloyds represented only 0.2% (4 themes) and 0.2% (5 themes) of their total IC disclosure.

Figure 7.14 Percentage of information on suppliers disclosed by company (all years)



Furthermore, Figure 7.15 clearly demonstrates that oil companies perceived the disclosure of information pertaining to contracts and agreements to be significantly more important than companies in other sectors. Levels at BP (3.5%; 139 themes) and Shell (7.8%; 228 themes) were much higher than others, where this information accounted for less than 1% of their total IC information.

Figure 7.15 Percentage of information on contracts/agreements disclosed by company (all years)

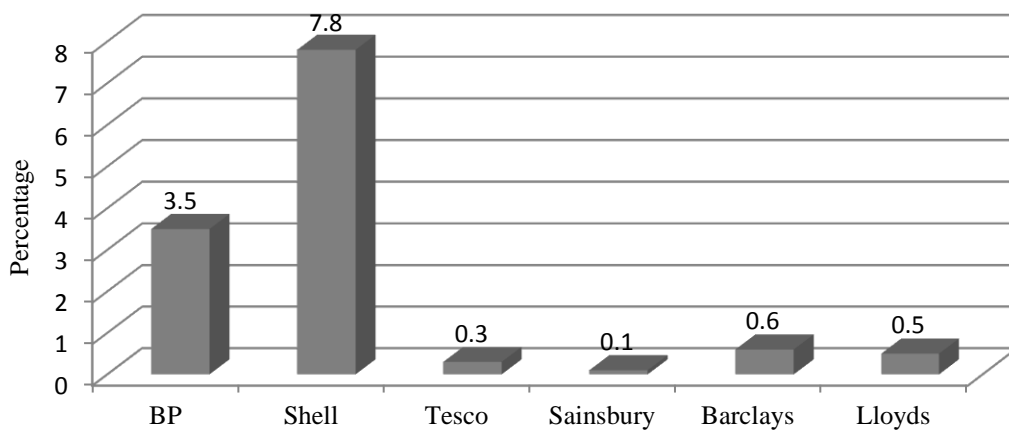
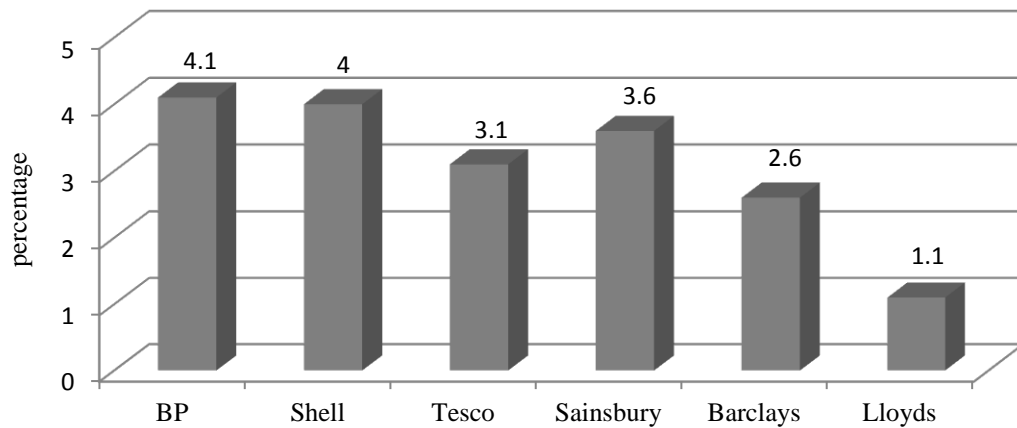


Figure 7.16 shows that same sectoral variability also occurred in the disclosure of information concerned environmental relationships. As expected, the lowest percentages of this type of information were found in the banking sector where Barclays and Lloyds respectively only disclosed 2.6% (62 themes) and 1.1% (23 themes) of their total IC information. Higher percentages were found in oil and gas companies with BP and Shell respectively disclosing 4.1% (165 themes) and 4% (117 themes) of their total IC relating to environmental information. Meanwhile, Tesco and Sainsbury showed intermediate levels in this regard, only making up 3.1% (92 themes) and 3.6% (77 themes) respectively of their total.

Figure 7.16 Percentage of information on environmental relationship disclosed by company (all years)



Inter-sectoral variation was also evident in information about employee training and development, as presented in Figure 7.17. Companies in the retail sector disclosed the highest levels of this kind of information compared to other sectors. For, Tesco 3.9% (115 themes) of their total IC content related to training information whereas more training information was disclosed by Sainsbury disclosed at 163 themes representing 7.7% of its total IC. Only moderate levels were recorded in other sectors such as BP at 2.2% (90 themes), Shell at 2% (59 themes), Barclays at 1.9% (46 themes) and Lloyds at 2.5% (40 themes) of their total IC disclosure.

Figure 7.17 Percentage of information on employee training and development disclosed by company (all years)

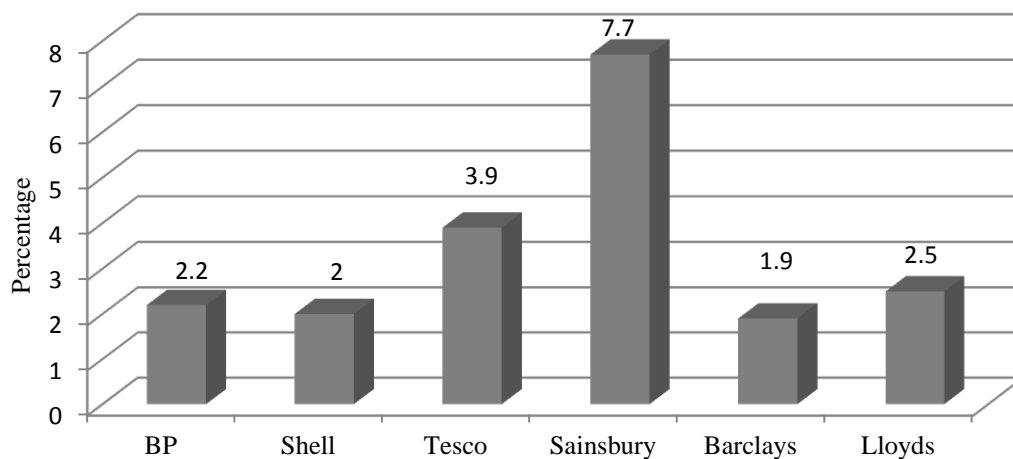
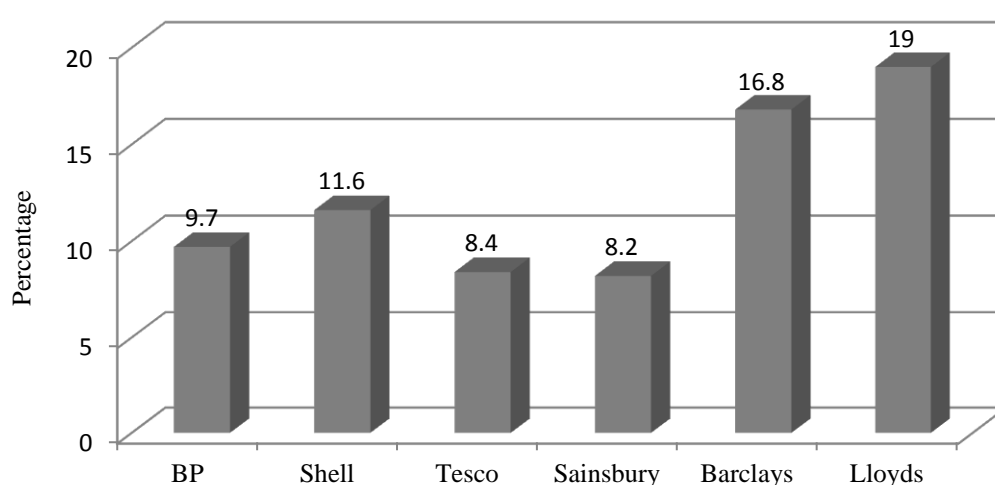


Figure 7.18 clearly demonstrates that banking companies perceived that information pertaining to work-related knowledge and competencies of their board of directors (BoDs) was significantly more important compared to other companies. This can be

seen from the highest level of disclosure of this information at Barclays (16.8%; 401 themes) and Lloyds (19%; 386 themes). The other companies, by contrast, disclosed far less of this information, with Tesco and Sainsbury similar at 8.4% (252 themes) and 8.2% (174 themes) of their total IC information, while both oil companies showed slightly higher percentages, with 9.7% (389 themes) at BP and 11.6% (339 themes) at Shell.

Figure 7.18 Percentage of frequency of information on work-related knowledge and competencies (BoDs) by company (all years)



No significant sectoral effects were observed in other IC sub-categories information disclosures such as intellectual property (IP), corporate culture, management process, k-infrastructure, financial relationship, stakeholders, employee, work-related knowledge and competencies of employee and entrepreneurship. For example, all companies consistently disclosed little information in intellectual property, accounting for less than 1% of their total IC information (see Appendix H).

In other information sub-categories, sectoral effects were unclear. For example, it was difficult to conclude that levels of information disclosed about market presence were influenced by type of sector. Rather, this was more likely to depend on the individual company. BP disclosed market presence information in about 8.1% (326 themes) of its total whereas for Shell the percentage was only 3.8% (110 themes). Similarly, at Tesco it accounted for 6.7% (200 themes) but at Sainsbury the level was lower at 1.1% (24 themes). Meanwhile, Barclays placed relatively more emphasis on

market presence information than Lloyds at 6.8% (163 themes) and 3.6% (73 themes) respectively of their total IC disclosure (see Appendix H).

In sum, the results show the percentages of IC disclosure frequency in selected sub-categories, by company, and this clearly shows the effect of sector membership on 13 sub-categories of IC disclosure. The significant and noteworthy findings are retail companies like Tesco and Sainsbury were more prominent in disclosing information on management philosophy, IT, customers, suppliers, training and brands compared to oil and banking companies. Meanwhile, oil and gas companies such as BP and Shell disclosed significantly more on technologies, R&D, business partners, contracts and environmental activities (than the retail and banking companies). Banking companies (Barclays and Lloyds) disclosed more on IT, customers and product innovation disclosure.

Cross-sectional examination of IC disclosure from the longitudinal analysis was also conducted using an analysis of the ranking order of IC sub-categories information based on frequency. IC sub-category information ranked in the top ten by relative frequency was considered to be more emphasised (i.e. more important) compared to those not in the top ten ranking. Table 7.5 indicates the number of years in which selected sub-category information was ranked in the top 10 (by year). The more the number of years, the more consistency of reporting emphasis that was placed upon that information sub-category. The findings in Table 7.5 signify a number of sectoral membership effects over the longitudinal period of 35 years – effects which would be shown less powerfully with a shallower longitudinal period. The results show that 11 IC sub-categories of information were significantly sectorally driven and these results are summarised below.

- a) Information about technology was the most consistently emphasised by BP and Shell in which it is listed in the top ten ranking for 31 years (in both companies) of the total of the 35 years.
- b) The top ten ranking of information about product innovation was most consistent in the two banks: Barclays (19 years) and Lloyds (15 years).
- c) The top ten ranking of information concerning R&D was highest in the oil companies: BP (22 years) and Shell (28 years).

- d) Brand information was highest in Tesco and Sainsbury annual reports, appearing in the top ten ranking for 30 of the total of 34 years in both companies.
- e) Information about customers was also most consistently emphasised in the annual reports of the retail and banking companies such as Tesco (34 years), Sainsbury (31 years), Barclays (31 years) and Lloyds (32 years).
- f) Compared to other companies, oil companies showed a greater consistency of emphasis in disclosure information about business partners. This information was in the top 10 ranking in BP for 33 years and Shell for 29 years.
- g) Information about suppliers was most consistently disclosed in the top ten by the retailers: Tesco for 14 years and Sainsbury for 28 years
- h) For contract information disclosure, the most consistent disclosers in the top ten were the oil and gas companies: BP for 19 years and Shell for 26 years.
- i) The longest consistency of emphasis about communities information disclosure was observed in the retail and banking companies: Tesco for 33 years, Sainsbury for 29 years, Barclays for 35 years and Lloyds for 32 years.
- j) Information about environmental impact was most consistently in the top ten for BP (18 years) and Shell (21 years).
- k) The most consistent top ten ranking for disclosure on employee training information was in retail companies: Tesco for 18 years and Sainsbury for 21 years.

Table 7.5 The most frequently disclosed IC sub-categories in the top ten by year.

Emboldened pairs indicate key sectoral effects.

IC sub-categories	Total years	Number of years in which the sub-category was ranked in the top ten, by company, based on frequency					
		BP	Shell	Tesco	Sainsbury	Barclays	Lloyds
Technologies	35	31	31	12	14	15	17
Product innovation	35	4	11	6	10	19	15
R&D	35	22	28	3	9	1	0
Brands	35	9	7	30	30	6	6
Customers	35	12	22	34	31	30	32
Business partner	35	33	29	15	13	20	9
Suppliers	35	0	0	14	22	0	0
Contract	35	19	26	0	0	4	1
Communities	35	26	20	33	29	35	32
Environmental	35	18	21	16	13	10	5
Training	35	6	8	18	21	9	12

The findings of this section generally suggest clear sectoral effects in several sub-categories of IC information disclosures. This is mainly shown by the significant differences in the proportion (Figure 7.6 to 7.18) and significant difference in the top ten ranking (Table 7.5) of IC sub-category information order between companies in different sectors. It appears, based on the evidence presented here, that the decision about how much, and which, IC categories to report on was partly sector dependent. Whilst some disclosures appear not to respond to sector the majority of sub-categories appeared to show some sector responsiveness. In other words, differences between activities in the three sectors have led to different types of IC information disclosed but these differences had fewer effects on the amount (volume) of the disclosures. These findings are consistent with argument in the respect of relationship between disclosure strategy and industry membership as presented in section 3.10.

It has been argued that some particular IC sub-categories are relatively more important and of higher value to a particular sector, with others being less important (April et al., 2003; Bozzolan et al., 2006; Abhayawansa and Abeysekera, 2009; Davey et al., 2009). This situation may be explained on the grounds that each different business sector has its own unique intangible assets base, business model,

core competitive resources and with each facing unique entry threats and business pressures (Patten, 1991; Flostrand, 2006; Oliviera et al., 2006). As such, there is some evidence of convergence in the belief in value and importance of certain types of IC sub-categories and this has led companies to formulate similar industry-related strategies with regard to IC information disclosure (Craven and Marston, 1999; Bozzolan et al., 2006).

Similarly, it has been argued that one consequence of lower disclosure about information peculiar to a specific industry is that such low disclosure can sometimes be interpreted by markets as 'bad news' (Watts and Zimmerman, 1978; Giner, 1997; Craven and Marston, 1999). In order to prevent such negative perception from market observers as well as shareholders, whilst at the same time allowing a more accurate valuation of company shares, companies from within a given sector sometimes adopt similar reporting strategies by emphasising particular types of information as though in concert with other companies. In the oil and gas companies for instance, technology and R&D are commonly believed to be core investments, and activities intended to produce the advanced tools and techniques necessary for oil recovery activities, for environmental preservation and for the production of innovative oil-related products. Also important to such sectors is an ability to win exploration contracts internationally in order to sustain shareholder value creation. Furthermore, as oil companies frequently operate in foreign countries, partnering or collaborating with home and/or foreign oil operators is seen as essential (Haque et al., 2004; Neal et al., 2007). Environmental concern is also more closely linked to oil and gas companies than most other sectors (Ness and Mirza, 1991). Intellectual assets in the form of technologies, R&D, contracts, environmental relationships and business partnering are, accordingly, considered core to all oil companies and perhaps uniquely so, compared to, say, retailers and banks.

It is likely that these types of information, therefore, have greater value to shareholders and this may have contributed to their greater disclosure in annual reports. Similarly, corporate responsibilities and concerns over communities and customers have been widely accepted as standard practice and, possibly, essential activities for companies in the retail and banking sectors (Cowen et al., 1987; Campbell et al., 2006). Accordingly, Tesco, Sainsbury, Barclays and Lloyds have constructed corporate images of themselves, partly through the conveyance of good

news about customers and communities. It could be concluded that some companies disclose more industry-related IC information to prevent the perception of bad news among information users in as much as low disclosure may sometimes be equated with having nothing good to say.

In sum, sector does have an influence on specific sub-categories of IC disclosure. This means that companies from different sectors disclose different proportions of IC sub-category information. A conclusion from this finding is that the disclosure of a wide range of categories of industry-related IC information may signal a good impression of the company to the extent that ‘silence’ or low disclosure can sometimes be equated, in readers’ mind, with bad news. In particular, the disclosure of industry-related IC information may be important in demonstrating that management is undertaking long-run value creation strategies and seeking competitive advantage in the knowledge economy.

7.7 Key Finding 5: the specific prominence of brand information disclosure – sectoral and longitudinal variability.

One of the most interesting findings of this study is the increasing prominence of brand information disclosure as shown in Figure 7.19. There has been some debate in the literature concerning to the contribution of brand to business success (Davis and Halligan, 2002). A brand is considered as a valuable asset and customers strongly associate a brand with the quality, uniqueness and image of a product. Companies develop brands in order to differentiate their products, services and corporate image from competitors. Arslan and Altuna (2010, p.170) argued that, in presence of fierce competition, creating and investing in brand names is an effective way to achieve competitive advantage.

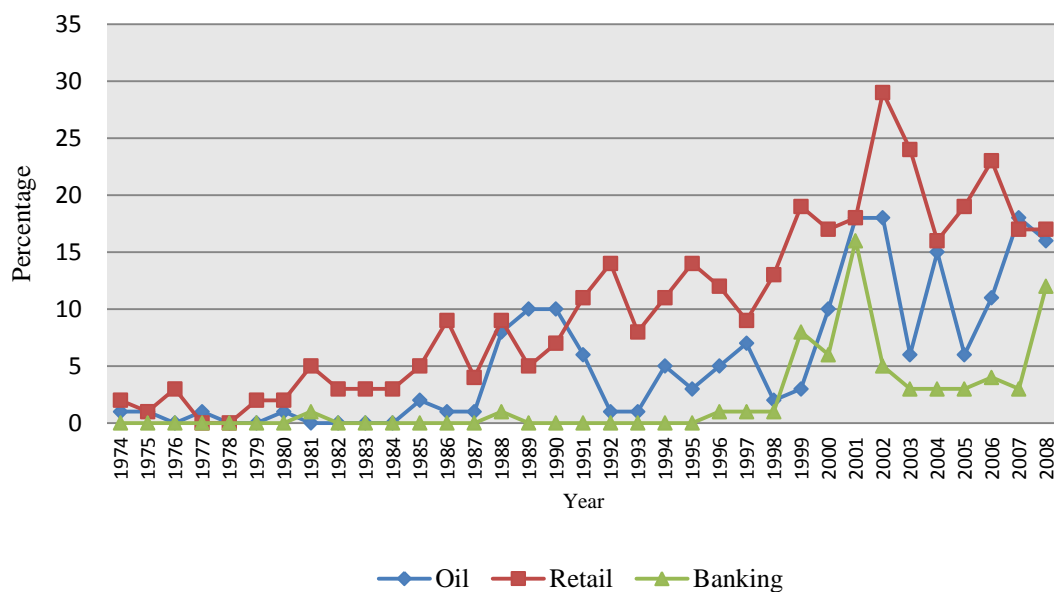
From the corporate disclosure point of view, Kallapur and Kwan (2004) and Barth et al. (1998), found that brand information disclosure was capable of influencing share price. These studies suggested that communicating the brand message to investors was potentially crucial in convincing them (shareholders) about brand strategy which leads, in turn, to future market values. In commenting about the importance of brand information disclosure, Yeoh (2010, p.216) stated:

As global competition becomes more difficult and technology advantages become less long-term, a brand's contribution to shareholders value will increase. This would enhance the case for explicit disclosure of this fact.

Evidently, then, there is value to be gained from brand disclosure (Yeoh, 2010; An Yi and Davey, 2010; Abdolmohammadi, 2005; Bozzolan et al., 2006; Guthrie et al., 2006; Sonnier et al., 2008). Sonnier et al. (2008), found a significant increase of brand information disclosed from 283 terms in 2000 to 353 terms in 2004.

Abdolmohammadi (2005) investigated IC information disclosure in the USA and found that the frequency of brand information disclosed significantly increased over the five years with a mean of disclosure of 5.25 mentions in 1993, 6.75 in 1994, 7.39 in 1995, 8.07 in 1996 and 8.71 in 1997. Similarly, Bozzolan et al. (2006) found evidence in the UK that brand information disclosure was ranked second with mean disclosure of 8.23 mentions, just behind information about customers at 9.27 mentions.

Figure 7.19 The frequency of brand disclosure by industry; 1974-2008



The cross-sectional and longitudinal variability of brand disclosure is shown in Figure 7.19. The graph clearly shows the differences in frequencies of information about brand between sectors and over time, showing that retail companies are higher disclosers of brand information than the other two sectors in most years. There has been a marked volumetric increase in brand information disclosed over the 35 periods, from low frequencies of brand information between 1970s and mid 1980s to

higher frequencies in the 2000s. The higher disclosures by the retailers is perhaps unsurprising given the business focus of these companies and their strategic emphasis on brand awareness and brand building. It could be argued that brand recognition is synonymous with both Tesco and Sainsbury as company names in themselves, thereby emphasising the strategic importance of these terms (meaning that both 'Tesco' and 'Sainsbury' are strategically important brand names to the respective companies)

A 2008 report, 'The UK's most valuable brand, 2008', produced by the website Intangible Business, revealed that the grocery sector was the top sector in terms of brand value in 2008 with an aggregated value of £24.242.6 billion. This exceeded, by a multiple, the men's fashion sector (£0.216 billion) and women's fashion (£1.118.4 billions). The report also indicated that Tesco was the most prominent (top) brand among the UK retailers for groceries. It was estimated that Tesco's brand was worth £8.616.4 billion and this was followed in second place by Sainsbury with a brand worth £4.942.8 billion²⁵. It is likely, then, that both supermarkets not merely developed their brand names for the creation of long term value but at the same time used brand information disclosure as a strategy to signal the strength of company value upon which share valuation could be based. The empirical findings on brand information disclosure in this study support evidence found in another UK study (Striukova et al., 2008) that found that brand information disclosure was largely dominated by retail companies, representing a mean frequency of disclosure per retail company of 15.3 compared to ICT companies at 4.8, pharmaceutical companies at 0.3 and real estate companies at 1.8.

Brand information in the banking companies was disclosed in the annual reports somewhat later than in the retail companies, only becoming a prominent disclosure after 1999. It could be suggested that the awareness and recognition of brand as a source of competitive advantages among the banks was limited and that this led to lower disclosure. Furthermore, this study found that most of the brand information disclosed in the banking companies related to the corporate brand instead of commenting on the product brands as found in the retail companies. The financial products may be considered as less associates with product branding as typically

²⁵ The report was produced by Intangible Business, an independent party providing services on brand valuation. Its website can be visited at <http://www.intangiblebusiness.com/>

found in retail products. It may be that bank disclosure on brands is partly due to the fact that there was less to disclose about product brands in banks (compared to, say, in the supermarkets).

There is some motivation to disclose information about brands in the oil and gas sector and probably more so than in the banking companies. Figure 7.19 shows that the disclosure of brand information in the annual reports of oil companies was somewhat earlier than in the banking companies where at least one disclosure was found every year from 1974 to 1987, after which brand information was increasingly disclosed in the annual reports. This study found that the majority of brand disclosures in the oil companies referred to oil related products and the store names. The shift of strategy from traditional fuel stations to the development of forecourts, convenience stores and retail business networks (e.g. Shell Select, BP Safeway, BP Express, BP Connect and the marketing of consumer related products such as Shell Helix and BP Vistro in the 1980s) contributed to the brand reporting by the oil companies. When brand building was seen as important in the course of these business transformations, both oil companies used their annual reports as a conduit to convey the significance of brand in the business transformation success.

7.8 Key finding 6: findings on the qualitative characteristics of IC information content

The importance of investigating the qualitative characteristics of information disclosed as opposed to merely counting frequency was discussed in Chapter 4. The method used to examine the three types of qualitative characteristics was explained in Chapter 6. This section presents an analysis of this data. Each form of qualitative characteristic is individually labelled as indicated in Table 7.6.

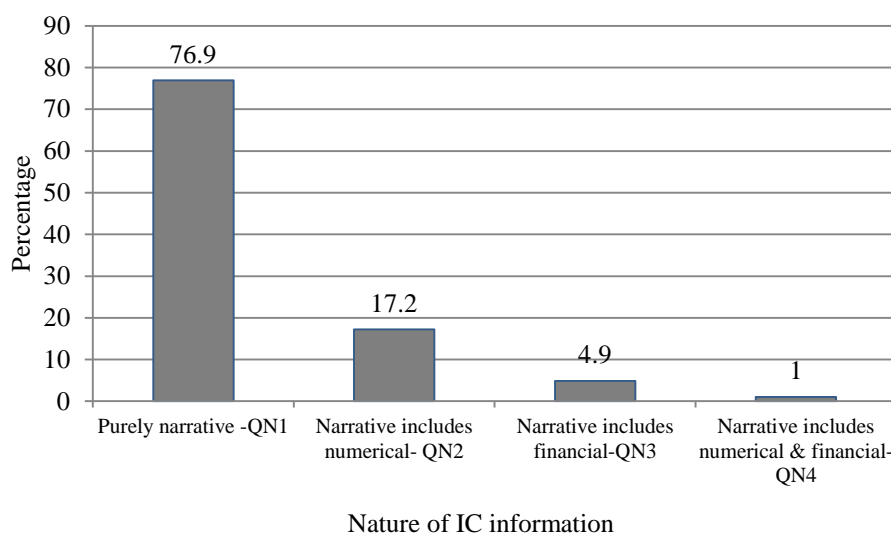
Table 7.6 Labels and descriptions of qualitative characteristics of IC information content

Label	Description
Qualitative characteristics type 1	
QN1	IC information was disclosed in purely narrative form. No numerical or monetary terms were included.
QN2	IC information was disclosed in narrative form and numerical terms were also included
QN3	IC information was disclosed in narrative form and monetary terms were also included
QN4	IC information was disclosed in narrative form and both numerical and monetary terms were also included.
Qualitative characteristics type 2	
QT1	The IC information containing no forward-looking content
QT2	The IC information containing forward-looking content
Qualitative characteristics type 3	
QF1	The IC information was substantially managerial perception
QF2	The IC information was substantially factual and verifiably factual.

7.8.1 *Qualitative characteristics type 1: nature of information*

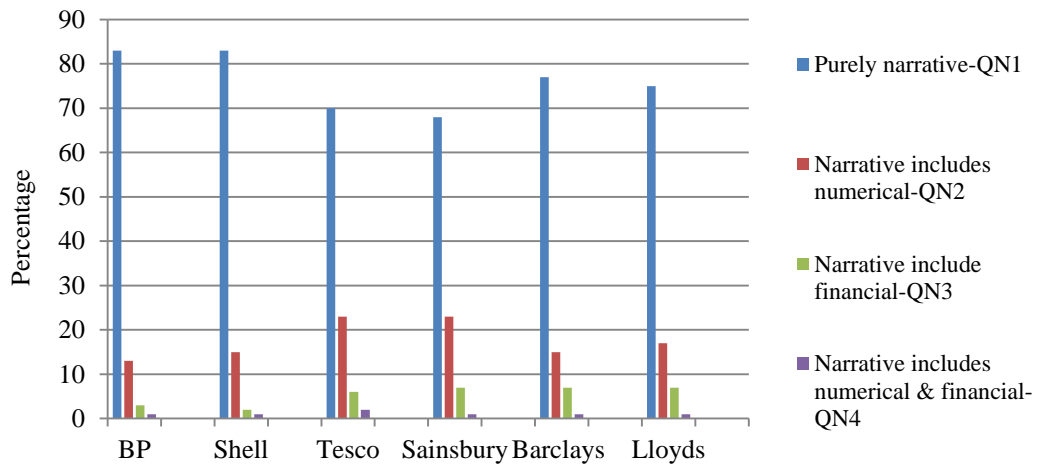
Figure 7.20 shows the percentage of qualitative characteristics in type 1. This study found that a large majority of 16,461 themes recorded involved IC information disclosed in purely narrative (QN1) form which accounted for 76.9% (12,662 themes), followed by narrative form including numerical terms (QN2) (17.2%; 2,831 themes) and narrative form including monetary terms (QN3) (4.9%; 803 themes). IC information disclosed in narrative form including numerical and financial terms (QN4) represented only 1% (165 themes) of the total.

Figure 7.20 Percentage of qualitative characteristics type 1 (all companies)



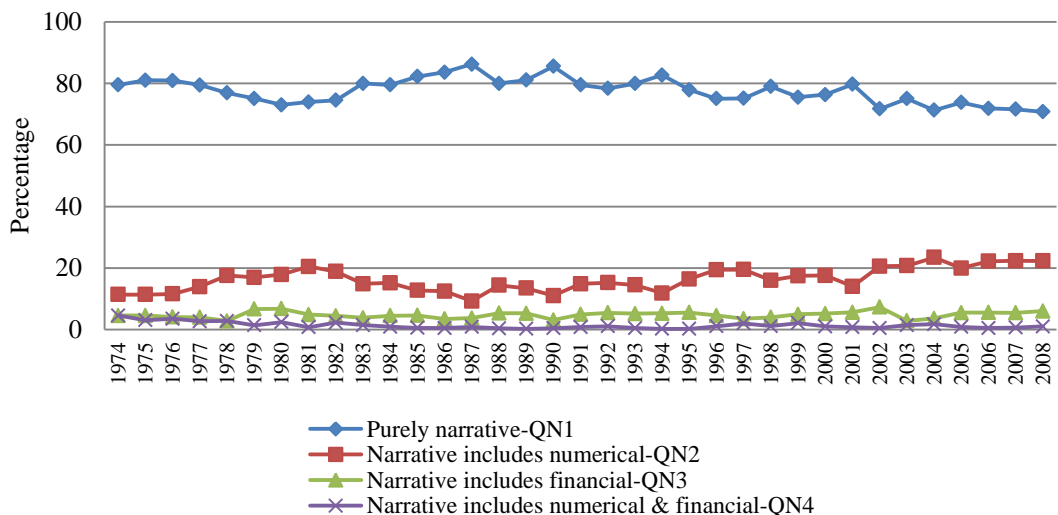
Further analysis was conducted for each company. Figure 7.21 clearly demonstrates that in every case the largest percentage of type 1 qualitative characteristics were represented by QN1, followed in order of magnitude, by QN2, QN3 and QN4. BP and Shell disclosed the largest percentage of IC themes coded as QN1, with both companies disclosing 83% of their total IC information as QN1. Similarly, Tesco and Sainsbury show that 70% and 68% of their IC information disclosed was with the form of QN1 respectively. Barclays and Lloyds followed a similar pattern, disclosing 77% and 75% respectively of their IC information in QN1 form. In terms of IC information disclosure in QN2, both companies in the retail sector represented higher percentages at 23% each. Meanwhile, BP reported for 13% and Shell and Barclays at 15% with Lloyds at 17% of their IC information in the form of QN2. No obvious differences between sectors in terms of QN3 characteristic could be detected. Very similar percentages of QN4 form of IC information disclosure were found in all companies, accounting for about 1 and 2% of their total IC information. It can be concluded that there were no major sectoral effects found with regard to type 1 characteristics.

Figure 7.21 Percentages of qualitative characteristics type 1 by company (all years)



The prominence trend of QN1 form of IC information disclosure over time for all companies is clear as shown in figure 7.22, demonstrating that in each year, most IC information was disclosed in QN1 form (see Appendix M and Q). There was however a slight downward trend over the periods in the percentage of QN1 characteristics, from approximately 80% between 1974 and 1994 to around 70% afterwards. In contrast, the QN2 form in disclosure content slightly increased over the period, from 11% in the 1970s to around 20% towards the end of period. Meanwhile, the levels of QN3 and QN4 forms of disclosure remained relatively constant over the 35 years at below 10% of total IC information disclosed every year.

Figure 7.22 Percentages of qualitative characteristics type 1, 1974-2008: all companies



Furthermore, this study found no systematic inter sectoral effects of longitudinal trends in the percentages of qualitative characteristics type 1 of IC information disclosed. The result shows that most of IC information was disclosed by all companies in mainly narrative form (QN1) over 35 years. The longitudinal trend of QN1 percentage between companies was found to vary, however, but no single unambiguous effect was observed. Meanwhile, the percentage of IC information disclosed in numerical or quantitative form (QN2, QN3 and QN4) was variable but low, and there were also no clear longitudinal trends in evidence (see Appendix N for Type 1 disclosure trend per company).

The predominance of a mainly narrative form of IC information disclosure is in agreement with the findings of previous studies in the UK such as Campbell and Rahman (2010), Bezhani (2010) and Striukova et al. (2008), and in other countries like Australia (Guthrie and Petty, 2000), Hong Kong (Guthrie et al., 2006); Italy and USA (Boesso and Kumar, 2007) and Malaysia (Goh and Lim, 2004). Striukova et al. (2008), for example, found that the UK companies predominantly disclosed IC information in purely discursive form, accounting for 77% of disclosures in the FTSE 100 companies, 82% for FTSE250 companies and 90% for FTSE small capital companies (of total IC information disclosed). Campbell and Rahman (2010) investigated Marks and Spencer annual report and also found that 71% of IC information was reported discursively which led to the suggestion that the predominance of the narrative style is influenced by the narrative-driven nature of the 'front end' of most annual reports.

