



# A methodology for investigating intellectual capital information in analyst reports

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## Abstract

**Purpose** – The purpose of this paper is to describe a methodology that enables the generation of valid and reliable inferences on what and how intellectual capital (IC) information is communicated by sell-side analysts in their research reports.

**Design/methodology/approach** – The method described in this paper involves content-analysing initiating coverage analyst reports using a four-dimensional IC coding framework and a detailed coding instrument, which is founded in the literature and indigenous to analyst reports. The paper explicates methodological decisions associated with content analysis: selecting the appropriate sampling unit; recording unit and measurement unit; developing the categorisation scheme and coding instrument; the need for test coding; the approach to data collection; and assessment of reliability and validity.

**Findings** – The methodology described is applied to a sample of analyst reports to illustrate inferences that can be drawn on what and how IC information is communicated in analyst reports.

**Practical implications** – Various practical issues arising in the application of content analysis method are discussed and a methodology for investigating IC communications by sell-side analysts is described in this paper. This knowledge can be useful to future researchers conducting content-analytic studies involving analyst reports in general, and IC communications in analyst reports in particular.

**Originality/value** – This paper extends the methodology developed previously to examine IC information in analyst reports. Although inspired and heavily influenced by these works, the methodology presented in this paper differs from theirs on several fronts. The paper introduces an alternative methodological paradigm to the study of analyst reports by emphasising them as a communication medium through which sell-side analysts may pursue an agenda of their own. This is contrasted with the view held by several prior researchers that analyst reports just provide a record of analysts' thought processes.

**Keywords** Analyst reports, Content analysis, Intellectual capital, Sell-side analysts, Financial reporting, Financial analysis

**Paper type** Research paper



## 1. Introduction

A significant proportion of a company's valuation is linked to intellectual capital (IC)[1]. Some accounting researchers point at the difference between a company's market and book value as evidence of the proportion of its value linked to IC (e.g. Brennan, 2001; Ordoñez de Pablos, 2003; Stewart, 2003; Sullivan, 2000; Sveiby, 1989). Although non-recognition of IC in financial statements is not the only cause of disparity between the book value and market value of a company, some proportion of this gap can be attributed to it (Amir and Lev, 1996; Beattie and Thomson, 2005; Lev and Sougiannis, 1999). Given the nexus between IC and firm value, accounting researchers have shown

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an interest in understanding what types of IC information is important to the capital market. IC information concerns information on a company's existing stock of intellectual capital and "a business's efforts to grow its intellectual capital for sustained value creation" (Fincham and Roslender, 2003a, p. 783).

Studies on the usefulness or importance of types of IC information in firm valuation have employed different research methods, such as capital markets research using association and event studies; interviews, surveys and experimentations with capital market participants; analysis of their verbal protocols; and content analysis of analyst reports (for a review of literature on the valuation impact of IC, see Abhayawansa and Guthrie, 2010). Although each of these research methods provides a unique perspective to understand the types of IC information used by or useful/important to capital market participants, content analysis of analyst reports has been a particularly popular method with researchers.

In the IC discourse, prior content-analytic studies of analyst reports appear to be predominantly interested in measuring the extent to which various categories of IC are cited in analyst reports to assess the importance sell-side analysts (hereafter "analysts") attach to them or their valuation relevance. In doing so these studies have failed to identify and acknowledge the importance of analyst reports as a communication medium through which analysts attempt to push their agenda for the company they write about. It has been argued that analysts not only disseminate information relevant to their forecasts and recommendations through analyst reports, but also attempt to convince readers about their opinions and present arguments supporting them (e.g. Nielsen, 2008; Previts *et al.*, 1994; Rogers and Grant, 1997). There is evidence suggesting that analysts are optimistically biased when writing reports (e.g. Das *et al.*, 1998; Dechow *et al.*, 2000; Dugar and Nathan, 1995; Fogarty and Rogers, 2005; Lin and McNichols, 1998) and different information in their reports are targeted at different users simultaneously due to the conflicting incentives they face (Malmendier and Shanthikumar, 2006). As a result, not only what information is communicated, but also how it is communicated by analysts has a significant bearing on a firm's market value (Dannhauser, 2009). This alternative perspective is particularly important in the investigation of IC information in analyst reports given the amenability of this information in furtherance of the communicator's agenda. Hence, how IC information is communicated in analyst reports becomes an important research proposition.

This paper introduces a methodology based on content analysis to investigate what as well as how IC information is communicated through analyst reports. It addresses the issues faced by the content analyst and justifies the decisions made by referring to authorities on content analysis and the extant literature. The cornerstone of this methodology is a four-dimensional coding framework for coding IC references in analyst reports into topic and three attributes of communication:

- (1) *evidence* (i.e. whether IC information is communicated discursively, quantitatively or visually);
- (2) *news tenor* (i.e. whether IC information is communicated positively, neutrally or negatively); and
- (3) *time orientation* (i.e. whether IC information is communicated in a forward-looking, non-time specific or past-oriented manner).

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The research methodology described in this paper is inspired and heavily influenced by the methodology developed by Beattie *et al.* (2004a) and Beattie and Thomson (2007) for analysing narrative disclosure in annual reports. However, the present paper extends their methodology to examine a different phenomenon – communication of IC information in analyst reports. In addition, the methodology presented in this paper differs from Beattie *et al.* (2004a) in several ways:

- the main dimension of investigation in this paper is IC information as against narrative disclosure;
- news tenor is introduced as a new dimension;
- NVivo computer software package is used in content analysis in place of NUD\*IST; and
- IC communicated through visuals is investigated.

The remainder of this paper is organised as follows. The next section discusses the research methods that have been used to investigate the importance of IC for the determination of firm value and limitations associated with some of those methods. This is followed by a review of content-analytic studies on analyst reports. Thereafter, an approach to content analysis to investigate what and how IC is communicated is introduced. The penultimate section illustrates the types of analysis that can be performed to examine IC communicated in analyst reports. Finally, concluding remarks are provided.

## 2. Research methods for investigating the importance of IC

Two principal ways of studying the importance of IC information to the capital market are found in the accounting literature. The first approach concerns capital markets research studies that attempt to isolate various types of intangibles and examine their value-relevance[2]. However, IC items that are not amenable to economic or financial measurement or for which measurement proxies are unavailable cannot be evaluated for their importance using this research method, despite their potential contribution to firm financial performance and market value. In addition, accounting researchers argue that measurement difficulty, non-specificity, complexity, and interdependence of IC are impediments for capital markets research on IC (Bukh and Johanson, 2003; Holland, 2003; Mouritsen, 2003).

The second approach is to study the use of IC information by capital market participants, mainly analysts. These studies either directly involve capital market participants through surveys, interviews, experimentations, and analysis of verbal protocols or indirectly investigate IC information use of analysts by content-analysing analyst reports. Although the literature in this domain is growing, it is still limited. As a result, existing knowledge on the use of IC information by capital market participants has largely been borrowed from the literature on non-financial information (NFI)[3] that does not specifically address most aspects unique to IC information.

Common criticisms of the research methods that directly involve the respondents, such as interviews, surveys, controlled experiments or verbal protocol studies are that respondents show a tendency to alter their behaviour patterns, respond in a socially desirable manner or attribute more rational thought processes to past decisions (Jones and Shoemaker, 1994; Krippendorff, 2004; Morris, 1994). In addition, validity of

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findings in survey or interview-based studies is largely dependent on analysts' self-insight – the ability to communicate one's own judgements – that is found to be limited (Mear and Firth, 1987; 1990). Similarly, verbal protocol studies depend on artificially induced verbalisations of a limited number of respondents, and the validity of experiments go as far as the research design abstracts the critical parameters of the analysts' work (Fogarty and Rogers, 2005). These limitations are serious especially when evaluating analysts' thought processes in relation to the use of IC information.

A review of extant research shows a particular interest in exploring this phenomenon through content analysis of analyst reports. This method has two main advantages. First, it is an unobtrusive and a non-reactive method of collecting data (Krippendorff, 2004). As analyst reports are neither prepared for content analysis nor to be read by a researcher, this method “preserves the conceptions of the data's sources” (Krippendorff, 2004, p. 41), or in other words avoids the measurement process contaminating the data (Smith and Taffler, 2000). Second, it can unveil insights about analysts' IC information needs and most suited to evaluate the importance of types of IC information to them (American Institute of Certified Public Accountants, 1994; Breton and Taffler, 2001; Nielsen, 2008; Previts *et al.*, 1994; Rogers and Grant, 1997). Flöstrand and Ström (2006) go further to argue that content analysis of analyst reports provides an alternative to the investigation of value-relevance of types of information. According to these authors, information items disclosed in analyst reports are valuation-relevant. Campbell and Slack (2008, p. 9) posit that unlike value-relevance, “valuation relevance allows for a discussion of factors that may not necessarily have a direct relationship with the share price but nonetheless may be useful in their overall valuation process”.

However, several methodological concerns relating to the application of content analysis methods have been raised in prior IC disclosure research (e.g. Abeysekera, 2006; Abhayawansa and Abeysekera, 2009; Beattie and Thomson, 2007; Steenkamp and Northcott, 2007). These methodological lapses have the potential to detract from valid inferences being drawn from the data as they can significantly impair reliability. Nonetheless, most studies using content analysis of analyst reports to investigate IC information either have not clearly explained the important methodological decisions involved in the operationalisation of content analysis or have not addressed them altogether (e.g. Arvidsson, 2003; Flöstrand, 2006; García-Meca and Martínez, 2007; García-Meca *et al.*, 2005). The application of content analysis to analyst reports to investigate IC information involves a range of methodological decisions that needs to be addressed and clarified by the researcher.

### 3. Review of content-analytic studies on analyst reports

Content analysis is a method for making inferences from published media in a systematic manner. At the most basic level of its application, the content analyst scans a document to find whether a particular theme or category of information is present or absent and/or how often it is present. Content analysis has been used in empirical social science research for many years, mainly in the field of communication research (e.g. Bos and Tarnai, 1999; Carney, 1972; Krippendorff, 2004). It has also been widely used in accounting research to analyse voluntary disclosure, corporate social and environment reporting, and IC reporting in a variety of corporate reporting media (Beattie and Thomson, 2007; Parker, 2005; Unerman, 2000).

