Number 1
Extending intellectual capital through integrated reporting
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1. Intellectual capital accounting in the age of integrated reporting: a commentary

Introduction

Integrated reporting (IR) is gaining popularity among organisations globally. Within just six years since the release of the first international guideline for IR entitled “Towards integrated reporting – communicating value in the 21st century” in 2011, the number of integrated reporters has surpassed published intellectual capital (IC) reports. The International Integrated Reporting Council (IIRC) claims that more than 1,000 businesses worldwide have prepared a form of integrated report (IIRC, 2016). As of March 2017, the IIRC lists 477 organisations whose reports refer to the IIRC or the International Integrated Reporting Framework (hereafter International IR Framework). The IIRC and its supporters predict that IR represents the future of corporate reporting and will become the “corporate reporting norm” (IIRC, 2013, p. 2).

Coinciding with the emergence of IR, there has been a demise of IC reporting in the form of IC statements. Skandia AFS published the world’s first IC statement in 1995. Since then, organisations in several countries have experimented with IC statements, supported by the initiatives of governments in a range of countries, as well as supranational organisations. One of the most influential projects that supported organisations to measure, manage and report IC was the Danish Guideline Project for IC reporting. This project resulted in the publication of guidelines for preparing and analysing IC statements (DATI, 2000; DMSTI, 2003; Mouritsen et al., 2003) and, as a consequence, about 100 organisations prepared IC statements. However, after less than a decade since the termination of the Danish Guideline Project, none of those organisations is publishing IC statements (Nielsen et al., 2017). It is now difficult to find a single listed company anywhere in the world still preparing an external IC statement (Dumay, 2016).

Although IC reporting in the form of IC statements has become virtually non-existent, it has partly reincarnated in the form of the emerging IR movement. An integrated report aims to explain the potential value creation story of a company and, in doing so, grounds itself in a multi-capital system where IC is significant (IIRC, 2013). According to the International IR Framework issued by the IIRC (2013), human, relational and structural capitals, which are considered as the main components of IC (Guthrie et al., 2006), represent three out of the six capitals an organisation should provide insight about in its integrated report. These capitals are in the International IR Framework, forming the salient concepts of IR (IIRC, 2013). Thus, in the age of IR, IC accounting is being revived.

One might question the motivation for examining IR from an IC perspective, invoking Darwinism to argue that the extinction of the practice of IC statements is evidence that IC accounting is not fit for purpose. However, it can be counter-argued that the resurrection of IC accounting in the International IR Framework testifies to its ability to adapt to changing circumstances and institutional logics. Hence, the relevant question is not whether IC accounting is essential but, instead, whether its newest embodiment is likely to extend the agenda for IC accounting. Such is the motivation for this commentary and the Journal of Intellectual Capital (JIC) special issue on “Extending Intellectual Capital through Integrated Reporting”.

Some scholars argue that IR is doomed to fail (see, e.g. Dumay, 2016; Flower, 2015). The debate about success or failure of IR is pertinent to the questions explored in this JIC special issue, but it is not the authors’ intention to engage in this debate because the special issue seeks to understand the role IC plays in IR, regardless of its future. To understand the critical
debate about IR’s potential and likely success or failure, the readers are referred to critical and normative analysis of IR, such as the work cited above and those by Brown and Dillard (2014), Tweedie and Martinov-Bennie (2015), Adams (2015) and Dumay et al. (2017), which provide extensive coverage of this debate. Also, it should be noted that the arguments underpinning criticisms of IR are mainly unrelated to IC accounting embedded within IR. The focus of this commentary, rather, is on how IC accounting can be advanced through IR if it is to become the mainstay of corporate reporting. Even if IR does not succeed, the insights provided in this commentary may be relevant to understand and evaluate future iterations of IC accounting, in whichever form it might materialise, akin to the contributions of the plethora of studies examining IC statements, despite their recent extinction.

The remainder of this commentary is as follows. Section 2 provides an overview of IC accounting and its two main strands: external reporting of IC and measuring and visualising IC for management decision making. Section 3 gives an overview of the first strand and introduces the papers published in this special issue that extend the knowledge within this strand. Section 4 does the same for the second strand. Section 5 concludes this commentary by providing direction for further extending the research project on the IC–IR nexus.

