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What accounting studies can learn from the economic theory of the firm?"

Disclosing Business Model in the "Integrated Report": Evidence From European Early Adopters

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Abstract

The rising emphasis on the business model (BM) as a reportable element reflects the view it constitutes one of the key starting point for investors' analysis. In spite of this, recent academic and professional studies describe current reporting on BM as "inadequate" advancing the most heated critics for the presence of a so-called "boilerplate" disclosure.

The IASB has thus embarked on a new initiative with the International Integrated Reporting Council to promote BM disclosure by mean of a particular reporting format called "Integrated Report" (IR). An IR is as a clear and concise representation of how organization creates and sustains value, and BM constitutes a fundamental issue of disclosure.

The paper aims to understand whether IR is apt to offer informative disclosure on firm's BM. Drawing on previous studies on voluntary disclosure, the paper purposes a "framework of analysis" to assess the quality of BM disclosure with specific regards to extensiveness and spread of covered topics and to three specific language attributes: type of information (quantitative vs. non-quantitative), tone (positive vs. non positive) and time orientation (forward looking vs. non-forward looking). By performing an in-depth manual content analysis, we apply our "framework of analysis" to all the European early-adopters and we find that their BM disclosure is substantially informative. Our findings have relevant implications in corroborating the role of IR project in improving reporting on BM.

1. Introduction

Business Model (BM) is a fundamental concept to understand how do firms operate and create value. There is a growing interest in Business Model Disclosure (BMD): investors in particular require access to information on BM that is not provided through traditional financial reports (Cima et al., 2013). Charles Tilley, CIMA chief executive, declares that "High quality business model reporting is critical to helping investors better understand performance in terms of the impact external factors have on an organisation, and how organisations create value that is sustainable over time".

The term "Business Model" have been incorporated in recent financial reporting regulation (Page, 2012) and regulators have embarked on several initiatives to improve the quality of BMD. Among the different, the IASB has issued an exposure draft (ED) of guidance on a framework for management commentary: BMD is within the scope of such framework (IFRS Practice Statement – Management Commentary, § 26). Similarly, the UK Corporate Governance Code (UKCGC) defines BM as "the basis on which the company generates or preserves value over the longer term" and requires listed companies to include in their annual report an explanation of their BM.

In spite of these initiatives, the Chartered Institute of Management Accountants (CIMA), the International Federation of Accountants (IFAC) and PwC describe current reporting on business models as "inconsistent, incomparable, and incomplete" (Cima et al., 2103 p.1). In particular they show that a major concern of accounting narrative on BM is "boilerplate" disclosure, i.e. the description of highly generic features and the use of a non-specific language (Cima et al., 2013).

This concern is supported by the accounting studies on BMD. Page (2012, p. 9) claims that "reporting of corporate governance arrangements, for instance has been widely criticised as degenerating to boilerplate and there is very little reason to believe that descriptions of business model will be any different".

The IASB has embarked on a new initiative with the International Integrated Reporting Council (IIRC), a global coalition of regulators, investors, companies, standard setters, members of the accounting profession and NGOs that aim to improve the quality of BMD (IASB and IIRC, Memorandum of Understandings, 2013). In this respect, IASB and IIRC share the view that communication about BM and value creation should be the next step in the evolution of corporate reporting and they claim that this type of disclosure should be made in a particular reporting format called Integrated Report. In spite of its voluntary nature, the interest on IR is significant. More than 100 of firms have already joint the IIRC pilot programme on IR since its launch in 2012. Moreover, the IIRC has signed important agreements with international standards setters (e.g. Global Reporting Initiative and IIRC' Memorandum of Understandings, 2013; World Intellectual Capital Initiative and IIRC' Memorandum of Understandings, 2013).

The aim of the study is to verify whether IR – as drawn up by early-adopters – is apt to offer informative disclosure on firm's BM. In the spirit of the IIRC project, an IR is a report considering BM as its fundamental concept and it aims to provide users with high quality information BMD (IIRC, 2012; IIRC, 2013).

While the literature studying the quality of (voluntary) disclosure is wide and established (e.g. Beattie et al., 2004), there is a lack on studies on BMD provided in IR, and how to assess the quality of such disclosure.

The present paper addresses these issues by proposing a framework of analysis of BMD, and applies it by performing an in-depth manual content analysis of BMD provided by European IR early adopters. Drawing on previous studies on voluntary disclosure and, in particular, on Impression Management (e.g. Brennan et al., 2009), our study analyses BMD in IR by focusing on the extensiveness and spread of covered topics and on specific language attributes: type of information (quantitative vs. non-quantitative), tone (positive vs. non positive) and time orientation (forward looking vs. non-forward looking).

The rest of the paper is articulated as follows: in the second section we present the theoretical and practical background of the study; in the third section the context of the analysis, i.e. the IR project; in the fourth our BMD framework of analysis, in the fifth section the methodology; in the sixth section the results; in the seventh the discussion and the conclusions.

2. Business model disclosure: theoretical and practical background

A wide range of professional and academic articles, websites and blogs highlighted the diverse ways the term “BM” is used. The term “BM” first gained prominence during the rise of e-commerce in the 1990s. Subsequently, the term was widely used to describe the innovative ways of “doing business” that flourishes with the rise of the Internet.

As a consequence the concept of BM is becoming increasingly popular in *business research* in particular in information systems, management and strategy studies (Timmers, 1998; Afuah & Tucci, 2001; Amit & Zott, 2001; Applegate, 2001; Cheng et al., 2001; Rayport & Jaworski, 2001; Weill & Vitale, 2001; Hedman & Kalling, 2003).

Even in the *accounting research* the topic of BM is relatively new, but is has now been widely accepted and in recent years has attracted increasing attention in relation to corporate reporting of both financial and non-financial nature (Icaew, 2010, p. 9).

References to firms' BM in relation to *financial reporting* have emerged mainly in relation to accounting for financial instruments. Under IFRS 9, *Financial Instruments*, the firm's BM is one of the factors determining whether financial assets are measured at amortised cost or fair value. But assumptions about BM have always been implicit in financial reporting standards, as it has always been the case that different firms will account for the same asset in different ways depending on what its role is within the firm.

In other words, in the international accounting literature, "BM" discourse has traditionally dealt with *measurement issues* of financial reporting. Accounting scholars have lively debated about the most "proper" measurement model: historical cost, replacement cost and fair value are some alternative measures by which firm should account for their assets and liabilities. However, scholars and practitioners highlighted that different firms should account for the same asset in different ways depending on firm's BM (Icaew, 2010, p. 8). This led to development of an alternative-based approach to financial reporting based on firms' business-model[1] (Icaew, 2010, p. 4).