Accounting researchers have used content analysis to investigate information use in analyst reports for over three decades. These studies have examined many dichotomies, including earnings versus cash flow information (Govindarajan, 1980), income statement versus balance sheet evaluations (Bricker *et al.*, 1995; Previts *et al.*, 1994), and accounting versus non-financial items (Abdolmohammadi *et al.*, 2006; Breton and Taffler, 2001). Some researchers have shown a general interest in understanding the types of non-financial information relied upon by analysts (Flöstrand and Ström, 2006; Low and Siesfeld, 1998; Nielsen, 2004, 2008; Orens and Lybaert, 2007; Rogers and Grant, 1997). Other researchers have examined intangibles or IC information in specific (Arvidsson, 2003; Flöstrand, 2006; García-Meca, 2005; García-Meca and Martínez, 2007).

Although the main purpose of most studies adopting this research method has been to investigate analysts' information needs or importance of various types of information, other applications of it are also found in the accounting literature. Some researchers have investigated the relevance of various information sources to analysts. These studies have attempted to trace the information cited in analyst reports to a particular information source through cross-referencing (Fogarty and Rogers, 2005; Rogers and Grant, 1997) or compare the results of content analyses of source documents to those of analyst reports (Arvidsson, 2003; Flöstrand and Ström, 2006; García-Meca, 2005). Researchers have also investigated drivers of the use of various types of information in analyst reports with content analysis used to measure the dependent variable "extent of information use" (Arvidsson, 2003; Flöstrand, 2006; García-Meca and Martínez, 2007). Extant researchers look at the influence of types of IC and other non-financial information on analyst forecast accuracy (Orens and Lybaert, 2007) and types of investment recommendations issued by analysts (Flöstrand, 2006; García-Meca and Martínez, 2007).

Researchers using content analysis on analyst reports have mainly considered them as records of analysts' decision processes. They have thus far been oblivious to the role of analyst reports as a communication medium. A notable exception is Fogarty and Rogers (2005). They examined various semantic tonalities in the text including news-tenor and time orientation. However, these characteristics of communication were investigated independently (i.e. not in relation to a particular information type). When analyst reports are considered as a communication medium, an interesting research question is how analysts communicate different types of information to the capital market. This paper presents a methodology to answer this question in relation to IC information.

On the operationalisation of the content analysis methodology, the prior studies differ in many respects. While a few have adopted computerised keyword search techniques using software with the ability to consider the context of use (Breton and Taffler, 2001; Bricker *et al.*, 1995; Fogarty and Rogers, 2005; Previts *et al.*, 1994), most researchers opt for the manual alternative, especially when investigating types of non-financial and IC information. Krippendorff (2004) strongly warns against over-reliance on computer content analysis when diverse meanings of texts are investigated, as artificial intelligence systems cannot determine meanings of sentences.

With the notable exception of Rogers and Grant (1997), all published manual content-analytic studies look at the presence or absence of themes against a checklist. This approach is criticised as not reflecting the importance attached to various

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information themes by the authors of the documents analysed and simply misleading (Beattie and Thomson, 2007; Hackston and Milne, 1996). Rogers and Grant (1997), on the other hand, analysed each and every sentence/clause for all occurrences of information units that were consequently classified into one of six categories. The present paper uses the same method, but in relation to communication of IC information in analyst reports.

#### 4. The proposed methodology

This section describes the research methodology developed for investigating what and how IC information communicated in analyst reports through content analysis. The variant of content analysis adopted in this paper is qualitative content analysis, which goes beyond mere counting of words to investigating meanings, themes and patterns in textual material. The process to content analysis adopted in this paper draws in the main on the works of Weber (1990, pp. 21-4) and Krippendorff (2004).

##### 4.1 Importance of analyst report as the sampling unit

The appropriateness of researching the analyst report is underpinned by the importance attributed to analysts and the reports they produce in the capital market. It is argued that specialised nature of their job, and skills and resources at their disposal make analysts the most informed, articulate, and sophisticate users/processors of corporate information (e.g., American Institute of Certified Public Accountants, 1994; Bence *et al.*, 1995; Hopkins, 1996; Schipper, 1991). Analysts not only aggregate publicly available information, but also generate new information and thereby complement firm provided information through the reports they write (De Franco, 2004; Johansson, 2007; Ljungqvist *et al.*, 2007; Lui *et al.*, 2007). Hence, both non-professional and professional investors rely on information in analyst reports as an input to their own decision-making (Campbell and Slack, 2008; Core, 2001; Fogarty and Rogers, 2005; Galanti, 2006; Johansson, 2007).

Content analysis of analyst reports is based on the premise that analyst reports include information used by analysts in arriving at their forecasts, valuations, and stock recommendations. Rogers and Grant (1997, p. 26) submit that analyst reports are written in such a way that relevant information is communicated efficiently and effectively, while avoiding a great deal of extraneous information that would lengthen the reports. However, information cited in an analyst report could only be a subset of all information used by analysts. Govindarajan (1980) argues that the content of an analyst report provides a formal explanation of the stock recommendation made in the report but not a record of the analysts' decision processes. Nonetheless, it is argued that cited information is both important and influential (Previts *et al.*, 1994; Rogers, 1996; Schipper, 1991) and that analyst reports include most of the information used by analysts (Orens and Lybaert, 2007).

##### 4.2 What type of analyst report to select?

In the accounting literature, analyst reports are broadly classified into initiating coverage reports and recurrent reports[4]. Recurrent reports are further classified into company reports and results reports based on the events triggering them. Initiating coverage reports are issued by analysts when their brokerage firm commences coverage of a particular company for the first time or after a considerable

lapse in time. Initiating coverage reports are also written by new analysts who seek to brand themselves and to market their key knowledge areas in relation to the company (Nielsen, 2008). Initiating coverage reports are concerned with forming a new knowledge base as opposed to other types of analyst reports, which are considered to be merely updates on an existing base of knowledge (Nielsen, 2008).

The initiating coverage analyst report is the most appropriate sampling unit to investigate IC communicated in analyst reports for four reasons. First, initiating coverage reports generally include a comprehensive analysis of a company providing all justifications and arguments for arriving at analysts' conclusions. Important facts and useful information are presented in these reports in an informative and a comprehensive manner. Hence, initiating coverage reports provide the best opportunity for analysts to discuss IC that is important to the valuation of the company. Second, initiating coverage reports are self-contained, i.e. relevant information is not omitted on the basis that it was previously disclosed. Third, analysts are not affected by time or space constraints when writing initiating coverage reports. This enables them to communicate with their readers more freely and emphasise important information. Finally, these reports are clearly labelled as initiating coverage, thereby reducing any bias in sample selection.

Initiating coverage reports are broadly similar in format regardless of the brokerage firm issuing them. The first page of the report contains a summary of the main issues discussed subsequently in its body and generally includes three key indicators:

- (1) an earnings forecast;
- (2) a stock recommendation; and
- (3) a price target.

Name of the brokerage firm, names and contact details of the analysts who have written the report, date of the report, summary of stock data, and key indicators about the company are also located in the first page. The body of the analyst report contains descriptions about the company and industry, quantitative and qualitative analyses, and arguments supporting the key indicators. Appendices, summary tables of financial data, regulatory disclosures, investment bank's disclaimer and other disclosures explaining recommendation structure are found at the end of report. The application of content analysis in this paper is limited to the body of the report, appendices and footnotes. As the first page is redundant in the report, it has been omitted.

#### *4.3 Defining the recording unit*

Determining a recording unit concerns what to be coded. Holsti (1969, p. 116) defines a recording unit as a "specified segment of content that is characterised by placing it in a given category". In relation to narratives, the recording unit is the basic unit of text that is to be classified (Weber, 1990). Commonly used recording units of narrative content include words, terms, sentences, themes, paragraphs, pages and the whole text. Words and terms (i.e. combination of few words) are generally used in computer-based content analysis. It is the smallest, most reliable and safest recording unit for written documents (Krippendorff, 2004). However, in the context of IC, individual words have no meaning to provide a sound basis for coding without a sentence or sentences for context.

A problem arises when a given sentence consists of more than one IC theme as mutual exclusiveness of recording units become unachievable (Abeysekera, 2006;

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Carney, 1972). Although some argue that classifying a sentence into the dominant IC theme it represents can overcome this problem, it may become an arbitrary exercise and will bias results by neglecting valid information when the writer uses long sentences that connect several pieces of information together. Problems can only worsen with the use of paragraphs or areas of pages as the recording unit (Beattie and Thomson, 2007; Holsti, 1969).

To overcome these problems Beattie and Thomson (2007, p. 142) use text units as the narrative recording unit. They define a text unit as a group of words or part of a sentence containing a “single piece of information that [is] meaningful in its own right”. Similarly, text units are used as the narrative recording unit in the methodology described in this paper. The use of text units can overcome coding dilemmas when multiple IC themes are present in a given sentence. For example, the sentence “the company is undertaking trials with most of the largest grocery suppliers in Australia and delivering improvements in logistics costs and level of on-time delivery” can be decomposed into three text units:

- (1) the company is undertaking trials with most of the largest grocery suppliers in Australia;
- (2) the company is delivering improvements in logistics costs; and
- (3) the company is delivering improvements in level of on-time delivery.

In this exercise, parts of the sentence that are shared between text units are repeated. Accordingly, each sentence containing more than one piece of information has to be edited to identify the text units. The text units containing IC information can then be coded. As the narrative recording unit concerns individual pieces of meaningful information (i.e. a text unit) the context unit applicable in this study could vary from a single sentence to an entire paragraph.

Concentrating on narrative content alone is unlikely to provide valid results as it ignores the importance of visual content in communicating a firm’s value creation story. Hooks *et al.* (2010) demonstrate that visuals are an important medium of communicating IC and Guthrie *et al.* (2004) encourage researchers to extend content analysis to capture IC communicated through visuals. Analyst reports frequently include tables and figures (e.g. graphs, charts, and diagrams). However, prior content analytic studies on analyst reports have either excluded visuals (e.g. Breton and Taffler, 2001; Nielsen, 2008) or have not been explicit about the treatment of visuals in their studies. Hence, it is recommended that visuals ought to be included in content analytic studies of IC in analyst reports. The research method described in this paper follows suit, and codes all visual content in the form of tables and figures in the body of an analyst report.