The findings above pose the question as to why the UK companies in the sample have been seemingly reluctant to disclose IC information in a more objective and quantitative manner, particularly in the later years when disclosure frameworks and measurement techniques for IC have increasingly been a part of the reporting environment. Demands for a more quantified and systematic presentation of information among users of annual report (e.g. by Hammond and Miles, 2004; Raar, 2007) has probably not been adequately satisfied, based on evidence offered by this study. Instead, companies appeared to be often recycling the way in which they reported IC information, and again, mainly in narrative form. The companies tended to prefer a 'soft and sketchy' drafting and editorial style rather than presenting specific frameworks and objective indicators of IC information. This lack of

quantified IC information disclosure over time may indicate that UK companies are still in the early stages of understanding the importance of IC disclosure. Previous researchers discussed this in terms of a continuous gap between rhetoric and objectivity in reporting IC, with companies simply commenting on the sources of corporate value rather than in quantifying them (Guthrie and Petty, 2000; Abeysekera and Guthrie, 2005; Guthrie et al., 2006; An Yi and Davey, 2010).

A partial explanation may be that the disclosure of IC information was seen predominantly as a tool to create image and to signal the recognition of intangible assets in business reporting than as a tool for conveying precise and measureable value. In other words, it is seen more about the construction of external impressions and for self-promotion, in the sense that messaging to shareholders convey the messages that the company is knowledgeably 'up to date' (Ogden and Clarke, 2005). If the reporting objective was just to ensure that information is addressed, thereby constructing the required positive image for the companies, it is likely that the QN1 form of disclosure would be considered to be adequate and reasonable. Conversely, producing information of higher information value than the QN1 form of information disclosure might have been considered too costly and complicated (with costs being presumed to outweigh benefits).

The fact that the QN1 form of disclosure did not change much over time might be partly explainable by a lack of clear reporting frameworks or guidance, particularly any that were industry-specific (Guimon, 2005). Although some IC frameworks have been appeared, particularly over the last 15 years of the study (see below), these were voluntary and were seemingly not widely adopted by the UK companies to present IC information systematically. As such, no single report that specifically made reference to the term 'Intellectual Capital' was found in this study. The prominent frameworks of IC reporting, such as the balanced score card, the Skandia value scheme and the intangible asset monitor were probably not adopted by any of the companies in the sample when drafting annual report IC information disclosures. Guthrie et al., (2006) also found an absence of any systematic IC reporting and suggested that this due in part to a lack of established and widely-agreed frameworks on how to disclose IC. The proposed framework of IC information disclosure were probably somewhat confusing, and impractical for the purposes of external reporting. Guthrie et al. (2006) proceeded to argue that managers might, on one hand, view IC

as an internal management tool but on the other, fail to connect this with external reporting to shareholders. Indeed, some authors have conveyed the belief that a lack of clarity between the theoretical perspective and practical applications of IC measurement and its reporting have hindered its practical use (Kaufman and Schneider, 2004; Arenas and Lavanderos, 2008; Choong, 2008; Schneider and Samkin, 2008).

The complexity of the techniques to measure and quantify IC might also have contributed to lower quantitative IC disclosures (Brennan and Connell, 2000; Kaufman and Schneider, 2004; Bollen et al., 2005; An Yi and Davey, 2010). When coupled with the information gathering costs, these may, combined, be the strongest explanations for the low levels of quantitative IC disclosure (Bontis, 2003; Guimon, 2005). For example, some specific IC indicators such as customer satisfaction, employee satisfaction, value added per employee, marketing cost per employee, employee skills, education cost, IT literacy, quality product or customer response time, are all extremely difficult to measure. The quantification of these indicators could not be achieved without substantial effort, cost, time and expertise among members of the companies.

Another possible factor contributing to the lack of quantitative IC information is auditor conservatism. In theory, Bannister (2001) and Ayuso (2003) argued that accounting firms tend to protect their reputations by avoiding the risks of litigation arising from carelessness in preventing misleading information. The auditors assume less risk when dealing with annual reports strictly prepared according to financial accounting standards and regulation, even although this conservatism may provide an inaccurate and partial view of total company value. In contrast, auditors may be exposed to higher risks of litigation if they provide a favourable opinion in respect of unverifiable information. Therefore, auditor conservatism can be argued to be a hindrance and a disincentive to the publication of quantified IC information. In as much as there is no regulatory standard nor legally-enforceable guidance for IC disclosure, the quantitative indicators may be manipulated (because they are unaudited) and this could lead to the publication of misleading IC information.

7.8.2 Qualitative characteristics type 2: time orientation of information

Figure 7.23 indicates the disclosure of IC information in terms of qualitative characteristics type 2 (time orientation). It was found that most IC information was disclosed without any forward-looking quality (QT1), which accounted for 85.9% (14, 140 themes). Only 2,321 themes, or 14.1% of total IC information were conveyed in a forward-looking way (QT2).

Figure 7.23 Percentages of qualitative characteristics type 2 (all companies)

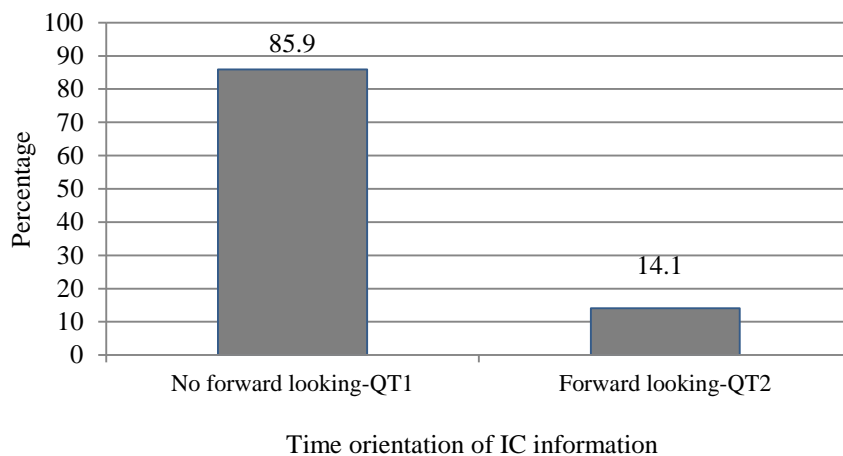
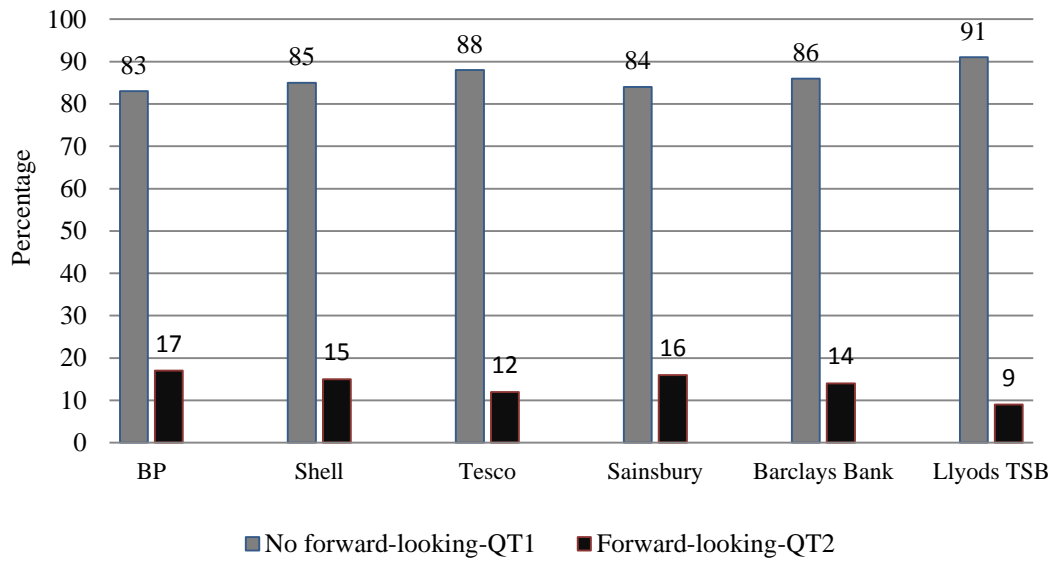


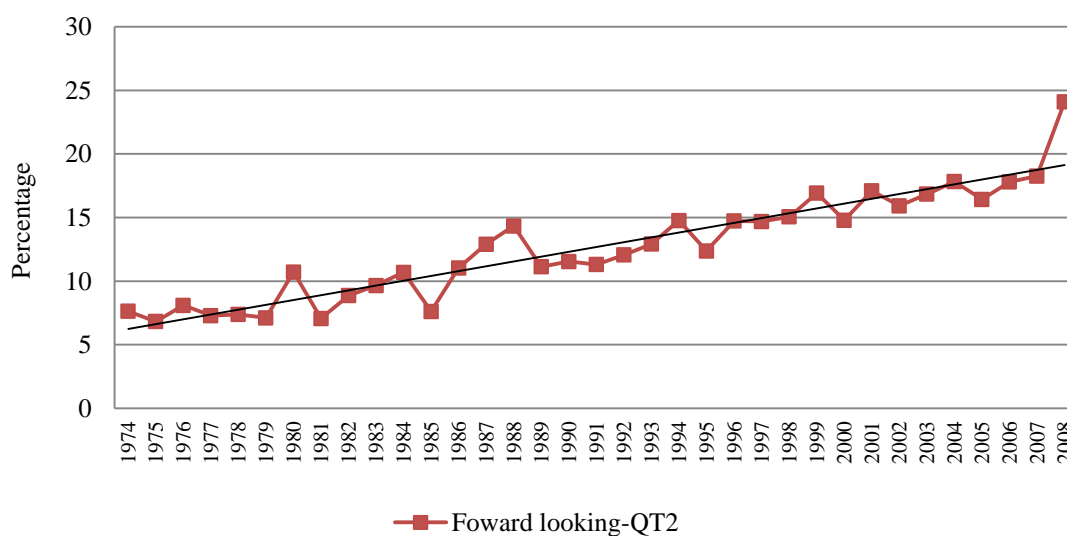
Figure 7.24 demonstrates similar percentages of type 2 qualitative characteristics present in the annual reports of all six companies. The percentages of the forward looking form of IC information disclosure (QT2) in BP and Shell were only 17% and 15% respectively. The respective figure in Tesco was 12% but slightly higher in Sainsbury at 16%. A major difference in the percentage of the QT2 form of IC information disclosure was found between Barclays compared to Lloyds respectively at 14% and 9% of their total IC information. It can be concluded that IC information content were predominantly disclosed without forward-looking characteristics in the annual reports of all companies in the sample.

Figure 7.24 Percentages of qualitative characteristics type 2 by company (all years)



In terms longitudinal trend disclosure of type 2, Figure 7.25 demonstrates a significant increase in the percentage of QT2 form of IC information disclosure over the period. Between 1974 and 1981, the percentages of QT2 form of disclosure remained around 7 to 8% of total IC information content disclosed before rising to more than 10% per year, for example, 11% in 1986, 14% in 1988, 17% in 1999, 18% in 2006 and 24% in 2008 (all companies). The overall results suggest that although the percentage of IC information content disclosed in QT2 form was relatively low compared to QT1, the levels significantly increased over the period and this indicates an increasing proportion of ‘quality’ in the disclosure of IC information content.

Figure 7.25 Percentage of qualitative characteristic type 2 (QT2), 1974-2008: all companies



It is interesting to note that the increasing trend of the QT2 disclosure over time was also shown by each company (see Appendix O and R). The percentage of QT2 form for BP arose from only 9% in 1974 to 15% until 1982, after which it continued to rise to 24% in 2006. Shell followed a similar trend, starting for around 7 to 12% prior to 1986 before subsequently increasing to more than 15%, for example, it was 18% in 1999, 23% each in 2003 and 2008.

Likewise, the increasing trend of the QT2 form of IC information disclosure was also found in retail companies. In Tesco, apart from 19% in 1980, the percentages of QT2 form of disclosure per year from 1974 to 1986 were between 4% and 10% of total IC information, after which the percentage of QT2 steadily grew. Among the high percentages of QT2 were 16% in 1997, 17% in 2000 and 18% in 2007. Meanwhile, not more than 15% of IC information was reported in the QT2 form between 1974 and 1995 in Sainsbury annual reports but subsequent to that, the figure steadily increased exceeding 20% in most later years. For example, the proportions of QT2 were 23% of total IC information disclosed in annual reports of 2004 and 2007 and 24% in 2003 and 2008 (see Appendix O).

The graph in Appendix O also clearly shows upward longitudinal trends in the percentages of the QT2 form of information disclosed by Barclays and Lloyds. Prior to 1993, percentages of QT2 disclosure per year for Barclays were less than 15%, with low percentages, for example, evident in 1976 (5%), 1981 (4%) and 1991 (8%) before increasing to more than 15% in most of the subsequent years. The larger

proportions of QT2 were found in 1993 (18%), 1996, 1997 (both 17%), 2001 (23%), 2003 and 2004 (both 18%). In Lloyds, the percentages of the QT2 form of IC information disclosure until 1996 were less than 7% of the total IC information, the figure then significantly increased afterwards, for example 15% in 1998, 18% in 2000, 23% in 2001 and 19% in 2008.

In sum, the overall sample data shows the low proportion of forward-looking information (QT2) of total IC information disclosed (all companies, all years). No clear inter-sectoral effect was found in the proportion of forward-looking disclosure as all companies produced a small proportion of the QT2 form of disclosure. The longitudinal analysis did, however, show a systematic trend in the QT2 form of disclosure in as much as all six companies showed an increasing proportion of forward-looking disclosure overtime. Even though the overall proportion of QT2 was low overall, the upward trend in the proportion over time arguably reflects the increasing aim of the companies to enhance transparency and to gain shareholders' confidence over future prospects and growth.

The finding of a low proportion of forward-looking disclosure (QF2) is in agreement with a number of past studies (Beretta and Bozzolan, 2004; Aljifri and Hussainey, 2007; Boesso and Kumar, 2007). Aljifri and Hussainey (2007), for example, found that the mean percentage of forward-looking sentences only accounted for 8% of total sentences in the narrative sections of the annual report. In other study, Boesso and Kumar (2007) found that that only 7.3% in Italy and 11.4% in the USA of key performance indicator (KPI) disclosures were made in a forward-looking orientation. The results in general suggest that, regardless of disclosure sub-category, ICR was mostly disclosed in a backward-looking manner with very little being linked to prospective or forward-looking perspectives.

The findings of this study support a belief that the strategic importance of IC disclosure in representing the real valuation of companies (Marr et al., 2004; Lev and Daum, 2004; Orens et al., 2009) may be challenged by the low levels of forward-looking narrative. In order to be decision-useful, it could be argued that IC information should be conveyed in a manner that allows shareholders to foresee the future events or prospects related to IC. The principle of prudence, on matters of financial disclosure (in which optimism is curtailed and pessimism is encouraged)

may have influenced IC reporting in this regard and made it counter-cultural to convey uncertain forecasts on IC issues. This, in turn, would be a likely cause of low levels of forward-looking disclosure over the period of the study.

These findings are mainly in line with those in previous studies. Some of these prior studies have suggested that litigation risk may be another cause of low forward-looking disclosure. Pave and Epstein (1993), Johnson et al. (2001) and Kent and Ung (2003) noted that managers often hesitate to discuss the future prospect of companies with shareholders because of a belief that they may, in so doing, be exposing themselves to litigation when forecasts or other prognostications turn out to be inaccurate. Although this applies to investor relations generally (such as speeches at annual general meetings and the like), it is likely to be a cause of low forward-looking narrative generally.

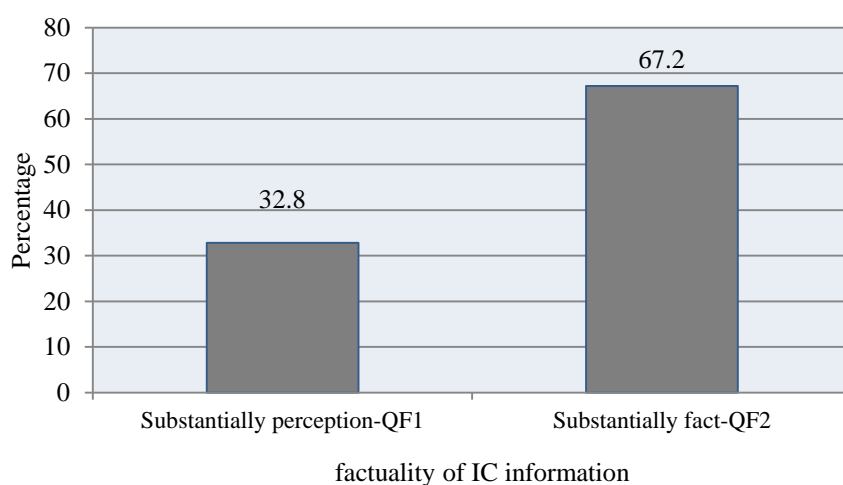
A third possible reason for low forward-looking disclosure (in addition to prudence and the avoidance of litigation risk) is a belief that forward looking disclosure may contain elements of commercially-sensitive information that it would be unwise to disclose to competitors or other stakeholders (Guimon, 2005; Verrecchia, 1983; Williams, 2001; Kent and Ung, 2003; Vergauwen and van Alem, 2005). Information disclosure about, for example, future plans, strategies and forecasts in respect of IC might be used by competitors for the purposes of imitation or other damaging reasons. Similarly, plans for product innovation, customer retention strategy, R&D planning and so on are among the most competitively sensitive types of information and once such plans are externally disclosed and intimated, any competitive advantage may be diminished.

The findings of this study with regard to the time-orientation of disclosure show the value of resolving IC information content between forward-looking and a historical perspective as this is manifestly capable of demonstrating a key qualitative characteristic of information content.

7.8.3 Qualitative characteristics type 3: factuality of information

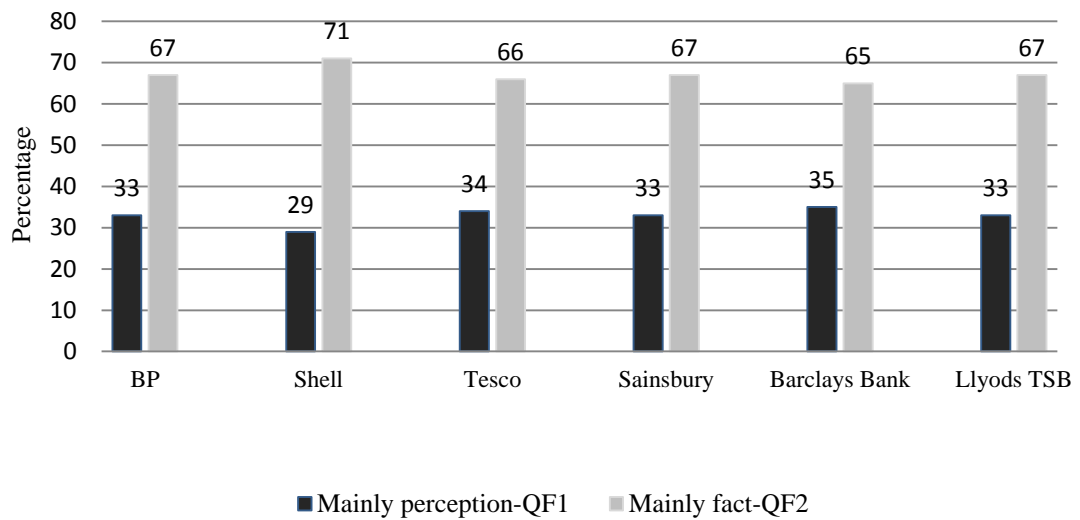
The data on the factuality of IC information content disclosed are summarised in Figure 7.26. From overall sample data analysis for all years, it was identified that 67.2% (11,062) of IC themes were conveyed in a factual manner (QF2), whereas only 5,399 (32.8% of the total) IC themes were conveyed in terms of managerial perceptions (QF1).

Figure 7.26 Percentages of qualitative characteristics type 3 (all companies)



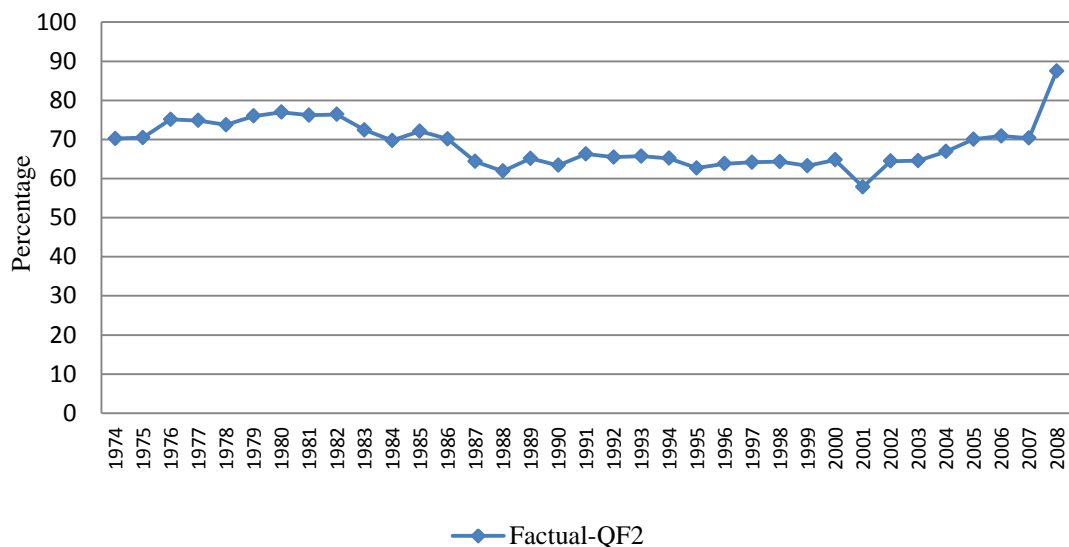
General similarities between sectors were found in type 3 qualitative characteristics of IC information disclosed, as presented in Figure 7.27. This suggests that approximately two thirds of IC information content was disclosed substantially in factual form (QF2) in all companies, with the remaining representing managerial perception (QF1). For Shell, 71 % of IC information was in QF2 form, which is slightly higher than that of BP at 67%. Tesco and Sainsbury as well as Barclays and Lloyds had very similar percentages of QF2 respectively at 66%, 67%, 65% and 67% (all years in all cases). It can be concluded that the largest proportion of IC information content in annual reports was conveyed in a factual manner rather than as managerial perception.

Figure 7.27 Percentages of qualitative characteristics type 3, by company (all years)



The longitudinal data concerning qualitative characteristics type 3 for all companies is shown in Figure 7.28, indicating a marginal downward trend in the percentages of factual IC information (QF2) disclosed over the 35 years. The percentage of information content disclosed in QF2 form was around 75% until 1982, after which it slightly declined to under 70% before rising again to a figure of 87% in 2008. The high percentage of QF2 form of IC information content that disclosed by all companies marginally declined over time.

Figure 7.28 Percentages of qualitative characteristic type 3 (QF2), 1974-2008: all companies



The next tranche of findings from this study pertain to the longitudinal trend of qualitative characteristics type 3 by company (see Appendix P and S). The result demonstrates the percentages of QF2 form of information disclosure from 1974 to 2008 for BP and Shell declined over time. In BP, the percentage of QF2 form of disclosure between 1974 and 1986 was around 70% - 80% of total IC information per year, after which it declined to around 50% - 60% per year until 2005 before increasing again to more than 80%. A similar downward trend was shown by Shell, representing around 70-80% of the total IC information disclosed between 1974 and 1995, before falling to around 55% and 65% of the total between 1996 and 2004. The respective figures, however, increased to slightly more than 70% afterwards. In sum, while most of the IC information was disclosed in the QF2 form, the percentages declined over time.

Meanwhile, the graph in Appendix P displays no clear trend in the QF2 of IC information disclosed by both of the retail companies over the 35 years. The percentages of the QF2 form of IC information disclosure per year fluctuated around 50 to 60% of total IC information, with a few peaks occurring in 1979 (78%), 1982 (76%), 2002 and 2003 (73%). Similarly, Sainsbury showed no discernible trend in the percentages of QF2 form of disclosure, which indicates a somewhat random pattern of low and high percentages of QF2 across the years. On average, the annual percentages of OF2 were about 50 to 70% with a few high percentages of QF2 recorded in 1979 (70%), 1987 (78%), 1997 (75%), 2003 (76%), 2006 (75%) and 2008 (82%).

Both of the banking companies displayed very gentle, and probably insignificant, downward trends in percentage of QF2 form of IC information disclosed over time. For Barclays, the higher percentages of QF2 form of disclosure per year have been identified between 1974 and 1986, roughly making up more than 70% of the total IC information disclosed before marginally dropping to around 65% in most of the years afterwards. An close-to-identical longitudinal trend in the QF2 form of information disclosed was also shown by Lloyds, demonstrating a gradually falling of the figure from approximately 80% of the total IC information disclosed until 1984 to below 70% afterwards (see Appendix P and S).

In sum, no sectoral effects on the factuality vs perception form of IC disclosures (QF2) were observed in this study. All of the six companies consistently disclosed the IC information more in factual form (QF2) than in perception form (QF1), comprising 67.2% of total IC information for all companies in all years. The percentage of QF2 form of disclosure between companies was similar, with a range between 67% and 71% of total (mean, all years). The percentage of factual QF2 slightly decreased over time between 1974 and 2008 for overall companies. Apart from Tesco and Sainsbury, the other companies all showed marginal downward trends in QF2 over the period. It is reasonable to conclude that all companies tended to disclose the IC information in verified or verifiable manner rather than based on management insight and perception.

As with other qualitative characteristics of disclosure, litigation risk may partly explain the predominant percentage of factual form of IC information disclosed. The companies might perceive that presenting fact-based IC is safer way to protect management and companies from the litigation risk than presenting perception-based IC information particularly in highly regulated documents such as annual reports. This is because management's subjective perception about IC could lead to a misunderstanding and some uncertainty among users of annual reports. This in turn opens up the possibility of being sued by shareholders for not being faithfully representing IC information. Furthermore, 'too much' perception-based disclosure could lead to credibility issues if disclosed in large volume without any significant intellectual commitment by management. Such a situation would have a potential effect of tarnishing the reputation of management with regard to veracity of disclosure.

The predominance of fact-based IC information disclosure found in this study could be related to the nature of annual reports themselves. There may be constraints in the forms and formats of annual reports that make them less-than-ideal for conveying management's self belief and perception. Annual reports are legally regulated and are subject to audit, and are, by their nature, intended to convey information to shareholders. The reliability of annual report information is considered important to shareholders (Bontis, 2003) and perception, as opposed to verifiable fact, may be considered less reliable. Perception may be seen by some shareholders as conjecture and 'massaged' information. In such as circumstance, perception disclosure would be

perceived as less reliable and this may consequently deter companies from making high levels of such disclosures.

In sum, the findings in this section demonstrate that all companies consistently showed a higher percentage in the factual form of disclosure over time. This finding does study support, however, the importance of coding for this distinction: a failure to differentiate between fact and perception would result in an incapacity to distinguish between good and poor reporters as well as good and poor content.

7.9 Key finding 7: qualitative characteristics of IC information by sub-categories

The qualitative characteristics of IC information content were also examined at the level of sub-categories with the objective of investigating whether the three types of qualitative characteristics can be distinguished from each other by way in which the IC information sub-categories were populated. In order to simplify the analysis of qualitative characteristics type 1, the percentages of QN2, QN3 and QN4 forms of disclosure were aggregated to represent the ‘quantitative’ type of information content (QN2-4 thereafter). In term of qualitative characteristic type 2 and 3, only QT2 form (forward looking disclosure) and QF2 form (fact disclosure) are shown in this analysis. This analysis is based on the percentage of IC sub-category information themes that were disclosed in the form of QN2-4, QT2 and QF2. Tables 7.7 to 7.9 summarise the low and high percentages of quantified (sum_QN2-QN4)²⁶, forward looking (QT2) and factuality (QF2) of IC information at the sub-categories level.

Table 7.7 shows that the high percentage of quantitative form of disclosure only occurred in disclosures about distribution channels at 49%, communities at 52%, customer at 35%, employees at 32% and market presence at 31%. The number of outlets, branches, customers, employees and money spent on communities and environmental donation and sponsorship, which were recorded as typical quantitative information, contributed to the high percentages in the quantitative recording of the sub-categories.

²⁶ The percentages of QN2, QN3 and QN4 were aggregated to single percentage under a group of ‘quantitative information’.

Meanwhile, many of the IC sub-categories were mainly disclosed in purely narrative form. For example, only 8% of IT/IS, 7% of management process, 11% of product innovation, 14% of R&D and 13% of suppliers' information was disclosed in quantitative terms (see also Kaufman and Schneider, 2004; Bollen et al., 2005). A possible causation factor that may partly explain is to do with the strategically-sensitive nature of some of these sub-categories. Information considered to be less strategically sensitive was sometimes conveyed in quantitative form because narrative-rich disclosure might be thought capable of eroding competitive advantage. Meanwhile, other sub-categories that might be considered highly sensitive such as R&D, management process, product innovation and technology was often disclosed in a purely narrative in order to protect the information from unwanted attention. In short, some information lends itself to mainly quantitative conveyance and some to mainly qualitative conveyance.

These findings suggest that companies have also engaged in impression management by using selective styles or a variety of qualitative characteristics for each element of IC information being disclosed. In general, only less sensitive information was disclosed in a quantitative manner while highly sensitive information was disclosed in a qualitative manner. It is argued here that the benefits of this practice are twofold. First, the companies maintained their disclosure transparency thus improving the external image in respect of IC disclosure. Second, companies still protected the privacy of strategic information by disclosing that IC information more qualitatively (the qualitative information is assumed to be less useful information from the perspective of competitors). Therefore, this impression management technique in reporting IC information is conceivably an effective strategy to improve the image of the companies without exposing the information to competition cost.

Furthermore, low percentages of quantitative conveyance of IC disclosure are evident in a few of the sub-categories. Some of these sub-categories, by their nature, can be considered to be 'less or non-quantifiable' information content. Examples include corporate culture, management philosophy, employees' skills, boards of directors' knowledge and competencies, corporate image building and entrepreneurial spirit. This sort of information, making up 27.4% of total narrative

disclosures (QN1),²⁷ has contributed significantly to the large proportion of the total QN1. Accordingly it is important to bear in mind that the evaluation of quantitative nature of IC information sows some evidence of bias if non-quantifiable information is taken into account. Future studies might exclude or make adjustments for such sub-categories in accounting for the ‘quality’ of information disclosure (see also An Yi and Davey, 2010).

Table 7.7 Low and high percentages of quantified IC disclosure (sum_QN2-QN4) by sub-categories: all years

Low	Percentage	High	Percentage
Work related knowledge and competencies – board of directors	0%	Communities	52%
Management philosophy	0%	Distribution channel	49%
Corporate culture	2%	Customers	35%
Entrepreneurship spirits	4%	Environment	33%
Work related knowledge and competencies – employees	5%	Employees	32%
Corporate image	5%	Market presence	31%
Management process	7%		
Technology	8%		
Financial relation	9%		
Product innovation	11%		
R&D	14%		

In respect to the time orientation of sub-categories, Table 7.8 shows that the sub-categories most disclosed in forward-looking disclosure terms were information about contracts (31%), market presences (29%), distribution channels (28%), brands (24%), entrepreneurship (23%), R&D (21%), customers (17%), business partners (19%) and suppliers (20%). Forward-looking form of disclosure in information about contracts was mostly related to the anticipated benefits arising from current

²⁷ Corporate culture 2.2%, management philosophy 3.6%, corporate image 2.7%, employee skill and knowledge 2.6%, BoD’s profile and skill 15.3% and entrepreneurial spirit 1% of total QN1 disclosure.

contracts/licences/agreements and company intentions of entering into new or renewed contracts/agreements. Similarly, companies' plans and intentions to open new branches, outlets, appointing new agents, sales representatives, etc, proposals to enter new international markets and the anticipated benefits of entering those plans largely explain the high proportion of QT2 form of disclosure in the information about market presences and distribution channels. Perhaps the companies considered these types of information to be more convincing and strategic than other information sub-categories in respect of providing impact on the forecasts for future growth. Thus, the companies disclosed slightly more QT2 on these sub-categories than other sub-categories. Other IC sub-categories which displayed low proportions of QT2 form can probably be considered to be as either less strategic, such as communities and corporate images, or neutral information such as corporate culture, management philosophy, board of directors' knowledge and competencies.

However, the general view of this finding is that the companies still showed pessimism in the majority of reported sub-categories of IC information and many more sub-categories IC information deemed important were still reported in an historic orientation. It can be argued that the companies did not significantly employ forward-looking information in many sub-categories as a technique in impression management. Hence, forward-looking information may not be a good strategy as a management impression technique as it may endanger the commercial prospects of the reporting companies. This is partly because of the tendency of IC information to be imitated.

Table 7.8 Low and high percentages of forward-looking IC disclosure (QT2) by IC sub-categories: all years

Low	Percentage	High	Percentage
Work related knowledge and competencies –Board of directors	0%	Contracts	31%
Management philosophy	2%	Market presences	29%
Corporate image	2%	Distribution channels	28%
Corporate culture	5%	Brands	24%
Intellectual properties	5%	Entrepreneurship spirit	23%
Work related knowledge and competencies –Employees	7%	R&D	21%
Employees	8%	Suppliers	20%
Communities	9%	Environmental	19%
Management process	10%	Technologies	18%
Financial relation	10%	Product innovation	18%
Other stakeholders	10%		

Lastly, the low and high percentages of the factual form of information disclosed (QF2) also varied by the type of IC sub-category as presented in Table 7.10. The IC sub-categories information that were substantially disclosed in the factual form included information about K-infrastructures (91%), business partners (85%), contracts (95%), communities (79%), environment (73%), distribution channels (76%), intellectual properties (82%) and board of directors' knowledge and competencies (97%). Based on impression management theory, there was no clear reason why such sub-categories were largely fact based compared to other categories. It may be that fact-based information is not an effective strategy to impress stakeholders. This type of information content is perhaps less persuasive and influential in affecting the perception and attitudes of stakeholders towards the reporting companies. Instead, the perception-based information content is said to be

more capable of building an image of the reporting companies. It could be speculated instead that the higher percentage of the fact form in these sub-categories was due to their relative litigation-sensitivity compared to other narratives that require a high faithfulness of presentation.