The BM approach is of particular interest not only because it resembles the International Accounting standards board's current approach to the measurement of financial instruments, but also because the IASB released an Exposure Draft (ED) on "Investment Entities" in order to improve its standards on the consolidated financial statement: in this ED, the definition of "business purpose" is crucial to understand whether an entity is an "investment entity", thus avoiding to consolidate the controlled entities. Furthermore, the long debate about the best way to account for insurance contracts has severely involved IASB into the "insurance contracts" project, and the related exposure draft published in 2007 has been reissued in July 2013.

In respect to *financial reporting* – as considered as the balance sheet, the income statement, and the cash flow statement –, the concept of BM has been investigated in

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[1] Historical cost, replacement cost and fair value are some of the alternative measures on which scholars debate to assess the "right" measurement model for assets and liabilities. In particular, (positive) accounting research gives great attention to the value relevance of fair value measurements (Barth, 1994; Barth *et al.*, 2001; Holthausen and Watts, 2001), while the recent financial crisis has led to a vigorous debate about the pros and cons of fair value accounting (Laux and Leus, 2009). Actually, the issue of when, rather than how, fair value measurement should be applied is still far from resolved (Penman, 2007). The pros and cons of fair value measurements and alternative approaches are clearly presented in Barth (2004), Penman (2007), Benston (2008), Ramanna and Watts (2008) and Ryan (2008).

researches aimed at identifying the “accounting model” more suitable to the firm’s BM. The comparison between different and often opposing views on the appropriateness of the term BM as a basis for measurement has access to a lively debate in the accounting literature and several scholars have concentrated their attention on this topic (Broughman, 2012; Leisenring et al., 2012; Page, 2012; Singleton-Green, 2011; Pennman, 2007). Page (2012) describes various meanings of “BM” and demonstrates that the term has no settled or agreed meaning. He considers the suitability of the term “BM” as a basis for a measurement standard (IFRS 9) and concludes it is not suitable for this purpose. Conversely, Singleton-Green (2012) supports the view that in force measurement rules already allow financial report to reflect firms’ BM.

The concept of BM has also gained attention in *non-financial reporting*, *i.e.* reporting different from non-financial one as well as narrative sections of the financial report. One aspect of this is a demand for disclosure by firms of their BM, which is intended to improve users’ understanding of the firm and how it makes money. In the UK, for example, in 2009 the House of Commons Treasury Committee called for listed companies to be required to disclose their BM. This recommendation was taken up by the UK Financial Reporting Council in its review of “The Combined Code on Corporate Governance”, now reissued and amended as “The UK Corporate Governance Code” (UKCGC). The UKCGC characterises the BM as “the basis on which the company generates or preserves value over the longer term” and states that “the directors should include in the annual report an explanation of the basis on which the company generates or preserves value over the longer term (i.e. the BM) and the strategy for delivering the objectives of the company”.

Besides, in December 2010 the IASB issued a Practice Statement on Management Commentary, stating that “the Management should provide a description of the business to help users of the financial reports to gain an understanding of the entity and of the external environment in which it operates. That information serves as a starting point for assessing and understanding an entity’s performance, strategic options and prospects” (IFRS Practice Statement – Management Commentary, § 26). Moreover:

> Depending on the nature of the business, management commentary may include an integrated discussion of the following types of information: (a) the industries in which the entity operates; (b) the entity’s main markets and competitive position within those markets; (c) significant features of the legal, regulatory and macro-

> economic environments that influence the entity and the markets in which the entity operates; (d) the entity's main products, services, business processes and distribution methods; and (e) the entity's structure and how it creates value (IASB, Management Commentary, § 26).

The IASB attention to the narrative sections of the annual report let scholars realize that the "BM" is also a *disclosure issue*, not only a measurement one. These areas of studies are of particular interests because despite this IASB effort, accounting groups are warning that an inadequate advice on how to define and disclose details of a company's BM is hampering efforts to move toward an high quality BMD. In other words, none of this initiative have been able to actually affect the way in which companies provide disclosure on their BM.

A paper from the Chartered Institute of Management Accountants (CIMA), the International Federation of Accountants (IFAC) and PwC (Cima et al., 2013) describes current reporting on BM as "inconsistent, incomparable, and incomplete" because of a lack of consistent guidance. PwC research found that 77% of the FTSE 350 mentions BM in their accounts, but only 40% provide insightful detail about those models. Only 8% integrate BM reporting with strategy and business risks. The mentioned paper argues there is a need for a clear, universally applicable, international definition of BM.

These results are confirmed by the extant literature on BMD. Page (2012) observes that the term "BM" has been incorporated in recent financial reporting regulations and discuss the suitability of the term for requirements for narrative reporting. Examples from the UK FTSE 100 index companies are presented to illustrate existing usage in narrative reporting, finding varying levels of BMD and a high level of boilerplate disclosure. The final part of the paper discusses reasons for (not) including the term BM in reporting guidance. It identifies parallels in other branches of financial reporting (corporate governance and risk reporting) that corroborate the idea that this type of disclosure can be subject to boilerplate. In other words, Page states that "narrative reporting of corporate governance arrangements has been widely criticised as degenerating to 'motherhood statements' and 'boilerplate' and there is very little reason to believe descriptions of 'business models' will be any different."

Aware of the lack of a consistent, comparable, and complete notion of BM, the IASB has just signed (February 2013) a Memorandum of Understanding with the "International Integrated Reporting Committee", i.e. a global coalition of regulators, investors, companies, standard setters, members of the accounting profession and NGOs to improve the quality of BMD. This initiative emphasizes the role that the concept of "BM" may play in corporate reporting disclosure. As highlighted by the Memorandum of Understanding IASB and IIRC share the view that communication about businesses' value creation should be the next step in the evolution of corporate reporting[2]. Ian Ball, IFAC principal advisor and chair of the IIRC Working Group, said that understanding the BM was "at the centre of integrated reporting". In this respect the "International Framework for Integrated Reporting" constitutes a starting point for investigating the quality of BMD in IR.

3. The context of analysis: the Integrated Reporting Project

Accordingly to IIRC, an IR is a concise communication about how an organization's strategy, governance, performance and prospects lead to the creation of value over the short, medium and long term. No institutionally recognized framework on Integrating Reporting exists, although the International Integrated Reporting Committee (IIRC) is working on developing the first Integrated Report Framework. The purpose of the IR Framework is to "help organizations determine how best to disclose their unique value creation story in a meaningful and transparent way" (IIRC, 2012[3]). As stated in the Framework, an IR aims to provide insights about: significant external factors that affect an organization; the resources and relationships used and affected by the organization; how the organization's BM interacts with external factors and resources and relationships to create and sustain value over time.