The recording unit used for visual content in the methodology presented in this paper is an information item, which can be defined similarly to a text unit – “single piece of information that [is] meaningful in its own right”. As an information item derives its meaning from the entire visual, the context unit for visuals is defined as such. For example, a single cell in a table is considered as an information item, where the cell obtains its meaning from its column and row headers, others cells, caption of the table and footnotes to the table. Similarly, figures such as graphs, charts and diagrams may contain more than one information item that need to be separated in the content analysis. Illustrative examples of how IC information items in tables and figures are identified and coded are provided in Section 4.6.



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#### 4.4 Defining the measurement unit

A key assumption underlying content analysis is that the quantum of disclosure signifies the importance of an information category (Weber, 1990). The measurement unit concerns the basis for quantifying the amount of disclosure.

Two main quantification methods have been used in the accounting disclosure literature. According to the first method, a source document is searched for the presence/absence of a theme. If the theme is present, then the document is not scrutinised further for multiple occurrences of the theme. The importance of a particular theme is determined by the aggregate number of source documents in the sample in which the theme is present. The main limitation of this method is that it treats a document having a single occurrence of a particular theme in the same way as one that has multiple occurrences (Milne and Adler, 1999). Beattie and Thomson (2007) criticise that this approach provides a partial analysis of the content and can only measure the variety of disclosure across source documents.

In contrast, the second method codes all occurrences (or incidences) of a theme in a source document. Under this method, disclosure can be measured in several ways:

- calculating the amount of space (or proportion of a page) occupied by the relevant disclosures (Unerman *et al.*, 2007);
- counting the number of words, sentences or paragraphs that comprise the relevant disclosures; and
- counting the instances of occurrence of the relevant theme.

When using proportion of a page as the measurement unit, a grid (an A4 paper divided into 100 rectangles) is laid over the page and the number of cells covered by the disclosure is counted. Critics of this measure argue that differences in print sizes, column sizes and page sizes in the analysed documents may render cross-sectional comparisons difficult (Ng, 1985; cited in Hackston and Milne, 1996). The use of number of words or terms as a measurement unit suffers from several drawbacks too. First, non-narrative content cannot be measured according to this method. Second, differences in writing styles may result in the same message being conveyed using different number of words in two reports. In relation to analyst report content, this has the potential to bias results as reports are written by different individuals with different writing styles. Third, counting the number of words is problematic when determining which individual word comprises the theme (Hackston and Milne, 1996).

Milne and Adler (1999) promote the use of sentences for both coding and measuring. This has the effect of simplifying the content analysis as well as reducing potential for error compared to using words and proportions of pages for measuring. As a sentence can contain more than one IC theme (or a text unit, in the case of this study), this approach may result in measurement error. Also, as the same meanings can be conveyed using different number of sentences, this measure may result in a higher disclosure frequency being attributed to documents containing more sentences compared to those containing less.

These problems are avoided in the methodology proposed in this paper by using text units (in narrative content) and information items (in visual content) as measurement units, in line with Beattie *et al.* (2004b) and Beattie and Thomson (2007). Accordingly, IC references in analyst reports are measured by counting the number of instances each IC theme is manifested in text units or information items. Thus, the

importance of an IC category is established in reference to the number of times it is cited (Gray *et al.*, 1995; Krippendorff, 2004).

4.5 Developing the categorisation scheme

Content analysis is predominantly a process of codifying recording units into predefined content categories. Hence, the foundation of a content analysis based study is the categorisation scheme adopted. As this study concerns communication of IC information, the topic (or type of IC information) is considered the primary dimension of investigation. In order to capture multiple facets of IC information communicated in analyst reports the categorisation scheme is extended to include three communication dimensions (i.e. evidence, time orientation and news-tenor) is introduced in this paper (see Figure 1). These dimensions enable the researcher to investigate how different types of IC information are communicated. However, a text unit or an information item is content-analysed as to these communication dimensions only if it refers to IC.

The categorisation scheme for the topic dimension this paper develops consists of external, internal and human capital categories, consistent with the widely used tripartite taxonomy of IC developed by Sveiby (1997). Pursuant to an extensive review of the accounting and management literature IC subcategories were formulated under the three main IC categories. These initial IC subcategories were further refined and new subcategories were added throughout the preliminary test-coding stages. This trial and error approach to developing content categories is consistent with prior content analysis literature. Holsti (1969, p. 104) states that “[t]his process consists of moving back and forth from theory to data, testing the usefulness of tentative categories, and then modifying them in the light of the data”. The IC classification scheme introduced in this paper consists of 34 IC subcategories divided among external, human and internal capital categories (see Figure 2).

In order to improve the richness of data collected for further analysis, some IC subcategories are further classified into second level subcategories. For instance, business collaborations subcategory that is under external capital is subdivided into joint ventures,

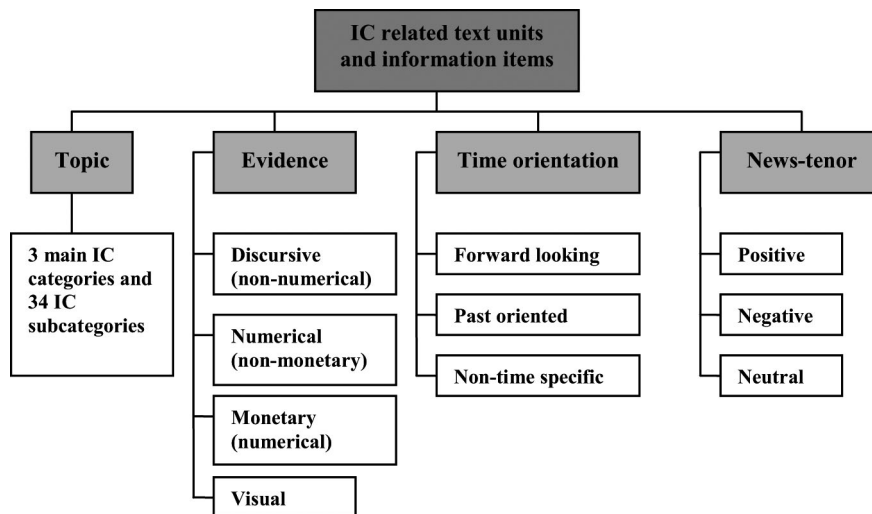
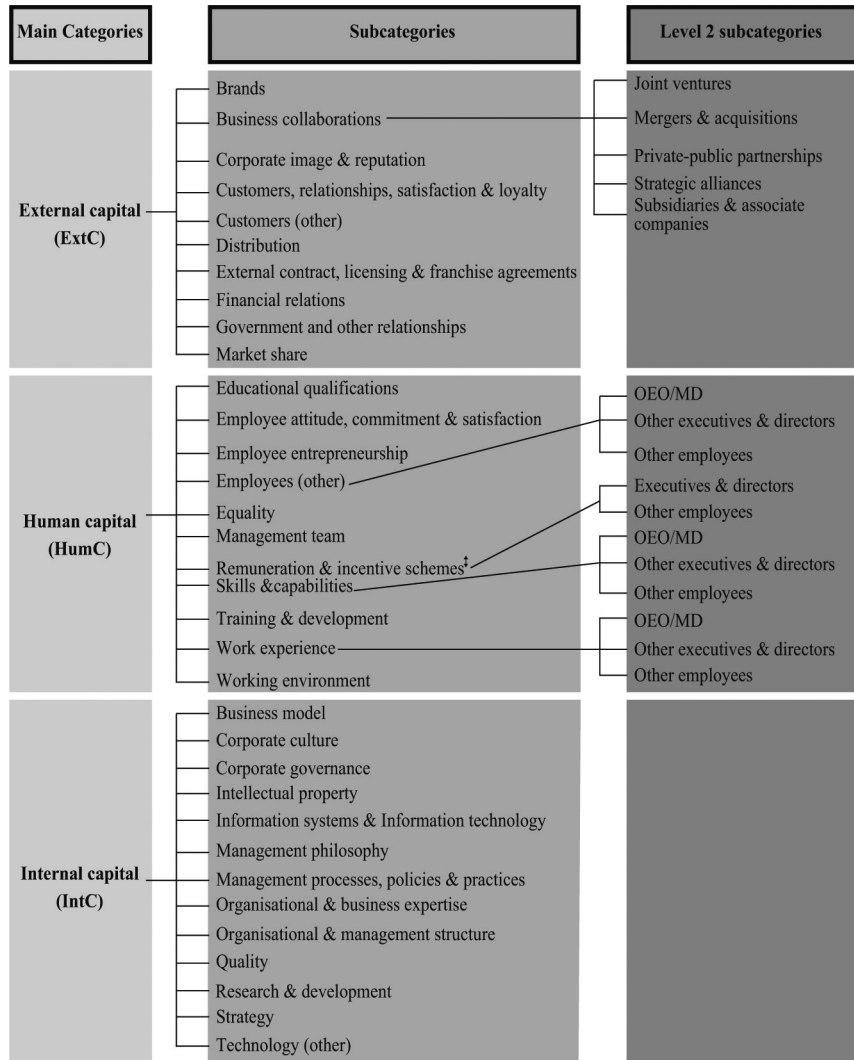


Figure 1. Main dimensions of investigation



**Figure 2.**  
Architecture of the IC  
classification scheme

mergers and acquisition, relations with associate and subsidiary companies, private-public partnerships and strategic alliances. Similarly, the board of directors (including non-executive directors) is represented as human capital of a firm, and thus several human capital subcategories were further subcategorised in order to investigate references to CEO/MD, directors and other executives, and regular employees separately.

On the evidence dimension, IC-related text units/information items are classified into four mutually exclusive categories:

- (1) discursive (non-numerical);
- (2) numerical (non-monetary);

- (3) numerical (monetary); and
- (4) visual.

The investigation of the evidence dimension of IC enables researchers to ascertain the differences in the usage of IC for varying purposes.

Three news-tenor categories are introduced: positive, negative and neutral. Although news-tenor has been investigated in analyst reports previously, it has mainly been to understand the balance of good news versus bad news or to examine the tonality of references to company management (e.g. Fogarty and Rogers, 2005) or financial indicators (e.g. Breton and Taffler, 2001). The analysis performed in this study offers an opportunity to examine the laudatory aspect of IC and its use by analysts in communicating value creation versus value destruction.

According to the time orientation dimension IC related text units/information items are classified into three categories:

- (1) forward-looking;
- (2) non-time-specific; and
- (3) past-oriented.