Table 7.9 Low and high percentages of factual IC disclosure (QF2) by IC sub-categories: all companies, all years.

Low	Percentage	High	Percentage
Management philosophy	6%	Work related knowledge and competencies –BoDs	97%
Corporate culture	16%	Contracts	95%
Work related knowledge and competencies – employees	19%	K-infrastructure	91%
Entrepreneurship spirit	36%	Business partner	85%
		Intellectual properties	82%
		Corporate image	81%
		Communities	79%
		Distribution channels	76%

Table 7.9 also shows that the low proportions of the factual form of disclosure (QF2) were found in the information about corporate culture (16%), management philosophy (6%), work related knowledge and competencies-employee (19%) and entrepreneurship spirit (36%), findings that are perhaps not entirely unexpected due to descriptive nature of a lot of this information. These kinds of information are generally non-verifiable and are typically constructed and presented according to management’s subjective belief. The truth about the information only exists in the mind of the information preparers but is often inaccessible to most readers of annual reports. In fact, some IC studies excluded these categories, especially information about corporate culture, management philosophy and entrepreneurship spirit, in the belief that their vagueness and subjectivity would make them difficult to adequately

and reliably code (Abdolmohammadi, 2005; Meca, 2005; Boesso and Kumar, 2007; Lee et al., 2007).

7.10 Key finding 8: relationships between accounting disclosure theories and IC

As mentioned earlier, IC information disclosure practice is not systematic and is unregulated, allowing companies to choose what, where, when and how to disclose it. Therefore, in the absence of regulatory enforcement, there are perhaps many motives behind IC disclosure. The motives are potentially explainable by a number of disclosure theories as presented in section 3.10. However, no single theory well explains the observed behaviour. This study found an inappropriateness of such theories in explaining the study findings with no single theory explaining more than a small part of the observed reporting behaviour.

Based on the volume analysis, agency and signalling theory are deemed to be the stronger theories in explaining the observed reporting behaviour of this study. The marked increase of IC disclosure from 1974 to 2008 suggests that companies may have been trying to reduce agency costs by signalling the most relevant information in the emergence of knowledge economy. However, further analysis based on qualitative characteristics found that the signalling impact of IC disclosure was diminished by a low level of signalling quality in the low levels of quantified and forward-looking disclosures (see section 7.8.1 and 7.8.2). Nonetheless, centered on agency and signalling theory *per se* will not recognise the interest of parties other than shareholders. Since IC disclosure captures the wider range of parties, legitimacy and stakeholder theory may have some merit in this regard also.

Based on the analysis at the level of IC category (SC, RC and HC), this thesis may suggest that legitimacy theory provides a partial explanation the observed IC disclosure behaviour. The increasing volume of IC disclosure by the six companies over 35 years in respect of RC is somewhat consistent with legitimacy theory (SC category is less to do with the theory). Given the increasing dependence of the companies on RC (community, customers, environment, business partners and suppliers) to create value and sustain itself in the long run, the companies attempted to be seen to be acting in a manner that is consistent with the expectations of those

parties. The legitimacy expectation was obtained, it could be argued, through IC disclosure. IC disclosure was preferred because the traditional symbols of corporate success that were typically disclosed in traditional financial reporting was possibly deemed to be less relevant in legitimating the activities of companies to the affected parties. The large number of RC disclosures suggests that companies recognised the different expectations and understandings of a diverse group of external parties. Furthermore, based on these study findings (in section 7.8.3) the companies may have employed a legitimating strategy by conveying information on IC related activities and performance to the relevant external parties (through IC disclosure).

The large volumes of information disclosed about various stakeholders in IC disclosure (see Figure 7.2) provide some support for stakeholder theory. The six companies in this study consistently recognised the importance of diverse stakeholders in their business activities. The recognition can be described through the increasingly large volumes of disclosure about RC over the 35 years in the companies' annual reports (see Figure 7.4 and 7.5). The companies provided explanations about their contributions to the surrounding communities and environment, concerns for and policies over their employees, favourable relationships with business partners and suppliers, and a paramount concerns for customers (see Appendix C for examples of this disclosure). This type of disclosure was not only able to enhance the image of the companies but was also likely to improve relationships with these stakeholders.

With regard to the positive branch of stakeholder theory (see section 3.10.4), the findings of this study suggest that the different volumes of information about stakeholders can be related to the relative powers of those stakeholders. The more influence the stakeholder on the companies, the more information about the stakeholders was disclosed in the annual reports (this assumption is commensurate with basic semiotic assumption in content analysis). In this study, on the basis of disclosure volume (see Figure 7.2), the most powerful stakeholders were identified to be customers, employees, directors, community and business partners while the least powerful were suppliers and other stakeholders (NGO, government and media).

The significant upward trend of IC disclosure volume from 1974 to 2008 also describes the relative decision usefulness of IC information in comparison to

financial information as assumed in traditional financial reporting. Despite many developments in accounting standards dealing with intangible assets (see section 3.4), the companies in this study tended to voluntarily increase the volume of IC disclosure mainly in the front-end of annual reports rather than in the main body of the financial statements. This was conceivably owing to the narrow scope of financial reporting standards in allowing for the recognition of a wider range of IC information (see section 3.5). Furthermore, the marked increase of RC category disclosure from the mid 1990s onwards can also be linked with the decision usefulness of RC disclosure over SC and HC. The gradual change in business focus from internal to external arose from the higher perceived value of RC in creating value (customers, brand, community, business partners, etc) and this then contributed to the higher levels of decision usefulness of RC information. These changes, in turn, precipitated a change in disclosures in the form of higher RC reporting. At sub-category level, the relevance of decision usefulness theory in the study findings can be best seen in brand information disclosure (see section 7.7). The impact of brand image in creating shareholder value increasingly outweighed information about the technology used in a company (Arslan and Altuna, 2010; Yeoh, 2010). This has probably made information about brand more useful for decision-making and this may explain to the rise in explicit disclosure from 1974 to 2008 particularly in retail companies such as Tesco and Sainsbury.

The relevance of impression management theory can be viewed in terms of the findings on the qualitative characteristics of IC information offered by this study. The fact that the majority of IC information was disclosed in purely narrative form (see section 7.8.1) may partially indicate the companies used IC information predominantly to create image, and signal the recognition of IC rather than seriously informing the measureable value of IC in order to enable a systematic analysis of intellectual capacity. It is seen more in terms of the construction of external impressions and self-promotion in situations in which many companies talk about knowledge assets. Further evidence of impression management may be provided from the selective qualitative characteristics for each sub-category of IC information being disclosed. For example, only less sensitive information was disclosed in a more quantitative manner while highly sensitive was disclosed more in purely narrative form (see section 7.9). This impression management technique could influence the disclosure transparency of the companies and in turn improve the

external image in respect of IC disclosure whilst at the same time still protecting commercially sensitive information. However, factors other than impression impression may explain the high level of purely narrative disclosure such as lack of frameworks and techniques for the quantification of IC information.

There is no clear reason to relate the low level of forward-looking and high level of fact-based IC information disclosed with impression management theory. This study suggests that impression management can be deemed to take place if the IC information is disclosed with more forward-looking and more perception-based because this type of information content has a higher tendency to influence and shape the perception and attitude of stakeholders towards the reporting companies. Other factors may explain this situation such as litigation and proprietary costs.

7.11 Chapter summary

The practice of IC disclosure among UK companies increased over the 35 years, predominantly since the 1990s, from little IC information disclosed in 1974 to hundreds of information themes by 2008, clearly signifying the increasing awareness about the importance of disclosing IC information to shareholders. On the one hand, the increasing trend of IC disclosures could be interpreted as responses to two major factors; the changes in the economic context from traditional to knowledge economy and a reduced capability of traditional financial disclosure to deal with IC. On the other hand, there is an argument to suggest that researchers in the field of corporate disclosure may have been analysing a disclosure that has been there for many decades but that studies only recently analysed and with those mainly analysing recent years.

The contribution of this study rests on the several key findings reported on in this chapter. Firstly, there was an increase in IC information disclosures over time. Secondly, the predominance of RC information corroborates the findings of many of the previous studies. The shift suggests that a change in business focus from internal transactions to relational strategies have probably contributed to the significant disclosure of RC information, particularly since the mid-1990s. Thirdly, sectoral reporting effects are evident in category and sub-category reporting. Fourthly, there was a re-ordering of the most dominant sub-categories of IC disclosures and no sub-

categories were consistently more disclosed than any others over time. Fifthly, brand information disclosure showed the highest inter-sectoral and longitudinal variability. Sixthly, the quantity of IC information disclosed was not correlated with the ‘quality’ or qualitative characteristics of disclosure. The scores for qualitative characteristics of the IC information were not proportionate with the frequency of the information over time. A majority of IC information was consistently disclosed in purely narrative and backward-looking forms. The proportions of qualitative characteristics varied by sub-category. Finally, the appropriateness of disclosure theories in explaining IC disclosure was discussed.

Chapter 8. Concluding remarks

8.1 Introduction

This last chapter seeks to summarise the thesis and to outline limitations and suggestions for future research in the area of IC information disclosure. The most important objective of this chapter is to underline the original contributions of this piece of the work on the corporate disclosure literature and also to the debate on content analysis as a narrative interrogation method.

8.2 Summary of the study

The main objectives of study were set out in chapter 1 as follows:

- To investigate IC disclosure practice in annual reports both cross-sectionally and longitudinally.
- To develop and enhance a method for capturing volume and the qualitative characteristics of IC disclosures in annual reports.

As discussed in Chapter 2, the shift of economic emphasis from a traditional to a knowledge economy has motivated many researchers to study IC measurement and reporting. The basis assumption of IC disclosure in the era of the knowledge economy is dependency of corporate competitive advantages more on intellectual assets than on physical assets. In line with this assumption, corporate disclosure of IC information is considered important for better business decision-making and valuation. A problem exists, however, when a traditional reporting system does not sufficiently permit accounting for IC information and this can cause asymmetry in the supply and demand of such information. Consequently, attempts have been made by companies to report IC information voluntarily to ensure that shareholders are provided with relevant reporting. As such, a tradition of research in the practice of IC information disclosure emerged, particularly from the early 1990s onwards.

In chapter 3, the reader was specifically introduced to the concept of IC, the history of IC disclosure research and the effect of accounting standards on IC disclosure. IC has been defined in many ways although the chapter noted the commonalities in

definitions and the general consensus that has emerged on defining IC and its main categories. It has been generally accepted that IC comprises three broad components or categories: structural capital (SC), relational capital (RC) and human capital (HC). Prior to this study and the formulation of research questions, over 30 studies about IC disclosure were reviewed and discussed in Chapter 3. A prominent criticism is that previous studies have privileged cross-sectional breadth over longitudinal depth. They often focused on a single year and were consequently incapable of describing the development the IC practice over time or through the lenses of long-term changes to the economic context. Despite some shallow longitudinal studies, (between 2 and 5 years), the length of period employed in prior studies is considered insufficient with the additional frustration that the majority of prior studies focused only on the mid-1990s onwards. Thus little was know, prior to this study, about IC disclosures prior to the date and this gap has been filled by this study. The question on how reporting behaviour has responded to long-term changes of economic context is only traceable if a sufficient lengthy longitudinal data period is employed. Moreover, there were increasing calls for conducting longitudinal studies of IC disclosure (e.g. Guthrie and Petty, 2000; Bontis, 2003; Lee et al., 2007; Bozzolan et al., 2006; Vandemeale et al., 2005; White et al., 2007; Oliveras et al., 2008). These arguments informed the first objective of this study.

Also in Chapter 3, the literature on past studies was revisited once again to specifically highlight the influence of industry membership on IC disclosure. Having found that industry membership affected the volume of disclosure, this study also incorporated multiple industries into the sample of the study. The last section of this chapter was a discussion about the relevance of disclosure theories in explaining IC disclosure behaviour so that the findings could be later discussed in the light of those theories. These theories included agency theory, signalling theory, legitimacy theory, stakeholder theory, decision usefulness theory and management impression theory.

Chapter 4 was dedicated to discussing the qualitative characteristics of IC information content, which was identified as another gap in prior IC disclosure studies. The literature review suggested that many studies extensively focused on counting quantity of IC information disclosed (volumetric analysis) but had little interest in interrogating the qualitative characteristics of such information. Having found that qualitative characteristics are multi-dimensional (Beattie and Thomson,

2007; An Yi and Davey, 2010), there is a clear advantage to be gained by including a 'quality' analysis in any IC content analysis. This is a neglected area in prior studies and this was a part of the motivation of the method employed in this study. In addition, this study responded to Guthrie and Mathews (1985) and other subsequent authors (e.g. Beretta and Bozzolan, 2004; Beattie et al., 2004; Beattie and Thomson, 2007) who raised the importance of measuring the deeper layer of information content as opposed to merely capturing the quantity of information presence. This argument informed the second objective of this study.

Content analysis was identified as the most appropriate technique to answer the research questions in this study. The guidelines and other related issues of content analysis were discussed in chapter 5. It is assumed that understanding the methodology issues is important in helping the researcher of this study to encounter some challenges that may arise prior to and during the process of recording. The important discussion of method included the concepts of unitising, the construction of categories, coding procedures and operations, reliability and validity.

The thesis proceeded to discuss the development of method in chapter 6. The aim of the chapter was to communicate the detailed aspects of method construction. The method development can be summarised into 6 stages as follows:

- *IC categories construction*: A widely applied IC disclosure framework that originated from Guthrie and Petty (2000) was used in this study. Over time, the consistent use of this framework underpins its validity as a measure of IC information disclosure. Additionally, the use of the framework enables comparisons to be made between studies. The framework was, nevertheless, modified in certain areas to suit this study. It was divided into three main categories and twenty-six sub-categories. The structural capital (SC) category contained nine sub-categories, the relational capital (RC) category contained twelve sub-categories and the human capital (HC) category contained five sub-categories. Each sub-category was underpinned with relevant signifying and indicative terms in order to assist the recording of IC themes.

- Qualitative characteristics category construction:* The qualitative characteristics of IC information content are based on three mutually exclusive types: (i) type 1, the nature of IC information; (ii) type 2, the time orientation of IC information; and, (iii) type 3, the factuality of IC information. The nature of information was examined at 4 levels, *viz.* purely narrative (QN1), narrative with numerical terms (QN2), narrative with monetary term (QN3) and narrative with numerical and monetary terms (QN4). The sum of QN2, QN3 and QN4 is the totality of quantified disclosure. The time orientation of information was assessed at 2 levels: those themes containing no forward looking information (QF1) and those containing forward-looking information (QF2). The examination of factuality of IC information content was also conducted at two levels: IC information that was substantially disclosed based on managerial perception (QF1) and information substantially disclosed as fact (QF2).
- Unitising:* The unit of recording used in this study was themes or clauses. This selection was made in order to avoid the intrinsic limitations of words, sentences, paragraphs or pages as recording units. Themes rarely exist as single words, sentences or paragraphs but rather, they are recorded as at between the beginning and the end of a discussion without the restriction of punctuation. The number of words or sentences that construct themes may vary depending on the depth of theme being discussed. Using themes as recording units, a piece of IC information that may exist in a small numbers of words is captured just as effectively as if it were a whole paragraph (Beck et al., 2010). Charts, tables and photos were not recorded due to complexity of analysis except the textual caption that was attached to the photos. The context unit used in this study was the paragraph, which was very helpful in drawing more accurate meanings about recording units (themes).
- Media selection:* The corporate reporting media used in this study were annual reports principally based on the argument that the documents were capable of recording and retaining historical detail, thus being the most media appropriate for longitudinal studies. The use of websites or IPOs is almost impossible owing to the documents being only intermittently available

(Campbell, 2004; Campbell et al., 2006). Various sources were used to obtain the annual reports such as archives in Northumbria and Newcastle Universities, databases in Companies House and on companies' websites. The sections of annual reports analysed in this study were the chairman statements, letters of chairman, chief executive reviews, director reviews, reports of directors, sections of board of directors, operation and financial reviews, text captions in photos, corporate governance reports, outer and inner cover pages and remuneration reports.

- *Reliability test*: The reliability test is an important part of content analysis and must be explicitly dealt so that readers know the quality of a decision making process (Milne and Adler, 1999; Beattie and Thomson, 2007). The literature suggests three forms of reliability namely intra-coder reliability (stability), inter-coder reliability (reproducibility) and accuracy. Since this study involved one coder (the author of this thesis), the inter-coder reliability could not be tested. However, as suggested by Guthrie et al. (2004) and Milne and Adler (1999), this study enhanced its reliability by establishing well-specified procedures and disambiguation rules as well as a stability test. These are important controls for studies that involve single coders or where an inter-coder test is not possible. The reliability of this study was assumed to have been reasonably assured by the following rules:

- ❖ Operational definitions of each sub-category were established and accompanied by indicative terms and rules of disambiguation;
- ❖ The recording sheets were user friendly and well-organised;
- ❖ The flowchart of recording protocol was well designed;
- ❖ The data in recording sheets were transferred to computer database as soon as it was completed;
- ❖ Rigour training was undertaken during the pilot. Analysing 31 annual reports of Marks and Spencer is presumed to be sufficient to ensure the reliability of the final recording;
- ❖ In order to reduce coder fatigue, which probably reduces reliability (Riffe et al., 2005), the number of annual reports recorded per day was limited to one, meaning that it took 6 months to complete the recording of all the 210 annual reports.

The specific recording rules were established during the pilot test (Campbell and Rahman, 2010) and these were further improved during the recording process of the first 25 annual reports from the final sample. The author and supervisor of this study co-operated to establish the recording rules and recording instructions.

- *The sample:* The sample companies were selected from the FTSE100 list in order to avoid the effects of company size on disclosure. A total of 22 potential companies were initially selected from the list and the criterion for choosing these companies was contiguous availability of their annual reports from 1968 to 2008. After the second filter was applied, only six companies from three different industries were selected: British petroleum (BP), Royal Dutch Shell (Shell), Tesco Plc (Tesco), J Sainsbury Plc (Sainsbury), Barclays Bank (Barclays) and Lloyds TSB Bank (Lloyds). A total of 210 annual reports from 1974 to 2008 inclusive were successfully gathered and the sample was considered cross-sectionally and longitudinally representative.

8.3 Answering the research questions

Table 8.1 shows how all research questions of this study are answered. The main findings and method development in relation to the research questions are both presented.

Table 8.1 Overview of research questions and answers

	Research questions	Answers
RQ1	How can longitudinal volumetric (frequency) of IC disclosure of 6 UK companies from 1974 to 2008 be described?	<ul style="list-style-type: none"> • The study period was 35 years, from 1974 to 2008 contiguously. A total 210 annual reports from 6 UK companies were analysed. • Overall, a marked increase in IC information disclosure was identified over the 35 years. • The RC information disclosure was relatively more prominent over time (marked from early 1990s onwards), followed by HC and SC category. • The level of emphasis (measured as top 10 rank order) between IC sub-categories information varied over time. There is no IC sub-categories information consistently more disclosed than other over the periods.
RQ2	How can cross-sectional effects of IC sub-categories information disclosure (relative proportion of main/sub-categories themes) from 1974 to 2008) be described?	<ul style="list-style-type: none"> • A total of 6 companies from 3 different industries were employed in this study to examine the sectoral membership effect on the IC information disclosed. Their annual reports were analysed and the data was compared. • The frequency of information disclosed between companies significantly different. • The different percentages of IC main/sub-categories information between sector are significant which signify the effect of sectoral membership.

Table 8.1 Cont

RQ3	How well are IC disclosure patterns explainable by disclosure theories?	<ul style="list-style-type: none"> • No single theory could adequately explain the observed behaviour of IC disclosure. • The power of each theory is dependent on the level of analysis. • In terms of aggregated IC disclosure <i>volume</i>, agency and signalling theory appeared to be the strongest theories. • Analysis at category/sub-category level favours legitimacy, stakeholder and decision usefulness theories owing to the significant amount of disclosure about RC (and its constituents) over SC and HC. • The qualitative characteristic analysis provided support for impression management theory. The high level of QN1 (purely narrative) form of disclosure suggests that companies used IC disclosure as a tool to create image rather than to seriously inform IC value. Nonetheless, the low level of QT2 (forward-looking) and QF1 (perception) somewhat contradict this.
RQ4	How can a method to facilitate the interrogation of qualitative characteristics of IC information content be developed?	<ul style="list-style-type: none"> • Qualitative characteristics of IC information content have been analysed on 3 mutual exclusive dimensions: type 1 -nature of information (4 levels), type2 - time orientation of information (2 levels) and type 3- factual of information (2 levels). Different score was given to different level to reflect level of 'quality'. • The method capable to capture qualitative attributes of IC information presented as addition to its quantity.

Table 8.1 Cont

<p>RQ5</p>	<p>How can the qualitative characteristics of the IC information content of the 6 UK companies from 1974 to 2008 using the method developed in this study be described?</p>	<ul style="list-style-type: none"> • All and each company data show that majority of IC information was disclosed in purely narrative form (QN1). The proportions of QN1 form of IC disclosure were stable over the 35 years. • All and each company data show that the percentages of forward-looking form of IC disclosure (QT2) was marginal but shows increasing trend over time. • The study discovered most of IC information was disclosed based on fact (QF2) rather than managerial perception (QF1). All companies data shows that factual-based disclosure (QF2) slightly decreased over time but no significant sectoral effect of QF2 form of disclosure were found. • In the more detail analysis, the qualitative characteristics of IC information disclosed varied according to types of IC sub-categories information. • Quantity and quality of IC information disclosed is not related. The companies show significant difference in frequency counts but similarity percentages in qualitative characteristics. • It can be concluded that frequency counts should not be taken as a sole indicator for quality of IC information disclosure.
------------	---	--

8.4 Summary of original contributions

In general, the original contributions that emerge in this study are twofold:

- Contribution to the understanding of IC information disclosure;
- Contribution to the method enhancement of capturing IC information disclosure.

8.4.1 *Understanding IC information disclosure*

This study contributes to further understanding of IC disclosure over an extended period of 35 years. This is the first study to employ such a lengthy period covering three decades since IC disclosure study first gained academic attention around the early 2000s (Guthrie and Petty, 2000; Brennan, 2001). The constitution of the sample permits not only a longitudinal analysis, but also a cross-sectional analysis of the practice of IC disclosure between different industries.

i) Longitudinal periods

a) Volume of disclosure

In terms of disclosure volume (frequency), a number of interesting findings highlight the contribution of this study as follows:

- The analysis showed that the frequency of IC disclosures increased significantly from very small counts in 1974 to hundreds in 2008. The results imply an increasing awareness of IC issues among UK companies. The results challenge the view that there was little or no IC disclosure in previous decades. This finding sheds new light on IC disclosure practice that so far has been investigated only on the recent annual reports. Nothing was known about IC disclosure practice in the past decades until this study was completed.
- The predominance of RC information disclosure as reported in previous studies was supported by this study. However, what is a unique finding in this study is the longitudinal view of RC information disclosure. The predominance of RC disclosure was more marked after 1994. The trend is caused, in part by an increased

disclosure on information about brand, customers, communities, environments and distribution channels.

- The levels of emphasis (measured as in the top 10 rank order) between IC sub-categories were found to vary over time. No IC sub-category information was consistently more highly ranked than others over time. Among the IC sub-categories information that became increasingly popular over time were brands, customers, community, environment and distribution channels. Meanwhile disclosure information about R&D, contracts, licences and technology were decreased in relative frequency over time. Information about employees was the longest established sub-category of IC information in the annual reports over time.

b) Qualitative characteristics of disclosure

Previous studies have failed to meaningfully capture the qualitative characteristics of IC information but a major contribution of this study was to introduce an extended analysis combining both volumetric and qualitative interrogations of IC disclosures. Overall, while IC disclosure increased over time in terms of frequency, some sub-categories reduced in terms of 'quality'. This study found that a volumetric count of a sub-category is not a proxy for disclosure quality. If only frequency analysis were conducted, BP should score higher on disclosure quality and thus be considered a better reporter than other companies. But when quality, based on qualitative characteristics analysis is conducted, BP has little to distinguish itself from the others. Thus, the count of information frequency solely, is misleading in evaluating the quality of IC disclosure. The overall qualitative characteristics results are summarised as follows:

- Most IC information was disclosed in pure narrative form (QN1). The quantitative form of the disclosure QN2, QN3 and QN4 was marginal. The percentage of the QN1 form of disclosure marginally decreased over time. These findings lead to the suggestion that a low proportion of quantitative information disclosed was partly the result of a lack of measurement and reporting frameworks, the complexities of reporting and auditor conservatism.

- The study also found low proportions of forward-looking-based IC disclosure (QT2). However, the proportion of the QT2 form significantly increased over time. In general, it could be argued that the impact of the strategic importance of IC disclosure may be reduced by a low percentage of the QF2 form. IC information disclosed using forward-looking narrative is arguably more relevant to market actors and shareholders. The low percentage of QT2 form of disclosure is probably in part due to litigation risks and the desire to conceal future plans from competitors.
- This is the first study to resolve the distinction between IC content as fact or as management perception. The view that fact and perception have equal information value (and thus should be assigned an equal score on a content analysis matrix) is challenged in this study, and this is empirically supported by the finding that IC information content can be clearly resolved using this interrogation (fact was resolved as QF2 and perception as QF1). This study found that IC information was largely disclosed in a factual manner. The longitudinal trend of QF2 in general slightly decreased over time.
- Previous studies paid no serious attention to investigating the qualitative characteristics of IC information at the sub-categories level. This study has contributed to knowledge with findings showing that the levels of qualitative characteristics of IC information content significantly varied according to type of IC sub-category.

In sum, empirical evidence offered in this study has added new insights and extended the body of knowledge in IC disclosure. The increasing frequency of IC information disclosed in the annual reports over time implies an increasing awareness of, and willingness of the UK companies to disclose, IC information. However, the quality of IC information content was less than it might have been. The lack of practical guideline for measuring and reporting may have reduced the systematic presentation of higher quality IC information. The empirical findings in this study provide additional support to efforts towards establishing comprehensive and systematic measuring and reporting standards. In order to fulfil the needs from capital market actors and shareholders, the

information should not only be frequently disclosed but more importantly, be more quantified, forward-looking and fact based.

ii) Cross-sectional

The cross-sectional analysis is unique in term of describing disclosure patterns and in describing the trends evident in different companies and in different sectors. The industry-based evidence of what and how IC is disclosed is important for understanding the types of IC considered to be of key value added in each sector and which are the core value drivers. Inter sectoral effects were noted in respect of several IC sub-categories. Broadly speaking, the cross sectional findings can be summarised as follows:

- This study found that certain IC sub-categories information were apparently sectorally driven. Although companies within similar industries showed significant differences in volume of disclosure, they showed comparable percentages in certain types of information which imply a similar disclosure strategy.
- The findings suggest sectoral variability in IC disclosure over time. The consistency of emphasis of particular IC sub-categories (as measured by top 10 ranking per year) varied by sector.

iii) Brand disclosure

The study found a long-term incidence of brand information disclosure in annual reports. This is perhaps one of the particular contributions of this study, demonstrating how brand information disclosure has changed over time and between industry sectors. Brand disclosure was predominant in both of the supermarkets since the 1970s. It did not occur in the oil and gas sector until 1988. For the banks, brand disclosure was not disclosed in most of the years between the 1970s and 1990s. In sum, cross sectional and longitudinal effects in brand information disclosures were clearly demonstrated in this study.

iv) The appropriateness of disclosure theories in explaining the IC disclosure behaviour.

This study noted that the appropriateness of given disclosure theories depends on the level of analysis (the particular part of the dataset being analysed) which has not been raised in previous studies. Agency and signalling theory appear to be the stronger theory if IC is analysed at aggregate level (total volume). Analysis at category/sub-category level supports legitimacy, stakeholder and decision usefulness theories due to the marked increase of disclosure amount about RC and its elements over time. Finally, the qualitative characteristic analysis supports impression management theory. The high level of a purely narrative form of disclosure describes image creation using IC disclosure rather than conveying IC value.

8.4.2 Method enrichment

This study has presented different perspectives on the use of content analysis when investigating IC disclosure. The value of this method rested not only on the traditional method of counting frequency that but also on an interrogation of the qualitative characteristics of IC information. This enrichment of method is a novel contribution to IC content analysis studies.

The method developed in this study was an extension of prior methods that looked for qualitative characteristic of IC information such as narrative or quantified information (Cordazzo, 2007; Gerpott et al., 2008; Striukova et al., 2008; Whiting and Miller, 2008; An Yi and Davey, 2010). This study extended the analysis of qualitative characteristics by adding new dimensions such as time orientation (type 2) and factuality of information (type 3). This study therefore made an original contribution by constructing the most comprehensive method of recording for qualitative characteristics, comprising as it did, eight levels of three broad types (type 1 - QN1, QN2, QN3 and QN4), type 2 (QT1 and QT2) and type 3 (QF1 and QF2). This in turn allowed more research questions to be formulated with regard to the information content.

A secondary contribution of this study, therefore, was the enrichment of method to capture information content of IC. This contribution was important for addressing the empirical gap identified in the literature pertaining to the comprehensive measurement of the qualitative characteristics of information content. The method developed in this

study allows further replication in future studies. This study may pave the way to the development of more dimensions of qualitative attributes relating to narrative content. At the same time, this study has successfully answered the call to measure disclosure quality (Guthrie and Mathews, 1985; Beretta and Bozzolan et al., 2004; Beattie et al., 2004; Beattie and Thomson, 2007).

8.5 Self reflection

This section seeks to identify the limitations of study and way ahead from here.

8.5.1 *Limitation of study*

The longitudinal period (1974-2008) covered in this study is considered long enough to produce valid inferences but the cross-sectional sample was limited to six companies. A richer analysis could have been provided by the inclusion of a wider number of industries such as telecommunication, services, bio-technologies and construction. This would have enabled more sectoral effects in IC information disclosure to be observed. However, due to the laborious nature of content analysis and the limited availability of annual reports, a wider cross sectional sample was not possible. Given the sample size, the findings are not likely to be generalisable in respect of cross-sectional disclosure behaviour. However, the method enrichment contribution achieved in this study is not affected by the small sample size.

This study did not conduct any systematic test to ensure data reliability. Having analysed a large number of documents (210 annual reports) and considered the complexities of an instrument to record the content at many levels (3 IC categories, 26 IC sub categories and 8 qualitative characteristics) some may question the reliability of data gathered in this study. Nonetheless, in order to minimise such problems and hence increase reliability, clear and detailed rules of recording were drawn up, and rigorous training and supervision was undertaken. These measures are considered a robust response to enhance the reliability of data when inter-coder agreement cannot be conducted (Milne and Adler, 1999 and Guthrie et al., 2004).

The analysis was limited to IC information contained in annual reports due to longitudinal nature of this study in which annual reports were the only media option

available. Companies might use other media to report IC information, for example through web-pages and stand-alone reports (Striukova et al., 2008). Thus, the findings and conclusion of IC disclosure behaviour in this study is limited to the data captured in annual reports.

The exclusion of non-narrative information such as pictures, graphs and diagrams (as suggested by Beattie and Thomson, 2007; Hooks et al., 2010) may have limited this study somewhat in that IC information is conceivably conveyable in this form. There is no agreed recording mechanism for graphs and photographs and this was considered to be beyond the scope of this study.

An inability to extend the study to a longer longitudinal period is a potential but unlikely shortcoming of this study. The retrospective extension (e.g. 1960s annual reports) could not be done due to the unavailability of the reports whilst the prospective extension (e.g. annual report in 2009, 2010 and 2011) was impossible due to the constraint of time.

8.5.2 *The way ahead*

In the light of the study's findings, a number of potential research lacunae were suggested in the areas of IC information disclosure and content analysis refinement.

Firstly, this study was limited to UK companies. Studying longitudinal IC disclosure practices in other countries, for example, in the US and Europe may find different levels and trends in disclosure due to different regulatory regimes and cultures. It is also believed that conducting comparative international longitudinal studies may be helpful in understanding the convergence and divergence of IC disclosure trends between country and over time. Scandinavian countries, for example, may be a good benchmark of longitudinal comparative study as these countries were leading IC disclosures in earlier times (such as the early Skandia disclosures).

Secondly, future studies should conduct interview with representative of companies to obtain understanding about the actual motives behind the development of IC disclosures. Engagement with companies to gather evidence about managers' perception on the importance and value of IC disclosure would be very interesting, especially

interviewing those capable of commenting on the changes of perception in business values over time and how those changes have affected the disclosure strategies. At the same time, the question of why companies disclose at different levels of qualitative characteristic could also be investigated.

Thirdly, future research may examine user perspectives by obtaining opinion on what and how IC information is consumed and therefore should be reported. It is important to ensure users' opinion and actual needs when constructing IC disclosure so that quantity as well as quality gap can be minimised. This in turn would enhance the decision usefulness of IC information for the users.

Fourthly, a similar longitudinal study could be applied to small and medium size companies in order to ascertain the generalisability of this study finding. Moreover, the evidence could be also extended by including high technology and services companies so that the divergence and convergence of IC information disclosure between traditional and high tech/services companies could be examined.