In 2012 the IIRC has launched the IIRC Pilot Programme that underpins the development of the International Integrated Reporting Framework. The group of organizations participating in the Pilot Programme has the opportunity to contribute to the development of the Framework and to demonstrate a global leadership in this

[2] "IASB and IIRC share a vision of the evolution of corporate reporting for the 21st century in which harmonisation and clarity of corporate reporting frameworks, standards and requirements that drive coherence, consistency and comparability lead to improved efficiency and effectiveness in corporate reporting practices" (Iasb and IIRC, 2013, p. 2).

[3] The Framework sets out the "Fundamental Concepts" that underpin Integrated Reporting, the "Guiding Principles" that inform the content of an Integrated Report and how information is presented, the "Content Elements" to be included in an integrated report. It also provides additional considerations in the "Preparation and Presentation of an Integrated Report" (IIRC, 2012).

emerging field of corporate reporting. The Pilot Programme[4] fosters IR adopters to test the principles, contents and practical guidelines of the Framework.

The term BM is used extensively in the IR framework where it is identified as the central theme for the future direction of reporting. The Discussion paper preceding the current version of the framework noted that although there “is no single, generally accepted definition of the term BM it is often seen as the process by which an organization seeks to create and sustain value” (IIRC, 2012). In particular, in the current version of IR framework released in April, 2013 (IIRC, 2013), the BM is considered as a “fundamental concept” that underpins Integrated Reporting and as a “Content Element” that should be included in any integrated report. This is consistent with the aims of Integrated Reporting that is facilitating a “meaningful assessment of the long-term viability of the organization’s BM and strategy” (IIRC, 2012).

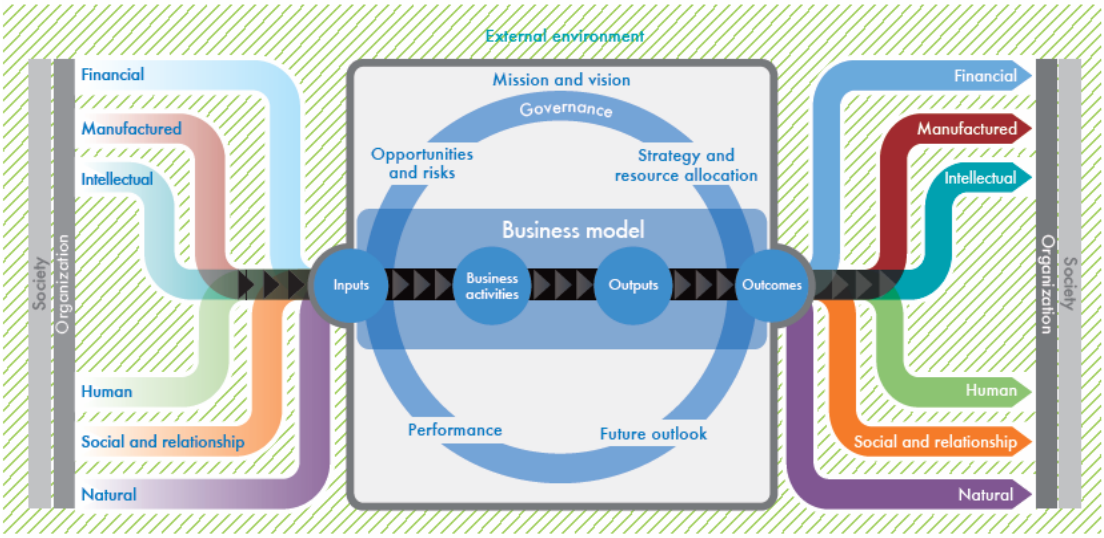
In the IIRC framework an organization’s BM is “its chosen system of *inputs, business activities, outputs* and *outcomes* that aims to create value over the short, medium and long term” (IIRC, 2013). As demonstrated in Figure 1, the BM exists at the core of an organization and represents the fundamentals of the entity’s activities, operating within an overarching organizational architecture.

An IR should answer the question: What is the organization’s BM and to what extent is it resilient? (IIRC, 2013). To this aim the IR framework provide specific guidelines on how to give a high quality disclosure on firms’ BM.

The basic idea of BMD in IR is that “Every organization requires one or more of the capitals as inputs to its BM. These capitals are then consumed or transformed by activities that produce a range of outputs. The extent to which these outputs create or destroy value depends on the outcomes they generate and the perspective taken” (IIRC, 2013).

[4] It will run until September 2014, after the publication of version 1.0 of the Framework in December 2013, thereby allowing participants time to test the Framework during their following reporting cycle. The Pilot Programme comprises The Business Network with over 80 businesses across the globe from multinational corporations to public sector bodies and the Investor Network with 25 institutional investors.

Figure 1. The IIRC representation of the firm business model.



Source: IIRC, Integrated Reporting Framework.

Disclosure on Inputs

An integrated report identifies the key inputs. It also shows how those inputs relate to the capitals on which the organization depends, or that provide a source of differentiation for the organization, to the extent that they are material to understanding the robustness and resilience of the BM.

The six capitals represent potential inputs to the BM: each of them are either a direct input (e.g., labour, raw materials or cash used in transactions) or indirect input (e.g., transportation infrastructure, regulatory parameters or education of the workforce). the IIRC framework distinguishes among: Financial capital; Manufactured capital; Human capital; Intellectual capital; Natural capital; Social (and relationship) capital. Details are reported in Table 1.

Disclosure on Business Activities and Outputs

At the core of the BM are *business activities* (in the strict sense) that, through the consumption and/or transformation of inputs into outputs, aim to generate valuable outcomes. Business activities can also have a direct effect on the outcomes of the BM, independent of the outputs. *Outputs* are typically recognized to be the products and services that are intended to generate revenue for the organization. However, there are potentially other outputs that need to be considered, such as waste and other by-products, which may need to be discussed within the BMD.

Disclosure on Outcomes

An integrated report explains the key consequences for the capitals that arise from an organization's business activities and its outputs. Outcomes can be: internal to an organization (e.g., employee morale and organizational reputation) or external (e.g., benefits customers derive from the organization's products and services, contributions to the local economy through employment and taxes, and environmental effects); while Outputs are the key products or services that an organization produces, as well as the waste or other by-products creating or erode value. Outcomes are the internal and external consequences for the capitals as a result of an organization's business activities and outputs. Identifying and describing outcomes, particularly external outcomes, requires organizations to consider the capitals more broadly than those that are owned or controlled by the organization. For example, it may require disclosure of the effects on capitals up and down the value chain (e.g., carbon emissions caused by products the organization manufactures and labour practices of key suppliers).