The examination of the time orientation of IC references enables to determine the extent to which IC information is used to communicate value realisation versus value creation (Ashton, 2005; Fincham and Roslender, 2003b). Reporting on value realisation is being backward-looking and involves communicating information on historical value generated by a firm. In contrast, using IC information in a forward-looking manner enables future value creation potential to be communicated.

#### *4.6 Developing the coding instrument*

There is an obligation on the researcher to be explicit about the procedure, instructions and rules of the data capture processes in content analysis based research (Carney, 1972; Gray *et al.*, 1995; Krippendorff, 2004; Morris, 1994). This helps the reader to envisage how the data were generated, inferences were made and the vigilance of coding (Carney, 1972). A coding instrument is introduced in this paper that can systematise the data collection process and make it transparent. Following Boyatzis's (1998) recommendations, the coding instrument adopted comprises operational definitions for all IC categories and subcategories; coding rules for determining whether a recording unit falls within a given category/subcategory; and examples of various types of recording units that can and cannot be classified into a category/subcategory. The final coding instrument is an extensive document, which is 40 A4 pages in length[5]. Table I shows an extract of the coding instrument.

The operational definitions of IC topic categories and subcategories developed in this paper are in conformity with the definitions of IC categories found in the extant literature. The coding rules and instructions provided in Unerman *et al.* (2007), Rogers and Grant (1997), Guthrie *et al.* (2003) were instrumental in developing coding rules for content categories and subcategories. The development of operational definitions and coding rules for the evidence categories was straight forward as text units/information items are easily distinguishable on this dimension (see Table II for operational definitions of evidence categories).

No.	Category label	Operational definition	Coding rules	Examples
1.3.1	Business model	Business model is a conceptualisation of the way a firm does business by identifying the elements and relationships that describe the business (Ostenwalder <i>et al.</i> , 2005). A business model may be explained by referring to the markets it serves and how it serves those markets	<ul style="list-style-type: none"> <li>– Reference to the term “business model” and explanation of the business model</li> <li>– Description of the nature of firm’s business activities that explain its business model</li> <li>– Explanation of franchising systems (if franchising is the firm’s business model)</li> <li>– Reference to the attractiveness, advantages and benefits of the firm’s business model</li> </ul> <p><i>Exclude</i></p> <ul style="list-style-type: none"> <li>– All other references to franchising operations are included under “franchising, licensing and external contracts”</li> </ul>	<ul style="list-style-type: none"> <li>– NetReturn claims its advantage lies in its ASP model (i.e. customers “rent” the software via an internet channel rather than buying the software outright) (MYOB Ltd)</li> <li>– MYOB differs from its major domestic competitor in that it owns and develops the software (MYOB Ltd)</li> <li>– The emergence of “participation” as a sales model will continue to deliver expanded earnings and margins, through sales of Aristocrat jackpot game technology (Aristocrat Leisure Ltd)</li> <li>– Harvey Norman operates a franchise business structure in Australia with up to four franchisees within each Harvey Norman complex (Harvey Norman Ltd)</li> <li>– Melco PBL Entertainment is a developer, owner and operator of casino gaming and entertainment casino resort facilities focused exclusively on the rapidly expanding Macau market (Crown Ltd)</li> </ul>

**Table I.**  
An extract of the coding instrument

Special coding rules are required for coding tables, as a table could contain more than one information item. For illustration purposes a table extracted from an analyst report is provided in Table III. The IC information items included in it are numbered from 1 to 12. All these information items relate to various human capital subcategories (see Figure 2). Information items 1, 5, and 9 are coded as discursive as they state the positions held by senior executives in the company that come under the “employees (other)” subcategory and its “other executives and directors” second level subcategory.

**Table II.**  
Operational definitions of evidence categories

Category	Operational definition
Discursive (non-numerical)	An IC subcategory disclosed in narrative/written form only or a cell in a table which conveys a non-numerical meaning in relation to an IC subcategory by corresponding to column and row headers
Numerical (non-monetary)	Information disclosed using actual numbers of non-financial nature to communicate or emphasise an IC subcategory
Monetary (numerical)	Information disclosed using actual numbers of financial nature to communicate or emphasise an IC subcategory
Visuals	An IC subcategory communicated through a graph, chart or diagram

Name	Current role	Estimated annual salary (AUD, millions)	Grocery sector experience	Acquisition integration experience	Probability (per cent)
Marty Hamnett	1. Director of General Merchandise	2. 2.2	3. ✓	4. ×	50
Michael Luscombe	5. Director of Supermarkets	6. 2.2	7. ✓	8. ×	75
Bernie Brookes	9. Chief General Manager Refresh	10. 2.2	11. ✓	12. ×	25

**Table III.**  
Table extracted from an analyst report

**Source:** Adapted from Woolford (2005, p. 19)

Information items 2, 6 and 10 are coded as monetary due to them being salaries of the executives. These information items come under the “remuneration and incentive schemes” subcategory and its “other executives and directors” second level subcategory. Information items 3, 4, 7, 8, 11 and 12 either assert or negate whether directors possess a particular type of experience (i.e. “work experience” subcategory). Thus they are coded as discursive.

Analyst reports often contain pie charts depicting the market share of a company relative to its competitors. As the intention of such a chart is to present the relative market share of the company concerned, it is taken to contain only a single information item, which should be coded as a visual. However, if a chart presents the relative market share of various brands owned by a company, each slice should be considered an information item and coded as a visual. Similar approach is adopted in this paper for coding graphs (e.g. bar charts and histograms). Nonetheless, diagrams such as organisational charts and management structures are coded as one visual information item as the objective of such visuals is to demonstrate linkages and relationships.

Developing coding rules for news tenor categories was challenging, as each IC related text unit/information item has to be evaluated based on its own merit. Kassirjian (1977) states that the element of subjectivity of deciding the correct news-tenor category is difficult to control and impossible to eliminate fully. In developing operational definition for news tenor categories it was expected that the

possession of IC will be disclosed in a positive tenor by analysts whereas lack of IC or having comparatively less of a particular type of IC than competitors will be referred to negatively (see Table IV).

The time orientation of IC related text units/information items were developed by looking at the tense, the nature of verb, and linkages to value in the context of value creation or value realisation. Similarly, it was decided that the time orientation of visual representations of IC to be decided based on the meaning they infer (see Table V).

#### 4.7 Test coding (pre-testing)

It is generally recommended that operational definitions and coding rules included in a coding instrument should be tested before they are used in an actual study (Holsti, 1969; Krippendorff, 2004). Hence, it is advisable that a pre-sample of analyst reports be test coded. The test coding may reveal inadequacies in existing coding rules and category definitions, which may warrant changes to them to achieve a convergence

Category	Operational definition	Examples
Positive	Information about benefits or potential benefits of a firm's IC, beneficial utilisation of a firm's IC and reference to IC as an indication of a firm's strength	The company dominates the Australian market and also most international gaming markets (Aristocrat Leisure Ltd) BBG has more than 3,000 customer accounts globally which are fragmented and provide BBG with significant market power (Billabong International Ltd) BBG has recently launched Element-branded shoes in the USA and expects the product to be a top-three seller over time (Billabong International Ltd)
Negative	Information about a firm lacking IC, not deriving an expected or reasonable level of benefits from IC, or being in a disadvantaged position compared with another firm in relation to possession or utilisation of IC	The appeal of BBG's brands is more limited in Europe, given the cultural and seasonal differences (Billabong International Ltd) However, its low-ball bid re-affirmed our view that management's acquisition strategy is too conservative (Sigma Pharmaceuticals Ltd) WOR has experienced a shortage of engineering staff but has indicated that it is not as yet impacting on its growth (WorleyParsons Ltd)
Neutral	Information about a firm's IC that is neither a positive nor a negative reference	API is an integrated health care services company with retail, wholesale and manufacturing interests in the health and beauty sector (Australian Pharmaceutical Industries Ltd) Ken Talbot has been appointed to the SDL Board (Sundance Resources Limited) Pacific Sunwear accounts for an estimated 20 per cent of BBG's sales (Billabong International Ltd)

**Table IV.**  
Operational definitions  
and examples of  
news-tenor categories

Category	Operational definition	Examples
Forward-looking	<p>The communication of future value creation potential of a company through IC</p> <p>This category contains text units/information items that relate to:</p> <ul style="list-style-type: none"> <li>– current investments in IC;</li> <li>– current or past IC to benefits/losses that can (or expected to) accrue in the future; or</li> <li>– IC that may exist in the future due to current or past IC</li> </ul> <p>Forward-looking IC information is generally communicated using future tense</p>	<p>The emergence of “participation” as a sales model will continue to deliver expanded earnings and margins, through sales of Aristocrat jackpot game technology (Aristocrat Leisure Ltd)</p>
Past-oriented	<p>The communication of <i>value realisation</i> by a company as a result of current or past IC</p> <p>This category contains text units/information items that relate to benefits currently accruing or having already accrued to a company due to current or past IC, or reference to IC in a backward-looking manner</p> <p>Past-oriented IC is generally communicated using past tense</p>	<p>These problems exposed weaknesses in management reporting and accountability within the company (Aristocrat Leisure Ltd)</p>
Non-time specific	<p>A reference to IC that is neither a forward-looking nor a backward-looking statement</p> <p>The main feature of content categorised here is that IC is not linked with value or other outcome</p>	<p>Quiksilver uses “Roxy” to market its surf wear to women and “Quiksilver” to men (Billabong International Ltd)</p>

**Table V.**  
Operational definitions  
and examples of time  
orientation categories

between IC subcategories investigated and the type of IC information cited in analyst reports. For instance, the author of this paper added few new IC subcategories to the original categorisation scheme and relabelled several others as a result of the insights gained from test-coding. Also, examples of information that can be included under each content category/subcategory in the coding instrument were obtained during test coding. Hence, the resultant operational definitions, coding rules and the examples are products of several iterations of amendments throughout test-coding.