Fifthly, future research could examine the longitudinal relationship between IC disclosures and capital market variables such as MV/BV or stock prices. This study would be very interesting and important in analysing the relevance of IC information disclosure over time.

Sixthly, the relationship between the knowledge economy and IC information disclosure practice could be systematically investigated. There are many potential indicators of knowledge economy that could be used to test this relationship, such as national R&D investments, IT investment and use, skilled workers percentages, exports and imports of technological products, national scientific inventions, IP level, scientific publications, education spending, etc. (see Roberts, 2009). The study would provide empirical evidence of relationships between the knowledge economic indicators and IC information disclosure.

Finally, Guthrie et al. (2004, p.290) pointed out that 'content analysis... is a method in need of further refinement and development if research advances are to be made in the field of IC [reporting]'. With this in mind, the development of method in measuring qualitative characteristics of IC disclosure in this study may pave the way to more ways

of refining this method to further investigate information content. Researchers might envisage a better method to capture information content than relying on traditional content analysis based on quantity counting. This could enhance the relevance and power of content analysis in investigating a richer context of disclosure behaviours. More specifically, future studies could expand the analysis of qualitative characteristics of information content.

8.6 Chapter summary

This chapter has summarised the discussions in chapter 1 to chapter 8. Chapter 1 was mainly focused on identifying research gaps and the formulation of research objectives, questions and design. Chapter 2 was devoted to a discussion of the emergence of the knowledge economy, which was considered as a motivation for studying IC. Chapter 3 considered definitions, concepts and the frameworks of IC as well as a literature review of IC disclosure studies. Chapter 4 discussed the issues and requirements for investigating the qualitative characteristics of IC information content. In Chapter 5, some methodological issues in content analysis were addressed before proceeding to consider method development in Chapter 6. The data analysis and findings of this study were reported in Chapter 7, and the summaries and discussion of key findings were presented in Chapter 8.

REFERENCES

- Abdolmohammadi, M. J. (2005). "Intellectual capital disclosure and market capitalization." Journal of Intellectual Capital **6** (3): 397-416.
- Abeysekera, I., and Guthrie, J (2005). "An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka." Critical Perspectives on Accounting **16**: 151-163.
- Abeysekera, I. (2006). "The project of intellectual capital disclosure: Researching the research." Journal of Intellectual Capital **17** (1): 61-77.
- Abeysekera, I. (2007). "Intellectual capital reporting between a developing and developed nation." Journal of Intellectual Capital **8** (2): 329-345.
- Abeysekera, I. (2008). "Intellectual capital disclosure trends: Singapore and Sri Lanka." Journal of Intellectual Capital **9** (4): 723-737.
- Abhayawansa, S., and Abeysekera, I (2009). "Intellectual capital disclosure from sell-side analyst perspective." Journal of Intellectual Capital **10** (2): 294-306.
- Abhayawansa, S., and Guthrie, J (2010). "Intellectual capital and the capital market: a review and synthesis." Journal of Human Resources Costing and Accounting **14** (3): 196-226.
- Abhayawansa, S., and Guthrie, J (2012). "Intellectual capital information and stock recommendations: impression management?" Journal of Intellectual Capital **13** (3): 398-415.
- Abramovitz, M., and David, P.A (1996). Technological change and the rise of intangibles investment. The U.S economy's growth-path in the twentieth century. In *Employment and Growth in Knowledge-Based Economy*. Paris, OECD.
- Abratt, R. (1989). "A new approach to corporate image management process." Journal of Marketing Management **5** (1): 63-76.

Acsente, D. (2010). "Literature review: a representation of how future knowledge worker is shaping the twenty-first century workplace." On the Horizon **18** (3): 279-287.

Adams, C. A (2002). "Internal organizational factors influencing corporate social and ethical reporting." Accounting, Auditing & Accountability Journal **15** (2): 223-250.

Adams, C. A., and Frost, G (2004). The development of corporate website and implication for ethical, social and environmental reporting through these media. Edinburgh, The institute of Chartered Accountants of Scotland.

The Jenkins Report (1994). Improving business reporting-A customer focus: Meeting the information needs for investors and creditors, comprehensive report of special committee on financial reporting (The Jenkins report). New York, NY, American Institute of Certified Public Accountants.

Aljifri, K., and Hussainey, K (2007). "The determinants of forward-looking information in annual reports of UAE companies." Managerial Auditing Journal **22** (9): 881-894.

Allen, D (2002). "It's behind you." Financial Management **January**: 12-14.

Amir, E., and Lev, B (1996). "Value relevance of non-financial information: The wireless communications industry." Journal of Accounting and Economics **22** (3): 3-30.

An Yi., and. Davey., H (2010). "Intellectual capital disclosure in Chinese (mainland) companies." Journal of Intellectual Capital **11** (3): 326-347.

An Yi., Davey, H and Eggleton I.R.C (2011). "Towards a comprehensive theoretical framework for voluntary IC disclosure." Journal of Intellectual Capital **12** (4): 571-585.

April, K. A., Bosma, P., and Deglon, D.A (2003). "IC measurement and reporting: establishing a practice in SA mining." Journal of Intellectual Capital **4** (2): 165-180

Arenas, T., and Lavanderos, L (2008). "Intellectual capital: Object and Process?" Journal of Intellectual Capital **9** (1): 77-85.

Arslan, F. M., and Altuna, O.K (2010). "The effect of brand extensions on product brand image." Journal of Product and Brand Management **19** (3): 170-180.

Arthur, J. B. (1994). "Effects of human resources systems on manufacturing performance and turnover." Academy of Management Journal **37** (3).

Assudani, R. H. (2005). "Catching the chameleon: understanding the elusive term 'knowledge'." Journal of Knowledge Management **9** (2): 31-44.

Ax, C., and Marston, J (2008). "Human capital disclosures and management practices." Journal of Intellectual Capital **9** (3): 433-455.

Ayuso, M. G. (2003). "Factors explaining the inefficient valuation of intangibles." Accounting, Auditing & Accountability Journal **16** (1): 57-69.

Bannister, J. W. (2001). "Earning management and auditor conservatism: Effect of SEC enforcement actions." Managerial Finance **27** (12): 57-71.

Bardhan, I. R., Demirkan, H.D., Kannan, P.K., and Kauffman, R.J (2010). "Special Issue: Information systems in services." Journal of Management Information Systems **26** (4): 5-12.

Barron, O. E., Kile, C.O., and O'Keefe, T.B (1999). "MD&A quality as measured by SEC and analysts' earning forecast." Contemporary Accounting Research **16** (1): 75-109.

Barth, M. E., Clement, M.B., Foster, G., and Kasznik, R (1998). "Brand values and capital market valuation." Review of Accounting Studies **3**: 41-68.

Beattie, V and Jones, M.J (1992). "The use and abuse of graphs in annual reports: theoretical framework and empirical study" Accounting and Business Research **22**(88): 291-303.

Beattie, V and Jones, M.J (1997). "A comparative study of the use of financial graphs in the corporate annual reports of major US and UK companies." Journal of International Financial management and Accounting **8** (1).

Beattie, V., and Jones, M.J (2002). "Measurement distortion of graph in corporate reports: an experimental study." Accounting, Auditing & Accountability Journal **15** (4): 546-564.

Beattie, V., McInnes, B., and Fearnley, S (2004). "A methodology for analysing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes." Accounting Forum **28**: 205-236.

Beattie, V., and Thomson, S.J (2007). "Lifting the lid on the use of content analysis to investigate intellectual capital disclosures." Accounting Forum **31**: 129-163.

Beck, A. C., Campbell, D.J., and Shrivess, P.J (2010). "Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British-German context." The British Accounting Review **42**: 207-222.

Belkaoui, A.R (2003). "Intellectual capital and firm performance of US multinational firms: A study of the resource-based and stakeholder views." Journal of Intellectual Capital **4**(2):215-226.

Berelson, B. (1952). Content analysis communication research. New York, Free Press.

Beretta, S., and Bozzolan, S (2004). "A framework for the analysis of firm risk communication." The International Journal of Accounting **39**: 265-288.

Beretta, S., and Bozzolan, S (2008). "Quality versus quantity: The case of forward-looking disclosure." Journal of Accounting, Auditing and Finance **(3)**: 333-375

Bezhan, I. (2010). "Intellectual capital reporting at UK universities." Journal of Intellectual Capital **11** (2): 179-207.

- Binks, M., Ennew., and Mowlah, A (2006). "The relationship between private business and their banks." International Journal of Bank Marketing **24** (5): 346-335.
- Bismuth, A., and Tojo, Y (2008). "Creating value from intellectual assets." Journal of Intellectual Capital **9** (2): 228-245.
- Bjurklo, M. (2006). "Narrative accounting for competence creation." Journal of Human Resource Costing & Accounting **10** (1): 34-47.
- Blair, M., and Wallman, S (2000).Unseen Wealth. Washington DC, Brooking Institution.
- Boedker, C., Guthrie, J., and Cuganesan, S (2004). "The strategic significance of human capital information in annual reporting." Journal of Human Resources Costing and Accounting **8** (2): 7-22.
- Boedker, C., Mouritsen, J., and Guthrie, J (2008). "Enhanced business reporting: International trends and possible policy directions." Journal of Human Resources Costing and Accounting **12** (1): 14-25.
- Boekestein, B. (2006). "The relation between intellectual capital and intangible assets of pharmaceutical companies." Journal of Intellectual Capital **7** (2): 241-253.
- Boesso, G., and Kumar, K (2007). "Drivers of corporate voluntary disclosure: A framework and empirical evidence from Italy and United States." Accounting, Auditing & Accountability Journal **20** (2): 269-296.
- Bollen, L., Vergauwen, P., and Schnieders, S (2005). "Linking intellectual capital and intellectual property to company performance." Management Decision **43** (9): 576-587.
- Bontis, N. (1998). "Intellectual capital: an exploratory study that develop measures and models." Management Decision **36** (2): 63-76.
- Bontis, N., Keow, W.C.C., and Richardson, S (2000). "Intellectual capital and business performance in Malaysian Industries." Journal of Intellectual Capital **1** (1): 85-100.

Bontis, N (2003). "Intellectual capital in Canadian Corporations." Journal of Human Resources Costing and Accounting **7** (1-2): 9-20.

Bontis, N (2004). "National intellectual capital index: A United Nations initiatives for the Arab region." Journal of Intellectual Capital **5** (1): 13-39.

Botha, D. F (2000). "A conceptual framework for the management of knowledge in a knowledge-based enterprise." South Africa Journal of Business Management **31** (4): 141-148.

Botosan, C. A (1997). "Disclosure level and the cost of equity capital." The Accounting Review **72** (3): 323-349.

Bounfour, A (2003). The management of intangibles: The organization's most valuable assets. London, Routledge.

Bozzolan, S., Favotto, F., and Ricceri, F (2003). "Italian annual intellectual capital disclosure: An empirical analysis." Journal of Intellectual Capital **4**(4): 543-558.

Bozzolan, S., O'Regan, P., and Ricceri, F (2006). "Intellectual capital disclosure (ICD): A comparison of Italy and the UK." Journal of Human Resource Costing & Accounting **10** (2): 92-113.

Bradshaw, M.T (2002). "The use of target price to justify sell-side analyst's stock recommendations?" The Accounting Review **79** (1):25-50.

Brammer, S., and Pavelin, S (2006). "Voluntary environmental disclosures by large UK companies." Journal of Business Finance and Accounting **33** (7): 1168-1188.

Branco, M.C., and Rodrigues, L.L (2006). "Communication of corporate social responsibility by Portuguese banks." Corporate Communications: An International Journal **11** (3): 232-248.

Branco, M. C., Delgado, C., Sausa, C., and Sa, M (2011). "Intellectual capital disclosure media in Portugal." Corporate Communication: An International Journal **16** (1): 38-52.

- Brannstrom, D., and Giuliani, M (2009), Accounting for intellectual capital: a comparative analysis. VINE: The journal of information and knowledge management systems **39** (1): 68-79.
- Brennan, N., and Connell, B (2000). "Intellectual capital: current issues and policy implications." Journal of Intellectual Capital **1**(3): 206-240.
- Brennan, N. (2001). "Reporting intellectual capital in annual reports: evidence from Ireland." Accounting, Auditing & Accountability Journal **14** (4): 423-436.
- Bricker, R., and Chandra, N (1998). "On applying agency theory in historical accounting research. Business and Economic history **27** (2): 486-499.
- Brinkley (2006). "Defining the knowledge economy". The Work Foundation. Retrieved on 8 August 2010 from http://www.theworkfoundation.com/assets/docs/publications/65_defining%20knowledge%20economy.pdf
- Brooking, A (1996). Intellectual capital: Core Assets for the Millennium Enterprise. London, Thompson Business Press.
- Brooking, A (1997). "The management of intellectual capital." Journal of Long Range Planning **30** (3): 364-365.
- Bruggen, A., Vergauwen, P., and Dao, M (2009). "Determinants of Intellectual capital disclosure: Evidence from Australia." Management Decision **47** (2): 233-245.
- Bueno, E., Salmador, M.P., and Rodri, G.O (2004). "The role of social capital in today's economy." Journal of Intellectual Capital **5** (4): 556-574.
- Bukh, P. N., Larsen, H.T., and Mouritsen, J (2001). "Constructing intellectual capital statements." Scandinavian Journal of Management **17** (1): 87-108.
- Bukh, P. N., and Johanson, U (2003). "Research and knowledge interaction: Guidelines for intellectual capital reporting." Journal of Intellectual Capital **4** (4): 576-587.

Bukh, P. N., Nielsen, C., Gormsen., and Mouritsen, J (2005). "Disclosure of information on intellectual capital in Danish IPO prospectuses." Accounting, Auditing & Accountability Journal **18** (6): 713-732.

Campbell, D.J., Shrides, P. and Bohmbach-Saager, H (2001). "Voluntary disclosure of mission statements in corporate annual reports: signalling what and to whom?" Business and Society Review **106** (1): 65-87.

Campbell, D. J. (2004). "A longitudinal and cross-sectional analysis of environmental disclosure in the UK companies - a research note." The British Accounting Review **36** (107-117).

Campbell, D. J., Moore, G., and Shrides, P.J (2006). "Cross-sectional effects in community disclosure." Accounting, Auditing & Accountability Journal **19** (1): 96-114.

Campbell, D. J., and Rahman, M.R (2010). "A longitudinal examination of intellectual capital reporting in Marks & Spencer annual reports, 1978-2008." The British Accounting Review **42** (1): 56-70.

Canibano, L., Garcia-Ayuso.M., and Sanchez, P (2000). "Accounting for intangibles: A literature review." Journal of Accounting Literature **19**: 102-130.

Carley, K. (1993). "Coding choice for textual analysis: A comparison of content analysis and map analysis." Social Methodology **23**: 75-126.

Carney, T. F. (1972). Content analysis: A technique for systematic inference from communications. Winnipeg, University of Manitoba Press.

Caroll, R. F., and Tansey, R.R (2000). "Intellectual capital in the new internet economy: Its meaning, measurement and management for enhancing quality." Journal of Intellectual Capital **1** (4): 296-311.

Carson, E., Ranzijn, R., Winefield, A., and Marsden, H (2004). "Intellectual Capital: Mapping employee and work group attributes." Journal of Intellectual Capital **5** (3): 443-463.

Celik, O., Ecer, A., and Karabacak, H (2006), "Disclosure of forward looking information: Evidence from listed companies on Istanbul Stock Exchange (ISE)." Investment Management and Financial Innovation **3** (2): 197-216.

Cerbioni, F., and Parbonetti, A (2007). "Exploring the effects of corporate governance on Intellectual Capital Disclosure: An Analysis of European Biotechnology Companies." European Accounting Review **16** (4): 791-826.

Clarke, T (2001). The knowledge economy. Education + Training, **43** (4/5): 189-196.

Chang, A., and Tseng, C.I (2005). "Building your brand through relationship marketing companies." Journal of Intellectual Capital **6** (2): 253-266.

Cho, C.H., Michelson, G and Patten, D.M (2012), Enhancement and obfuscation through the use of graphs in sustainability reports: An international comparison. Sustainability Accounting, Management and Policy Journal **3**(1): 74-88.

Choong, K. K. (2008). "Intellectual capital: Definitions, categorization and reporting models." Journal of Intellectual Capital **9** (4): 609-638.

Chow, C. W., and Boren, A.W (1987). "Voluntary financial disclosure by Mexican corporations." The Accounting Review **LXII** (3): 533-541.

Collins, D., Maydew, E., and Weii, I (1997). "Changes in the value relevance of earnings and book values over the forty years." Journal of Accounting and Economics **24**: 39-67.

Clatworthy, M.A., and Jones, M.J (2006). "Differential patterns of textual characteristics and company performance in the chairman's statement. Accounting, Auditing & Accountability Journal **19** (4): 493-511.

Cordazzo, M. (2005). "IC statement vs. environmental and social reports: An empirical analysis of their convergences in the Italian context." Journal of Intellectual Capital **6** (3): 441-464.

- Cordazzo, M. (2007). "Intangibles and Italian IPO prospectuses: a disclosure analysis." Journal of Intellectual Capital **8** (2): 288-305.
- Core, J. E. (2001). "A review of empirical disclosure literature: discussion." Journal of Accounting and Economics **31**: 441-456.
- Cormier, D., and Gordon, I.M (2001). "An examination of social and environmental reporting strategies." Accounting, Auditing & Accountability Journal **14** (5): 587-616.
- Cormier, D., Magnan, M., and Velthoven, B.V (2005). "Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions." European Accounting Review **14** (1): 3-39.
- Cortes, E. C., Gamero, L., Molina, A., and Zaragoza, S (2007). "Intellectual and environmental capital." Journal of Intellectual Capital **8** (1): 171-182.
- Cowen, S. S., Ferreri, L.B., and Parker, L.D (1987). "The impact of corporate characteristics on social responsibility disclosure: A typology and frequency-based analysis." Accounting, Organizations and Society **12** (2): 111-122.
- Coy, D., Dixon, T., and Dixon, K (1993). "Quantifying the quality of tertiary education annual reports." Accounting and Finance **Nov**: 121-230.
- Coy, D., and Pratt, M (1998). "An insight into accountability and politics in universities; a case study." Accounting, Auditing & Accountability Journal **11(5)**:540-561
- Craven, B. M., and Marston, C.L (1999). "Financial reporting on the internet by leading UK companies." The European Accounting Review **8** (2): 321-333.
- Crittendem, V. L., Peterson, R.A., and Abaum, G (2010). "Technology and business-to-consumer selling: Contemplating research and practice." Journal of Personal Selling and Sales Management (2): 103-109.

Cumby, J., and Conrod, J (2001). "Non-financial performance measures in the the canadian biotechnology industry." Journal of Intellectual Capital **2** (3): 261-272.

Dahlman, C., and Anderson, T (2000). Korea and knowledge-based economy: Making the Transition. Washington DC, World Bank Institute and OECD.

DATI (2000). A Guideline for Intellectual Capital Statements. A Key to knowledge Management. Retrieved 13 July, 2010, from <http://www.juergendaum.com/articles/Danish ICS.pdf>.

Davey, J., Schneider, L., and Davey, H (2009). "Intellectual capital disclosure and the fashion industry." Journal of Intellectual Capital **10** (3): 401-424.

Davis, S., and Halligan, C (2002). "Extending your brand by optimizing your customer relationship." Journal of Consumer Marketing **19** (1): 7-11.

Deegan, C (2000). Financial Accounting Theory. McGraw-Hill Book Company, Sydney.

de castro, G.M., Saez, P.L., and Lopez, J.E.N (2004). "The role of corporate reputation in developing rational capital." Journal of Intellectual Capital **5** (4): 575-585.

de Castro, G. M., and Saez, L (2008). "Intellectual capital in high-tech firms: The case of Spain." Journal of Intellectual Capital **9** (1): 25-36.

de Pablos, P. O. (2002). "Evidence of intellectual capital measurement from Asia, Europe and the middle east." Journal of Intellectual Capital **3** (3): 287-302.

de Pablos, P. O. (2003). "Intellectual capital reporting in Spain: a comparative view." Journal of Intellectual Capital **4** (1): 61-81.

de Pablos, P. O. (2005). "Intellectual capital reports in India: Lessons from a case study." Journal of Intellectual Capital **6** (1): 141-149.

Depoers, F. (2000). "A cost-benefit study of voluntary disclosure: some empirical evidence from French listed companies." The European Accounting Review **9** (2): 245-263.

DeTero, A., Clare, M., and Weide, J (2002). "Measuring the value of Lincoln Re's R&D." Journal of Intellectual Capital **3** (1): 40-50.

Dowling, G. R. (1993). "Developing your company image into a corporate assets." Long Range Planning **26** (2): 101-109.

Drucker, P. F. (1993). Post capitalist society. Oxford, Butterworth Heinmann.

Department of Trade and Industry (1998).Our Competitive Future: Building the Knowledge Driven Economy. London.

Department of Trade and Industry (1999). "Our Competitive Future: UK Competitive Indicators 1999." Retrieved 29 September, 2010, from <http://webarchive.nationalarchives.gov.uk/tna/+http://www.dti.gov.uk/comp/competitive/pdfs/compindx.pdf>.

Department of Trade and Industry (2006). "UK productivity and competitive indicators 2006." DT Economic No.17. Retrieved 30 September, 2010, from <http://www.dti.uk/files/file28173.pdf>.

Duffy, J. (2000). "Measuring customer capital." Strategy and Leadership **28**: 10-14.

Dumay, J. C., and Tull, J.A (2007). "Intellectual capital disclosure and price-sensitive Australian Stock Exchange announcement." Journal of Intellectual Capital **8** (2): 236-255.

Dyckman, R. G., and Zeff, S.A (2000). "The future of financial reporting: Removing it from the shadows." Pacific Accounting Review **11** (2): 89-96.

Dzinkowski, R. (2000). "The measurement and management of intellectual capital: an introduction." Management Accounting **78** (2): 32-36.

Eccles, R.G., Herz., R.H., Keegan, E.M., and Philips, D.M.H (2001). The Value Reporting Revolution. Moving beyond the earnings game. New York NY, John, Wiley & Sons.

Edvinsson, L., and Malone, M.S (1997). Intellectual Capital: Realizing your company's true value by findings its hidden brainpower. London, Piatkus.

Edvinsson, L. (2002). Corporate longitude: what you need to know to navigate the knowledge economy. Upper Sadder River, N.J, Pearson Education Inc.

Eisenhardt, K.M (1989). " Agency theory: An assessment and review. Academy of Management Review **14** (1): 57-74.

Eustace, C. (2003). "The Prism Project: Report of Research Findings and Policy Recommendations." Retrieved 4 August, 2010, from <http://www.intangability.com/wp-content/uploads/2009/03/prism-project-report-of-research-findings-and-policy-recommendations.pdf>.

Fama, E.F., and Jensen, M.C (1983). "Separation of ownership and control." Journal of Law and Economics **26**: 301-325.

FASB (2001). "Getting a grip on intangibles assets: What they are, why they matter and who should be managing them in your organization." Harvard Management Update **6** (2): 6-8.

FASB (2004). Intangible Assets. International Accounting Standard Board. International Accounting Standard No.38. London,

Fincham, R., and Roslender, R (2003). "Intellectual capital accounting as management fashion: a review and critique." European Accounting Review **12** (4): 781-795.

Firer, S., and Williams, S.M (2003). "Intellectual capital and traditional measures of corporate performance." Journal of Intellectual Capital **4** (3): 348-360.

Flamholtz, E. G. (1999). Human Resources Accounting: Advance in concepts, methods and application. Massachusetts, Kluwer Academic Publisher.

Flostrand, P. (2006). "The sell side - observations on intellectual capital indicators." Journal of Intellectual Capital **7** (4): 457-473.

Flostrand, P., and Strom, N (2006). "The valuation relevance of non-financial information." Management Research News **29** (9): 580-597.

Fox, J., and Schiff, L (1996). "Searching for non-fiction in financial statements." Fortune **134**: 138-139.

Francis, J., and Schipper, K (1999). "Have financial statements lost their value relevance?" Journal of Accounting Research **37** (2): 319-352.

Fritz, R. (1989). "Determinants of product innovations activities." European Journal of Marketing **23** (10): 32.

Gadde, L. E., and Snehota, I (2000). "Making the most of supplier relationship." Industrial Marketing Management **29**: 305-316.

Gallego, I., and Rodriguez, L (2005). "Situation of intangibles assets in Spanish firms: An empirical analysis." Journal of Intellectual Capital **6** (1): 105-126.

Garcia-Ayuso, M (2003). "Factors explaining the inefficient valuation of intangibles." Accounting, Auditing & Accountability Journal **16** (1):57-69.

Gelb, D. (2002). "Intangibles assets and firms' disclosure: an empirical investigation." Journal of Business Finance and Accounting **29** (3-4): 457-476.

Gerpott, T. J., Thomas, S.E., and Hoffmann, A.P (2008). "Intangible assets disclosure in the telecommunications industry." Journal of Intellectual Capital **9** (1): 37-61.

Ghosh, D., and Wu, A (2007). "Intellectual capital and capital market: additional evidence." Journal of Intellectual Capital **8** (2): 216-235.

- Ghosh, M., and Ghosh, I (2009). "ICT and information strategies for a knowledge economy: the Indian experience." Program: electronic library and information systems **43** (2): 187-201.
- Giner, B. (1997). "The influence of company characteristic and accounting regulation on information disclosed by Spanish firms." European Accounting Review **6** (1): 45-68.
- Goh, P. C., and Lim, K.P (2004). "Disclosing intellectual capital in company annual reports: Evidence from Malaysia." Journal of Intellectual Capital **5** (3): 500-510.
- Gray, E. R., and Smeltzer, L.R (1985). "SMR forum: Corporate image - an integral part of strategy." Sloan Management Review **26** (6): 73-78.
- Gray, R., Kouhy, R., and Lavers, S (1995a). "Constructing a research database of social and environmental reporting by UK companies: a methodological note." Accounting, Auditing & Accountability Journal **8** (2): 78-101.
- Gray, R., Kouhy, R., and Lavers, S (1995b). "Corporate social and environmental reporting: A review of the literature and longitudinal study of UK disclosure." Accounting, Auditing & Accountability Journal **8** (2): 47-77.
- Gu, F., and Lev, B (2001). Intangible assets. Measurement, Drivers, Usefulness. Working Paper, Boston University School of Management.
- Guimon, J. (2005). "Intellectual capital reporting and credit risk analysis." Journal of Intellectual Capital **6** (1): 28-42.
- Guthrie, J., and Mathews, M.R (1985). "Corporate social accounting in Australasia." Research in Corporate Social Performance and Policy **7**: 251-277.
- Guthrie, J., and Parker, L.D (1990). "Corporate social disclosure practice: a comparative international analysis." Advances in Public Interest Accounting **12** (2): 237-256.

Guthrie, J., and Petty, R (2000). "Intellectual capital: Australian annual reporting practices." Journal of Intellectual Capital **1** (3): 241-251.

Guthrie, J., Yongvanich, K., and Ricceri, F (2004). "Using content analysis as a research method to inquire into intellectual capital reporting." Journal of Intellectual Capital **5** (2): 282-293.

Guthrie, J., and Abeysekera, I (2006). "Content analysis of social, environmental reporting: what is new?" Journal of Human Resources Costing and Accounting **10** (2): 114-126.

Guthrie, J., Petty, R., and Ricceri, F (2006). "The voluntary reporting of intellectual capital: Comparing evidence from Hong Kong and Australia." Journal of Intellectual Capital **7** (2): 254-271.

Hackston, D., and Milne, M.J (1996). "Some determinants of social and environmental disclosures in New Zealand companies." Accounting, Auditing & Accountability Journal **9** (1): 77-108.

Hall, R. (1989). "The management of intellectual assets: a new corporate perspective." Journal of General Management **15** (1): 53-68.

Hall, R. (1992). "The strategic of intangible resources." Strategic Management Journal **13** (2): 135-144.

Hamdouch, A., and Moulaert, F (2006). "Knowledge infrastructure, innovation dynamics and knowledge creation/diffusion/accumulation processes: A comparative institutional perspective." Innovation **19** (1): 25-50.

Hammond, K., and Miles, S (2004). "Assessing quality assessment of corporate social reporting: UK perspective." Accounting Forum **28**: 61-79.

Haque, M., Green, R., and Keogh, W (2004). "Collaborative relationship in the UK upstream oil and gas industry: Critical success and failure factors." Problems and Perspective of Management **1**: 1-9.

Harwood, T. G., and Garry, T (2003). "An overview of content analysis." The Marketing Review **3**: 479-498.

Hassan, S.S., Craft, S., and Kortam, W (2003). "Understanding the new base for global market segmentation." Journal of Consumer Marketing **20** (5), pp: 446-462.

Hasseldine, J., Salama, A.A., and Toms, J.S (2005). "Quantity versus quality: the impact of environmental disclosure on the reputations of UK Plcs." The British Accounting Review **37**: 231-248.

Healy, P., and Palepu, N (1993). "The effect of firm's financial disclosure strategies on stock prices." Accounting Horizons **7**(1): 1-11.

Ho, M.J., and Harris, R.S (2000), "Brokerage analysts' rationale for investment recommendations: market response to different types of information." Journal of Financial Research **23**(4):449-468.

Holland, J., and Johanson, U (2003). "Value-relevant information on corporate intangibles-creation, use and barriers in capital markets - between a rock and a hard place". Journal of Intellectual Capital **4** (4): 465-486.

Holland, L., and Foo, Y.B (2003). "Differences in environmental reporting practices in the UK and the US: the legal and regulatory context." The British Accounting Review **35** (1): 1-18.

Holsti, O. R. (1969). Content analysis for the social sciences and humanities. Reading, MA, Addison-Wesley.

Hooks, J., Coy, D., and Davey, H (2002). "The information gap in annual reports." Accounting, Auditing & Accountability Journal **15** (4): 501-522.

Hooks, J and van Staden, C (2004). Preparer's perception of the decision usefulness of IFR 15. Qualitative Research in Accounting & Management **1**(1): 46-65.

- Hooks, J., Steenkamp, N., and Stewart, R (2010). "Interpreting pictorial messages of intellectual capital in company media." Qualitative Research in Accounting & Management **7** (3): 353-377.
- Houghton, J., and Sheehan, P (2000). "A primer on the knowledge economy." Retrieved 14 April, 2010, from <http://www.cfses.com/documents/knowledgeeconprimer.pdf>.
- Hsu, G. J. Y., Lin, Y.H., and Wei, Z.Y (2008). "Competition policy for technological innovation in an era of knowledge economy." Knowledge-Based Systems **21**: 826-832.
- Huang, C. C., Luther, R., and Tayles, M (2007). "An evidence-based taxonomy of intellectual capital." Journal of Intellectual Capital **8** (3): 386-408
- Hunt, I., and Jones, R (1998). "Winning new product business in the contract electronics industry." International Journal of Co-operation & Production Management **18** (2): 130-142.
- Hussainey, K., and Eisa, J.A (2009). "Disclosure and dividend signalling when sustained earnings growth declines." Managerial Auditing Journal **24** (5): 445-454.
- Hutton, A.P, Miller, G.S., and Skinner, D.J (2003). "The role of supplementary statement with management forecasts" Journal of Accounting Research **41** (5): 867-890.
- Imhoff, E.A (1992). "The relation between perceived accounting quality and economic characteristics of the firm." Journal of Accounting and Public Policy **11** (2): 97-118.
- Inchausti, B.G (1997). "The influence of company characteristics and accounting regulation on information disclosed by Spanish firms." The European Accounting Review **6** (1): 45-68.
- Itami, H. (1987). Mobilizing Invisible Assets. Cambridge MA, Harvard University Press.

- Ittner, C., and Larcker, D (1998). "Are non-financial measures leading indicators of financial performance? An analysis of customer satisfaction." Journal of Accounting Research **36**: 1-46.
- Jarrat, D. G. (1998). "A strategic classification of business alliances: a qualitative perspective built from a study of small and medium-sized enterprise." Qualitative Market Research: An International Journal **1** (1): 39-49.
- Jensen, M.C., and Meckling, W.H (1976). "Theory of the firm: Managerial behaviour, agency cost and ownership structure. Journal of Financial Economics **3** (4): 305-360.
- Johansson, B., Karlsson, C., Backman, M., and Juusolap, P (2007). "The Lisbon Agenda from 2000 to 2010." Electronic Working Paper Series, Paper No.106. Retrieved 29 September, 2010, from <http://www.infra.kth.se/cesis/documents/WP106.pdf>.
- Johne, F. A. (1984). "The organization at high technology product innovation." European Journal of Marketing **18** (6/7): 55-71.
- Johnson, M. F., Kasnik, R., and Nelson, K.K (2001). "The impact of securities litigation reform on the disclosure of forward looking information by high technology firms." Journal of Accounting Research **39** (2): 297-327.
- Kallapur, S., and Kwan, S.Y.S (2004). "The value relevance and reliability of brand assets recognized by UK firms." The Accounting Review **79** (1): 151-172.
- Kamath, B. (2008). "Intellectual capital disclosure in India: content analysis of 'Teck' firms." Journal of Human Resource Costing & Accounting **12**(3): 213-224.
- Kang, H., and Gray, S.J (2011). "The content of voluntary intangible assets disclosure: Evidence from emerging market companies." Journal of International Accounting Research **10** (1): 109-125.
- Kaplan, R. S., and Norton, D.P (1992). "The balanced scorecard-measure the drive performances." Harvard Business Review **74** (1): 167-176.

Kassarjian, H. H. (1977). "Content analysis in consumer research." Journal of Consumer Research **4**: 8-18.