4. Assessing business model disclosure in Integrated Report: a "Framework of Analysis"

4.1. Disclosure quality and indexes

Disclosure Quality (DQ) is a complex concept and has a multi-faceted and subjective nature (Beattie, et al., 2004). Previous accounting studies evaluate the DQ relying on the content of corporate reports using measures to obtain a proxy for the information reported by companies. In this sense, the term "quality" refers to extensiveness and comprehensiveness of information.

The DQ level is usually summarized and measured by DQ indexes, which help to assess, compare and explain differences in the quantity and quality of information disclosed in corporate reports. Coy (1995, p. 121) defines a disclosure index as: “a qualitative-based instrument designed to measure a series of items which, when the scores for the items are aggregated, gives a surrogate score indicative of the level of disclosure in the specific context for which the index was devised”. A disclosure index therefore incorporates a list of information items which should appear in company reports. A method of scoring is then devised (Hooks and Van Staden, 2011).

At its simplest, a disclosure index uses a binary coding system to provide a score capturing disclosure quantity, but ignoring the quality of the information presented. Some researchers have suggested that the quantity of disclosure could be a proxy for quality (e.g., Deegan & Gordon, 1996; Deegan & Rankin, 1996). However, the link between volume and the quality of corporate reporting disclosure has been questioned frequently (e.g. Gray et al., 1995; Deegan and Gordon, 1996; Unerman, 2000) and have argued that a measure of quality is important since investigating only the volume of disclosure can be misleading (Toms, 2002).

As a consequence, accounting studies have tried to include more dimensions than just the “quantity” when evaluating disclosure “quality” (e.g., Hasseldine et al., 2005; Hooks et al., 2002; Milne et al., 2003; Van Staden & Hooks, 2007). The assessment of quality from being one dimensional shifts to multi-dimensional considering a number of DQ attributes. These attributes include not only the volume disclosed but also the themes/topics covered, the time orientation, the types of information (qualitative vs. quantitative information; financial vs. non financial information) and the tone (good news vs. bad news) used in reporting. A disclosure index can be constructed to allow for variations in the quality of each disclosure attributes by including an assessment scale. The allocated score indicates a certain level of disclosure quality.

In line with this, Beattie et al. (2004) argue that to acquire a rich understanding of reporting, it is necessary to consider multiple dimensions of quality and propose a framework that captures the topics covered and additional attributes that refer to the time orientation and type of disclosure. Similarly, Beretta and Bozzolan (2004) develop a framework including contents covered, economic sign, type of measures and outlook orientation, to determine the quality of firm risk information. Cormier and Gordon (2001) rate disclosure on a three-point scale allocating a score of three for an item described in quantitative terms, two for a specifically described item and one for an item discussed in general terms. Bozzolan et al. (2003 and 2006) distinguish between qualitative and quantitative information. Guthrie and Parker (1990) examined theme, evidence (monetary, non-monetary, declarative, none), amount, and location of a disclosure to infer its quality. Hasseldine et al. (2005) measured quality on a 6 point scale that takes 0 for non- disclosure and 5 for quantitative data.

Various studies focus on the balance between positive and negative content these are typical of impression management literature. The term "impression management", which has its origins in the psychology literature (Schlenker, 1980; Riess et al., 1981; Schneider, 1981), refers to the process by which individuals attempt to control the impressions of others (Leary and Kowalski, 1990, p. 34). In the context of corporate reporting, impression management occurs when management display and presents information in a manner that distorts readers' perceptions of corporate achievements and a number of accounting studies on impression management are based on the assumption that management is motivated by a desire to present a self-serving view of corporate performance (Neu, 1991; Neu et al., 1998). Adelberg (1979) suggests that managers might obfuscate their failures and underscore their successes. The so-called "obfuscation hypothesis" is tested by Courtis (1995) that posits that management is not neutral in how it presents information, preferring to communicate in a manner that hides bad news. Brennan et al. (2008), review the variety of "impression management methods" used in corporate reporting. They label one of these methods "thematic manipulation" and define it as "the use by management of positive and negative themes". A number of studies address the issue of thematic manipulation (e.g. Abrahamson & Park, 1994; Abrahamson & Amir, 1996; Clatworthy & Jones, 2003; Clatworthy & Jones, 2006).

4.2. The "framework of analysis"

Based on both previous studies on the quality of voluntary disclosure (in particular on impression management) and on the IR guidelines for BMD we purpose and test a framework of analysis to evaluate specific characteristics' of BMD. The most significant studies to the aim of our analysis are presented in the previous section. We refer to the ones that stress the importance to balance positive and negative contents, quantitative and qualitative information and forward looking and past information.

As regards instead the IR guidelines, there are some features that can enhance the effectiveness and readability of the description of the BM. The first is the explicit identification of the key elements of the BM (inputs, business activity and outputs and outcomes). Besides the IR framework presents additional characteristics to improve the quality of the disclosure embedded in IR. The IR framework appears to be informed by a search for balancing qualitative and quantitative indicators, negative and positive contents and finally between forward looking and past oriented information that is in line with the above mentioned previous studies,

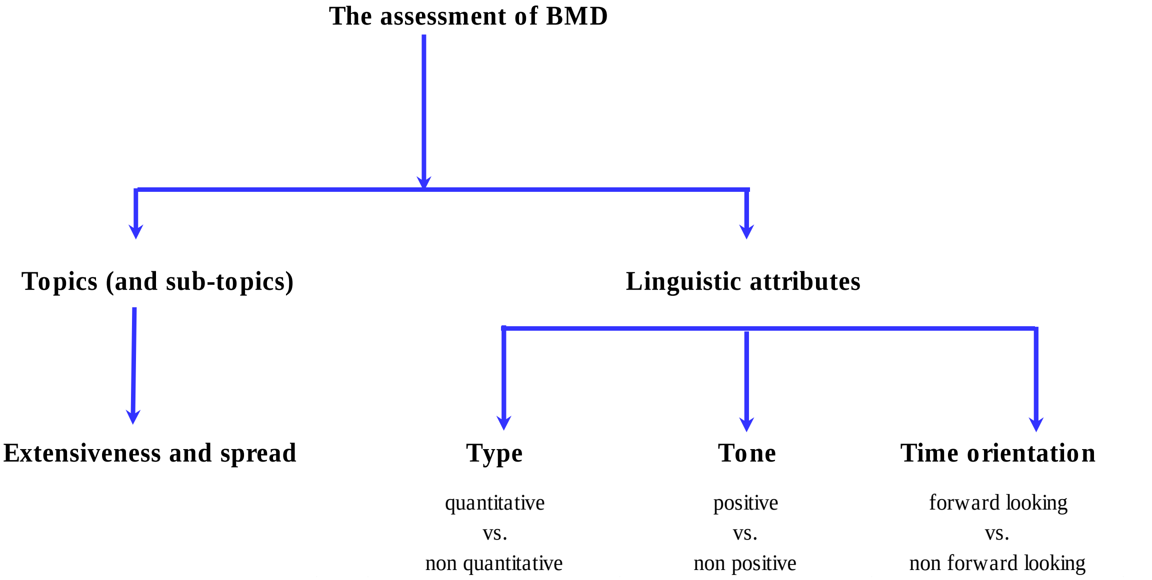
Regarding the quantitative and qualitative information the IR framework states that “both quantitative and qualitative information are necessary for an integrated report to properly represent the organization’s unique value creation story as each provides context to the other. Quantitative information such as KPIs and monetized metrics, can be important in explaining an organization’s use of and effects on various capitals.” (IIRC, 2013).