2. Intellectual capital accounting

Fincham and Roslender (2003, p. 781) define IC accounting as “measuring and reporting the range of human and knowledge-based factors that create sustained economic value”. As the IC literature has now reached consensus in its understanding of IC as constituting human, relational and structural capital, it is convenient to define IC accounting as the measuring and reporting of these three capitals. Any technology that enables IC or one or more of its three components to be measured and reported is one that sustains IC accounting.

In this vein, IC accounting existed even before Skandia prepared its first IC statement in 1995. Early examples of IC accounting from practice include, among others, The “invisible balance sheet” (Sveiby, 1989), the “balanced scorecard” (Kaplan and Norton, 1992) and human resource accounting systems, such as that developed at R.G. Barry Corporation in 1968 (Brummet et al., 1968). Many early systems of IC accounting focussed on quantifying IC in monetary terms (see Sveiby, 2010). For instance, Brummet et al. (1968, p. 220) argued in relation to accounting for human resource that the focus is to “move the ‘human factor’ from a qualitative factor that is typically held constant or ignored to a quantitative one which may be an integral part of decision models”. Attributing value to human capital was expected to assist managers in making decisions such as those relating to capital budgeting, reducing staff turnover, investments in human capital and training and development, and enabling stakeholders (mainly investors) to forecast future performance and assessing managerial effectiveness in utilising human capital. Subsequent initiatives in IC accounting moved away from valuing IC to (re)presenting IC. These include non-monetary, narrative and diagrammatic (re)presentations of IC (e.g. the Skandia navigator, IC rating® framework, MERITUM Project).

The focus of IC accounting in practice is twofold: external reporting of IC and measuring and visualising IC for management decision making. The emphasis of a particular IC accounting technology or the purpose for which IC accounting is adopted within a specific organisation may predominantly align with one or, occasionally, both fields of inquiry (Chaminade and Roberts, 2003). The following subsections discuss how these two fields of IC accounting are manifested in IR and highlight the contributions of the papers that form this special issue of the JIC.

3. External reporting of IC

The motivation for externally reporting IC stocks and flows of listed companies lies in the presumption that transparency of organisational value drivers leads to a better valuation of companies by the capital market. Dumay (2016) invokes the proprietary cost theory to

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counter-argue that information relating to an organisation’s IC is proprietary and, thus, its disclosure is not in the best interest of the company and its managers. Verrecchia (1983, p. 181) defines proprietary cost as “cost associated with disclosing information which may be proprietary in nature, and therefore potentially damaging”. Proprietary costs may be associated with information favourable to a firm that competitors may use to the detriment of the company, or unfavourable to a firm that might result in increased credit risk as perceived by lenders. Dumay (2016, p. 169) argues that the false foundation on which IC reporting was built (i.e. the relevance of IC reporting depends on disclosing proprietary information) led to the demise of IC accounting, and IR, which is built on the same “wealth-creation myth”, is unlikely to succeed either.

According to Verrecchia (1983), when proprietary costs exist the capital market is unable to interpret information that managers have withheld as unambiguously “bad news”. It creates a doubt as to whether the withheld information is “good news” that the managers are reluctant to disclose due to the risk of that information being harmful to a firm’s prospects. Thus, proprietary costs enable companies to withhold information without experiencing an adverse market reaction that they would have otherwise experienced in the absence of proprietary cost. According to this logic, companies would only disclose IC information to the extent that the marginal proprietary cost is less than the marginal benefit of disclosure.

It is unlikely that IC accounting would have seen the light of day if it meant that organisations would incur a proprietary cost as a result of providing information on organisational IC that is detrimental to their competitive advantage. Moreover, it is inconceivable that companies saw IC reporting as a medium for disclosing price-sensitive IC-related information for the simple reason that companies cannot withhold price-sensitive information until the release of an annual or IC report. One plausible explanation is that IC accounting was adopted by companies to make their value creation potential and stories more intelligible to their financial shareholders and to enable them to understand the business better. Such an objective does not necessarily lead to IC reporters incurring proprietary costs or being reprimanded for withholding price-sensitive information. One of the primary objectives of IR itself is making organisational value creation stories via businesses models more intelligible to the capital market so that financial capital providers can make better-informed decisions. Thus, it can be argued that IR and IC reporting share a similar purpose insofar as serving the capital market is concerned. IR has been designed to overcome the weaknesses inherited by IC accounting in focusing on just three capitals, and the International IR Framework, with its six capitals and the relationships therein, is more comprehensive.