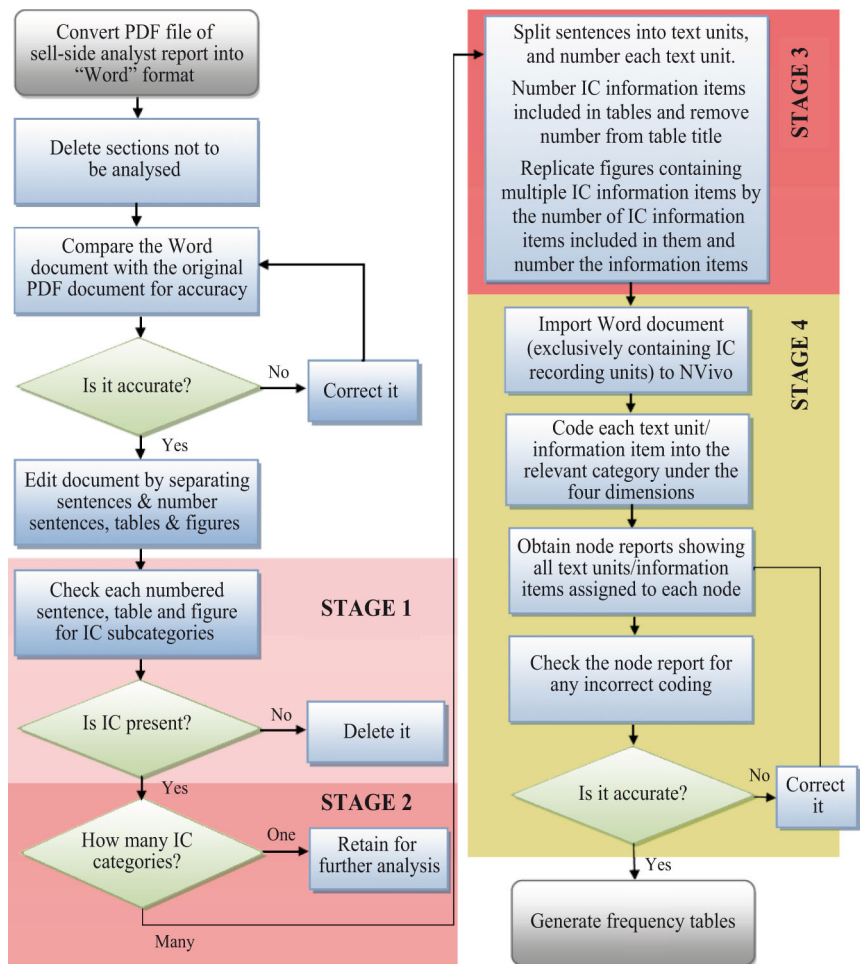
#### 4.8 Data collection

The data collection commences with all analyst reports being converted into Word documents. Since some analyst reports are in Portable Document Format (PDF) the conversion involves copying and pasting the text and visuals into Word documents. On occasions where the PDF documents are copy-protected, the hard copies of those reports can be scanned and converted into Word documents through optical character recognition



software. Subsequently, the Word documents need to be compared against the original analyst reports to ensure accuracy, and edited as appropriate. The preparation of the Word documents for coding involves having each sentence start on a separate line and all sentences sequentially numbered. For tables and figures the captions are included in the numbering sequence. As headings are not included in the analysis, they were numbered. Figure 3 illustrates the data collection process developed in this paper.

After a Word document is prepared from the analyst report, the coding is done in four stages. Beattie and Thomson (2007) recommend a multi-stage process for coding when grammatical constructs such as words, clauses, sentences, or paragraphs are not used as recording units, in order to facilitate reliability measurement. Following their work, a step-wise coding process is introduced in this paper as the use of text units and information items entails several interim coding decisions to be made before making the final coding decision.



**Figure 3.** Flowchart of the data collection process

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In the first stage, each numbered sentence, figure, and table is examined as to whether it includes IC information as represented by any of the 34 IC subcategories. The number of coding decisions at this stage equals the total number of sentences, figures and tables. In the second stage, sentences, tables, and figures marked as representing IC information are further scrutinised as to whether they include multiple references to one or more IC categories. The number of sentences, tables and figures identified as containing IC in the first stage equals the number of coding decisions to be made at this stage[6].

In the third stage, sentences containing multiple IC references are split into text units. Each text unit containing IC is then numbered. The tables and figures containing more than one IC related information item are identified. As regards tables, all IC related information items included in them are numbered and the number allocated to the table is removed. If a figure contained multiple IC related information items, the figure is replicated in the word document by a multiple of the number of IC related information items manifest in it. Consequently, they are included in the numbering sequence in the document. The coding decision at this stage is ascertaining the number of text units or information items contained in each sentence, table and figure identified in the second stage. The number of coding decisions at this stage equals the number of sentences, tables, and figures marked as containing multiple IC references. At the end of the third stage, a Word document is produced that only contains IC related text units and information items, each having a number assigned. This document is the basis for detailed coding in the fourth stage.

The fourth stage of coding is done using the NVivo (Version 7) computer software. NVivo is a commercial computer program that is designed to support qualitative research[7]. It enables the researcher to explore text units/information items, code them into multiple content categories, and discover and test patterns (QSR International, 2006). In NVivo, coding is done by identifying references to content categories, ideas, or concepts within the sources and linking them to the nodes that represent them. Nodes can be either free nodes or tree nodes. Tree nodes are the most appropriate for coding in this study as the content categories under each dimension are logically related in a hierarchical structure. Thus, four tree nodes, pertaining to the four dimensions of investigation with their own hierarchies, are created in NVivo to reflect the categorisation scheme used.

The process of coding using NVivo comprises three phases. First, the Word documents exclusively containing IC-related text units/information items are imported into NVivo. Second, each IC related text unit/information item is coded into the four dimensions in such a way that none could be coded more than once into each dimension. Accordingly, the total number of coded text units and information items is equal in each dimension. Coding is done in NVivo by assigning each IC related text unit/information item to the relevant nodes. Third, node reports are obtained from NVivo showing all IC related text units/information items assigned to each node. This further ensures reliability of coding as wrongly coded recording units tend to stand out among a group of like items (Beattie and Thomson, 2007). Consequently, the text units/information items coded into each node need checking. If corrections are necessary, they can be easily done by “uncoding” and “recoding” text units/information items.

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#### 4.9 Ensuring reliability

Meanings of texts are not always straightforward and the coder's frame of reference can interfere with the way meaning is derived in content analysis. Hence, reliability is of paramount importance in content analysis to generate inferences from communication content (Kassarjian, 1977). Three types of reliability are mentioned in the literature: stability, reproducibility and accuracy[8]. Stability is the extent to which a coding procedure yields the same results on repeated trials over time (Krippendorff, 2004). Reproducibility is the extent to which multiple coders, working independently of each other, obtain consistent results by using the same (or different but functionally equivalent) coding instrument on the same text (Guthrie *et al.*, 2003; Krippendorff, 2004). A high level of reproducibility means that both intra-coder and inter-coder differences have been minimised. In order to achieve a high level of stability and reproducibility, the coding instrument must be well specified and the coder needs to be consistent over time. Training the coder helps the latter.

Having a reliable coding instrument is important for two reasons. First, the researcher's perceptions and predispositions (partly guided by the research questions) can be manifested in their coding decisions (Gray *et al.*, 1995). Second, written language may convey different meanings to different coders due to their creativity and sensitivity. The reliability of a coding instruments can be improved by selecting content categories from well-grounded relevant literature, clearly defining them and introducing well-specified decision rules (Guthrie *et al.*, 2003; Holsti, 1969). It has been demonstrated that even relatively inexperienced coders may produce only few discrepancies when the content categories and coding instructions are well specified (Holsti, 1969; Milne and Adler, 1999). The methodological approach recommended in this paper places significant emphasis on ensuring that the coding instrument contains relevant content categories, and detailed instructions and definitions for including (excluding) information into (from) content categories. Once the coding instrument described in section 4.6 was developed its reliability was tested. Two coders independently coded a sample of analyst reports using this coding instrument and achieved reliability coefficients (measured by Krippendorff's  $\alpha$ ) above the acceptable levels.

Consistency of the coder (intra-coder agreement) and inter-coder agreement can be significantly increased by coders undergoing a sufficient period of training (Kaplan and Goldsen, 1968; Kolbe and Burnett, 1991; Milne and Adler, 1999; Woodard and Franzen, 1948). Untrained coders can bias findings as errors originating in the coders tend to fall into systematic patterns unlike those resulting from poorly constructed categories, which generally scatter around the range of possible disagreements (Funkhouser and Parker, 1968). Training provides the coder familiarity with the texts, coding categories, operational definitions and decision rules. It also minimises the chances that the coder will use his/her intuition in interpretation (Ahuvia, 2001). The data presented in this study were generated as part of a larger study investigating IC communications in analyst reports. The coder in this study coded 52 analyst reports before commencing the main data collection.

The methodology introduced in this paper enables assessment of intra-coder and inter-coder reliability. In this, it follows the step-wise coding process recommended by Beattie and Thomson (2007). The first round involves deciding which sentence/visual contains references to any of the 34 IC subcategories. The reliability of coding

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sentences can be assessed at this stage. At the end of this round an agreement is reached between coders as to the sentences and visuals referring to IC. In the second round, the coders decide on the number of IC related text units/information items contained in these sentences and visuals. This round should result in an agreed list of IC related text units/information items to be coded as to the four dimensions in the subsequent round. At the end of the third round of coding reliability can be assessed for coding on the four dimensions. This process was followed when conducting the content analysis to generate the data presented in this paper. The process was repeated for a sub-sample of analyst reports after three months from the initial coding in order to assess intra-coder reliability. The Krippendorff's  $\alpha$  coefficients calculated based on the reliability data obtained in this exercise was above the acceptable level at every coding round described above.

#### *4.10 Validity assessment*

The research method discussed in this paper enables the achievement of many aspects of validity including sampling validity, semantic validity, functional validity, and correlative validity.

Sampling validity is ensured when a sample is a subset of the very population of texts and it fairly represents the population phenomena that the content-analyst intends to study. Sampling validity can be easily achieved by randomly selecting a sample of initiating coverage reports to be content analysed.

Semantic validity refers to the "extent to which categories of an analysis of texts correspond to the meanings these texts have within the chosen context" (Krippendorff, 2004, p. 319). Semantic validity can be ensured by demonstrating that content categories are emic, or indigenous. By developing a preliminary set of IC content categories pursuant to an extensive review of the literature and subjecting them to modifications through pre-testing the methodology developed in this paper ensures that the content categories are, in fact, indigenous to analyst reports.

Functional validity is the extent to which analytical constructs are justified by reference to their past use and success of such use (or absence of significant failures in using them) (Krippendorff, 2004). The methodology described in this paper achieves this by having an IC classification scheme that is closely comparable to those that have been previously used to investigate IC information in various media.