Kaufmann, L., and Schneider, Y (2004). "Intangibles: A synthesis of current research." Journal of Intellectual Capital **5** (3): 366-388.

Kent, P., and Ung, K (2003). "Voluntary disclosure of forward-looking earning information in Australia." Australia Journal of Management **28** (3): 273-286.

Khan, M.H., Ali M.M., (2010). "An empirical investigation and users' perceptions on intellectual capital reporting in banks: Evidence from Bangladesh." Journal of Human Resources Costing and Accounting **14** (1): 48-69.

Koepfler, E.R (1989). "Strategic option for global market players." Journal of Business Strategy **10** (4): 46-50.

Kooistra, M. J., v.d., and Zijlstra, S.M (2001). "Reporting on intellectual capital." Accounting, Auditing & Accountability Journal **14**(4): 456-476.

Kotter, P., and Heskett, J.L (1992). Corporate culture and performance. New York, The Free Press.

Krippendorff, K. (2004). Content analysis: An introduction to its methodology. London, Sage Publications.

Kristandl, G., and Bontis, N (2007). "The impact of voluntary disclosure on cost of equity capital estimates in a temporal setting." Journal of Intellectual Capital **8** (4): 577-594.

Kujansive, P., and Lonnqvist, A (2007). "Investigating the value and efficiency of intellectual capital." Journal of Intellectual Capital **8** (2): 272-287.

Landes, W. M., and Posner, R.A (2003). The economic structure of intellectual property law. USA, Harvard Business Press.

Lang, M. H., and Lundholm, R.J (1996). "Corporate disclosure policy and analyst behaviour." The Accounting Review **71** (4): 467-492.

Lee, A., Neilson, J., Tower, G., and Van der Zahn, J.L.W (2007). "Is communicating intellectual capital information via the internet viable?" Journal of Human Resource Costing & Accounting **11** (1): 53-78.

Leftwich, R.W., Watts, R.L and Zimmerman, J.L (1981). "Voluntary corporate disclosure: The case of interim reporting". Journal of Accounting Research **19** :50-77.

Lev, B., and Zarowin, P (1999). "The boundaries of financial reporting and how to extend them." Journal of Accounting Research **37** (2): 353-385.

Lev, B. (2001). Intangibles: Management, measurement and reporting, The Brookings Institution.

Lev, B., and Daum, J.H (2004). "The dominance of intangible assets: consequences for enterprise management and corporate reporting." Measuring Business Excellence **8** (1): 6-17.

Li, J., Pike, R., and Haniffa, R (2008). "Intellectual capital disclosure and corporate governance structure in UK firms." Accounting and Business Research **38** (2): 137-159.

Light, D. H. (1986). "A guide for distribution channel strategies for services firms." Journal of Business Strategy **7** (1): 56-64.

Lindblom, C.K (1994). "The implications of organizational legitimacy for corporate social performance and disclosure." Paper presented at Critical Perspective on Accounting, New York, NY.

Linsley, P. M., and Shrive, P.J (2006). "Risk reporting: A study of risk disclosures in the annual reports of UK companies." The British Accounting Review **8**: 387-404.

Litzinger, W. D., and Schaefer, T.E (1966). "Perspective: Management philosophy of enigma." Academy of Management Journal **December**: 337-343.

Lynn, B. E. (2000). "Intellectual capital: unearthing hidden value by managing intellectual assets." Ivey Business Journal **64** (3): 48-52.

MAGIC (2001). Retrieved 10 September 2011, from www.profactor.at/magic/english/frame/html.

Magness, V (2006). "Strategic posture, financial performance and environmental disclosure: An empirical test of legitimacy theory." Accounting, Auditing & Accountability **19** (4): 540-563.

Malmelin, N. (2007). "Communication capital: Modelling corporate communications as an organizational assets." Corporate Communication: An International Journal **12** (3): 298-310.

Marr, B., Mouritsen, J., and Bukh, P.N (2003). "Perceived wisdom." Financial management **July/August**: 32.

Marr, B., and Adams (2004). "The balanced scorecard and intangible assets: similar ideas, unaligned concepts." Measuring Business Excellence **8** (3): 18-27.

Marr, B., Sciuma, G and Neely, A (2004). "The dynamics of value creation: mapping your intellectual capital performance drivers." Journal of Intellectual Capital **5** (2): 312-325.

Marrano, M. G., Haskel, J., and Wallis, G (2007). Intangibles investment and the UK's productivity. Treasury Economic Working Paper, No.1, Treasury London.

Marston, C., and Shrives, P (1991). "The use of disclosure indices in accounting research: a review of articles." The British Accounting Review **23** (2): 195-210.

Maskus, K. E. (2000). Intellectual property right in the global economy. Washington DC, Institute for International Economics.

- McCowen, P. (1968). "Human asset accounting." Management Decision **2** (2): 86-89.
- McKinstry, S (1996). "Designing the annual reports of Burton PLC from 1930 to 1994" Accounting, Organizations and Society **21** (1): 89-111.
- McKinnon, J (1998). "Reliability and validity in field research: some strategies and tactics." Accounting, Auditing & Accountability Journal **1** (1): 34-54.
- Meca, E. G., and Martinez, I (2005). "Assessing the quality of disclosure on intangibles in the Spanish capital market." European Business Review **17** (4): 305-313.
- Meek, G. K., Roberts, C.B., and Gray, S.J (1995). "Factors influencing voluntary annual report disclosures by U.S, UK and Continental Europe Multinational corporations." Journal of International Business Studies **26** (3): 555-572.
- Merk, D.M., Brennan, N.M and McLeay, S.J (2011). Impression management and retrospective sense-making in corporate narrative: a psychology perspective. Accounting, Auditing & Accountability Journal 24(3): 315-344
- MERITUM (2002). Guidelines for Managing and Reporting on Intangibles. Madrid, MERITUM.
- Mezias, J. M., and Starbuck, W.H (2003). "Studying the accuracy manager's perceptions: a research odyssey." British Journal of Management **4**: 3-17.
- Miller, J.L (2002). "The boards as a monitor of organizational activity: The applicability of agency theory to non-profit boards. Non-profit Management and Leadership 14 (4): 429-450.
- Milne, M., and Adler, R.W (1999). "Exploring the reliability of social and environmental disclosure content analysis." Accounting, Auditing & Accountability Journal **12** (2): 237-256.

Milne, M. J., and Chan, C.C. (1999). "Narrative corporate social disclosures: How much of a difference do they make to investment decision-making?" The British Accounting Review **31**: 439-457.

Moon, Y. J., and Kym, H.G (2006). "A model for the value of intellectual capital." Canadian Journal of Administrative Sciences **23** (3): 153-269.

Moore, N. G. (2000). "Financial reporting: The case for a new global model." Pacific Accounting Review**11**(2): 149-151.

Mouritsen, J., Larsen, H.T., Bukh, P.N., and Johansen, M.R (2001a). "Reading an intellectual capital statement: Describing and prescribing knowledge management strategies." Journal of Intellectual Capital **2** (4): 359-383.

Mouritsen, J., Larsen, H.T., and Bukh, P.N (2001b). "Valuing the future: intellectual capital supplements at Skandia." Accounting, Auditing & Accountability Journal **14** (4): 399-422.

Mouritsen, J., Bukh, P.N., and Marr, B (2004). "Reporting on intellectual capital: why, what and how?" Measuring Business Excellence **8** (1): 46-54.

National Academic of Engineering (2010). "What is technology." Retrieved 19 November, 2010, from <http://www.members.nae.edu/>.

Neal, W. H., Bell, R.G., Hansen, C.A., and Siegfried (2007). "Oil and gas technology development." Working Document of the NPC Global Oil and Gas Study. Retrieved 7 March, 2011, from http://www.npc.orf/Study_Topic_papers/26-TTG-OGTechDevelopment.pdf.

Ness, K. E., and Mirza, A.M (1991). "Corporate social disclosure: A note on a test of Agency Theory." The British Accounting Review **23**: 211-217.

Neuendorf, K. A. (2002). The Content Analysis Guidebook. London, Sage Publications.

Nonaka, I., and Takeuchi (1995). The knowledge-creating company. Oxford, Oxford University Press.

Nurunnabi M., Hossain, M., and Hossain., Md (2011). "Intellectual capital reporting in a south Asian country: a evidence from Bangladesh. Journal of Human Resources Costing & Accounting **15** (3): 196-231.

Oak, S., and Dalbor, M.C (2010). "An emprical investor favour firms with greater brand equity? An empirical investigation of investment in US lodging firms." International Journal of Hospitality Management **22** (1): 22-40.

Ogden, S., and Clarke, J (2005). "Customers disclosures, impression management and the construction of legitimacy: Corporate reports in the UK privatised water industry." Accounting, Auditing & Accountability Journal **18** (3): 313-345.

O'Donnell, D., and O'Regan, P (2000). "The structural dimensions of intellectual capital: emerging challenges for management accounting." Southern African Business Review **4** (2): 14-20.

O'Dubhchair, K., Scott, J.K., and Johnson, T.G (2001). "Building a knowledge infrastructure for learning communities." The Electronic Journal on Information Systems in Developing Countries **4**, 1-21

Oliveira, L., Rodrigues, L. L., and Craig, R (2006). "Firm-specific determinants of intangibles reporting: evidence from the Portuguese stock market." Journal of Human Resource Costing & Accounting **10**(1): 11-33.

Oliveras, E., Gowthorpe, C., Kasperskaya, Y., and Perramon, J (2008). "Reporting intellectual capital in Spain." Corporate Communications: An International Journal **13**(2): 168-181.

Orens, R., Aerts, W., and Lybaert, N (2009). "Intellectual capital disclosure, cost of finance and firm value." Management Decision **47** (10): 1536-1554.

Ousama, A.A., and Fatima, A.H (2010). "Factors influencing voluntary disclosure: empirical evidence from sharia approved companies." Malaysian Accounting Review **9** (1): 85-103.

Ousama, A.A., Fatima, A.H., and Hafiz-Majdi, A.R (2012). "Determinants of intellectual capital reporting: Evidence form annual reports of Malaysian listed companies." Journal of Accounting in Emerging Economies **2**(2): 119-139.

Pappu, R., and Quester, P (2006). "Does customer satisfaction lead to improved brand equity? An empirical examination of two categories of retail brands." Journal of Product and Brand Management **15** (1): 4-14.

Park., J., Shin K., Chang, T.W., and Park, J (2010). "An integrative framework for supplier relationship management." Industrial Management & Data Systems **110** (4): 495-515.

Patten, D.M (1991). "Exposure legitimacy and social disclosure." Journal of Accounting and Public Policy **10** :297-308.

Patten, D.M (1992). "Intra-industry environmental disclosure in response to the Alaskan oil spill: a note on legitimacy theory." Accounting, Organizations and Society **17** (5): 471-475.

Pave, M. L., and Epstein, M.J (1993). "How good is MD&A as investment tool?" Journal of Accountancy: 51-53.

Petty, R., and Guthrie, J (2000). "Intellectual capital literature review: Measurement, reporting and management." Journal of Intellectual Capital **1** (2): 155-176.

Petty, R., Ricceri, F., and Guthrie, J (2008). "Intellectual capital: a user's perspective." Management Research News **31** (6): 434-447.

Petrash, G (1996). "Dow's Journey to a knowledge value management culture." European Management Journal **14** (4): 365-373.

Philips, D (2006). "Relationship are the core value for organisations: a practitioner perspective." Corporate Communication: An International Journal **11** (1): 34-42.

Polo, F. C. (2007). "The recent history of intellectual capital: the most significant topics and contexts in its development." International Journal of Accounting, Auditing and Performance **4** (4/5): 360-381.

Powell, W. W., and Snellman (2004). "The knowledge economy." Annual Review of Sociology **30**: 199-220.

Raar, J. (2007). "Reported social and environmental taxonomies: a longer-term glimpse." Managerial Auditing Journal **22** (8): 840-860.

Rahim, A., Atan, R., and Kamaluddin, A (2011). "Intellectual capital reporting in Malaysian technology industry." Asian Journal of Accounting and Governance **2**: 51-59.

Ramirez, Y. W., and Nembhard, D.A (2004). "Measuring knowledge worker productivity: Taxonomy." Journal of Intellectual Capital **5** (4): 602-628.

RICARDIS (2006). "Reporting of Intellectual Capital to Augment Research, Development & Innovation in SMEs. Reports to the commission of the higher level expert group on RICARDIS." Retrieved 5 August, 2010, from <http://ec.europa.eu/invest-in-research/pdf/download.en/2006-2977>.

Riffe, D., Lacy, S., and Fico, F.G (2005). Analyzing Media Messages: Using Quantitative Content Analysis in Research. Mahwah, New Jersey, Lawrence Erlbaum Associates.

Rimmel, G., Nielsen, C., and Yosano, T (2009). "Intellectual capital disclosures in Japanese IPO prospectuses." Journal of Human Resources Costing and Accounting **13** (4): 316-337.

Rivette, K. G., and Kline, D (2000). "Discovering new value in intellectual property." Harvard Business Review **Jan-Feb**: 54-66.

Roberts, J. (2009). "The global knowledge economy in question." Critical Perspectives on International Business **5** (4): 285-303.

Robertson, D. A., and Lanfranconi, C (2001). "Financial reporting: Communicating intellectual property." Ivey Business Journal **65** (4): 8-11.

Rodgers, W (2007). "Problems and resolutions to future knowledge-based assets reporting". Journal of Intellectual Capital **8**(2):205-215

Roos, J., and Roos, G., Dragonetti, N., and Edvinsson, L (1997). Intellectual Capital. New York, NY, Macmillan Business.

Roslender, R., and Fincham, R (2001). "Thinking critically about intellectual capital accounting." Accounting, Auditing & Accountability Journal **14** (4): 383-398.

Rowley, J. (2005). "Building brands webs: Customer relationship management through the loyalty scheme." International Journal of Retail & Distribution Management **33** (3): 194-206.

Ruchala, L. V. (1997). "Managing and controlling specialized assets." Management Accounting **79** (4): 20-24.

Sahindis, A. G., and Bouris, J (2008). "Employee perceived training effectiveness relationship to employee attitudes." Journal of European Industrial Training **32** (1): 63-76.

Saint-Onge, H. (1996). "Tacit knowledge: the key to the strategic alignment of intellectual capital." Strategy and Leadership **24** (2): 10-15.

Samson, D. A., and Daft, R.L (2003). Management. Melbourne Australia, Pacific Rim Edition.

Sanchez, P., Chaminade, C., and Olea, M (2000). "Management of intangibles - an attempt to build a theory." Journal of Intellectual Capital **1** (4): 312-327.

- Santos, M. V., and Garcia, M.T (2006). "Manager's opinions: reality and fiction. A narrative approach." Management Decision **44** (6): 752-770.
- Savage, C. M. (1996). "Book review: Fifth Generation Management, Co-creating through Virtual Enterprising, Dynamic Teaming and Knowledge Management." Retrieved 14 April, 2010, from <http://www.kee.inc.com>.
- Schneider, A., and Samkin, G (2008). "Intellectual capital reporting by the New Zealand local government sector." Journal of Intellectual Capital **9** (3): 456-486.
- Schraeder, M. (2009). "Leveraging potential benefit of augmentation in employee training." Industrial and Commercial Training **41** (3): 133-138.
- Seetharaman, A., Mohd Nadzir, Z.A., and Gunalan, S (2001). "A conceptual study on brand valuation." Journal of Product and Brand Management **10** (4): 243-256.
- Seetharaman, A., Sooria, H.H.Z., and Saravanan, A.S (2002). "Intellectual capital accounting and reporting in the knowledge economy." Journal of Intellectual Capital **3** (2): 128-148.
- Seetharaman, A., Low, K.L.T., and Saravanan, A.S (2004a). "Comparative justification on intellectual capital." Journal of Intellectual Capital **5** (4): 522-539.
- Seetharaman, A., Balachandaran, M., and Saravanan, A.S (2004b), "Accounting treatment of goodwill: yesterday, today and tomorrow: Problems and prospects in the international perspective" Journal of Intellectual Capital **5** (1): 131-152.
- Sengupta, P. (1998). "Corporate disclosure quality and cost of debt." The Accounting Review **73** (4): 459-474.
- Shapira, P., Youtie, J., Yogeessvaran, K., and Jaafar, Z (2006). "Knowledge economy measurement. Methods, results and insights from the Malaysia knowledge content study." Research Policy **35**: 1522-1537.

- Shareef, F., and Davey, H (2005). "Accounting for intellectual capital: Evidence from listed English football clubs." Journal of Applied Accounting Research **7** (3): 78-116.
- Singh, I., and van der Zahn, J.L.W (2007). "Does intellectual capital disclosure reduce an IPO's cost of capital?" Journal of Intellectual Capital **8** (3): 494-516.
- Singh, S., and Kansal, M (2011). "Voluntary disclosure of intellectual capital: An empirical analysis." Journal of Intellectual Capital **12** (2): 301-318.
- Singhvi, S., and Desai, H (1971). "An empirical analysis of the quality of corporate financial disclosure." The Accounting Review **46** (1): 129-143.
- Skojoett-Larsen, T. (2000). "European logistic beyond 2000." International Journal of Physical Distribution & Logistics Management **30** (5): 377-387.
- Slack, R., and Shrives, P (2008). "Social disclosure and legitimacy in Premier League football clubs: the first ten years." Journal of Applied Accounting Research **9** (1): 17-28.
- Smith, K. (2002). "What is knowledge economy, knowledge intensity and distributed knowledge bases?" Discussion paper series. Retrieved 12 April, 2010, from <http://www.sbmu.ac.ir/SiteDirectory?ViceChancellorforResearch/ManageResearch>
- Smith, M. and Taffler, R (1992). "Readability and understandability: different measures of the textual complexity of accounting narrative" Accounting, Auditing & Accountability Journal **5** (4): 84-98.
- Smith, M., and Taffler, R.J (2000). "The chairman's statement: A content analysis of discretionary narrative disclosures." Accounting, Auditing & Accountability Journal **13** (5): 624-646.
- Sonnier, B. M., Carson, K.D., and Carson, P.P (2006). "An examination of the impact of firm size and age on managerial disclosure of intellectual capital by high-tech companies." Journal of Business Strategy **26** (2): 1-24.

Sonnier, B. M., Carson, K.D., and Carson, P.P (2008). "Intellectual capital disclosure by traditional US companies: a longitudinal assessment." Journal of Accounting & Organizational Change **4** (1): 67-80.

Stanton, P., and Stanton, J (2002). Corporate annual reports: research perspectives used. Accounting, Auditing & Accountability Journal **15** (4): 478-500.

Stanton, P., Stanton, J., and Pires, G (2004). "Impression of an annual report: an experimental study. Corporate Communications: An International journal **9** (1): 57-69.

Steenkamp, N., and Northcott, D (2007). "Content analysis in accounting research: The practical challenges." Australian Accounting Review **17** (3): 12-55.

Stewart, T. (1991). "Brainpower." Fortune **3 June**: 44-60.

Stewart, T. (1997). Intellectual Capital: The new wealth of organizations. New York NY, Doubleday Currency.

Striukova, L., Unerman, J., and Guthrie, J (2008). "Corporate reporting of intellectual capital: Evidence from UK companies." The British Accounting Review **40** (4): 297-313.

Subramaniam, M., and Youndt, M.A (2005). "The influence of intellectual capital on the types of innovative capabilities." Academy of Management Journal **48** (3): 450-463.

Sullivan, P. H. (1998). Profiting from intellectual capital: Extracting from innovation. New York, NY, Wiley.

Sullivan, P. H. (2000). Value-driven intellectual capital: How to convert intangible corporate assets into market value. New York, John Wiley & Sons.

Sveiby, K. E. (1997). The New Organizational Wealth: Managing and measuring knowledge-based assets. San Francisco, Barret-Kohler.

Sveiby, K. E. (2001). "A knowledge-based theory of the firm to guide in strategy formulation." Journal of Intellectual Capital **2** (4): 344-358.

Switzer, C. (2008). "Time for change: empowering organizations to succeed in the knowledge economy." Journal of Knowledge Management **12** (2): 18-28.

Takuldar, A. (2008). "What is an IC report? And why you need to produce one? Attainix Consulting." Retrieved 5 August, 2010, from <http://www.attainix.com/Downloads/WhatIsAnICReport.pdf>.

Tellis, G. J., Prabhu, J.C., and Chandy, R.J (2009). "Radical innovation across nations: The pre-eminence of corporate culture." Journal of Marketing **73**: 3-23.

The Organisation for Economic Cooperation and Development (1996). 'The knowledge-based economy. Retrieved on 2 August 2010 from <http://www.oecd.org/dataoecd/51/8/1913021.pdf>.

Theeke, H. A. (2005). "A human resources accounting: shifting from failure to a future." Journal of Human Resources Costing and Accounting **9** (1): 40-59.

Theodorakioglou, Y., Gotzamani., and Tsiolvas (2006). "Supplier management and its relationship to buyers' quality management." Supply Chain Management: An International Journal **11**(2): 148-159.

Tilling, M. V., and Tilt, C.A (2010). "The edge of legitimacy: Voluntary social and environmental reporting in Rothmans' 1956-1999 annual reports." Accounting, Auditing & Accountability Journal **23**(1): 55-81.

Tinker, T., and Neimark, M (1987). "The role of annual reports in gender and class contradictions at General Motors: 1917-1976." Accounting, Organizations and Society **12**: 71-88.

Toms, J. S. (2002). "Firm resources, quality signals and determinants of corporate environmental reputation: Some UK evidence." The British Accounting Review **34**: 257-282.

Tsang, E. W. K. (1998). "A longitudinal study of corporate social reporting in Singapore: The case of the banking, food and beverages and hotel industry." Accounting, Auditing & Accountability Journal **11** (5): 624-635.

Tuominen, P. (1997). "Investor relationship: A Nordic school approach." Corporate Communication: An International Journal **2** (1): 46-55.

uit Beijerse, P. P. (1999). "Question in the knowledge management: Defining and conceptualising a phenomenon." Journal of Knowledge Management **3** (2): 94-109.

Ulrich, D. (1998). "Intellectual capital 1/4 competence £ commitment." Sloan Management Review **39** (2): 15-26.

Unerman, J. (2000). "Methodological issues: Reflections on quantification in corporate social reporting content analysis." Accounting, Auditing & Accountability Journal **13** (5): 667-680.

Upton, W. S. J. (2001). Business and Financial Reporting: Challenges for the new economy. Financial Accounting Series 219-A. S. Report. Norwalk, Financial Accounting Standard Board.

Valladaras Soler, L. E., and Cuello de Oro Celestino, D.J (2007). "Evaluating the scope of IC in firm's value." Journal of Intellectual Capital **8** (3): 470-493.

van Auken, P. M., and Ireland, R.D (1978). "A historical review of management philosophy." Academy of Management Proceeding **August**: 7-11.

van Beest, F., Braam, G., and Boelens, S (2009). "Quality of financial reporting: measuring qualitative characteristic." Nijmegen Center for Economics (NiCE) Working Paper, April 2009, Paper 09-108. Retrieved 13 September, 2010, from <http://dare.ubn.kun.nl/dspace/bitstream/2066/74896/1/74896.pdf>.

van de Ven, A. H. (1986). "Central problem in the management innovation." Management Science **32**: 590-607.

van der Zahn, J. L. W., Singh, I., and Heniro, J (2007). "Is there an association between intellectual capital disclosure, underpricing and long-run performance?" Journal of Human Resource Costing & Accounting **11** (3): 178-213.

Vandemaele, S. N., Vergauwen, P.G.M.C., and Smith, A.J (2005). "Intellectual capital disclosure in The Netherlands, Sweden and the UK." Journal of Intellectual Capital **6** (3): 417-426.

Varadarajan, P. R., and Cunningham, M (1995). "Strategic alliances: a synthesis of conceptual foundations." Journal of the Academy of Marketing Sciences **23** (4): 282-296.

Vergauwen, P.G.M.C., Bollen, L., and Oirbans, E (2007). "Intellectual capital disclosure and intangible value drivers: an empirical study." Management Decision **45** (7): 1163-1180.

Vergauwen, P. G. M. C., and van Alem, F.J.C (2005). "Annual report IC disclosures in The Netherlands, France and Germany." Journal of Intellectual Capital **6** (1): 89-104.

Verrecchia, R. E. (1983). "Discretionary disclosure." Journal of Accounting and Economics **5**: 179-194.

Wagner, B. A., and Alderdice, A.D.G (2006). "Managing the distribution channel: the case of Scottish trout and salmon." Supply Chain Management: An International Journal **11** (2): 104-107.

Wallace, R.S.O., and Naser, K (199). "Firm-specific determinants of the comprehensiveness of mandatory disclosure in the corporate annual reports of firms listed on the stock exchange of Hong Kong." Journal of Accounting and Public Policy **14** (4): 311-368.

Warden, C. (2003). "Managing and reporting intellectual capital: New strategic challenges for HEROs." Retrieved 4 August, 2010, from <http://www.ipr.helpdesk.org/newsletter/8/html/EN/IPRTDarticleN1020.pdf>.

Watson, A., Shrides, P., and Marston, C (2002). "Voluntary disclosure of accounting ratios in the UK." The British Accounting Review **34**: 289-313.

Watts, R.L., and Zimmerman, J.L (1986). Positive Accounting Theory. Prentice Hall Inc. Englewood Cliffs, NJ.

Watts, R. L., and Zimmerman, J.L (1978). "Towards a positive theory of the determination of Accounting Standards." The Accounting Review **LIII** (1): 112-134.

Wayne, S. U. (2001). Business and financial reporting: challenge from new economy. Financial Accounting Series, Financial Accounting Standard Board of the Financial Accounting Foundation. **Special Report. No.219/A**.

Weber, R. P. (1990). Basic content analysis: Quantitative applications in the social sciences. Newbury Park, CA, Sage Publications.

White, G., Lee, A., and Tower, G (2007). "Drivers of voluntary intellectual capital disclosure in listed biotechnology companies." Journal of Intellectual Capital **8** (3): 517-537.

White, G., Yuninsih, Nielsen, C., and Bukh, P.N (2010). "The nature and extent of voluntary intellectual capital disclosures by Australian and UK biotechnology companies." Journal of Intellectual Capital **11** (4): 519-536.

Whiting, R. H., and Miller, J.C (2008). "Voluntary disclosure of intellectual capital in New Zealand annual reports and the 'hidden value'." Journal of Human Resource Costing & Accounting **12** (1): 26-50.

Whiting, R.H., and Woodcock, J (2011). "Firm characteristics and intellectual capital disclosure by Australian companies. Journal of Human Resources Costing & Accounting **15** (2): 102-126.

Wilkinson, I. F. (1996). "Distribution channel management: Power considerations." International Journal of Physical Distribution & Logistics Management **26** (5): 31-41.

Williams, S. M. (2001). "Is intellectual capital performance and disclosure practices related?" Journal of Intellectual Capital **2** (3): 192-203.

Wilmshurst, T. D., and Frost, G.R (2000). "Corporate environmental reporting: A test of legitimacy theory." Accounting, Auditing & Accountability Journal **13** (1): 10-26.

Wilson, R. M. S., and Stenson, J.A (2008). "Valuation of information assets on the balance sheets: The recognition and approaches to the valuation of intangibles assets." Business Information Review **25** (3): 167-182.

Wimmer, R. D., and Dominick, J.R (2003). Mass media research: An introduction. Australia, Thomson, Wadsworth.

Wiseman, J. (1982). "An evaluation of environmental disclosures made in corporate annual reports." Accounting, Organizations and Society **7** (1): 53-63.

Wong, M., and Gardner, C.T (2005), Intellectual capital disclosure: New Zealand Evidence. Paper presented at 2005 AFAAANZ, Melbourne, retrieved 03 March 2008 from www.afaanz.org/web2005.pdf.

Yeoh, P. (2010). "Narrative reporting: The UK experience." International Journal of Law and Management **52**(3): 211-231.

Yongvanich, K., and Guthrie, J (2005). "Extended performance reporting: an examination of the Australian mining industry." Accounting Forum **29**: 103-119.

Zeghal, D., and Ahmed, S.A (1990). "Comparison of social responsibility information disclosure media used by Canadian firms." Accounting, Auditing & Accountability Journal **3** (1): 38-53.

Zhang, Y., and Wildemuth, B.M (2009). "Qualitative analysis of content. In B. Wildemuth (ed), Application of social research methods to questions in information and library sciences: 308-319. Westport, CT: Libraries Unlimited.

Authors	Structural capital	Relational capital	Human capital
Guthrie and Petty (2000)	<ul style="list-style-type: none"> • Intellectual property • Patents • Copyrights • Trademarks • Infrastructure assets • Management philosophy • Corporate culture • Management process • Information systems • Networking systems • Financial relations 	<ul style="list-style-type: none"> • Brands • Customers • Company names • Distribution channels • Business collaborations • Licensing agreements • Favourable contracts • Franchising agreements 	<ul style="list-style-type: none"> • Education • Vocational qualification • Work-related knowledge • Work-related competencies • Entrepreneurial spirit
Brennan (2001)	<ul style="list-style-type: none"> • Patents • Copyrights • Trademarks • Management philosophy • Corporate culture • Management process • Information systems • Networking systems • Financial relations 	<ul style="list-style-type: none"> • Brands • Customer loyalty • Company names • Distributions channels • Business channels • Business collaborations • Licensing agreements • Favourable contracts • Franchising agreements 	<ul style="list-style-type: none"> • Know how • Education • Vocational qualification • Work-related knowledge • Work-related competencies • Entrepreneurial spirit

Authors	Structural capital	Relational capital	Human capital
Bozzolan et al., (2003)	<ul style="list-style-type: none"> • Patents • Copyrights • Trademarks • Corporate culture • Management process • Information systems • Networking systems • Research project 	<ul style="list-style-type: none"> • Brands • Customers • Customer loyalty • Distribution channels • Business collaborations • Financial contacts • Licensing agreements • Franchising agreements 	<ul style="list-style-type: none"> • Know how • Education • Employees • Work-related knowledge • Work-related competencies
Guthrie et al., (2004)	<ul style="list-style-type: none"> • Intellectual property (patents, copy rights and trademarks) • Management philosophy • Corporate culture • Management process • Information systems • Financial relations 	<ul style="list-style-type: none"> • Brands • Customer loyalty • Company names • Distribution channels • Business collaborations • Licensing agreements 	<ul style="list-style-type: none"> • Know how • Work-related knowledge • Work related competencies • Training • Entrepreneurial spirit
Goh and Lim (2004)	<ul style="list-style-type: none"> • Patents • Copyrights • Trademarks • Management philosophy • Corporate culture • Management processes • Information systems • Networking systems • Financial relation 	<ul style="list-style-type: none"> • Brands • Customers • Customer loyalty • Companies name • Distribution channel • Business collaboration • Licensing agreement • Favourable contract • Franchising agreement 	<ul style="list-style-type: none"> • Know how • Education • Vocational qualification • Work-related knowledge • Work-related knowledge • Work-related competencies • Entrepreneur spirit

Authors	Structural capital	Relational capital	Human capital
Abeysekera and Guthrie (2005)	<ul style="list-style-type: none"> • Processes • Systems • Philosophy and culture • Intellectual property • Financial relations 	<ul style="list-style-type: none"> • Brand building • Corporate image building • Business partnering • Distribution channel • Market share 	<ul style="list-style-type: none"> • Training and development • Entrepreneurial skills • Equity issues • Employee safety • Employee relations • Employee welfare • Employee-related measurement
Abeysekera (2007)	<ul style="list-style-type: none"> • Processes • Systems • Philosophy and culture • Intellectual property • Financial relations 	<ul style="list-style-type: none"> • Brand building • Corporate image building • Business partnering • Distribution channel • Market share 	<ul style="list-style-type: none"> • Training and development • Entrepreneurial skills • Equity issues • Employee safety • Employee relations • Employee welfare • Employee-related measurement
Wong and Gardner (2005)	<ul style="list-style-type: none"> • Intellectual property • Management philosophy • Corporate culture • Management process • Information/networking systems • Financial relations 	<ul style="list-style-type: none"> • Brands • Customers • Customer satisfaction • Company names • Distribution channels • Business collaborations • Licensing agreement 	<ul style="list-style-type: none"> • Employee • Education • Training • Work-related knowledge • Entrepreneur spirit

Appendix A

Authors	Structural capital	Relational capital	Human capital
Abeyssekera (2007)	<ul style="list-style-type: none"> • Processes • Systems • Philosophy and culture • Intellectual property • Financial relations 	<ul style="list-style-type: none"> • Brand building • Corporate image building • Business partnering • Distribution channel • Market share 	<ul style="list-style-type: none"> • Training and development • Entrepreneurial skills • Equity issues • Employee safety • Employee relations • Employee welfare • Employee-related measurement
Whiting and Miller (2008)	<ul style="list-style-type: none"> • Intellectual property • Management philosophy • Corporate culture • Management processes • Information/networking systems • Financial relations 	<ul style="list-style-type: none"> • Brands • Customers • Customer satisfaction • Company names • Distribution channels • Business collaborations • Licensing Agreements 	<ul style="list-style-type: none"> • Employee • Education • Training • Work-related knowledge • Entrepreneurial spirit
Cerbioni and Parbonetti (2007)	<ul style="list-style-type: none"> • Patents • Copy rights • Trademarks • Corporate culture • Management processes • Information systems • Research projects 	<ul style="list-style-type: none"> • Brands • Customers • Customers loyalty • Distribution channels • Business collaborations • Research collaborations • Financial contracts • Licensing agreements • Franchising agreements 	<ul style="list-style-type: none"> • Know how • Education • Employees • Work-related knowledge • Work-related competencies

Appendix A

Authors	Structural capital	Relational capital	Human capital
Schneider and Samkin (2008)	<ul style="list-style-type: none"> • Patents • Copyrights • Trademarks • Corporate culture • Management philosophy • Information systems • Research projects • Financial relations 	<ul style="list-style-type: none"> • Brands • Customers • Customer loyalty • Customer satisfaction • Customer penetration • Company names • Distribution channel • Business collaborations • Licensing agreements • Franchising agreements • Quality standards 	<ul style="list-style-type: none"> • Know how • Education • Vocational qualification • Work-related knowledge • Work-related competencies • Cultural diversity • Entrepreneurial spirit • Employee career development • Employee productivity • Employee benefit • Employee involvement • Employee numbers • Employee turnover • Employee safety • Equal employment opportunities • Training programmes • Union activity

Appendix A

Authors	Structural capital	Relational capital	Human capital
Khan and Ali (2010)	<ul style="list-style-type: none"> • Patent • Copyright • Management philosophy • Corporate culture • Management process • Information systems • Networking systems • Financial relations 	<ul style="list-style-type: none"> • Banks' reputation for services customers • Customers/clients loyalty • Companies' name • Business collaboration • Bank's market share • Franchising and licensing agreements 	<ul style="list-style-type: none"> • Know how • Employee's educational qualification • Work-related knowledge • Work-related competency • Entrepreneurial spirit • Extent of employee training
An Yi and Davey (2010)	<ul style="list-style-type: none"> • Intellectual property • Management philosophy/corporate culture • Management process • Information systems • Financial relations 	<ul style="list-style-type: none"> • Brands/reputation • Customers • Customer satisfaction • Distribution channels • Business partnership • Licensing agreement • Market share 	<ul style="list-style-type: none"> • Employee • Education and training • Work-related knowledge • Entrepreneurial spirit
Dumay and Tull (2007)	<ul style="list-style-type: none"> • Management process • Internal networking systems • Management philosophy • Corporate culture • Financial relations • Research projects • Infrastructure assets • Information systems • Copyright • Design • Trademarks • Company names 	<ul style="list-style-type: none"> • Research collaborations • External networking systems • Brand, company and product reputation • Customers • Customer relations • Distribution channels • Business collaborations • Licensing agreements • Supplier contracts • Supply contracts • Franchising agreements 	<ul style="list-style-type: none"> • Know-how • Education • Employees • Work-related knowledge • Work-related competencies • Entrepreneurial spirit • Vocational qualification • Confidential information

Appendix B

	Category name	Labels	Indicative terms	literature comments
A	<i>Structural capital</i>	SC	-	-
1	Intellectual properties	IP	<ul style="list-style-type: none"> • Patents • Trademarks • Copyright • Licence • Trade secret 	<ul style="list-style-type: none"> • Intellectual properties are ideas, inventions, discoveries, symbols, image, and expressive works or in short any potentially valuable human product that has an existence separable from the unique physical embodiment whether or not the product has actually been ‘propertied’ that is brought under a legal regime of property right (Landes and Posner, 2003, p.1). • IP savvy leaders believe that in a world where battle are increasingly being waged not for control market or raw material but for the rights of new ideas and innovations, the management of intellectual properties must become core competence of successful enterprise (Rivette and Kline, 2000; p.56).
2	Corporate culture	CC	<ul style="list-style-type: none"> • Code of ethic • Code of conduct • Code of practice • Work culture • Sharing value • Managerial style 	<ul style="list-style-type: none"> • Culture is value, rituals and codes (Tellis et al., 2009; p.3). • Corporate culture is value or practices that are shared across all groups in a firm at least within senior management (Kotter and Heskett, 1992; p.6). • Corporate culture is a set of key values, beliefs and understandings shared by members of the firm (Samson and Daft, 2003; p.50). • Tellis et al. (2009) has documented that the previous studies empirically evident corporate cultures are the driver for radical innovation in the companies.