With reference to the balance between positive and negative content, the IR framework states that “an integrated report should include all material matters, both positive and negative, in a balanced way and without material error”. With specific reference to the disclosure of BM outcomes “can further be positive (i.e., result in a net increase in the capitals and thereby create value) or negative (i.e., result in a net decrease in the capitals and thereby diminish or destroy value)” (IIRC, 2013).

Finally, with reference to the presence of forward-looking information the IR framework highlights the fact that “care is needed with respect to future-oriented information to avoid boilerplate disclosures. Information is only included in an integrated report when it is of practical use to the intended report users. This requires that disclosures be specific to the circumstances of the organization. Future-oriented information is by nature more uncertain and, therefore, less precise than historical information. Uncertainty is not, however, a reason in itself to exclude such information, but the nature and extent of that uncertainty needs to be disclosed”.

As shown in Figure 2, our assessment of BMD is based on the topics covered and three specific disclosure attributes that refers to linguistic characteristics. Concerning the topics of BMD we distinguish between main topics (i.e. Inputs, Activities and Outcomes) and sub-topics. The latter include BMD on the different capitals (financial, manufactured, human, intellectual, natural and social) and on outputs and business activity. Regarding the linguistic attributes we focus on the type of information provided (quantitative vs. non quantitative) the tone (positive vs. non positive) and the time orientation (forward looking vs. non forward looking). Further details are provided in the next section.

Figure 2. Our Framework of Analysis of BMD.



5. Method

5.1. Content analysis

Our perspective on the quality of BMD is based on best practice disclosures identified in the extant literature and on the IR guidelines. We perform a manual content analysis based on the above mentioned two level of analysis (topics and linguistic attributes) and compute related disclosure quality indexes.

Content analysis (CA) is well established in social sciences to investigate the characteristics of narrative disclosure (Weber, 1985). Accordingly to Hooks and Van Staden (2011) the extensive use of content analysis has given it validity as an empirical research tool in the field of social and environmental reporting (e.g., Deegan & Rankin, 1996; Gray et al., 1995; Guthrie & Parker, 1990; Hughes et al., 2001; Mitchell, Percy, & McKinlay, 2006; Naser, 1998; Patten, 2002; Zeghal & Ahmed, 1990) and in intellectual capital reporting studies (e.g., Brennan, 2001; Guthrie et al., 2004; Schneider & Samkin, 2008; Steenkamp & Northcott, 2007; Whiting & Miller, 2008).

CA is defined as “research technique for making replicable and valid inferences from texts to the context of their use” (Kippendorff, 2004, p.18).

In line with this broad definition, various methods of content analysis have been used to analyse narrative disclosures in company annual reports and other reports. The process usually involves “codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity” (Abbott & Monsen, 1979, p. 504). Possibilities range from a complex coding and counting of every sentence, graph, chart, table and pictures systematically from start to finish of the report, to the use of a quality index as a basis to seek evidence that an item is or is not disclosed. In particular, disclosure indices are considered to be a practical and valid research tool (Botosan, 1997; Cheng, 1992) with the selection of the items in the index based on other indices in the literature or benchmarks such as reporting guidelines (e.g. the Global Reporting Initiative (GRI). They have been used extensively in the accounting literature (e.g., Barako et al., 2006; Cahan et al., 2005; Christaens & Van Peteghem, 2007; Schneider & Samkin, 2008; Tooley & Guthrie, 2007), especially in voluntary disclosure studies.

5.2. Sample selection and data collection

We select the whole population of firms that issue IR and jointly satisfy the following three criteria: their IR is available on IIRC web site, firms come from Europe region and firms devote a section of their IR to disclose information on BM. Of the 62 IR available on IIRC website, 29 are from European firms, however we exclude 8 of these reports because they do not embed any type of contents on their BM. The population is thus constituted of 21 firms coming form different industries there included Utilities, Financial Services, Technology, Healthcare, Oil and Gas, Professional Services.

We manually collect data from firms' IR available on "Integrated Reporting Emerging Practice Examples Database". This database contains integrated IR from businesses around world and it is publicly accessible from IIRC web site.

5.3. Data analysis

In line with methodological studies on content analysis (Krippendorff, 1980; Weber, 1985) we develop and test our coding scheme along the following steps: definition of the sampling and recording units; definition of the categories used to codify the text; coding of the text; reliability assessment (Weber, 1985, pp. 23-24).

Our *sampling units* are firms' IR sections devoted to BM. We read all the IR and focus the analysis on the extracts of IR with narratives devoted to BM. We choose sentences as *recording units*. We highlight any relevant sentence meeting the specification of informative disclosure on firm BM. When a sentence embeds more than one informative disclosure on BM we consider the statements as recording unit. Each sentence or statements is then placed into categories based on the classification scheme of our framework of analysis. This coding scheme is a reflection of the tradeoff between the desire to capture the fullest possible set of variables and the need to condense the source data.

In the first part of the analysis, we use the three main topics of IR guidelines and the eight BM sub-topics IR guidelines as *categories (or context units).* We classify each informative statements into 3 main topics (Inputs (I), Business Activity (A) and Outcomes (O). Inputs and Outcomes are in turn classified into sub-topics: financial capital (fc), manufactured capital (mc), human capital (hc), intellectual capital (ic), natural capital (nc) and social capital (sc); Business Activity is in turn classified into output (ot) and business activity (ba), strictu sensu. I, A, O).