Correlative validity is demonstrated when it can be established that a measure correlates with other measures of the same construct (convergent validity) and does not correlate well with measures of dissimilar constructs (discriminant validity) (Weber, 1990). Correlative validity of the research method adopted here can be demonstrated by comparing the results with those of other content analysis studies of analyst reports that have used different approaches (Jones and Shoemaker, 1994).

### **5. Illustrative analysis of results**

The methodology presented in the previous section is applied to a sample of eight initiating coverage analyst reports on eight companies from the consumer discretionary sector in Australia to illustrate the types of analyses that can be conducted. Hence, the results presented below should not be used to form conclusions about the IC communication practices of analysts in the consumer discretionary sector in Australia.

*5.1 Analysis by type*

Analysis by type enables the researcher to understand what IC information is communicated in analyst reports. The content analysis of the sampled analyst reports revealed 484 IC related text units and information items. Table VI presents the frequency distribution of these across the main IC categories and subcategories.

	Frequency	Percentage
<i>Panel A</i>		
External capital	342	71
Human capital	64	13
Internal capital	78	16
Total intellectual capital	484	100
<i>Panel B</i>		
External capital		
Brands	68	14
Business collaborations	67	14
Corporate image and reputation	36	7
Customer relationships, satisfaction and loyalty	7	1
Customers (other)	60	12
Distribution	19	4
Favourable contracts, licensing and franchising	47	10
Financial relations	8	2
Government and other relationships	5	1
Market share	25	5
Human capital		
Educational, professional and vocational qualifications	0	0
Employee attitude, commitment and satisfaction	0	0
Employee entrepreneurship	1	0
Employees	0	0
Employees (other)	24	5
Equality	0	0
Management team	6	1
Remuneration and incentive schemes	0	0
Skills and capabilities	1	0
Training and development	0	0
Work experience	30	6
Working environment	2	0
Internal capital		
Business model	13	3
Corporate culture	0	0
Corporate governance	4	1
Intellectual property	0	0
IT and IS	2	0
Management philosophy	0	0
Management processes, policies and practices	3	1
Organisational and business expertise	17	4
Organisational and management structure	12	2
Quality	1	0
Research and development	0	0
Strategy	25	5
Technology (other)	1	0

**Table VI.**  
Distribution of coded  
references across IC  
categories and  
subcategories

According to Panel A of Table VI, external capital is the mostly cited IC category, followed by human capital and internal capital. Panel B of Table VI provides detailed information on the frequency of communicating IC subcategories. An interesting observation here is that external capital subcategories are the ones mostly communicated by analysts. For instance, brands and business collaboration are the mostly cited subcategories in the sample analyst reports. This is followed closely by information on customers and references to favourable contracts, licensing and franchising – all belonging to the external capital category. At the same time, several human capital and internal capital subcategories are overlooked in the sample analyst reports.

The second level IC subcategories included in the IC classification scheme used in this study enables further analysis to be conducted on the frequency with which different types of business collaborations are cited in analyst reports, and whether human capital related information is mostly about CEO/MD, board of directors, or other employees of the company. The results from the illustrative study show that mergers and acquisitions are the most commonly referred to type of business collaboration (see Table VII) and references to human capital subcategories overwhelmingly relate to company management, which include CEO, executives and board of directors (see Table VIII).

The analyses presented in the following sections relate to *how* IC information is communicated in analyst reports.

Types of business collaborations	<i>n</i>	Frequency of references	
		<i>n</i>	Per cent
Mergers and acquisitions	27		40
Joint ventures	19		28.5
Subsidiaries and associates	19		28.5
Strategic alliances	2		3
Private-public partnerships	0		0
Total business collaborations	67		100

**Table VII.**  
Frequency of references to types of business collaborations

Human capital subcategories	Frequency of references						
	CEO		Executives and director		Other employees		Total sample ( <i>n</i> )
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	
Employees (other)	5		15		4		24
Remuneration and incentive schemes	N/A		0 <sup>a</sup>		0		0
Skills and capabilities	1		0		0		1
Work experience	11		19		0		30
Total	17	31	34	62	4	7	55

**Notes:** <sup>a</sup>References relating “remuneration and incentive schemes” are recorded only for two groups: “executives and directors”, and “other employees”. References to “remuneration and incentive schemes” for CEO are included under “executives and directors”

**Table VIII.**  
Human capital references by employee type

*5.2 Analysis by evidence*

Table IX presents results of a two-way analysis between evidence and main IC categories. It shows that a substantial majority of IC related references are discursive, while numerical references (both non-monetary and monetary together) account for 21 per cent of all IC references. However, the number of visual references to IC is minimal.

Looking at the cross-tabulations between evidence categories and main topic categories, internal capital information appears to be presented discursively more often than other two IC categories. Similarly external capital information is the most numerically presented IC category. Monetary references are not found in human capital and internal capital categories.

*5.3 Analysis by news-tenor*

Table X presents results of a two-way analysis between news-tenor and main IC categories. It is clear that IC information is mostly referred to positively by analysts and negative references are just 6 per cent of all IC related references.

Additional insights on the news-tenor of IC information come from cross-tabulations. Accordingly, positive references to internal capital information are less compared to human and external capital information. Further, more negative and neutral references are found in relation to internal capital information.

*5.4 Analysis by time orientation*

Table XI presents results of a two-way analysis between time orientation and main IC categories. It can be seen that non-time specific IC references are dominant while the number of forward-looking IC references outweighs the number of past-oriented IC references.

A significant variation in the time orientation of IC references can be observed across the three main IC categories. Of particular note are the low level of forward-looking references and the high level of past-oriented references in the human capital category compared to the other two IC categories. Further, internal capital has the lowest amount of past oriented references.

**Table IX.**  
Two-way analysis of  
coded IC references

	Discursive		Non-monetary		Monetary		Visual		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
External capital	242	71	75	22	19	5	6	2	342
Human capital	56	87	8	13	0	0	0	0	64
Internal capital	73	94	1	1	0	0	4	5	78
Total IC	371	77	84	17	19	4	10	2	484

**Table X.**  
Two-way analysis of  
coded IC references

	Negative		Neutral		Positive		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
External capital	17	5	106	31	219	64	342
Human capital	2	3	19	30	43	67	64
Internal capital	8	10	35	45	35	45	78
Total IC	27	6	160	33	297	61	484

5.5 Two-way analysis between evidence, news-tenor and time-orientation

Table XII presents results of a two-way analysis between news-tenor and evidence categories. It can be seen that positive-tenor is dominant in all types of references to IC. However, discursive references are expressed more positively than numerical and visual expressions of IC. Similarly, when IC information is presented numerically (both monetarily and non-monetarily), it carries a neutral tenor more often than when it is cited discursively.

The interaction between time-orientation and evidence of IC information is highlighted in Table XIII. It is noteworthy that 47 per cent of numerical (non-monetary) references to IC are forward-looking compared with just 13 percent for monetary expressions. Further, monetary IC references are mainly non time-specific while non-monetary references are least non time-specific. This is an indication that analysts have different agendas when communicating IC information non-monetarily as against monetarily.

Lastly, Table XIV shows the cross-tabulation of news-tenor categories by time orientation categories. The results highlight that IC references are predominantly positive regardless of their time orientation. Similarly, negative references are the rarest across all time orientation categories. However, positive expressions are greatest for past oriented IC references compared with forward-looking and non time-specific references. Further, non time-specific IC references have a high proportion of neutral references compared with other time-orientation categories.

	Forward-looking		Non-time-specific		Past-oriented		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
External capital	130	38	135	39	77	23	342
Human capital	6	9	34	53	24	38	64
Internal capital	38	49	30	38	10	13	78
Total IC	174	36	199	41	111	23	484

**Table XI.**  
Two-way analysis of coded IC references

	Positive		Negative		Neutral		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
Discursive	235	63	24	7	112	30	371
Non-monetary	47	56	3	4	34	40	84
Monetary	11	58	0	0	8	42	19
Visual	4	40	0	0	6	60	10
Total	297	61	27	6	160	33	484

**Table XII.**  
Two-way analysis of coded IC references

	Forward-looking		Non-time-specific		Past-oriented		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
Discursive	152	41	143	39	76	20	371
Non-monetary	11	13	46	55	27	32	84
Monetary	9	47	2	11	8	42	19
Visual	2	20	8	80	0	0	10
Total IC	174	36	199	41	111	23	484

**Table XIII.**  
Two-way analysis of coded IC references



5.6 *Advance analysis*

The methodology described in this paper is capable of providing even more complex analysis of data. First, cross tabulation analysis can be conducted between IC subcategories and evidence, news-tenor or time-orientation categories to obtain greater insights about how different IC subcategories are communicated. Second, three-way analyses of data can be conducted to investigate the interaction between evidence, news tenor and time orientation categories on each of the IC categories or subcategories. Third, three-way analyses can be conducted on any combination of the content categories. Fourth, four-way analysis of data can be conducted which, for example, would enable to investigate the percentage of external capital references that is also positive, discursive and forward-looking. Lastly, an in-depth qualitative analysis of text units/information items can be performed that may involve searching for leitmotifs emerging from the data. NVivo is capable of generating reports listing the text units/information items coded under individual categories as well as simultaneously in two mutually exclusive categories.

6. **Concluding remarks**

The purpose of this paper was to describe a methodology based on content analysis to provide inferences about what and how IC information is communicated by analysts in their reports. Given that prior content-analytic studies have been only concerned with the types of IC information, the proposed methodology provides new utility to the content analysis method in the IC discourse. In doing so, it introduced an alternative methodological paradigm to the study of analyst reports by emphasising them as a communication medium through which analyst may pursue an agenda of their own. This is contrasted with the view held by several prior researchers that analyst reports just provide a record of analysts' thought processes. In other words, this paper appreciates the socio-political context within which analysts conduct their research and write reports. Thus, it is suggested that the level of emphasis analysts place on various types of IC information, as measured by their relative frequency of disclosure, is better to be interpreted in the context of their evidence, news-tenor and time orientation.

Another important contribution of this paper is that it explicates the methodological decisions associated with content analysis:

- selecting the appropriate sampling unit, recording unit and measurement unit;
- developing the categorisation scheme and coding instrument;
- need for test coding;
- approach to data collection; and
- assessment of reliability and validity.