Appendix B

	Category name	Labels	Indicative terms	literature comments
3	Management philosophy	MP	<ul style="list-style-type: none"> • Creating value to shareholders • Listen to customers • Protect environment • Caring society • Responsibility employer • Practising good citizenship <p>(it refers to management belief towards stakeholder constituents in abstract manner but not refers to actual activities)</p>	<ul style="list-style-type: none"> • Management philosophy or also called ‘creed’ is a definition of the purpose of the organisations and setting down moral and ethical principles to guide their actions. These guiding documents are referred to in a variety of ways: Basic objectives, Basic Policy; Fundamental principles; The Credo by which we serve; what we are aiming for and more simply policies (Thompson, 1958 cited in Litzinger and Schaefer, 1966). • Management philosophy is a set of statements which relates to the purpose or ultimate end of managerial activities (Van Auken and Ireland, 1978). It would guide managerial how to conduct business in the long run. • The role of business philosophy is to provide a common goal to focus the strategy of company and activities of employees (Dowling, 1993, p.102).

Appendix B

	Category name	Labels	Indicative terms	literature comments
4	Management process	MPs	<ul style="list-style-type: none"> • Special management procedures – JIT, TQM • Project management • Manufacturing operations • Special method • Advanced quality control • Performance appraisal • Special operation and procedures • Business process • Management plan • Productivity enhancement • Budget system • Organisational flexibility 	<ul style="list-style-type: none"> • It refers to the level of sophistication of a firm’s internal work sequences such as its quality management. Pertinent indicators include information on firms sales network, planning and maintenance or complaint management process (Gerpott et al., 2008, p.39) • Relating to the process within a company (An Yi and Davey, 2010, p.335)
5	Technologies	Tech	<p><i>Technological infrastructures:</i></p> <ul style="list-style-type: none"> • Machines • Tools <p><i>Technological processes:</i></p> <ul style="list-style-type: none"> • Scientific methods/techniques • Advanced treatments • Advanced engineering • Advanced crafts 	<ul style="list-style-type: none"> • Technology goes beyond technological artefact that most people might think. Instead, the technology also includes all the infrastructure necessary for design, manufacture, operation and repair of technological artefacts (National Academy of Engineering, 2010). • Technology refers to the combination of knowledge directly linked to the development of activities and functions of the technical systems of the organisations, responsible for obtaining product and services (CIC, 2003 cited de Castro and Saez, 2008; 27).

Appendix B

	Category name	Labels	Indicative terms	literature comments
6	Information technology/information systems	IT	<ul style="list-style-type: none"> • Computer network • Database • Software • Hardware • Intranet • Servers • Communication technology 	<ul style="list-style-type: none"> • Technology is ubiquitous and anything that solves a problem. In business, technology has become the primary mechanism for moving and sharing information between and among people (Crittendem et al., 2010; p.103). • The development of information systems and technology by firms increasingly determines their competitiveness in the service economy (Bardhan et al., 2010; p.6).

Appendix B

	Category name	Labels	Indicative terms	literature comments
7	Knowledge infrastructures	K-Infra	<ul style="list-style-type: none"> • Laboratories • Culture centres • Excellent centres • Training centres • Research centres • Libraries • Community centres • Advanced units in organisation • Engineering and technical centre 	<ul style="list-style-type: none"> • Knowledge infrastructures can be defined as the ‘institutional complex’ encompassing the wide range of organisations, institutions and networks (and their specific constituents) which contributes to the constitution and evolutions of knowledge base of given spatial areas as well as the resources and competencies fuelling its innovative capabilities and dynamic (Hamdouch and Moulart, 2006; p.27). These include universities, other higher education organisations, public research organisations, private research institutes, consulting firms, manufacturing and services firms and collaborative organisations. • O’ Dubhchair et al. (2001; p.6) defined community knowledge infrastructures as the set of locally specific physical, informational, educational, organisational and cultural resources needed to facilitate community learning and actions towards desired collective future. • Therefore, this study follows the O’ Dubhchair et al. (2001) definition where business knowledge infrastructure is a group of physical, informational, educational, organisational and cultural resources to encourage ongoing process of knowledge generation and collective learning between members and units within corporate organisation.

Appendix B

	Category name	Labels	Indicative terms	literature comments
8	Product innovation	Inno	<ul style="list-style-type: none"> • Market innovation – new product to firms. • Product innovation – new product to firm and markets. • Product variations – modification of existing product. 	<ul style="list-style-type: none"> • Innovation is defined as the process of indentifying and using opportunities to create new product, services and work practice (Van de Ven, 1986). • Product innovation is outcome of intellectual capital or use of knowledge (Subramaniam and Youndt, 2005). • Product innovation provides the key to long-run survival for firms operating in a high-technology environment (Johne, 1984). • In pressure of market competition, developing and introducing new product is important strategy to increase market share and leverage business performance (Fritz, 1989).
9	Research and development	R&D	<ul style="list-style-type: none"> • RD programme/planning • R&D budget • R&D achievement • R&D progress • Product testing 	<ul style="list-style-type: none"> • IAS 38 defines research as original planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding. Development is the application of research findings or other knowledge to plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services prior to the commencement of commercial production or use (FASB, 2004). • R&D is knowledge assets that increasingly drive the company’s bottom line and stock price (DeTore et al., 2002; p.43).

Appendix B

	Category name	Labels	Indicative terms	literatures comments
<i>B</i>	<i>Relational capital</i>	RC	-	-
10	Financial relation	FR	<ul style="list-style-type: none"> • Relationship with bankers • Relationship/meeting/dialogues with shareholders/investors • Relationship with other funders • Meeting with analyst 	<ul style="list-style-type: none"> • The financial relationship indicates the favourable relationship between firms and their investors, banks and other financiers (Brooking, 1996; p.80). • Investor relationship is long term interactive relationship between companies and their private and institutional investors in order to maintain investment loyalty and to ensure investors continue to be strongest supporters of company (Tuominen, 1997). • Competitiveness could be gained by building flexible working relationship with banks (Binks et al., 2006).
11	Brands	Bran	<ul style="list-style-type: none"> • Brands • Sub-brands • Brand awards • Brand equity • Brand image • Brand power • Brand awareness • Brand building • Celebrities endorsement on brand/product 	<ul style="list-style-type: none"> • Kotler who is prominent figure in marketing defines brand is a name, term, sign, symbol or design or combination of them intended to identify goods or services of one seller or group of sellers and to differentiate them from those of competitors (Oak and Dalbor, 2010). • Today's competitive environment demanding companies to pay attention on equity brand building. The successful rate of equity brand building is driven by brand quality perception, loyalty and awareness from customers (Seetharaman et al., 2001). • Brand is a key asset that optimising the company's value (Davis and Halligan, 2002; p.7).

Appendix B

	Category name	Labels	Indicative terms	literature comments
12	Global market presence/entry	Mkt	<ul style="list-style-type: none"> • International operation • International branches • Emerging market penetration 	<ul style="list-style-type: none"> • Corporate must learn how to compete in global market by understanding global market segmentation in order to gain competitive advantages (Hassan, et al., 2003). • Managers must approach business decision making internationally and locally. Company's ability to operate in global market means that the company be able to understand the local business cultures, attitudes and protocol (Koepfler, 1989)
13	Customers	Cust	<ul style="list-style-type: none"> • Customers name • Customer equity • Customer loyalty • Customers number • Customers feedback • Customer satisfaction • Customer acquisition • Customer retention • Customer base • Business-Customer involvement • Customer welfare/support • Customer club 	<ul style="list-style-type: none"> • Customer capital is the value – the contribution to current and future revenues that result from an organisation's relationship with its customers (Duffy, 2000; p.10). • Customer satisfaction has been empirically proved to be improved brand equity (Pappu and Quester, 2006). • The value of companies and brand equity is driven by customer acquisition and retention (Chang and Tseng, 2005). • Understanding what customers want in a product and services better than anyone else is what makes someone a business leader as opposed to a follower (Bontis, 1998, p.67).

Appendix B

	Category name	Labels	Indicative terms	literature comments
14	Distribution channels	DC	<ul style="list-style-type: none"> • Supply chain • Business networks • Development new stores regionally • Delivery systems • Marketing and advertising strategies • E-commerce • Online Catalogues/sales/trading • Liaison offices • Distribution centres • Market channels • Agents 	<ul style="list-style-type: none"> • Distribution channel involve two ways relationship that is with up-channel and down-channel participants (Light, 1986). • Distribution channel is social systems comprising a set of interdependent organisations which perform all the activities utilised to move a product and its title from production to consumption (Wilkinson, 1996, p.31). • In order to compete in international today's market, it is important to have ability to deliver customer adapted product quickly and on time (Skjoett-Larsen, 2000)

Appendix B

	Category name	Labels	Indicative terms	literature comments
15	Business partners/alliances	BP	<ul style="list-style-type: none"> • Joint-venture • Franchising • Business collaborations • Outsourcing partners • Collaborations with universities • Relationship with consultants • Consortium • Subcontractors <p>(excluding information about subsidiaries and associates companies)</p>	<ul style="list-style-type: none"> • Wagner and Alderdice (2006) believe that core competencies and innovative capabilities that would lead to the competitive advantages can be found in network of business partners. • Business partners will strategically cooperate to pool the specific resources and skills in order to achieve common goals, as well as specific goals to the individual partners. The motive of business alliances are among other to access to new market, accelerating the pace into new market, sharing R&D, manufacturing and marketing cost, broadening product lines and learning new skills (Varadarajan and Cunningham, 1995). • Business partnering is also desirable in order to create new opportunities, enhance current business capabilities and defend company's activities against competitive and environmental threats (Jarrat, 1998).

Appendix B

	Category name	Labels	Indicative terms	literature comments
16	Suppliers	Sup	<ul style="list-style-type: none"> • Relationship with suppliers • Suppliers name • Supplier supports • Supplier development • Supplier incentives • Supplier supervision 	<ul style="list-style-type: none"> • In competitive business world, suppliers-buyers relationships are encouraged in order to seeking ways to shorten development time, improve quality, reduce cost and release product smoothly (Park et al., 2010). • The relationship with supplier is considered to be a partnership and is valuable to the firm (buyer) as it can be a source of competitive advantages. Research shows that the ultimate success or failure of supply chain alliance is determined by the level of commitment, trust and cooperation of its members (Theodorakioglou et al., 2006, p.150) • Gadde and Snehota (2000) believe that competitive advantage no longer rely on solely on company's inner strength rather it also resides in the relationship and linkages with external parties such as suppliers.
17	Licences Contracts Agreements	Lic	<ul style="list-style-type: none"> • Licences • Favourable Contracts • Agreements • Memorandum of Understanding 	<ul style="list-style-type: none"> • A contract obtained because of the unique market position held by the firm (Brooking, 1996). Hunt and Jones (1998) argues that winning contract is rely on a few intangible parameters that embedded in contracting negotiation such as ease of doing business and communication (e.g. quality in product and services, competitive cost, flexibility delivery and partnership building). • This study therefore argues that winning favourable/licence/agreement contract implies the strength of company's knowledge assets in the eyes of business customers who awarding the contracts/licence/agreement.

Appendix B

	Category name	Labels	Indicative terms	literature comments
18	Social capital Communities	Comm	<ul style="list-style-type: none"> • Social responsibilities • Relationship with local communities • Relationship with education communities • Donation and welfare activities • Community economic development. • Community culture and heritage development • Volunteerism 	<ul style="list-style-type: none"> • The previous IC models are too restrictive in understanding relationship between corporate firms and social agents. Many studies thus have incorporated social capital as part of IC aggregation (e.g. Bueno et al., 2004; Beattie and Thomson, 2007; Kang and Gray, 2011; Oliveira et al., 2006). • The production of environmental and social reports reflects a more general issues relating to the creation of company value: this value is not only based on profit, but it is complemented also by the benefits coming from attainment of wider aims, because of the company embeddedness in a social and environmental setting (Cordazzo, 2005, p.457).
19	Environmental	Env	<ul style="list-style-type: none"> • Energy management • Pollution control • Recycle • Waste management 	<ul style="list-style-type: none"> • Social capital refers the value of the organisation of the relationships which it maintains with other agents and its surroundings (CIC, 2003 cited in de Castro and Saez, 2008, p. 27). • In knowledge economy, social intangibles become essential resources in order to achieve distinctive competencies. We consider social capital as a nexus both direct and indirect relationship between the firm, the environment and social unity (Bueno et al., 2004; p. 569).

Appendix B

	Category name	Labels	Indicative terms	literature comments
20	Relationship with other non-business stakeholders	Otr	<ul style="list-style-type: none"> • Governments/Local authorities • Media/press • Non profit bodies • Industrial bodies 	<ul style="list-style-type: none"> • Stakeholder relationships with intangibles assets become major drivers in global economy, corporate survival and success. (Philips, 2006). • Maintaining relationship with journalist and the media is one of the most critical tasks for PR operations (Malmelin, 2007, p.307).
21	Corporate reputation/image building	CR	<ul style="list-style-type: none"> • Awards received by companies • Appearance corporate identity - logo or names • Public recognition • Sponsorship on major events • Appearance in and covered by media 	<ul style="list-style-type: none"> • Corporate image is personality which is defined as the sum total of the characteristics of the organisation. These characteristic (e.g. behavioural and intellectual) serve to distinguish one organisation from another (Abratt, 1989). • Corporate image is an impression of overall corporation held by its various publics (Gray and Smelter, 1985). • Corporate image can be powerful input on how people will respond to organisations (Dowling, 1993). It can be modified and modified to gain reputation.

Appendix B

	Category name	Labels	Indicative terms	literature comments
<i>C</i>	<i>Human capital</i>	HC		
22	Employee	Emp	<ul style="list-style-type: none"> • Employee number • Employee equity • Employee relationship • Employee featured • Employee representation/engagement • Employee welfare • Employee health and safety • Employee recognition • Employee loyalty and retention • Employee commitment • Employee motivation 	<ul style="list-style-type: none"> • Employees are valuable assets and critical resources to organisations (Schraeder, 2009; Mc Cowen, 1968). • Employees are sources of renewal and innovation (Stewart, 1997). • Employees can create tangible and intangible assets to organisations (Guthrie and Petty, 2000).
23	Training and development	Train	<ul style="list-style-type: none"> • Vocational development • Career development • Induction programme • In house training • Recruitment • Employee assistance programme • Continuing education scheme • Placement • Leadership development 	<ul style="list-style-type: none"> • Training is defined as a planned intervention that is designed to enhance the determinants of individual job performance (Sahindis and Bouris, 2008). • Training would lead to high motivation and commitments among employees as the training are perceived as a way of appreciation by employer (Sahinidis and Bouris, 2008). • Employee training is a vital factor for organisations' competitive advantages (Schraeder, 2009).

Appendix B

	Category name	Labels	Indicative terms	literature comments
24	Work-related knowledge and competencies	Employee	<ul style="list-style-type: none"> • Skill and capabilities • Tacit knowledge • Specialisation work • Expertise • Analytical knowledge 	<ul style="list-style-type: none"> • Peter Drucker, a management guru, coined the knowledge worker to describe a new class of workers who would shape the future business in an economy driven by information as opposed to the production of goods (Acseste, 2010). • The knowledge, skills and abilities that employees bring with them is a source of company's competitive advantages (Schraeder, 2009).
25	Work-related knowledge/competencies in Board of directors profile	BoDs	<ul style="list-style-type: none"> • Past experiences • Position held outside of company • Qualification 	<ul style="list-style-type: none"> • The shift from manual production to automated and knowledge driven production has increased the proportion of knowledge related work in organisations (Ramirez and Nembhard, 2004). • The competence and expertise of staff are thus intangibles organisational assets. Competence refers to broad range of personal attributes, including individual's knowledge, skills, experiences, characteristics, abilities and qualification.

Appendix B

	Category name	Labels	Indicative terms	literature comments
26	Entrepreneurship spirit	Ent	<ul style="list-style-type: none"> • Employee innovative • Employee creativity • Adaptability • Changeability 	<ul style="list-style-type: none"> • Human thought is astonishingly creative in finding solution to applied technical and scientific problems, in communicating the existence and quality of product and persuading customers to buy them. These intellectual efforts create new technologies, products and services, describe new ways of doing things and expand the culture richness of society. They result in intellectual assets, pieces of information that may have economic value if put into use in the market place (Maskus, 2000; p.27).

Appendix C

	Category name	Examples of disclosure
A	<i>Structural capital</i>	-
1	Intellectual properties	<p>Patents: A patented BP process is now being used in new acetonitrille unit at our Green Lake plant in Texas. (BP's annual report, 1991, p.25).</p> <p>Licenses: The technology (<i>Cellobond, K</i>) has been licensed to third parties in the UK, Europe and Japan and we believe considerable further licensing potential exist. (BP's annual report, 1983, p.21)</p>
2	Corporate culture	<p>The leading role BP plays in developing resources around the world brings responsibilities to our own people, to the communities within which we operate and to wider world. Behaving ethically is part of core values. (BP's annual report, 1997, p.11)</p> <p>Our Way We Work principles are being adapted throughout Sainsbury's supermarkets. They embody a set of standards and values that will provide the framework for a culture of continuous improvement. (Sainsbury's annual report, 1999, p.14)</p> <p>Corporate responsibility is first and foremost about responsible business conduct. For us, it is founded on the principles, ethic and values that Barclays has embodied for over 300 years. (Barclays Bank's annual report, 2005, p.3)</p>

Appendix C

	Category name	Examples of disclosure
3	Management philosophy	<p>Our investment judgements must comprise a full understanding of the social and environmental sphere in which they are to be implemented and over a long period. (BP's Annual Report, 2000; p.9)</p> <p>Good social performance begins with clearly defined principles. Individual efforts by Shell companies were supplemented and stimulated in 1977 by Statement of General Business Principles. (Shell Transports and Trading's annual report, 1977, p.32)</p> <p>Our core purpose is 'to create value for customers to earn lifetime loyalty'. We deliver this through our value – no-one tries harder for customers and treat people how we like to be treated. (Tesco's annual report, 2004, p.1)</p> <p>Our business has been built on the simple premise that by putting our customers first we best safeguard the future of our staff and long term interest of our shareholders. (Sainsbury's annual report, 1974, p.9)</p>
4	Management process	<p>After three years development we are updating our sales-based ordering system and in 150 stores have successfully moved from a batch ordering system to a continuous system. Products are automatically re-ordered as they are sold using data captured hourly by our tills. (Tesco's annual report, 2000, p.7)</p> <p>Last year we designed a Product Management System for use by our suppliers. The Department of Trade and Industry embraced the system and is making funds available to our small suppliers to help them follow our procedures. The system now sets the standard. (Sainsbury's annual report, 1992, p.11)</p> <p>Our guiding focus will be the creation at value for our shareholders using the management framework called Value-Based Management (VBM). Its yardstick of economic profit after deducting the cost of capital employed, enable management to compare the relative performance of all our lines business. (Barclays Bank's annual report, 1999, p.3)</p>

Appendix C

	Category name	Examples of disclosure
5	Technologies	<p>Technology units are widely embedded within the organisation and work to identify opportunities and improve efficiency. Advanced in drilling technology are allowing us to explore and develop new fields in water depth of more than 2,100 metres (7,000 feet) in the Gulf of Mexico and Angola. (BP's annual report, 2000, p.11)</p> <p>Shell manufacturing technology continued to make a major contribution to environmental protection. For example, the SCOT process – a Shell innovation – virtually eliminates sulphur dioxide emission from sulphur recovery operation in refineries, natural gas plants and other industrial facilities. (Shell Transports and Trading's annual report, 1976, p.20)</p> <p>Sainsbury is recognised throughout the world for its applying technology in all aspect of food retailing. In recent years much of this work has been concentrated on logistic, branch computerisation and new checkout technology. (Sainsbury's annual report, 1989, p.11)</p> <p>As alternative we must provide an adequate number of machines which will produce cash for 24 hours of the day, through the new magnetically encoded plastic card technology which call Barclay Bank. (Barclays Bank's annual report, 1978, p. 6)</p>

Appendix C

	Category name	Examples of disclosures
6	Information technology/information systems	<p>The use of computers in product distribution was extended. By the end of 1975, small computers were handling the administrative workload at depots operated by six shell companies. (Shell Transport and Trading's annual report, 1975, p.18)</p> <p>We are introducing new IT office systems. A new knowledge management system, common to our business around the world, will enable us to improve communication and share knowledge more efficiently. (Tesco's annual report, 2001, p.14)</p> <p>In 1961, Sainsbury's were the first UK food retailer to computerise the distribution of goods to their stores when they introduced a computer controlled replenishment system far in advance of anything anywhere else in the world at that time. Today, they operate one of the most sophisticated and heavily loaded retailers' computer installations in the country. (Sainsbury's annual report, 1978, p.8)</p> <p>The bank is investing £1 billion in a new branch information technology system. Already well advanced, it has brought radical changes in the way we process and handle information making us more efficient. (Lloyds Bank's annual report, 1990, p.14)</p>

Appendix C

	Category name	Examples of disclosures
7	Knowledge infrastructures	<p>During 1988, we built a research facility near London and acquired four Snell Seed companies in the USA. (BP's annual report, 1988, p.23)</p> <p>BP also announced plans to invest \$500 million over the next years to establish a dedicated bioscience research laboratory. The BP Energy Biosciences Institute (EBI) planned to be the first kind of the world and to be attached to a major academic centre. (BP's annual report, 2006, p.27)</p> <p>A new product application laboratory to be built at Louvain-la-Neuve, Belgium. (Shell Transports and Trading's annual report, 1985, p.1.6)</p> <p>A National Training Centre has been opened at Coseley near Birmingham. The centre has a conference hall seating one hundred person, five fully equipped management training classrooms, a library, staff training quarters, a preview theatre for preparing multi-media presentation and complex floor dedicated to EPOS and computer training. (Tesco's annual report, 1979, p.3)</p> <p>A further investment in training was the extension and enhancement of the company's training centre – Fanhams Halls in Hertfordshire – where a new conference centre is being built and extra accommodation provided. (Sainsbury's annual report, 1992, p.21)</p>

Appendix C

	Category name	Examples of disclosures
8	Product Innovation	<p>After several years of R&D, technologically advanced premium motor oil for cars, Shell Super Plus and high performance diesel engine lubricant for lorries, Rimula X was introduced. (Shell Transports and Trading's annual report, 1983, p.7)</p> <p>Sainsbury's has a long established reputation as a leader in product innovation. Last year more than 1,300 new Sainsbury products were introduced an increase one third on the previous year. These, together with many new proprietary products, offer customers increasingly wide choice at unrivalled value. (Sainsbury's annual report, 1991, p.9)</p> <p>We launched <i>Hykleen</i>, a product used to remove oil from the cuttings produced when drilling for oil. We also developed <i>Prozone</i>, a product used for cleaning flux residues from electronic circuit boards during their manufacture. Unlike conventional cleaning agents, <i>Prozone</i> does not contain CFCs which damage ozone layer. (BP's annual report, 1991, p.25)</p>
9	Research and development	<p>Total group spending on R&D has grown from £62 million in 1980 to a total of £231 million in 1984. (BP's annual report, 1984, p.22)</p> <p>Improved hydraulic and acid fracturing techniques have been successfully developed and applied to low productivity oil and gas reservoirs enabling development of fields that otherwise would be non-commercial. (Shell Transports and Trading's annual report, 1982, p.11)</p> <p>The food technology laboratory concentrates on product development and on testing goods, in this case flour and cake mixes, by seeing if they respond as they should do in actual use. (Sainsbury's annual report, 1976, p.6)</p>

Appendix C

	Category name	Examples of disclosures
<i>B</i>	<i>Relational capital</i>	
10	Financial relation.	<p>We maintain an active investor relations programme in order to ensure that the investment community is fully aware of BP's activities. During 1986, major presentations were made by senior management in the US, Europe and Japan as well as in the UK. This programme help to broaden BP's shareholders base to reflect the company's international standing (BP's annual report, 1986, p. 23)</p> <p>Several thousand of you will have had direct experience of another experiment in communication through regional meetings for shareholders held by Shell Transport in Brighton and Manchester. I believe that it is important to re-establish the role of private shareholders, which has been eroded in recent years, and this is one way of giving shareholders a chance of greater insight into the affairs of the company. (Shell Transports and Trading's annual report, 1977, p.5)</p> <p>In 1993, Tesco began offering its shareholders telephone ordering services covering wine, flowers and Christmas hampers.(Tesco's annual report, 1995, p.26)</p>
11	Brands	<p>We are continuing to promote the BP brand as the symbol of our quality and services. At the end of 1991, about 164,000 BP services station most of our worldwide network had been reimaged. The resultant increase in sales has exceeded our expectation. (Bp's annual report, 1991, p.16)</p> <p>In its 2007 global customer survey, Shell was ranked number one globally as the preferred brand of services station. (Shell Transport and Trading's annual report, 2007, p.47)</p> <p>In the difficult market situation of 1977, the importance attached by customers to the 'Shell' brand confirmed the value of this asset and the need to preserve it. (Shell Transports and Trading's annual report, 1977, p.29)</p> <p>The introduction of range of table wine under Tesco label has proved to be highly successful. (Tesco's annual report, 1980, p.5)</p> <p>A great strength of the business is the reputation of the Sainsbury's brand for quality and value. (Sainsbury's annual report, 1992, p.6)</p>

Appendix C

	Category name	Examples of disclosures
12	Global market presence/entry	<p>In the US, Shell Oil company continued to be an oil product market leader. Oil industry statistic showed that in 1978 the company supplied about 8% of the nation's total gasoline market. (Shell Transports and Trading's annual report, 1978, p.13)</p> <p>In 1967, we were trading in 41 countries of which 34 either Africa or Caribbean, today we are represented in over 70 countries with a much more even distribution throughout the world. (Sainsbury's annual report, 1977, p.5)</p> <p>Europe. International private banking covers services to wealthy individual outside their country of residence. The business is conducted through Switzerland and through 4 other countries overseas. There are additional private and corporate banking operations in Spain and France. (Lloyds Bank's annual report, 1998, p.13)</p> <p>BP has major operations in Europe, the USA, Australasia and parts of Africa, and is expanding its presence in other regions, notably South East Asia, South America and Eastern Europe. (BP's annual report, 1995, p.1)</p>
13	Customers	<p>From downtown Chicago to downtown Shanghai, BP Amoco serves 10 million customers worldwide every single day. (BP's annual report, 1998, p.14)</p> <p>'Advice for the customers' – a motorist at Houston services station receives a 'come to Shell for answers' booklet. These oil company publication offer professional advice on, for example dealing with breakdowns, warning for cat trouble and getting better mileages. (Shell Transport and Trading's annual report, 1976, p.27)</p> <p>Our 'Customer first' campaign launched last year has been very successful. Independent research has shown that customers do recognise the higher standards of services in our stores. (Tesco's annual report, 1989, p.21)</p> <p>Last year, we attracted a greater number of customers than ever, increasing of market share from 10.6% to 11.8%. Each week, on average, more than seven and a half million customers chose Sainsbury's value for money, range and choice and looked to our stores exciting idea and products. (Sainsbury's annual report, 1992, p.11)</p>

Appendix C

	Category name	Examples of disclosures
14	Distribution channels	<p>In the Republic of Ireland, a new group of subsidiary, BP Ireland Limited has been formed responsible for supplying, distributing and selling BP petroleum product throughout the republic. (BP's annual report, 1975, p.11)</p> <p>The new distribution centre at Crick, near Daventry, covering an area of 190,000 covering an area of 190,000 square feet, opened in the year. It is Tesco's biggest grocery distribution centre, supplying our shops in the Midlands, East Angelia and Eastern England. (Tesco's annual report, 1979, p.3)</p> <p>In the UK, our network of 3,000 branches and offices, now serving almost 7 million cheque accounts will continue to play a major role in the personal sector. (Barclays Bank's annual report, 1985, p.8)</p>
15	Business partners/alliances	<p>Today, BP Amoco works with a diverse set of companies. On the retail side, we have close relationship with McDonald fast food chain in the USA, Bovis Construction company within Europe, Safeway Supermarket in the UK and the Iseya Kosan, super market mall in Japan. (BP's annual report, 1998, p.21)</p> <p>On February 2007, BP announced that it had selected the university of California Berkeley and its partners the University of Illinois at Urbana Champaign and the Lawrence Berkeley National Laboratory for the research programme. (BP's annual report, 2006, p.27)</p> <p>In the exploratory development of forestry business, two joint ventures with established forestry companies in New Zealand have been set up. (Shell Transports and Trading's annual report, 1982, p.11)</p> <p>Tesco and Marks and Spencer continue to seek joint development opportunities each featuring individual facilities and services which for Tesco has proved is highly successful. (Tesco's annual report, 1986, p.12)</p>

Appendix C

	Category name	Examples of disclosures
16	Suppliers	<p>We are also pioneering fruitful new relationship with suppliers. By signing them a financial stake in the success of a project, we find that both parties have an incentive to look for ways of cutting cost and of working together closely.</p> <p style="text-align: right;">(BP's annual report, 1993, p.3)</p> <p>Over nearly fifty years we have maintained a very harmonious relationship with our suppliers and I am confident that it will continue.</p> <p style="text-align: right;">(Tesco's annual report, 1980, p.5)</p> <p>We have a long tradition of working with suppliers to sources, produce and provide excellent food for customers. Our suppliers are partners. We rely on them and respect their expertise.</p> <p style="text-align: right;">(Sainsbury's annual report, 2006, p.24)</p>
17	Licence/contract/agreement	<p>In the United Kingdom, agreements ensuring continuing supplies of North Sea crude oil were signed in November with the Government and the British National Oil Corporation.</p> <p style="text-align: right;">(Shell Transports and Trading's annual report, 1977, p.26)</p>