We use two disclosure indexes to evaluate the spread of BMD called "Herfindal index" and "Non empty items" and apply it at both topic and sub-topics level of analysis. The Herfindahl index, a concentration measure, is calculated as $H = \Sigma^{n}_{i=1} = p^{2}_{i}$, where p_i is the proportion of disclosure in topic i. The H statistic has a maximum value of 1 when all text units fall into one topic category and a minimum value of 1/n when the text units are spread evenly. The higher the H index, the poorer the spread. We use another way of assessing spread that is to count the number of non-empty topics, i.e. for how many topics does a company make at least one disclosure. In this case, a higher number of non-empty topics indicates a better spread. The complete coding list that we used to codify each recording unit is presented in Table 2. We also report some of the key words that we use to identify relevant piece of information.

In the second part of the analysis, the coding scheme incorporates also the attributes of BMD as categories. Each piece of information is coded as quantitative or non quantitative (i.e. qualitative); positive or non positive (i.e. negative or neutral one); forward-looking information or non forward-looking (i.e. past or present). The level of analysis focus on the type of measure (quantitative vs. non quantitative), the tone of the content (positive vs. non-positive), the third to the outlook profile (forward looking oriented vs. non-forward looking oriented). We also analyse the interactions between the three linguistic attributes and build a a 5 point Likert scale to assess quality BMD with regards these characteristics. Higher scores being given if the information is quantitative, non-positive and non-forward looking oriented (labelled "higher quality disclosure attributes"). The minimum score (1) is for lack of information on firm BM, and maximum point of 5 if the information provided is quantitative, non-positive and non-forward looking oriented (labelled "lower quality disclosure attributes"). A point of 2 is given if disclosure presents the three lower quality disclosure characteristics; a point of 3 is given is BMD present only a single higher quality disclosure attribute and finally a point of 4 is given to BMD that present 2 higher quality disclosure attributes.

Following Beretta and Bozzolan (2004) a list of detection and classification rules was defined and discussed among authors, and classification criteria for each dimensions of the framework were subsequently identified. Afterwards, a preliminary test of the coding procedure was conducted to highlight ambiguous or unclear coding rules and to standardize the classifying capabilities of the researchers: 10 IR of companies belonging to different industries were independently examined by authors. The results of the individual classification were compared and the differences discussed. The outcome of this pre-test activity was final set of detection and classification rules. Using this set of rules, another IR was coded by authors to test the alignment of the research team on the coding procedure. After validation of the procedure, each authors independently coded each of the 21 IR. When differences in the coding occurred they were discussed to agree on the final coding.

For valid inferences to be drawn, it is important that the classification procedure be reliable (i.e., different people code the text in the same way) (Weber, 1985). Three types of reliability can be identified: stability (the extent to which the same coder is consistent over time when coding the same content); reproducibility or inter-coder reliability (the extent to which different coders produce the same results when coding the same content); and accuracy (the extent to which the classification of text corresponds to a standard or norm) (Krippendorff, 1980, pp. 130-132).

Since standard coding seldom exist, previous studies focus on stability and inter-rater reliability to assess the reliability of the coding process. To check for inter-rater reliability, the different authors used the specified coding system on the documents of the entire sample and they repeat the analysis at different time period. The simplest measure of reliability is the coefficient of agreement (i.e. the ratio of the number of pairwise interjudge agreements to the total number of pairwise judgments). We calculated this coefficient and we found it above the acceptance level that ensures reliability to the coding procedure.

6. The business model disclosure in Integrated Report: findings

The aim of the analysis is to analyse BM made in firms' IR. In line with IIRC framework and previous studies on voluntary disclosure we evaluate the quality disclosure of BM following two criteria: the extensiveness and spread of topics covered and three additional linguistic attributes regarding the type of information provided (quantitative vs. non quantitative); the tone of the information (positive vs. non positive) and the time orientation (forward looking vs. non forward looking information).

The key findings of our analysis show that firms provide users with information on their BM regarding all *main topics* (i.e. inputs, business activity and outcomes) and *subtopics* (financial capital, manufactured capital, human capital, intellectual capital, social capital and natural capital, outputs and business activities *strictu sensu*). Besides, we show that vast majority of BMD is not quantitative (85% of the total informative statements) and non-forward looking (84%) and there is a balance between positive and negative tone (51% positive and 49% non positive).

6.1. Extensiveness and spread of the topics related to business model

We find that the mean level of BMD disclosure in the sample firms is equal to 92 statements for each IR. We distinguish between number of sentences (SN) and number of statements (S) to take into account for the presence of multiple information sentences and find a total amount of 1,933 sentences on BM and 2,018 statements in the 21 Integrated Reports.

We also find that some of these are considered non-informative (NI) because they are off topic (for instance they refer to strategy, governance or risks) or because they are too general that cannot be traced to any of the categories used in the analysis. We classify 175 statements as not informative (NI), which means that on average there are 8 NI for IR. In other words, only 8% of the total amount of disclosure is not informative about BM.

This shows that there is a high degree of variability in the amount of information disclosed. Some firms disclose much more information on their BM than others. Indeed, we find some reports with only 15 informative statements (IS) whilst other report 504 IS on BM.

In the next tables we report the findings on the extensiveness and spread of the topics of BMD at two level: main topics (I, A, O) and subtopics (fc, mc, hc, ic, nc, sc, ot, ba).

Table 4 report the results of analysis at main topics level. Regarding the extensiveness we show that on average firms report 30, 35 and 23 statements respectively on their Input (I), Outcomes (O) and Business Activity (A), that corresponds respectively to the 34%, 40% and 26% of the total amount of informative BMD. The sum of I and O is the total amount of disclosure on capitals (C) that is equal to 74% of the total of informative statements. There is a high variability on the level of disclosure on these “Main topics” among the firms of the sample, with some firms reporting no information or the minimum level of BM on Outcomes, and other firms reporting – for istance – up to 184 IS for the same main topic.

We compute two indexes to analyse the spread of disclosure around main topics. The Herfindal index at main topic level (MainH) is equal to 0.343 which mean that disclosure is highly spread around the three main topics. The index of non empty items

(MainNonEmp) is equal to 1 that is the maximum value. This means on average firms report at least some information on each of the 3 main topics.

Table 5 report show the results of the analyse the extensiveness and spread of BMD around the 8 sub-topics. Regarding extensiveness, majority of BMD refers to social capital (25% of the total of IS), followed by disclosure on business activity (19%); financial capital (15%); intellectual capital (13%); human capital (11%). The lowest level of BMD regard manufactured and natural capital (5% and 6%, respectively) and on outputs (7%). Consistently with the main topic analysis, we find a high variability in the amount of disclosure across the sample firms. In particular, we find that there are firms that report no information on some of the subtopics as shown by the minimum values. The spread among sub topics is high: the Herfindal index at sub topic level (SubH) is equal to 0.160 which represent an high level of spread around the eight main topics. Similarly, the index of non-empty items (SubNonEmp) reaches its maximum value (1) that supports that fact the on average firms report at least some information on each of the 8 sub-topics.