	Positive		Negative		Neutral		Total
	<i>n</i>	Per cent	<i>n</i>	Per cent	<i>n</i>	Per cent	
Forward-looking	110	63	9	5	55	32	174
Past-oriented	86	77	6	5	19	17	111
Non-time-specific	101	51	12	6	86	43	199
Total IC	297	61	27	6	160	33	484

**Table XIV.**  
Two-way analysis of  
coded IC references

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In this regard, this paper is a useful resource for researchers not only for investigating IC information communicated in analyst reports but also those applying content analysis for other purposes and to different contents.

No research method is free from limitations. Although there are several limitations idiosyncratic to the content analysis method the research method presented in this paper is subject to some additional ones. One limitation relates to the presumption that all information considered useful to analysts is included in their reports. To the extent that this is not the case the measurement procedure proposed in this study may not capture all IC information considered by analysts. Another limitation is that the inferences made in relation to the communication of IC information by analysts are constrained by the author's conception of IC and the categorisation scheme used.

### Notes

1. Intellectual capital (IC) can be broadly defined as all intangible determinants of firm value. It includes relational (or external) capital (i.e. all resources linked to a firm's relationship with external stakeholder including suppliers, customers, partners, government and the community plus the perceptions held about the firm by these stakeholders that can benefit the firm); structural (or internal) capital (i.e. intellectual property and the intangible infrastructure that a firm has developed internally or bought in, which enable a firm to be productive, efficient, effective, flexible and innovative); and human capital (i.e. the knowledge, skills, attitudes, abilities, competences, and qualities of a firm's employees as well as the mechanisms that enable, support, and motivate their performance, such as training and development, employee benefits and compensation schemes and a favourable working environment).
2. The studies assessing the statistical association between information items and equity values (either stock price or stock return) are referred to as value-relevance studies. An item of information is said to be value-relevant if it has a statistically significant positive association with equity values (Barth *et al.*, 2001).
3. NFI may be defined as all information disclosed outside the financial statements and related notes issued by a company (Orens and Lybaert, 2007; Robb *et al.*, 2001).
4. Labelling of an analyst report as either a company report or a results report depends on the type of event triggering it. Company reports are usually triggered by changes in the company itself or in the business environment. For instance, company reports evaluate the impact of a particular event or a new development in a company, such as a change in a firm's strategy or entering into a new alliance. These reports are issued on an *ad hoc* basis. On the other hand, results reports are generally issued to accompany an earnings release (i.e. annual, half-year, or quarterly result announcement). They may revise previous earnings forecasts, recommendations or price targets by upgrading or downgrading, or may simply reiterate on those. Results reports are the most frequently released form of analyst report (Barker, 1998). Whilst company reports incorporate relatively more information about a company (e.g. general vision of the business, specific issues such as mergers, new products, or changes in strategy), results reports merely discuss the impact of interim or annual results announcements (García-Meca and Martínez, 2007; Orens and Lybaert, 2007).
5. A copy of the coding instrument can be obtained by contacting the author of this paper.
6. The total number of coding decisions each coder makes and the coding outcomes of each decision are required to be known to calculate statistical reliability measures (Beattie and Thomson, 2007).

7. NVivo is not a content analysis software program. It does not automatically code content into categories. The coder should assign text units/information items to the relevant content categories. The software facilitates efficient coding and retrieval and analysis of coded content.
8. Accuracy is the degree to which a coding procedure conforms to its specifications and yields what it is designed to yield (Krippendorff, 2004, p. 215). To establish accuracy the results of a coding procedure need to conform to the results of a procedure that is taken to be correct. In order to demonstrate accuracy, results of the study need to be compared with the findings of other studies using different methodologies.

### References

- Abdolmohammadi, M., Simnett, R., Thibodeau, J.C. and Wright, A.M. (2006), "Sell-side analysts' reports and the current external reporting model", *Accounting Horizons*, Vol. 20 No. 4, pp. 375-89.
- Abeysekera, I. (2006), "The project of intellectual capital disclosure: researching the research", *Journal of Intellectual Capital*, Vol. 7 No. 1, pp. 61-77.
- Abhayawansa, S.A. and Abeysekera, I. (2009), "Intellectual capital disclosure from sell-side analyst perspective", *Journal of Intellectual Capital*, Vol. 10 No. 2, pp. 294-306.
- Abhayawansa, S. and Guthrie, J. (2010), "Intellectual capital and the capital market: a review and synthesis", *Journal of Human Resource Costing & Accounting*, Vol. 14 No. 3, pp. 196-226.
- Ahuvia, A. (2001), "Traditional, interpretive, and reception-based content analyses: improving the ability of content analysis to address issues of pragmatic and theoretical concern", *Social Indicators Research*, Vol. 54 No. 2, pp. 139-72.
- American Institute of Certified Public Accountants (1994), *Improving Business Reporting – A Customer Focus: Meeting the Information Needs of Investors and Creditors*, American Institute of Certified Public Accountants, New York, NY.
- Amir, E. and Lev, B. (1996), "Value-relevance of non-financial information: the wireless communications industry", *Journal of Accounting and Economics*, Vol. 22 Nos 1-3, pp. 3-30.
- Arvidsson, S. (2003), "Demand and supply of information on intangibles: the case of knowledge-intensive companies", PhD thesis, Lund University, Lund.
- Ashton, R.H. (2005), "Intellectual capital and value creation: a review", *Journal of Accounting Literature*, Vol. 24, pp. 53-135.
- Barker, R. (1998), "The market for information – evidence from finance directors, analysts and fund managers", *Accounting and Business Research*, Vol. 29 No. 2, pp. 3-20.
- Barth, M.E., Beaver, W.H. and Landsman, W.R. (2001), "The relevance of the value relevance literature for financial accounting standard setting: another view", *Journal of Accounting and Economics*, Vol. 31 Nos 1-3, pp. 77-104.
- Beattie, V. and Thomson, S.J. (2005), "Intangibles and the OFR", *Financial Management*, June, pp. 29-30.
- Beattie, V. and Thomson, S.J. (2007), "Lifting the lid on the use of content analysis to investigate intellectual capital disclosures", *Accounting Forum*, Vol. 31 No. 2, pp. 129-63.
- Beattie, V., McInnes, B. and Fearnley, S. (2004a), "A methodology for analysing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes", *Accounting Forum*, Vol. 28 No. 3, pp. 205-36.
- Beattie, V., McInnes, B. and Fearnley, S. (2004b), *Through the Eyes of Management: Narrative Reporting across Three Sectors*, Institute of Chartered Accountants of England and Wales, London.

- 
- Bence, D., Hapeshi, K. and Hussey, R. (1995), "Examining investment information sources for sophisticated investors using cluster analysis", *Accounting and Business Research*, Vol. 26 No. 1, pp. 19-26.
- Bos, W. and Tarnai, C. (1999), "Content analysis in empirical social research", *International Journal of Educational Research*, Vol. 31 No. 8, pp. 659-71.
- Boyatzis, R.E. (1998), *Transforming Qualitative Information: Thematic Analysis and Code Development*, Sage Publications, Thousand Oaks, CA.
- Brennan, N. (2001), "Reporting intellectual capital in annual reports: evidence from Ireland", *Accounting, Auditing & Accountability Journal*, Vol. 14 No. 4, pp. 423-36.
- Breton, G. and Taffler, R.J. (2001), "Accounting information and analyst stock recommendation decisions: a content analysis approach", *Accounting and Business Research*, Vol. 31 No. 2, pp. 91-101.
- Bricker, R., Previts, G., Robinson, T. and Young, S. (1995), "Financial analyst assessment of company earnings quality", *Journal of Accounting, Auditing & Finance*, Vol. 10, pp. 541-54.
- Bukh, P.N. and Johanson, U. (2003), "Research and knowledge interaction: guidelines for intellectual capital reporting", *Journal of Intellectual Capital*, Vol. 4 No. 4, pp. 576-87.
- Campbell, D. and Slack, R. (2008), *Narrative Reporting: Analysts' Perception of its Value and Relevance*, Association of Chartered Certified Accountants, London.
- Carney, T.F. (1972), *Content Analysis: A Technique for Systematic Inference from Communications*, University of Manitoba Press, Winnipeg.
- Core, J.E. (2001), "A review of the empirical disclosure literature: discussion", *Journal of Accounting and Economics*, Vol. 31 Nos 1-3, pp. 441-56.
- Dannhauser, B. (2009), "Beyond accounting: can investors connect extra-financial information with value and performance?", *CFA Magazine*, November/December.
- Das, S., Levine, C. and Sivaramakrishnan, S. (1998), "Earnings predictability and bias in analysts' earnings forecasts", *The Accounting Review*, Vol. 73 No. 2, pp. 277-94.
- De Franco, G.G. (2004), "Analyst comments and the relation between analyst and firm disclosures", PhD thesis, University of Pennsylvania, Philadelphia, PA.
- Dechow, P., Hutton, A. and Sloan, R. (2000), "The relation between analysts' forecasts of long-term earnings growth and stock price performance following equity offerings", *Contemporary Accounting Research*, Vol. 17 No. 1, pp. 1-32.
- Dugar, A. and Nathan, S. (1995), "The effect of investment banking relationships on financial analysts' forecasts and investment recommendations", *Contemporary Accounting Research*, Vol. 12 No. 1, pp. 131-60.
- Fincham, R. and Roslender, R. (2003a), "Intellectual capital accounting as management fashion: a review and critique", *European Accounting Review*, Vol. 12 No. 4, pp. 781-95.
- Fincham, R. and Roslender, R. (2003b), *The Management of Intellectual Capital and its Implications for Business Reporting*, The Institute of Chartered Accountants of Scotland, Edinburgh.
- Flöstrand, P. (2006), "The sell side – observations on intellectual capital indicators", *Journal of Intellectual Capital*, Vol. 7 No. 4, pp. 457-73.
- Flöstrand, P. and Ström, N. (2006), "The valuation relevance of non-financial information", *Management Research News*, Vol. 29 No. 9, pp. 580-97.
- Fogarty, T.J. and Rogers, R.K. (2005), "Financial analysts' reports: an extended institutional theory evaluation", *Accounting, Organizations and Society*, Vol. 30 No. 4, pp. 331-56.
- Funkhouser, G.R. and Parker, E.B. (1968), "Analyzing coding reliability: the random-systematic-error coefficient", *The Public Opinion Quarterly*, Vol. 32 No. 1, pp. 122-8.