Appendix C

	Category name	Examples of disclosures
18	<p>Social capital</p> <p>Community relationship</p>	<p>We continue to increase the number of local leaders and employees in our operation so that they reflect the communities in which we operate. For example, in Colombia, national employees now make up 98% of BP team while in Azerbaijan the equivalent portion is 83%. (BP’s annual report, 2008, p.49)</p> <p>Shell contributes through grants, donations and other programmes to activities which may not be directly related to their business but which reflect wider support to the community. (Shell Transports and Trading’s annual report, 1989, p.20)</p>
19	<p>Environmental relationship</p>	<p>At its simplest, and most direct, Sainsbury’s responds to many charitable local appeals. Stores are also able to take an initiative through the Company’s ‘Good Neighbour’ scheme which each year concentrates on a specific theme. In previous years the scheme has supported youth clubs, the mentally handicapped and pre-school projects. Last year the year scheme was directed towards the elderly. (Sainsbury’s annual report 1987, p.11)</p> <p>The release of petrol vapour at petrol filling stations is a significant contributor to poor quality. Like all our filling stations, Horsham is equipped to capture vapour emission from its storage tanks which occur when they are being filled. Twenty-five of our outlets, including Horsham, have the Stage Two recovery equipment designed to recover petrol vapour released when customers fill their cars. Horsham was also one of our first petrol filling stations to offer City Diesel, introduced as part of our Air Quality initiatives. (Sainsbury’s annual report, 1996, p.28)</p> <p>As part of our contribution to sustainability of the environment, we have worked closely with Fauna and Flora International and others to develop a new approach to biodiversity. Initially, we have selected 12 sites around the world to pilot the initiatives by developing action plans to protect the variety and richness of species in the local environment. (BP’s annual report, 2000, p.19)</p>

Appendix C

	Category name	Examples of disclosures
20	Relationship with other non-business stakeholders	<p>Shell companies also contributed to a recent ILO report on the petroleum industry, which acknowledge the beneficial part played by multinational enterprises in economic and social progress in many parts of the world. <p style="text-align: right;">(Shell Transport and Trading Company’s Annual Report, 1977; p.33)</p> <p>During 2005, we continued to support the Extractive Industries Transparency Initiative (EITI), becoming a member of its International Advisory Group. The EITI provides guidelines for publicly disclosing the amount of revenue governments receive from energy companies, so people can see how much is available for public spending. In particular, BP continues to support the implementation for the EITI in Azerbaijan, publishing relevant figures in our reports there in 2005. <p style="text-align: right;">(BP’s Annual reports, 2005; p.20)</p> <p>We would be delighted to have the opportunity to continue to work with local authorities in furthering shopping needs. <p style="text-align: right;">(Tesco’s Annual Report, 1977; p.3)</p> <p>In the North of England Barclays is involved with the Council for Small Industries and Rural Areas (CoSIRA) in a unique joint scheme giving advice and, where appropriate, finance to new business. <p style="text-align: right;">(Barclays Bank’s Annual Report, 1980; p.41)</p> </p></p></p></p>

Appendix C

	Category name	Examples of disclosures
21	Corporate reputation/image building	<p>A company –sponsored yacht BP explorer starts round the World BT Global Challenge Race. Panels made by BP Solar power the athletes village at the Sydney Olympics (BP’s Annual Report, 2000; p.5)</p> <p>The Sunday Times – Hemming Scott Award was made following a survey of over 1000 company directors and city analysts to find the respected companies in the country. Sainsbury’s was ranked the third place overall – and as the respected company in the food and retailing sector. (Sainsbury’s annual report, 1988, p.9)</p> <p>In August, we announced our sponsorship of the Football League Championship in its centenary year. The Barclays Football League has raised the profile of the group at community national and international level. We believe that our involvement with football league is good for football and good for Barclays. (Barclay’s Bank’s annual report, 1987, p.9)</p>
C	<i>Human capital</i>	
22	Employee	<p>We measure the views of our staff through People Assurance Survey. In 2004, this showed a significant index, demonstrating an increasing enthusiasm and team work among Bp’s employees. (BP’s annual report, 2004, p.6)</p> <p>In Indonesia, the PT Peni plant passes 13 million man-hours without a lost-time accident. (BP’s annual report, 2000, p.5)</p> <p>The movement for employee representation on company boards and for the development of employee councils gained strength in a number of countries. (Shell Transports and Trading’s annual report, 1977, p.27)</p> <p>There is continuous discussion amongst management, employees and union officers to foster better relations. This result in a better understanding of each other’s needs and greater goodwill in resolving the myriad of difficulties that occur. (Tesco’s annual report, 1980, p.10)</p>

Appendix C

	Category name	Examples of disclosures
23	Training and development	<p>Training commitments of the group have continued to increase. Over 2,500 people from overseas attended BP Run courses in 1979. More than 50 individual programmes were run for overseas trainees. (BP's annual report, 1979)</p> <p>In 2007, we recruited nearly 5,000 people worldwide. This comprises 1,150 graduates and 3,780 experienced professional. (Shell Transports and Trading's annual report, 2007, p.66)</p> <p>All new staff undergone initial training. Existing employees also receive training to improve their performance. To enable them to cope with changes such as the impact of new technology, and to assist their career development. (Tesco's annual report, 1986, p.16)</p> <p>We fully support the Youth Training Scheme and have 300 young people taking part. All those who complete the training period successfully will be offered full-time employment. (Sainsbury's annual report, 1985, p.9)</p> <p>Happily technical training in Barclays is very developed. We spend about £7 million a year for training and updating management in the corporate sector. (Barclays Bank's annual report, 1989, p.15)</p>

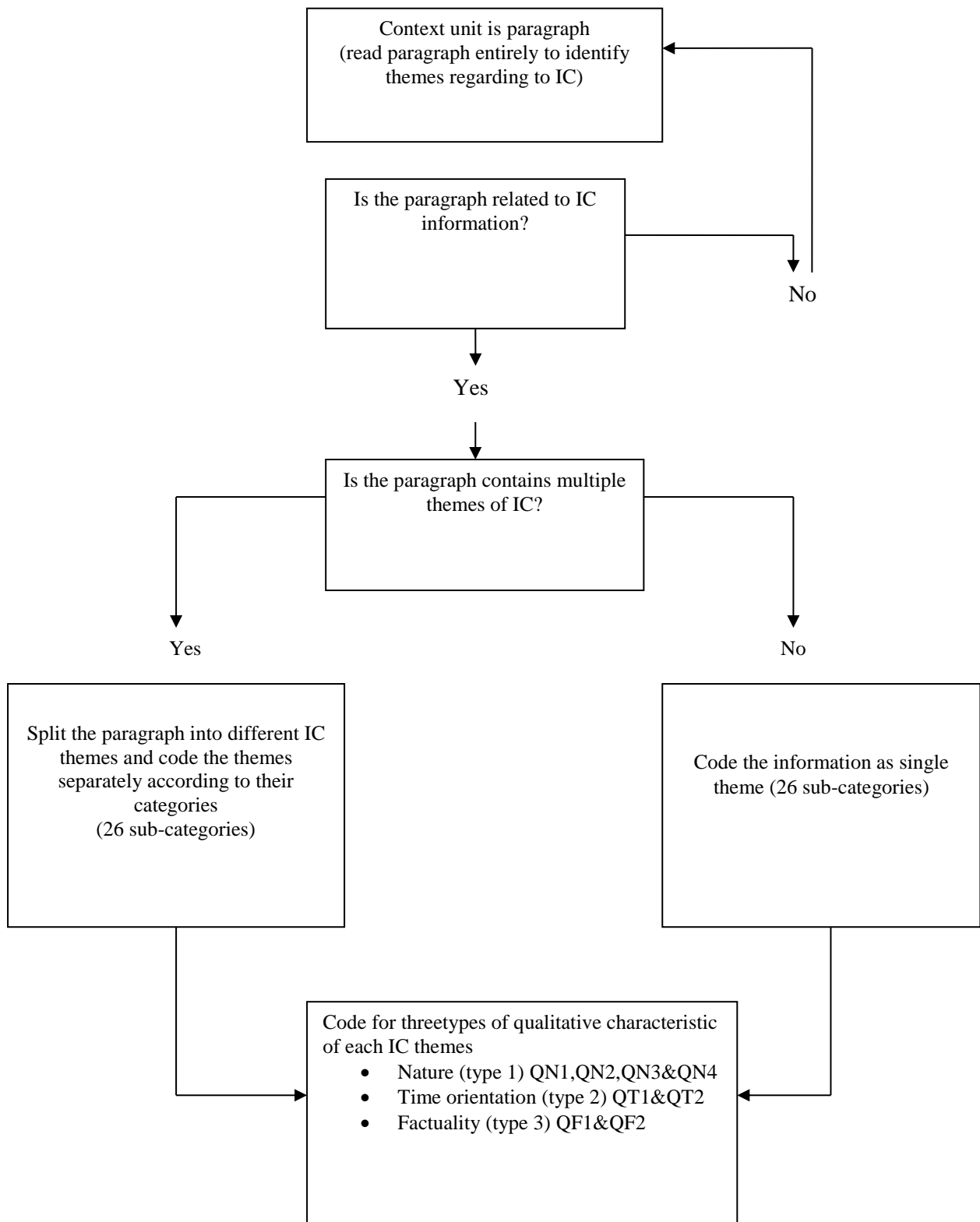
Appendix C

	Category name	Examples of disclosures
24	Employee work-related knowledge/competencies	<p>Realising our aspirations for shareholders value requires the wholehearted commitment of the Shell people. I have no doubt it will get that. Their talent, skills and driven give me confidence that we can meet the challenges we face.</p> <p style="text-align: right;">(Shell Transports and Trading’s annual report, 1998, p.3)</p> <p>We look forward to 1978 with considerable confidence. We have a skilled and experienced staff and our business provides an essential services.</p> <p style="text-align: right;">(Barclays Bank’s annual report, 1977, p.15)</p> <p>Our strongest assets in the face of such a tough environment are the quality of our people. They bring the know-how and the standard of care which give us our reputation. They have built our track record of performance.</p> <p style="text-align: right;">(BP Amoco’s annual report, 1998, p.9)</p>
25	BoDs work-related knowledge/competencies	<p>The other directors welcome the additional perspective that Dr Buttle brings to the board from her career as a research scientist and her long experience of environmental research and monitoring.</p> <p style="text-align: right;">(Shell Transports and Trading’s annual report, 1998, p.4)</p> <p>Professor Dawson is Professor of Management Studies and Director of Judge Institute of Cambridge University and brings both academic and management experience to Barclays.</p> <p style="text-align: right;">(Barclays Bank’s annual report, 2002, p.2)</p> <p>Sir Robin (64) joined BP’s board in 1987. He retired as chairman of Pilkinton Optronics in November 1998. He is a non-executive director of Rolls-Royce and a member of the UK government’s Council for Science and Technology.</p> <p style="text-align: right;">(BP Amoco’s annual report, 1998, p.74).</p>

Appendix C

	Category name	Examples of disclosures
26	Entrepreneurship spirit	<p>We are proud to note that throughout this period, morale has remained high. The most difficult and perhaps most critical issues for the success of a merger is the rapid development of common culture. Enormous stride have been made and our thanks are due to employees from both Amoco and BP for their commitment and open minded approach.</p> <p style="text-align: right;">(Bp's annual report, 1999, p.4)</p> <p>The financial services industry is currently facing a period of unprecedented change and staff across the group is showing professionalism and determination in coping with the inevitable pressure that this bring.</p> <p style="text-align: right;">(Barclays Bank's annual report, 1995, p.26)</p>

Flow chart of recording process



Appendix F

Frequencies of IC theme by main categories

	SC	RC	HC	Total
1974	31	68	33	132
1975	29	67	36	132
1976	50	79	44	173
1977	29	73	49	151
1978	34	108	75	217
1979	46	104	75	225
1980	49	126	77	252
1981	53	130	86	269
1982	51	134	86	271
1983	76	108	106	290
1984	93	147	97	337
1985	148	150	96	394
1986	129	187	119	435
1987	139	208	141	488
1988	137	246	147	530
1989	130	220	126	476
1990	127	218	149	494
1991	143	207	163	513
1992	117	195	169	481
1993	92	204	153	449
1994	115	208	151	474
1995	108	257	160	525
1996	89	258	142	489
1997	96	247	120	463
1998	112	275	171	558
1999	106	331	148	585
2000	110	342	170	622
2001	139	380	183	702
2002	127	354	191	672
2003	116	291	163	570
2004	100	310	179	589
2005	145	374	199	718
2006	172	507	214	893
2007	191	533	234	958
2008	214	506	214	934
Total	3643	8152	4666	16461

British Petroleum - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	7	16	11	34
1975	5	22	8	35
1976	11	19	7	37
1977	3	13	4	20
1978	4	16	6	26
1979	11	22	15	48
1980	14	39	10	63
1981	17	22	13	52
1982	16	34	18	68
1983	25	26	30	81
1984	52	43	30	125
1985	61	42	33	136
1986	47	64	37	148
1987	49	61	33	143
1988	58	78	26	162
1989	55	75	36	166
1990	49	85	32	166
1991	57	78	35	170
1992	42	50	44	136
1993	36	48	35	119
1994	37	43	42	122
1995	26	49	41	116
1996	32	54	37	123
1997	37	59	32	128
1998	30	79	41	150
1999	27	68	34	129
2000	16	64	48	128
2001	22	63	42	127
2002	27	62	39	128
2003	19	27	20	66
2004	22	51	52	125
2005	28	48	37	113
2006	45	128	43	216
2007	35	101	49	185
2008	66	116	39	221
Total	1087	1865	1059	4012

Shell - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	14	20	5	39
1975	16	21	9	46
1976	29	34	13	76
1977	21	33	15	69
1978	8	23	15	46
1979	10	25	13	48
1980	15	14	14	43
1981	15	25	15	55
1982	15	26	17	58
1983	14	19	15	48
1984	18	25	15	58
1985	27	22	15	64
1986	22	30	20	72
1987	25	28	17	70
1988	20	37	14	71
1989	18	32	14	64
1990	18	25	14	57
1991	19	16	22	57
1992	20	30	19	69
1993	16	24	17	57
1994	13	29	20	62
1995	23	37	14	74
1996	14	35	10	59
1997	19	41	14	74
1998	21	27	16	64
1999	18	37	12	67
2000	44	65	24	133
2001	28	55	31	114
2002	21	36	20	77
2003	32	44	24	100
2004	23	41	26	90
2005	51	100	36	187
2006	55	105	40	200
2007	66	122	36	224
2008	69	115	43	227
Total	857	1398	664	2919

Appendix G

Tesco - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	6	16	6	28
1975	3	7	7	17
1976	0	8	4	12
1977	1	8	4	13
1978	6	19	18	43
1979	5	14	13	32
1980	4	19	9	32
1981	1	14	11	26
1982	6	18	13	37
1983	20	17	20	57
1984	9	20	12	41
1985	22	29	12	63
1986	35	39	22	96
1987	32	43	31	106
1988	18	50	20	88
1989	24	30	12	66
1990	24	38	24	86
1991	29	39	32	100
1992	25	33	25	83
1993	5	31	23	59
1994	22	57	20	99
1995	19	55	20	94
1996	12	61	23	96
1997	6	53	20	79
1998	14	44	30	88
1999	12	85	28	125
2000	17	55	27	99
2001	26	73	27	126
2002	20	90	35	145
2003	26	100	36	162
2004	26	99	43	168
2005	30	90	40	160
2006	30	100	35	165
2007	30	97	43	170
2008	28	66	28	122
Total	593	1617	773	2983

Appendix G

Sainsbury - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	2	4	3	9
1975	2	4	5	11
1976	6	6	2	14
1977	1	5	2	8
1978	4	6	3	13
1979	2	7	6	15
1980	1	13	13	27
1981	5	17	18	40
1982	1	15	13	29
1983	2	14	16	32
1984	2	15	14	31
1985	14	10	12	36
1986	8	11	16	35
1987	11	15	14	40
1988	20	28	25	73
1989	16	33	15	64
1990	21	29	28	78
1991	27	36	22	85
1992	15	49	22	86
1993	17	49	26	92
1994	26	44	20	90
1995	13	49	17	79
1996	13	56	22	91
1997	13	30	16	59
1998	23	58	34	115
1999	22	53	26	101
2000	15	67	22	104
2001	20	47	17	84
2002	22	67	23	112
2003	8	28	15	51
2004	8	32	13	53
2005	8	34	27	69
2006	10	50	31	91
2007	13	96	24	133
2008	6	44	21	71
Total	397	1121	603	2121

Appendix G

Barclays - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	1	10	2	13
1975	1	12	1	14
1976	2	10	7	19
1977	0	9	7	16
1978	5	31	18	54
1979	1	23	9	33
1980	5	29	12	46
1981	5	32	16	53
1982	6	21	12	39
1983	2	2	11	15
1984	1	9	12	22
1985	6	21	5	32
1986	12	30	9	51
1987	17	45	19	81
1988	18	38	33	89
1989	7	35	36	78
1990	10	19	29	58
1991	4	20	26	50
1992	10	18	33	61
1993	13	23	25	61
1994	14	25	26	65
1995	23	42	42	107
1996	14	32	30	76
1997	14	32	30	76
1998	22	43	21	86
1999	23	59	23	105
2000	13	36	23	72
2001	31	98	41	170
2002	25	65	40	130
2003	19	52	35	106
2004	12	50	31	93
2005	12	41	32	85
2006	14	59	36	109
2007	16	57	36	109
2008	14	64	40	118
Total	392	1192	808	2392

Appendix G

Lloyds - Frequencies of IC sub-categories disclosure

	SC	RC	HC	Total
1974	1	2	6	9
1975	2	1	6	9
1976	2	2	11	15
1977	3	5	17	25
1978	7	13	15	35
1979	17	13	19	49
1980	10	12	19	41
1981	10	20	13	43
1982	7	20	13	40
1983	13	30	14	57
1984	11	35	14	60
1985	18	26	19	63
1986	5	13	15	33
1987	5	16	27	48
1988	3	15	29	47
1989	10	15	13	38
1990	5	22	22	49
1991	7	18	26	51
1992	5	15	26	46
1993	5	29	27	61
1994	3	10	23	36
1995	4	25	26	55
1996	4	20	20	44
1997	7	32	8	47
1998	2	24	29	55
1999	4	29	25	58
2000	5	55	26	86
2001	12	44	25	81
2002	12	34	34	80
2003	12	40	33	85
2004	9	37	14	60
2005	16	61	27	104
2006	18	65	29	112
2007	31	60	46	137
2008	31	101	43	175
Total	285	858	716	2034

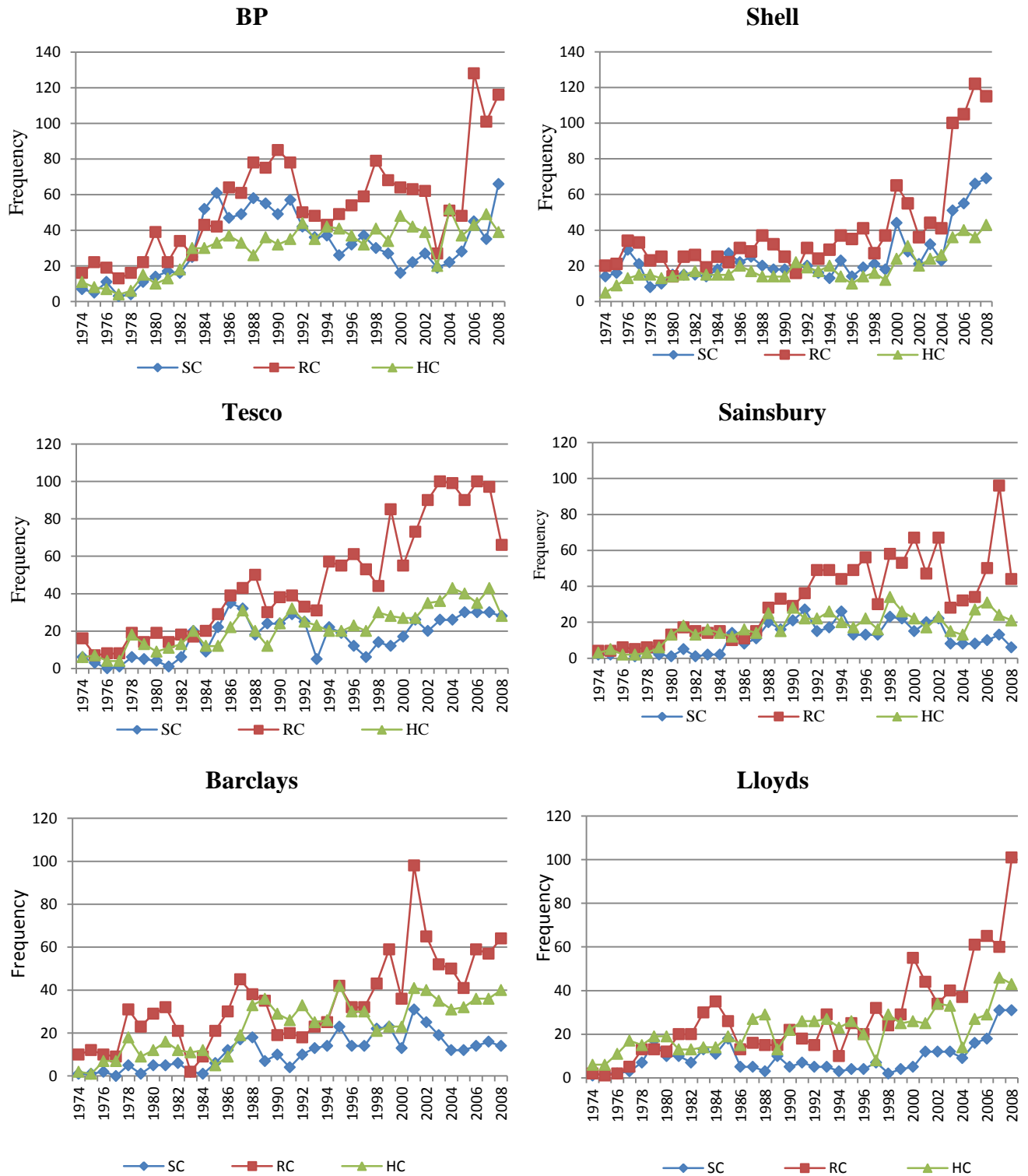
Appendix H

Percentages of sub-categories disclosure in each company (all years)

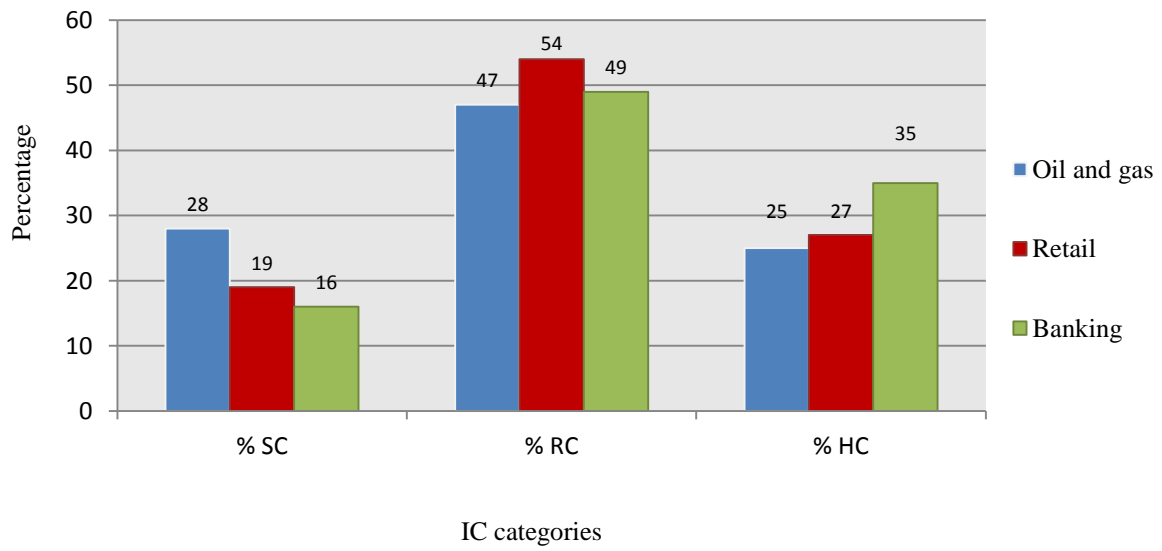
	BP fre. [%]	Shell fre. [%]	Tesco fre. [%]	Sainsbury fre. [%]	Barclays fre. [%]	Lloyds fre. [%]	Total fre. [%]
Structural capital							
I. Properties	29 [0.7]	22 [0.8]	5 [0.2]	3 [0.1]	5 [0.2]	2 [0.1]	66 [0.4]
Corporate Culture	53 [1.3]	36 [1.2]	98 [3.3]	22 [1.0]	34 [1.4]	42 [2.1]	285 [1.7]
Management philosophy	92 [2.3]	63 [2.2]	103 [3.5]	103 [4.9]	51 [2.1]	46 [2.3]	458 [2.8]
Management Processes	228 [5.7]	148 [5.1]	202 [6.8]	70 [3.3]	85 [3.6]	83 [4.1]	816 [5.0]
Technologies	317 [7.9]	220 [7.5]	64 [2.1]	70 [3.3]	77 [3.2]	40 [2.0]	788 [4.8]
IS/IT	33 [0.8]	30 [1.0]	72 [2.4]	45 [2.1]	34 [1.4]	31 [1.5]	245 [1.5]
K-Infrastructure	36 [0.9]	54 [1.8]	24 [0.8]	17 [0.8]	28 [1.2]	32 [1.6]	191 [1.2]
Productinnovation	64 [1.6]	54 [1.8]	11 [0.4]	42 [1.0]	78 [3.3]	42 [2.1]	291 [1.8]
R&D	232 [5.8]	238 [8.2]	19 [0.6]	36 [1.7]	6 [0.3]	1 [0.0]	532 [3.2]
% SC	1,084 [25.4]	865 [27.8]	598 [19.7]	408 [17.3]	398 [13.4]	319 [13.6]	3,672 [22.1]
Relational capital							
Financial relation	77 [1.9]	27 [0.9]	21 [0.7]	12 [0.6]	20 [0.8]	9 [0.4]	166 [1.0]
Brands	111 [2.8]	76 [2.6]	161 [5.4]	193 [9.1]	35 [1.5]	33 [1.6]	609 [3.7]
Market presence	326 [8.1]	110 [3.8]	200 [6.7]	24 [1.1]	163 [6.8]	73 [3.6]	896 [5.4]
Customers	140 [3.5]	129 [4.4]	442 [14.8]	214 [10.1]	345 [14.4]	385 [18.9]	1,655 [10.1]
D. Channels	252 [6.3]	151 [5.2]	240 [8.0]	181 [8.5]	99 [4.1]	200 [9.8]	1,123 [6.8]
Business partners	343 [8.5]	375 [12.8]	79 [2.6]	53 [2.5]	63 [2.6]	26 [1.3]	939 [5.7]
Suppliers	16 [0.4]	1 [0.0]	77 [2.6]	75 [3.5]	4 [0.2]	5 [0.2]	178 [1.1]
Contracts/licences	139 [3.5]	228 [7.8]	1 [0.0]	2 [0.1]	15 [0.6]	1 [0.0]	386 [2.3]
Communities	190 [4.7]	123 [4.2]	202 [6.8]	192 [9.1]	273 [11.4]	150 [7.4]	1,130 [6.9]
Environment	165 [4.1]	117 [4.0]	92 [3.1]	77 [3.6]	62 [2.6]	23 [1.1]	536 [3.3]
Other stakeholders	29 [0.7]	25 [0.9]	21 [0.7]	20 [0.9]	21 [0.9]	6 [0.3]	122 [0.7]
Corporateimage	67 [1.7]	37 [1.3]	72 [2.4]	66 [3.1]	80 [3.3]	42 [2.3]	364 [2.2]
Total % RC	1,855 [47.8]	1,399 [49.8]	1,608 [54.3]	1,109 [54.3]	1,180 [52.6]	953 [48.1]	8,104 [49.5]
Human capital							
Employees	478 [11.9]	174 [6.0]	343 [11.5]	223 [10.5]	263 [11.0]	258 [12.7]	1,739 [10.6]
Training	90 [2.2]	59 [2.0]	115 [3.9]	163 [7.7]	46 [1.9]	50 [2.5]	523 [2.2]
WKK&C employees	84 [2.1]	62 [2.1]	42 [1.4]	29 [1.4]	86 [3.6]	43 [2.1]	346 [2.1]
WKK&C BoDs	389 [9.7]	339 [11.6]	252 [8.4]	174 [8.2]	401 [16.8]	386 [19.0]	1,941 [11.8]
Entrepreneurship	32 [0.8]	21 [0.7]	25 [0.8]	15 [0.7]	18 [0.8]	25 [1.2]	136 [0.8]
Total % HC	1,073 [26.7]	655 [22.4]	777 [26.0]	604 [28.5]	814 [34.0]	762 [37.5]	4,685 [28.4]
Total % IC	4,012 [100]	2,919 [100]	2,983 [100]	2,121 [100]	2,392 [100]	2,034 [100]	16,461 [100]

Appendix I

Frequency of IC disclosure by main categories, 1974-2008 per company



Percentages of SC, RC and HC themes disclosure by sector (all years)



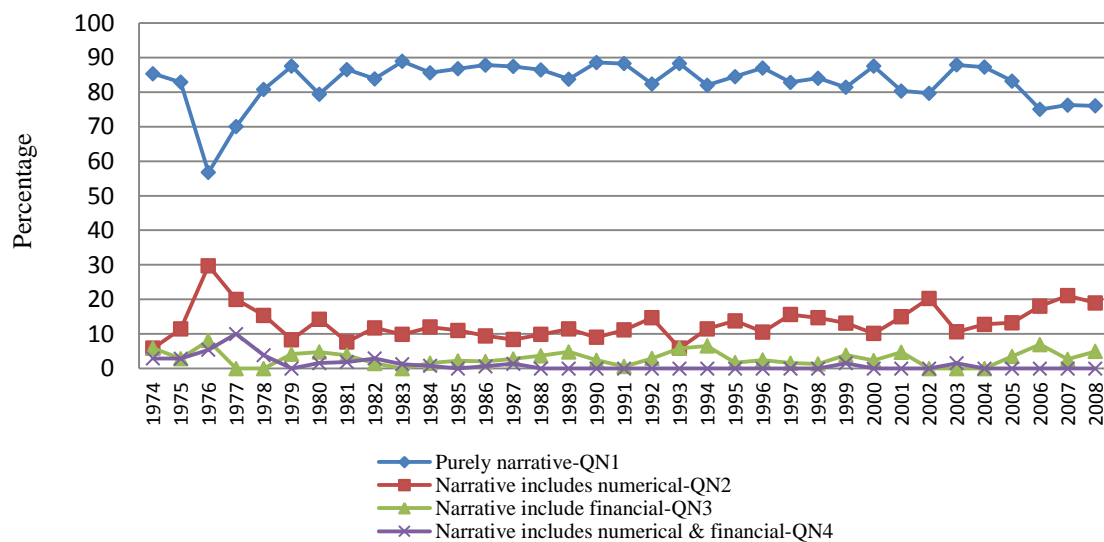
Appendix M

All companies: Percentages of QN1, QN2, QN3 and QN4 of IC information content, 1974-2008

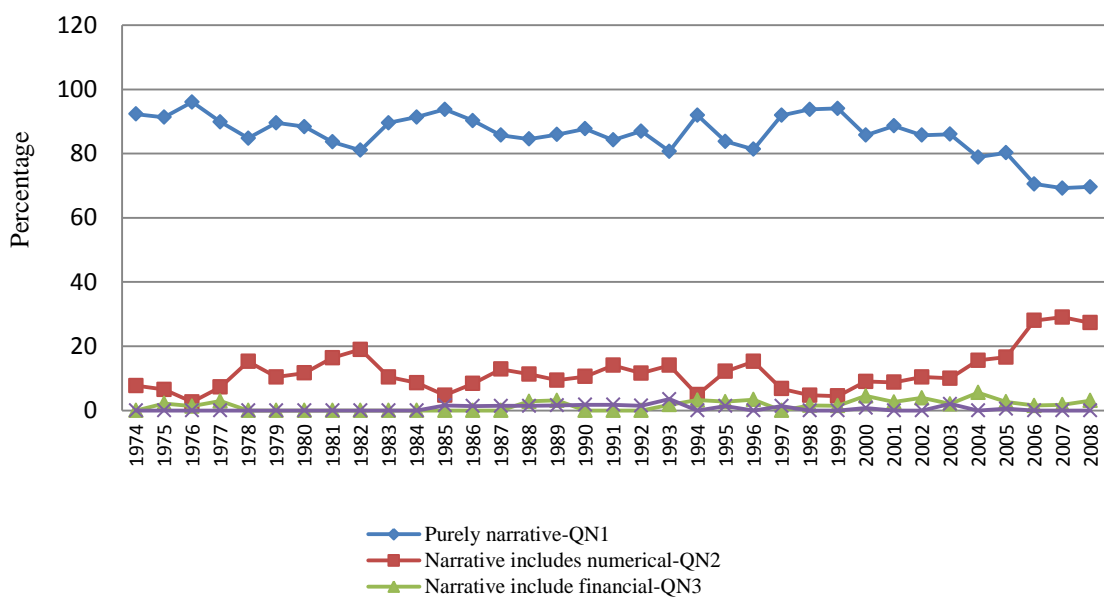
	QN1	QN2	QN3	QN4
1974	80	11	5	5
1975	81	11	5	3
1976	81	12	4	3
1977	79	14	4	3
1978	77	18	3	3
1979	75	17	7	1
1980	73	18	7	2
1981	74	20	5	1
1982	75	19	4	2
1983	80	15	4	1
1984	80	15	4	1
1985	82	13	5	1
1986	84	12	3	0
1987	86	9	4	1
1988	80	14	5	0
1989	81	13	5	0
1990	86	11	3	0
1991	80	15	5	1
1992	78	15	5	1
1993	80	14	5	0
1994	83	12	5	0
1995	78	16	6	0
1996	75	19	4	1
1997	75	19	3	2
1998	79	16	4	1
1999	76	17	5	2
2000	76	18	5	1
2001	80	14	6	1
2002	72	21	7	0
2003	75	21	3	1
2004	71	23	4	2
2005	74	20	5	1
2006	72	22	5	0
2007	72	22	5	1
2008	71	22	6	1