6.2. Linguistic attributes of business model disclosure

The second part of the analysis focuses on three attributes of BM. We perform two level of analysis: the first is “one dimensional” and consider the single attributes separately, the second is “multi-dimensional” and sheds light on the interactions between these attributes.

The results of the one dimensional analysis are presented in the Table 5. This table highlights the sample firms’ distribution by type of information, tone and time orientation. Regarding the type of information, we find that 85% of information reported is not quantitative. Some firms do not provide any quantitative information on their BM. Regarding the tone, our findings show that on average firms report both good and negative news with 51% of the informative statements that are positive and 49% neutral or negative. Finally, we find on average only 16% of the statements are forward looking whilst the remaining 83% are historical or present.

In the second level of analysis we focus on the interactions between these three attributes. The resulting eight combinations are presented in Table 6.

The main finding of these analysis is that 70% of the total informative BMD is non quantitative and non forward looking (combination 2 and 5) (Table 7). The analysis further shows that on average 36% of the total amount of disclosure is non quantitative, positive and non forward looking (combinations 2); similarly 34% of BMD present the same attributes (nq, nf) but a non positive content (combinations 5). The remaining 30% is distributed among the other four possible combinations. In particular, 8% of BMD is non quantitative, positive and future (combination 1); 8% is quantitative, non positive and non future (combination 8). Forward looking information, supported by non quantitative data with a positive tone represents 6% of the BMD (combination 3). Finally, 1% of the informative statements are quantitative and future with a positive tone (combination 4) and 1% quantitative and future with non positive tone (combination 7).

Drawing on the analysis on the interactions among BMD attributes we also performed a third level of analysis by elaborating a 5 points Likert scale. Table 8 reports BMD distribution across the 5 points' scale and the correspondent attributes combinations for each point.

The total informative BMD is concentrated in the combinations 3 and 4. 40% of the disclosure reaches the point 3 of the scale that is consistent with 3 possible combinations (2; 3; 4). This means that at least one aspect is consistent with "higher quality disclosure attributes" (the existence of quantitative information, non positive content or non forward looking information) and two aspects that are consistent with "lower quality disclosure attributes" (non quantitative, positive tone and forward looking information).

Besides, 38% of BMD records 4 point that correspond to combination 5, 6 and 7 and is consistent with two higher quality disclosure attributes and one with lower quality one. The remaining BMD is distributed with balance between the other scores. In particular, we find that 8% is not informative (1 points); 7% have the lowest score that is consistent with none of the attributes typical of higher quality disclosure (2 points) and 7% reaches the highest score (5 points) in line with higher quality attributes.

Overall (Table 9), the first part of the analysis shows that BMD in the IR is non generic and articulated given that we find that its extensiveness and spread at both main topics (I, O, A) and subtopics (six capitals, output and business activity in the strict sense) level. In addition, this result is supported by the fact only a very small percentage of the disclosure on the business model is not informative. The second type of analysis on BMD attributes present the following results. Firstly, our findings on the type of disclosure show that 85% of the total amount of BMD is not supported by quantitative data. Secondly, we find that at a tone level there is a balance between positive and negative content given that 55% of BMD has a positive content and the remaining 45% is negative. Thirdly, our results regarding time orientation analysis show that the 83% of the BMD is not forward looking information. Finally, our findings based on the 5 points Likert scale show that only 8% of the total BMD is consistent with the lower quality disclosure whilst our empirical evidence supports the fact that the of the total informative BMD is concentrated in the combinations that present one (43%) or two positive attribute (41%) of the three selected. Moreover, we find that the mean and the mode Likert scale score of the sample firms is 3 that means that BMD has only a positive attribute.

7. Discussion and conclusions

The paper offers important insights to the concerns highlighted in previous studies on BMD (Cima, 2013; Page, 2012; Singleton-Green, 2012), and more generally to studies which address the issue of voluntary disclosure quality (Beattie et al., 2004; Brennan et al., 2008). Actually, accounting research raises the concern that corporate disclosures are often used by corporations to attempt to manage stakeholder impressions regarding their actual behaviour (Cho et al., 2010). Many studies, especially in the field of voluntary disclosure provide evidence of this “symbolic use of corporate disclosure” (Brennan et al., 2008). BMD is not immune to this kind of concern: previous analyses show that BMD contains generic features and is given by using non-specific language.

Focusing on disclosure offered by firms in their IR, we addressed this concern by creating and testing a framework of analysis of BMD offered in this innovative reporting format. In this respect, the paper gives a methodological contribution to accounting literature: it proposes a framework that extends extant models of analysis focussed on one dimension of disclosure quality, being the topics covered or linguistic attributes. In particular, our framework – informed by the IIRC guidelines on BMD and previous analyses on the voluntary disclosure and impression management – allows to run two kind of analysis: one related to the single topics related to BMD, one related to the language by which BMD is offered.

On the analysis on the BMD topics, we provide evidence that companies' IR embeds extensive and articulated information on their inputs, business activity, output and outcomes. In brief, European early adopters offer wide and balanced information on the different capitals (financial, manufactured, intellectual, human, social and natural).

Considering the analysis on the linguistic attributes of BMD, we reach articulated results. We document a limited amount of quantitative data. This may be due to the fact that the IR guidelines do not require organizations "to attempt to quantify all uses of and effects on the capitals. Many uses and effects are best (and in some cases can only be) reported on in the form of narrative rather than through quantitative indicators" (IIRC, 2013). Moreover, we find strong evidence on the marginality of the of forward-looking information, which by nature are less verifiable, than those with a different time horizon and that may lead to non-informative disclosure. Furthermore we show the existence of a balance between negative and positive content.

Overall, the assessment of BMD by mean of our framework of analysis lead us to consider such disclosure informative. In spite of limitations in quantitative disclosure, the results on topics extensiveness and spread as well as on tone and time orientation of language support the idea that the IR may represent a proper "vehicle" by which companies can provide audience with informative disclosure on their BM.

The findings demonstrate that the IR guidelines offer bearings for firms engaged in BMD. This is important because previous studies attributes the shortcomings of current BMD to the lack of a clear definition of what BM is and specific guidelines on how to deal with BMD (Cima et al., 2013). In other words, our findings highlight the role of IR framework in promoting BMD. This aspect is of particular interests for standard setters especially in the view that IASB may consider to mandate IR or specific parts of this report.

To conclude, although the path toward IR has just begun, it seems that this reporting format may offer really important and valuable results to favor and improve the quality of BMD.