- Galanti, S. (2006), "Which side are you on? How institutional positions affect financial analysts' incentives", *Journal of Economic Issues*, Vol. 40 No. 2, pp. 387-94.
- García-Meca, E. (2005), "Bridging the gap between disclosure and use of intellectual capital information", *Journal of Intellectual Capital*, Vol. 6 No. 3, pp. 427-40.
- García-Meca, E. and Martínez, I. (2007), "The use of intellectual capital information in investment decisions: an empirical study using analyst reports", *International Journal of Accounting*, Vol. 42 No. 1, pp. 57-81.
- García-Meca, E., Parra, I., Larrán, M. and Martínez, I. (2005), "The explanatory factors of intellectual capital disclosure to financial analysts", *European Accounting Review*, Vol. 14 No. 1, pp. 63-94.
- Govindarajan, V. (1980), "The objectives of financial statements: an empirical study of the use of cash flow and earnings by security analysts", *Accounting, Organizations and Society*, Vol. 5 No. 4, pp. 383-92.
- Gray, R., Kouhy, R. and Lavers, S. (1995), "Methodological themes – constructing a research database of social and environmental reporting by UK companies", *Accounting, Auditing & Accountability Journal*, Vol. 8 No. 2, pp. 78-101.
- Guthrie, J., Petty, R., Yongvanich, K. and Ricceri, F. (2003), "Intellectual capital reporting: content approaches to data collection", paper presented at the Performance Measurement Association Intellectual Capital Symposium, Cranfield, 1-2 October.
- Guthrie, J., Petty, R., Yongvanich, K. and Ricceri, F. (2004), "Using content analysis as a research method to inquire into intellectual capital reporting", *Journal of Intellectual Capital*, Vol. 5 No. 2, pp. 282-93.
- Hackston, D. and Milne, M.J. (1996), "Some determinants of social and environmental disclosures in New Zealand companies", *Accounting, Auditing & Accountability Journal*, Vol. 9 No. 1, pp. 77-108.
- Holland, J. (2003), "Intellectual capital and the capital market – organisation and competence", *Accounting, Auditing & Accountability Journal*, Vol. 16 No. 1, pp. 39-48.
- Holsti, O.R. (1969), *Content Analysis for the Social Sciences and Humanities*, Addison-Wesley, Manila.
- Hooks, J., Steenkamp, N. and Stewart, R. (2010), "Interpreting pictorial messages of intellectual capital in company media", *Qualitative Research in Accounting & Management*, Vol. 7 No. 3, pp. 353-78.
- Hopkins, P.E. (1996), "The effect of financial statement classification of hybrid financial instruments on financial analysts' stock price judgments", *Journal of Accounting Research*, Vol. 34 No. 3, pp. 33-50.
- Johansson, J. (2007), "Sell-side analysts' creation of value – key roles and relational capital", *Journal of Human Resource Costing and Accounting*, Vol. 11 No. 1, pp. 30-52.
- Jones, M.J. and Shoemaker, P.A. (1994), "Accounting narratives: a review of empirical studies of content and readability", *Journal of Accounting Literature*, Vol. 13, pp. 142-84.
- Kaplan, A. and Goldsen, J.M. (1968), "The reliability of content analysis categories", in Lasswell, H.D. (Ed.), *The Language of Politics: Studies in Quantitative Semantics*, George W. Stewart, Cambridge, MA, pp. 83-112.
- Kassarjian, H.H. (1977), "Content analysis in consumer research", *Journal of Consumer Research*, Vol. 4 No. 1, pp. 8-18.
- Kolbe, R.H. and Burnett, M.S. (1991), "Content-analysis research: an examination of applications with directives for improving research reliability and objectivity", *Journal of Consumer Research*, Vol. 18 No. 2, pp. 243-50.

- 
- Krippendorff, K. (2004), *Content Analysis: An Introduction to its Methodology*, Sage Publications, Thousand Oaks, CA.
- Lev, B. and Sougiannis, T. (1999), "Penetrating the book-to-market black box: the R&D effect", *Journal of Business Finance and Accounting*, Vol. 26 Nos 3/4, pp. 419-49.
- Lin, H. and McNichols, M. (1998), "Underwriting relationships, analysts' earnings forecasts and investment recommendations", *Journal of Accounting and Economics*, Vol. 25 No. 1, pp. 101-28.
- Ljungqvist, A., Marston, F., Starks, L.T., Wei, K.D. and Yan, H. (2007), "Conflicts of interest in sell-side research and the moderating role of institutional investors", *Journal of Financial Economics*, Vol. 85 No. 2, pp. 420-56.
- Low, J. and Siesfeld, T. (1998), "Measures that matter: Wall Street considers non-financial performance more than you think", *Strategy & Leadership*, Vol. 26 No. 2, pp. 24-30.
- Lui, D., Markov, S. and Tamayo, A. (2007), "What makes a stock risky? Evidence from sell-side analysts' risk ratings", *Journal of Accounting Research*, Vol. 45 No. 3, pp. 629-65.
- Malmendier, U. and Shanthikumar, D.M. (2006), "Do security analysts speak in two tongues?", paper presented at the Mid-year Meeting of the Financial Accounting and Reporting Section of the American Accounting Association, 27-28 January.
- Mear, R. and Firth, M. (1987), "Cue usage and self-insight of financial analysts", *The Accounting Review*, Vol. 62 No. 1, pp. 176-82.
- Mear, R. and Firth, M. (1990), "A parsimonious description of individual differences in financial analyst judgement", *Journal of Accounting, Auditing and Finance*, Vol. 5 No. 4, pp. 501-20.
- Milne, M.J. and Adler, R.W. (1999), "Exploring the reliability of social and environmental disclosures content analysis", *Accounting, Auditing & Accountability Journal*, Vol. 12 No. 2, pp. 237-56.
- Morris, R. (1994), "Computerized content analysis in management research: a demonstration of advantages and limitations", *Journal of Management*, Vol. 20 No. 4, pp. 903-31.
- Mouritsen, J. (2003), "Intellectual capital and the capital market: the circulability of intellectual capital", *Accounting, Auditing & Accountability Journal*, Vol. 16 No. 1, pp. 18-30.
- Nielsen, A.C. (2004), "Through the eyes of analysts: a content analysis of analyst report narratives", working paper, Aarhus School of Business, Aarhus.
- Nielsen, A.C. (2008), "A content analysis of analyst research: health care through the eyes of analysts", *Journal of Health Care Finance*, Vol. 34 No. 3, pp. 66-90.
- Ordoñez de Pablos, P. (2003), "Intellectual capital reporting in Spain: a comparative view", *Journal of Intellectual Capital*, Vol. 4 No. 1, p. 61.
- Orens, R. and Lybaert, N. (2007), "Does the financial analysts' usage of non-financial information influence the analysts' forecast accuracy?. Some evidence from the Belgian sell-side financial analyst", *International Journal of Accounting*, Vol. 42 No. 3, pp. 237-71.
- Ostenwalder, A., Pigneur, Y. and Tucci, C.L. (2005), "Clarifying business models: origins, present, and future of the concept", *Communications of the Association of Information Systems*, Vol. 15, pp. 1-39.
- Parker, L. (2005), "Social and environmental accountability research: a view from the commentary box", *Accounting, Auditing & Accountability Journal*, Vol. 18 No. 6, pp. 842-60.
- Previts, G.J., Bricker, R.J., Robinson, T.R. and Young, S.J. (1994), "A content analysis of sell-side financial analyst company reports", *Accounting Horizons*, Vol. 8 No. 2, pp. 55-70.
- QSR International (2006), *NVivo7 Help*, computer program, QSR International Pty Ltd, Doncaster.

- 
- Robb, S.W.G., Single, L.E. and Zarzeski, M.T. (2001), "Nonfinancial disclosures across Anglo-American countries", *Journal of International Accounting, Auditing and Taxation*, Vol. 10 No. 1, pp. 71-83.
- Rogers, R.K. (1996), "An empirical investigation of financial analysts' sources of information", PhD thesis, Case Western Reserve University, Cleveland, OH.
- Rogers, R.K. and Grant, J. (1997), "Content analysis of information cited in reports of sell-side financial analysts", *Journal of Financial Statement Analysis*, Vol. 3 No. 1, pp. 17-31.
- Schipper, K. (1991), "Analysts' forecasts", *Accounting Horizons*, Vol. 5 No. 5, pp. 105-21.
- Smith, M. and Taffler, R.J. (2000), "The Chairman's statement: a content analysis of discretionary narrative disclosures", *Accounting, Auditing & Accountability Journal*, Vol. 13 No. 5, pp. 624-46.
- Steenkamp, N. and Northcott, D. (2007), "Content analysis in accounting research: the practical challenges", *Australian Accounting Review*, Vol. 17 No. 43, pp. 12-25.
- Stewart, T.A. (2003), *The Wealth of Knowledge: Intellectual Capital and the Twenty-first-century Organisation*, Doubleday Business, New York, NY.
- Sullivan, P.H. (2000), *Value-driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value*, Wiley, New York, NY.
- Sveiby, K.E. (Ed.) (1989), *Invisible Balance Sheet: Key Indicators for Accounting, Control and Valuation of Know-how Companies*, The Konrad Group, Stockholm.
- Sveiby, K.E. (1997), *The New Organisational Wealth: Managing and Measuring Knowledge based Assets*, Berrett-Koehler, San Francisco, CA.
- Unerman, J. (2000), "Methodological issues: reflections on quantification in corporate social reporting content analysis", *Accounting, Auditing & Accountability Journal*, Vol. 13 No. 5, pp. 667-80.
- Unerman, J., Guthrie, J. and Striukova, L. (2007), *United Kingdom Reporting of Intellectual Capital*, Centre for Business Performance, Institute of Chartered Accountants in England and Wales, London.
- Weber, R.P. (1990), *Basic Content Analysis*, Sage Publications, Newbury Park, CA.
- Woodard, J.L. and Franzen, R. (1948), "A study of coding reliability", *Public Opinion Quarterly*, Vol. 12 No. 2, pp. 253-7.
- Woolford, C. (2005), *Woolworths Ltd: Sustaining a Market Premium*, Smith Barney, Citigroup Global Markets Inc., Sydney.

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