Percentage of qualitative characteristics type 1 disclosure, 1974-2008

British Petroleum

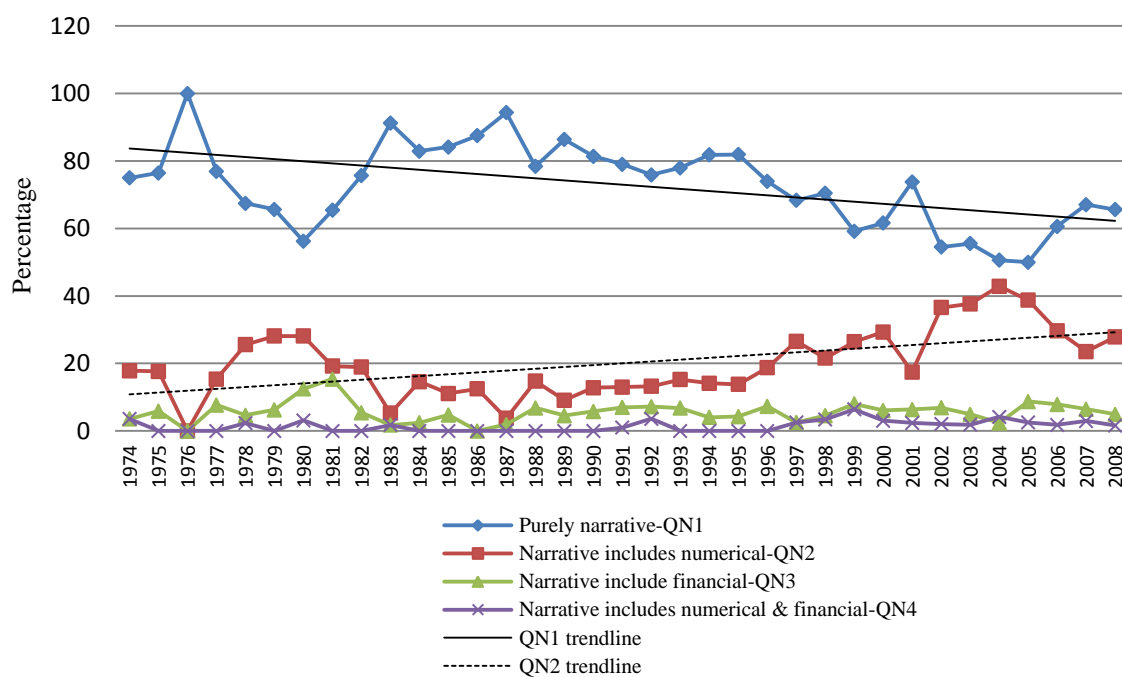


Shell

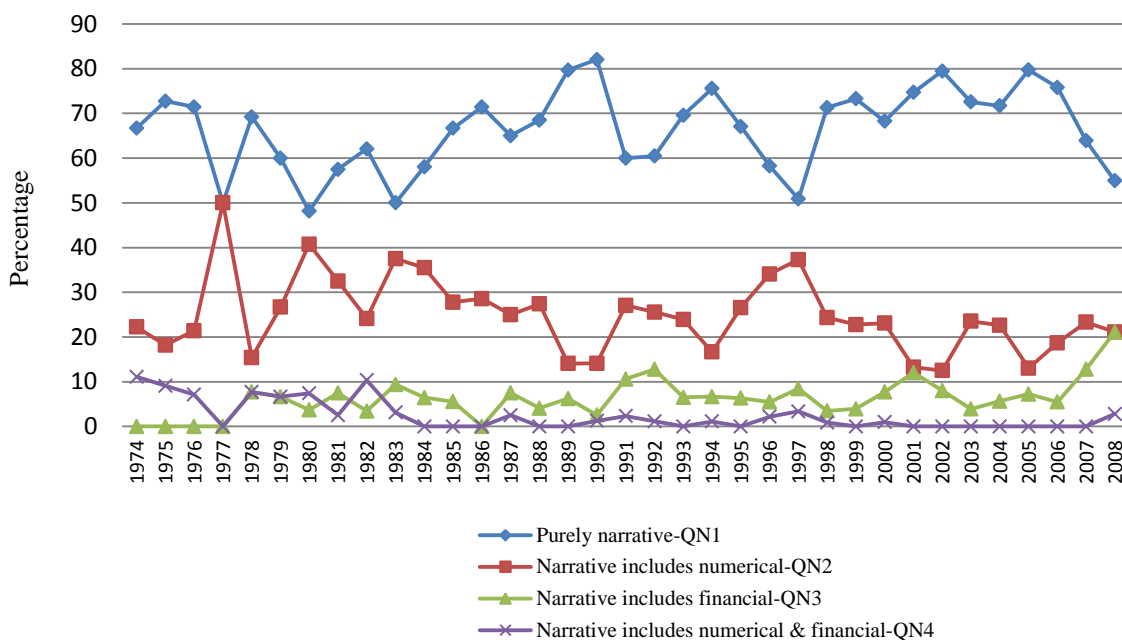


Percentage of qualitative characteristics type 1, 1974-2008

Tesco

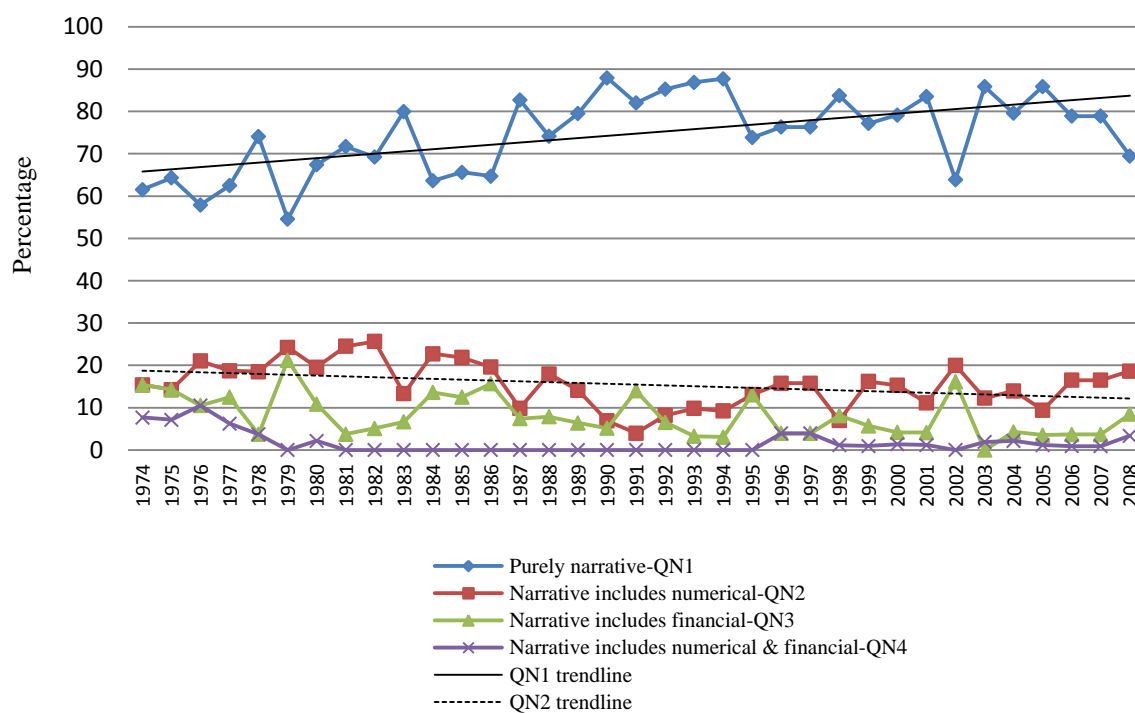


Sainsbury

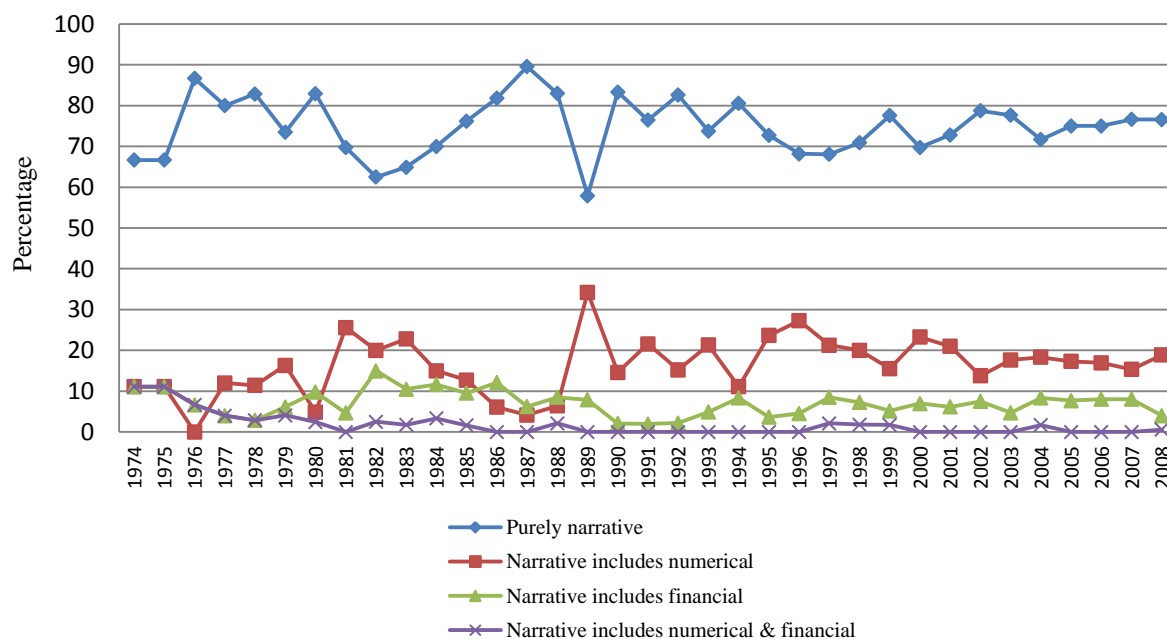


Percentage of qualitative characteristics type 1, 1974-2008

Barclays

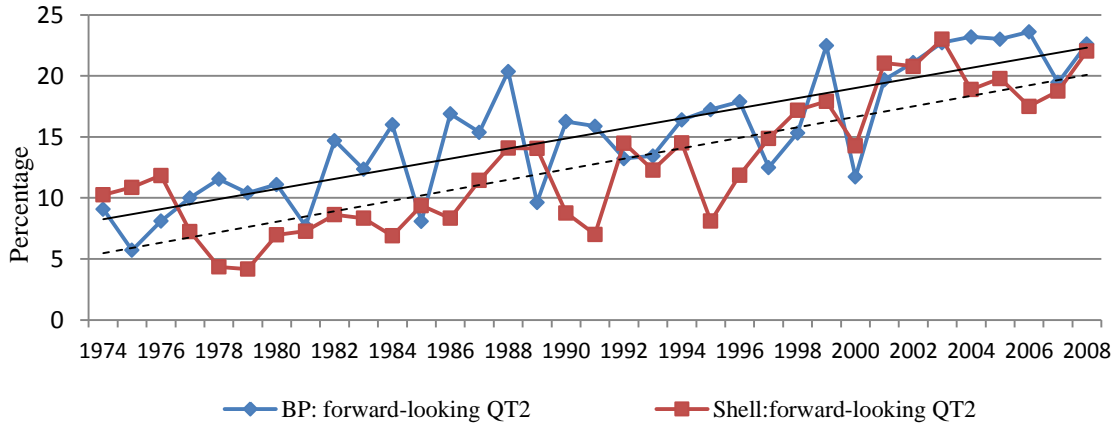


Lloyds

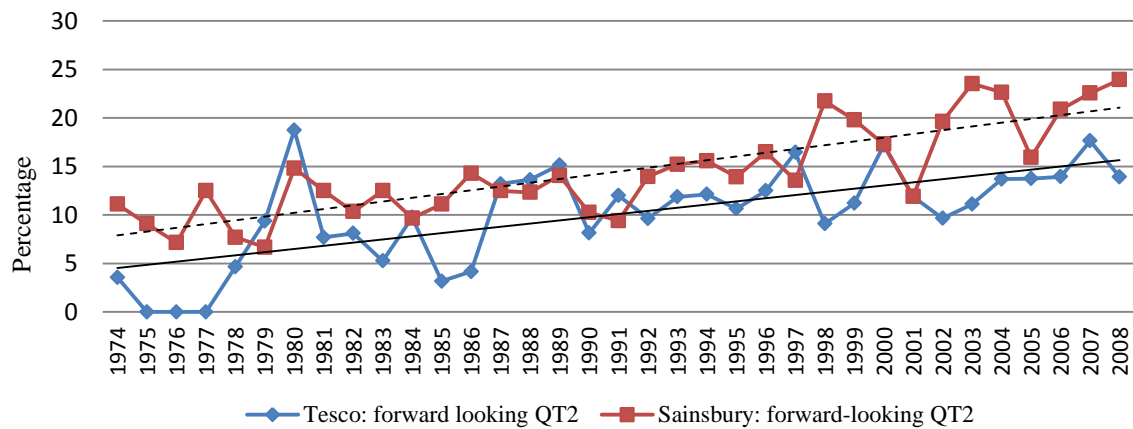


Percentages of qualitative characteristics type 2 disclosure, 1974-2008

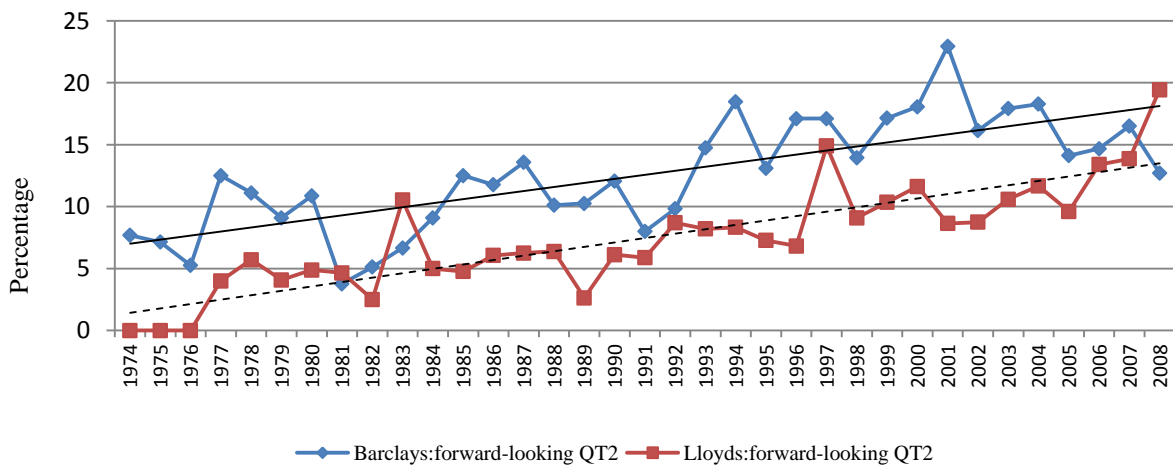
British Petroleum and Shell



Tesco and Sainsbury

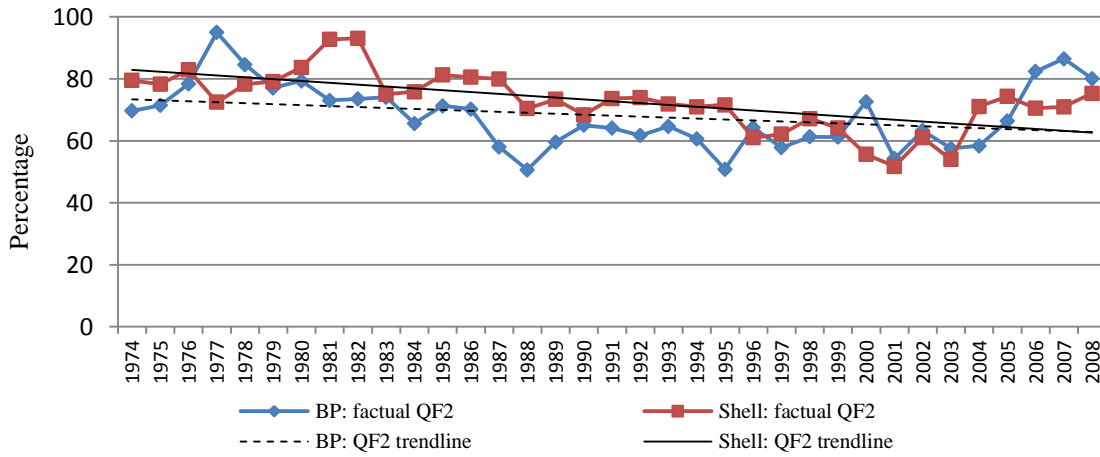


Barclays and Lloyds

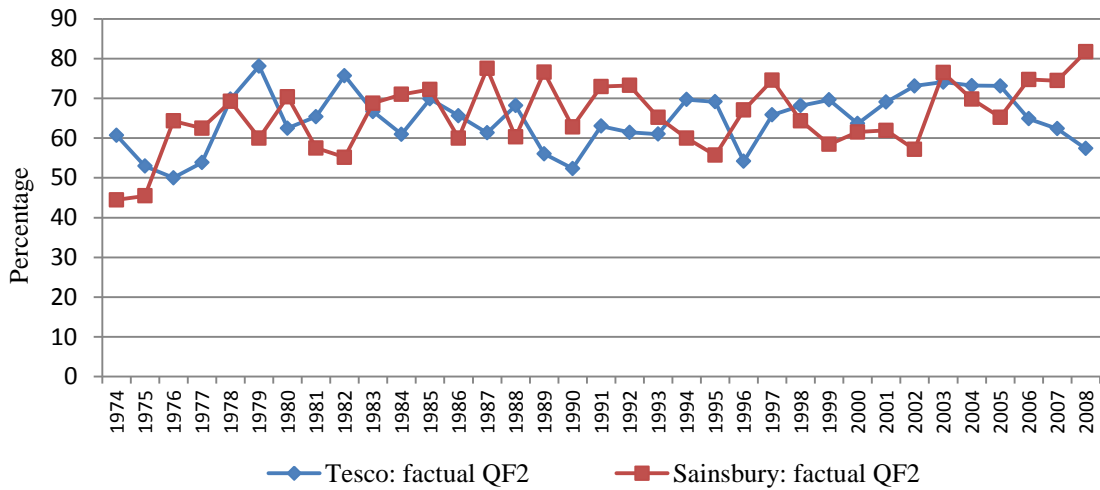


Percentages of qualitative characteristics type 3 disclosure, 1974-2008

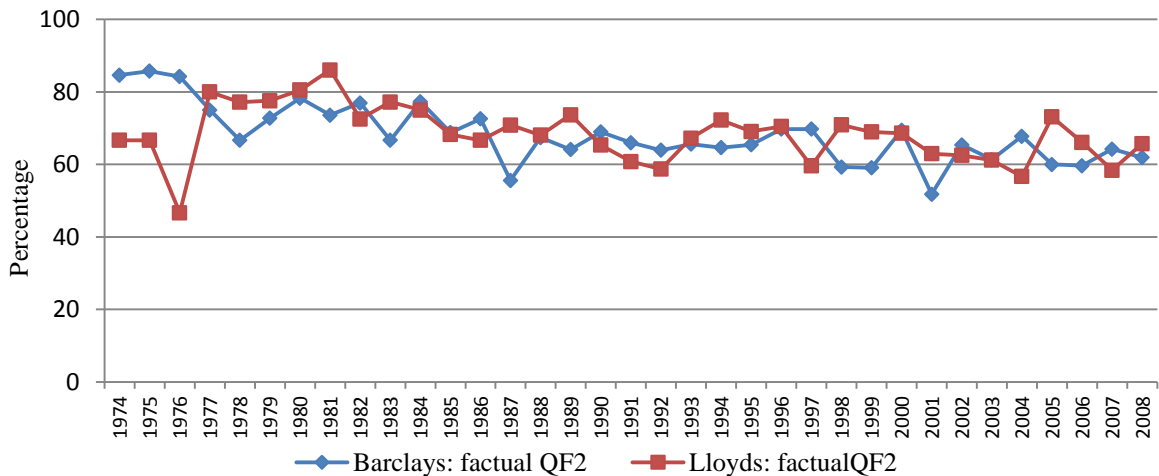
British Petroleum and Shell



Tesco and Sainsbury



Barclays and Lloyds



Appendix Q

British Petroleum: Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	% QN1	% QN2	% QN3	% QN4	% TOTAL
1974	85	6	6	3	100
1975	83	11	3	3	100
1976	57	30	8	5	100
1977	70	20	0	10	100
1978	81	15	0	4	100
1979	88	8	4	0	100
1980	79	14	5	2	100
1981	87	8	4	2	100
1982	84	12	1	3	100
1983	89	10	0	1	100
1984	86	12	2	1	100
1985	87	11	2	0	100
1986	88	9	2	1	100
1987	87	8	3	1	100
1988	86	10	4	0	100
1989	84	11	5	0	100
1990	89	9	2	0	100
1991	88	11	1	0	100
1992	82	15	3	0	100
1993	88	6	6	0	100
1994	82	11	7	0	100
1995	84	14	2	0	100
1996	87	11	2	0	100
1997	83	16	2	0	100
1998	84	15	1	0	100
1999	81	13	4	2	100
2000	88	10	2	0	100
2001	80	15	5	0	100
2002	80	20	0	0	100
2003	88	11	0	2	100
2004	87	13	0	0	100
2005	83	13	4	0	100
2006	75	18	7	0	100
2007	76	21	3	0	100
2008	76	19	5	0	100

Appendix Q

Shell: Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	%	%	%	%	TOTAL
	QN1	QN2	QN3	QN4	
1974	92	8	0	0	100
1975	91	7	2	0	100
1976	96	3	1	0	100
1977	90	7	3	0	100
1978	85	15	0	0	100
1979	90	10	0	0	100
1980	88	12	0	0	100
1981	84	16	0	0	100
1982	81	19	0	0	100
1983	90	10	0	0	100
1984	91	9	0	0	100
1985	94	5	0	2	100
1986	90	8	0	1	100
1987	86	13	0	1	100
1988	85	11	3	1	100
1989	86	9	3	2	100
1990	88	11	0	2	100
1991	84	14	0	2	100
1992	87	12	0	1	100
1993	81	14	2	4	100
1994	92	5	3	0	100
1995	84	12	3	1	100
1996	81	15	3	0	100
1997	92	7	0	1	100
1998	94	5	2	0	100
1999	94	4	1	0	100
2000	86	9	5	1	100
2001	89	9	3	0	100
2002	86	10	4	0	100
2003	86	10	2	2	100
2004	79	16	6	0	100
2005	80	17	3	1	100
2006	71	28	2	0	100
2007	69	29	2	0	100
2008	70	27	3	0	100

Appendix Q

Tesco : Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	% QN1	% QN2	% QN3	% QN4	% TOTAL
1974	75	18	4	4	100
1975	76	18	6	0	100
1976	100	0	0	0	100
1977	77	15	8	0	100
1978	67	26	5	2	100
1979	66	28	6	0	100
1980	56	28	13	3	100
1981	65	19	15	0	100
1982	76	19	5	0	100
1983	91	5	2	2	100
1984	83	15	2	0	100
1985	84	11	5	0	100
1986	88	13	0	0	100
1987	94	4	2	0	100
1988	78	15	7	0	100
1989	86	9	5	0	100
1990	81	13	6	0	100
1991	79	13	7	1	100
1992	76	13	7	4	100
1993	78	15	7	0	100
1994	82	14	4	0	100
1995	82	14	4	0	100
1996	74	19	7	0	100
1997	68	27	3	3	100
1998	70	22	5	3	100
1999	59	26	8	6	100
2000	62	29	6	3	100
2001	74	17	6	2	100
2002	54	37	7	2	100
2003	56	38	5	2	100
2004	51	43	2	4	100
2005	50	39	9	3	100
2006	61	30	8	2	100
2007	67	24	6	3	100
2008	66	28	5	2	100

Appendix Q

Sainsbury : Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	% QN1	% QN2	% QN3	% QN4	% TOTAL
1974	67	22	0	11	100
1975	73	18	0	9	100
1976	71	21	0	7	100
1977	50	50	0	0	100
1978	69	15	8	8	100
1979	60	27	7	7	100
1980	48	41	4	7	100
1981	58	33	8	3	100
1982	62	24	3	10	100
1983	50	38	9	3	100
1984	58	35	6	0	100
1985	67	28	6	0	100
1986	71	29	0	0	100
1987	65	25	8	3	100
1988	68	27	4	0	100
1989	80	14	6	0	100
1990	82	14	3	1	100
1991	60	27	11	2	100
1992	60	26	13	1	100
1993	70	24	7	0	100
1994	76	17	7	1	100
1995	67	27	6	0	100
1996	58	34	5	2	100
1997	51	37	8	3	100
1998	71	24	3	1	100
1999	73	23	4	0	100
2000	68	23	8	1	100
2001	75	13	12	0	100
2002	79	13	8	0	100
2003	73	24	4	0	100
2004	72	23	6	0	100
2005	80	13	7	0	100
2006	76	19	5	0	100
2007	64	23	13	0	100
2008	55	21	21	3	100

Appendix Q

Barclays : Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	% QN1	% QN2	% QN3	% QN4	% TOTAL
1974	62	15	15	8	100
1975	64	14	14	7	100
1976	58	21	11	11	100
1977	63	19	13	6	100
1978	74	19	4	4	100
1979	55	24	21	0	100
1980	67	20	11	2	100
1981	72	25	4	0	100
1982	69	26	5	0	100
1983	80	13	7	0	100
1984	64	23	14	0	100
1985	66	22	13	0	100
1986	65	20	16	0	100
1987	83	10	7	0	100
1988	74	18	8	0	100
1989	79	14	6	0	100
1990	88	7	5	0	100
1991	82	4	14	0	100
1992	85	8	7	0	100
1993	87	10	3	0	100
1994	88	9	3	0	100
1995	74	13	13	0	100
1996	76	16	4	4	100
1997	76	16	4	4	100
1998	84	7	8	1	100
1999	77	16	6	1	100
2000	79	15	4	1	100
2001	84	11	4	1	100
2002	64	20	16	0	100
2003	86	12	0	2	100
2004	80	14	4	2	100
2005	86	9	4	1	100
2006	79	17	4	1	100
2007	79	17	4	1	100
2008	69	19	8	3	100

Appendix Q

Lloyds: Percentages of nature QN1, QN2, QN3 and QN4 of IC contents

	% QN1	% QN2	% QN3	% QN4	% TOTAL
1974	67	11	11	11	100
1975	67	11	11	11	100
1976	87	0	7	7	100
1977	80	12	4	4	100
1978	83	11	3	3	100
1979	73	16	6	4	100
1980	83	5	10	2	100
1981	70	26	5	0	100
1982	63	20	15	3	100
1983	65	23	11	2	100
1984	70	15	12	3	100
1985	76	13	10	2	100
1986	82	6	12	0	100
1987	90	4	6	0	100
1988	83	6	9	2	100
1989	58	34	8	0	100
1990	83	15	2	0	100
1991	76	22	2	0	100
1992	83	15	2	0	100
1993	74	21	5	0	100
1994	81	11	8	0	100
1995	73	24	4	0	100
1996	68	27	5	0	100
1997	68	21	9	2	100
1998	71	20	7	2	100
1999	78	16	5	2	100
2000	70	23	7	0	100
2001	73	21	6	0	100
2002	79	14	8	0	100
2003	78	18	5	0	100
2004	72	18	8	2	100
2005	75	17	8	0	100
2006	75	17	8	0	100
2007	77	15	8	0	100
2008	77	19	4	1	100

Appendix R

Percentage of forward-looking (QT2) of IC information disclosure

	% BP	% Shell	% Tesco	% Sainsbury	% Barclays	% Lloyds
1974	9	10	4	11	8	0
1975	6	11	0	9	7	0
1976	8	12	0	7	5	0
1977	10	7	0	13	13	4
1978	12	4	5	8	11	6
1979	10	4	9	7	9	4
1980	11	7	19	15	11	5
1981	8	7	8	13	4	5
1982	15	9	8	10	5	3
1983	12	8	5	13	7	11
1984	16	7	10	10	9	5
1985	8	9	3	11	13	5
1986	17	8	4	14	12	6
1987	15	11	13	13	14	6
1988	20	14	14	12	10	6
1989	10	14	15	14	10	3
1990	16	9	8	10	12	6
1991	16	7	12	9	8	6
1992	13	14	10	14	10	9
1993	13	12	12	15	15	8
1994	16	15	12	16	18	8
1995	17	8	11	14	13	7
1996	18	12	13	16	17	7
1997	13	15	16	14	17	15
1998	15	17	9	22	14	9
1999	22	18	11	20	17	10
2000	12	14	17	17	18	12
2001	20	21	12	12	23	9
2002	21	21	10	20	16	9
2003	23	23	11	24	18	11
2004	23	19	14	23	18	12
2005	23	20	14	16	14	10
2006	24	18	14	21	15	13
2007	19	19	18	23	17	14
2008	23	22	14	24	13	19

Appendix S

Percentage of factual (QT3) of IC information disclosure

	% BP	% Shell	% Tesco	% Sainsbury	% Barclays	% Lloyds
1974	70	79	61	44	85	67
1975	71	78	53	45	86	67
1976	78	83	50	64	84	47
1977	95	72	54	63	75	80
1978	85	78	70	69	67	77
1979	77	79	78	60	73	78
1980	79	84	63	70	78	80
1981	73	93	65	58	74	86
1982	74	93	76	55	77	73
1983	74	75	67	69	67	77
1984	66	76	61	71	77	75
1985	71	81	70	72	69	68
1986	70	81	66	60	73	67
1987	58	80	61	78	56	71
1988	51	70	68	60	67	68
1989	60	73	56	77	64	74
1990	65	68	52	63	69	65
1991	64	74	63	73	66	61
1992	62	74	61	73	64	59
1993	65	72	61	65	66	67
1994	61	71	70	60	65	72
1995	51	72	69	56	65	69
1996	64	61	54	67	70	70
1997	58	62	66	75	70	60
1998	61	67	68	64	59	71
1999	61	64	70	58	59	69
2000	73	56	64	62	69	69
2001	54	52	69	62	52	63
2002	63	61	73	57	65	63
2003	58	54	74	76	61	61
2004	58	71	73	70	68	57
2005	66	74	73	65	60	73
2006	82	71	65	75	60	66
2007	86	71	62	74	64	58
2008	80	75	57	82	62	66

GLOSSARY

Agency cost

Cost incurred in appointing agents, cost incurred to mitigate agency problem or cost arise due to poor behaviour of agents.

Binary basis

Variable that characterized by two classifications.

Cost of capital

Cost of capital comprises cost of debt and cost equity. Cost of debt refers to interest charged on debt capital while cost of equity refers to expected dividend on equity capital.

Cost of rivalry

Negative outcomes arising from competition.

Disclosure index

A method to measure performance of disclosure. The performance is stated by percentage of information disclosed by a company over the total pre-defined component of disclosure being investigated.

Economic reality

See real value

Exhaustiveness

Comprehensive in scope without omission

Hidden value

The excess of the market value of the company over its book value of equity in the balance sheet.

Historical-based reporting

Reporting largely based on past rather than future events

Information asymmetry

A situation in which one party has important information that another does not.

Information units

Small unit in message such words, sentences or the whole paragraph.

Intangible assets

Assets with lack of physical substance such license, trademark, copyright, goodwill etc.

Initial public offering

The first sale of shares by private company to public.

GLOSSARY

Initial public offering prospectus

A mandatory document required by security commission to be distributed to public by a company to sell its stock. The document contains information about company's financial, history, future prospect etc.

Knowledge assets

See definition of intellectual capital

Knowledge-based company

A company that mainly relies on knowledge asset to generate profit and create value to shareholders.

Mandatory reporting

Reporting that mandatorily required by laws or accounting standards

Mutually exclusive category

A subject (e.g.information) that cannot be categorized in the same category at the same time.

Perceived risk

Risk of investment perceived by investors

Real value

It is value of a company bases on the fair value of share that investor willing to pay as opposed to book value of equity reported in balance sheet.

Recording message

Process of making inferences and recording message units into its categories.

Rules of disambiguation

A rule to establish clear instruction in interpreting and categorizing information. This rule is normally established during conducting a pilot study.

Tangible assets

Assets other than intangible assets such as cash, investment, property, plant and equipment.

Temporal context

Timing context whether future or back-ward looking.

Traditional economy

Economy that bases on classical economic factors such as money, huge machineries, land and cheap labor.

GLOSSARY

Traditional financial reporting

Financial reporting that bases on stringent guidelines and standards of accounting which mainly focuses on historical and monetary information.

Value creation

Increase in share price of the shareholders

Value drivers

Factors that contributes to shareholders value (share price)

Value relevance

Value relevance is normally associated with accounting information. The accounting information is assumed to have value relevance if it affects the investor decision making and thus share price of the company.

Voluntary reporting

Reporting other than reporting that mandatorily required by laws or accounting standards.

Wealth creation

See value creation