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Appendix:

Tables

Table 1. The "capitals" as explained by the IIRC framework.

financial capital (fc)	fc is the pool of funds that is available to an organization for use in the production of goods or the provision of services and obtained through financing, such as debt, equity or grants, or generated through operations or investments;
manufactured capital (mc)	mc are manufactured physical objects (as distinct from natural physical objects) that are available to an organization for use in the production of goods or the provision of services, including: buildings, equipment, infrastructure (such as roads, ports, bridges and waste and water treatment plants).
human capital (hc)	hc are people's competencies, capabilities and experience, and their motivations to innovate, including their: alignment with and support of an organization's governance framework and risk management approach, and ethical values such as recognition of human rights, ability to understand, develop and implement an organization's strategy, loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate
intellectual capital (ic)	ic embeds organizational, knowledge-based intangibles, including: intellectual property, such as patents, copyrights, software, rights and licences; "organizational capital" such as tacit knowledge, systems, procedures and protocols; intangibles associated with the brand and reputation that an organization has developed;
natural capital (nc)	nc consists on all renewable and non-renewable environmental stocks that provide goods and services that support the current and future prosperity of an organization. It includes: air, water, land, forests and minerals, biodiversity and ecosystem health;
social capital (sc)	sc are the institutions and relationships established within and between each community, group of stakeholders and other networks (and an ability to share information) to enhance individual and collective well-being. Social and relationship capital includes: shared norms, and common values and behaviours; key relationships, and the trust and willingness to engage that an organization has developed and strives to build and protect with customers, suppliers, business partners, and other external stakeholders; an organization's social licence to operate.

Table 2. Topics, sub-topics and key,words selected for interpreting the IR disclosure on BM.

BM topics	BM sub-topics	Key-words
INPUTS (I)	Financial Capital (fc)	Funding model
	Manufactured Capital (mc)	Infrastructure
	Intellectual Capital (ic)	Intellectual property (knowledge, organizational intangibles, brands, patients)
	Human Capital (ic)	People (training, motivation, diversity of employees)
	Natural Capital (nc)	Raw materials, Ecosystem
	Social Capital (sc)	Relationship (interaction with communities, joint technology development, supply chain)
ACTIVITY (A)	business activity (ba)	Research and development
		Planning
		Design
		Production/conversion
		Product differentiation
		Market segmentation
		Distribution
		Service provision
		Quality control
		Operational improvement
		Relationship management
		After-sales service
	output (ot)	Products
		Services
		Waste
		Other by-products
OUTCOMES (O)	Financial Capital (fc)	Profit loss, shareholder return
	Manufactured Capital (mc)	Asset consumption
	Intellectual Capital (ic)	Research and Development improvement
	Human Capital (ic)	Job creation, Employee development & engagement
	Natural Capital (nc)	Environment impact
	Social Capital (sc)	Customer satisfaction, Contribution to local economy, Philanthropy

Table 3. An overview of the amount of BMD in the IR of the sample firms.

	TOT	MEAN	%	MIN	MAX	MED	SD
n. of sentences	1933	92		14	496	51	107
n. of statements	2018	96		16	504	53	109
n. non informative statements	175	8	8%	0	39	4	12
n. informative statements	1843	88	92%	15	465	51	100

Table 4. Main topics analysis.

	TOT	MEAN	%	MIN	MAX	MED	SD
Input	627	30	34%	5	168	22	35
Outcomes	740	35	40%	0	184	19	44
Capitals	1367	65	74%	8	352	36	77
Activity	476	23	26%	1	113	16	25
N. informative statements	1843	88	100%				
MainH (0.333;1)	0,343						
MainNonEmp (0;1)	1						

Table 5. Sub-topics analysis.

	TOT	MEAN	%	MIN	MAX	MED	SD
fc	272	13	15%	1	89	9	19
mc	92	4	5%	0	35	2	8
hc	213	10	11%	0	46	6	12
ic	238	11	13%	0	96	3	21
nc	104	5	6%	0	21	2	6
sc	448	21	25%	0	105	15	27
ot	135	6	7%	0	53	2	11
ba	341	16	19%	1	60	9	17
N. informative statements	1843	88	100%				
SubH (0.125;1)	0,160						
SubNonEmp (0;1)	1						

Table 6. Linguistic attributes: one dimensional analysis.

		Codes	TOT	MEAN	%	MIN	MAX	MED	SD
type	Quantitative vs. non quantitative information	q	276	13	15%	0	63	7	17
		nq	1567	75	85%	15	402	49	85
		IS	1843	88	100%				
tone	Positive news vs. non positive information	p	943	45	51%	4	268	27	61
		np	900	43	49%	3	197	30	42
		IS	1843	88	100%				
time orienta -tion	Forward looking vs. non forward looking information	f	301	14	16%	0	92	4	23
		nf	1542	73	83%	14	373	49	79
		IS	1843	88	100%				

Table 7. Linguistic attributes: multi-dimensional analysis.

	q/nq	p/np	f/nf	TOT	MEAN	%	MIN	MAX	MED	SD
Combination 1	nq	p	f	154	7	8%	0	50	2	13
Combination 2	nq	p	nf	666	32	36%	3	180	19	40
Combination 3	nq	np	f	114	5	6%	0	29	1	8
Combination 4	q	p	f	19	1	1%	0	13	0	3
Combination 5	nq	np	nf	633	30	34%	3	148	19	31
Combination 6	q	p	nf	103	5	6%	0	34	1	9
Combination 7	q	np	f	14	1	1%	0	5	0	1
Combination 8	q	np	nf	140	7	8%	0	20	5	7
Informative s. (IS)				1843		100%				

Table 8. Linguistic attributes: Likert Scale distribution.

BMD quality: L-Scale	Linguistic attributes	TOT	MEAN	%
1	NI	175	8	8%
2	Combination 1	154	7	7%
3	Combinations 2, 3 and 4	799	38	40%
4	Combinations 5, 6 and 7	750	36	38%
5	Combination 8	140	7	7%
	Total	2,018	96	100%

Table 9. Key findings.

Type Of Analysis	Level Of Analysis	Variables	Findings
BMD topics	Main topics	MainH index	0.343
		MainNonEmp index	1
	Sub-topics	Sub-H index	0.160
		Sub-NonEmp index	1
BMD attributes	*One-dimensional analysis*		
	type	q	15%
		nq	85%
	tone	p	51%
		np	49%
	time orientation	f	16%
		nf	83%
	Multi-dimensional analysis		
	Likert scale distribution	1-2	15%
		3-4	78%
		5	7%
	Likert scale Mean	mean(1-5)	3
	Likert scale Mode	mode(1-5)	3