Five papers published in this *JIC* special issue examine disclosure of IC through integrated reports and attributes of such disclosure. Camodeca et al. (2019) directly address the debate about the capital market benefits of integrated reports as a vehicle for signalling IC. They examine whether the adoption of the International IR Framework increases the value relevance of IC information reported through integrated reports. The study assumes that integrated reports, when compliant with the International IR Framework, provide credible, precise and truthful information related to IC. The study, which focuses on the pharmaceutical industry, finds only companies with sufficient IC adopt IR, indicating that managers adopt the International IR Framework to signal companies’ IC to the capital market.

The study by Terblanche and De Villiers (2019) complements the study by Camodeca et al. (2019) by examining whether integrated reports are associated with more IC disclosure and whether companies with greater exposure to capital markets as a result of being cross-listed in an overseas stock exchange disclose more IC through integrated reports. Using a sample of companies listed on the Johannesburg Stock Exchange, where companies are required to prepare an integrated report or explain reasons for not doing so, the study finds that companies preparing an integrated report disclose more IC information,
This paper highlights a crossover between IR and IC disclosures, especially in relation to human capital disclosures, and raises questions as to why IR has not impacted the extent of relational and structural capital disclosures.

Beretta et al. (2019) examine attributes of IC disclosure in the integrated reports published by European listed firms from 2011 to 2016 available via the IR Emerging Practice Examples Database. The authors find that IC disclosures in integrated reports are mainly discursive, positively toned and backwards-looking, and, consistent with the findings of Terblanche and De Villiers (2019), focusing on human capital. Beretta et al. (2019) also investigate whether there is an association between the non-financial performance of integrated reporters and the tone of IC disclosure in the integrated reports. Drawing on impression management and incremental information approaches, they show a positive association between optimistic tone in companies’ IC disclosures in integrated reports and non-financial performance, measured in terms of environmental, social and governance aspects.

Casonato et al. (2019) also explore the use of integrated reports for impression management purposes using a case study of an Australian bank rocked by a major scandal in 2004. They examine whether the information in the bank’s integrated reports is consistent with other information available to investors and find a gap between company-provided disclosures and publicly available information in other media. The authors conclude that the IR paradigm is being co-opted by impression management strategies to improve legitimacy through trust, reputation and social capital. The paper links IR with its use in building relational capital. The authors argue that disclosure studies, including those on IC, should go beyond the organisational boundaries and understand if these disclosures add value to the society.

Dumay et al. (2019) examine the gap between reporting and managers’ behaviour to shed light on the theoretical underpinnings of current IC disclosure practice and research. The authors rely on academic literature and illustrations from practice to provide a critique of existing corporate disclosure theories and then propose stewardship theory to frame corporate behaviour and disclosure practices. Dumay et al. (2019) argue that there are significant differences between corporate behaviour and what is publicly disclosed, leading to a loss of trust in corporations. They argue that in such a context improved disclosure of information, including IC information, does not help instil trust in the company. They propose that stewardship theory could inform managerial behaviour and disclosure for rebuilding public trust in business. The implications of this proposed model for disclosing IC through integrated reports and reports complying with the new EU Directive are profound.

4. Measuring and visualising IC for management decision making

In investigating the reasons for the demise of IC reporting in firms that implemented IC statements, Schaper (2016) identifies loose coupling of IC within organisations as the main reason. As a solution, he recognises the need for new reporting practices to be embedded in organisations via management decision-making processes. By emphasising the importance of integrated thinking as a precursor to, and an antecedent of IR, the International IR Framework attempts to couple IR with management decision making and corporate culture. Under the International IR Framework, managers are strongly encouraged to engage with integrated thinking as it enables a more comprehensive approach to strategic planning and the development of new ways of reporting value outcomes. The IIRC (2013, p. 2) claims that:

The more that integrated thinking is embedded into an organization’s activities, the more naturally will provide the connectivity of information flow into management reporting, analysis and decision making, and subsequently into the integrated report.
Integrated thinking is defined as the “active consideration by an organisation of the relationships between its various operating and functional units and the capitals that the organisation uses or affects” (IIRC, 2013, p. 33). Thus, integrated thinking provides a mechanism for an IC-based perspective to be instilled within organisations that, as a by-product, will also enrich organisations’ structural capital.

Three papers in this JIC special issue examine IR for its capacity to enable an enhanced understanding of non-financial value drivers and incorporate IC in management decision making. Doni et al. (2019) explore an innovative approach developed by the Development Bank of Singapore (DBS), an organisation pioneering IR in Singapore, to account for multiple capitals in their journey towards IR. The authors find that DBS management re-conceptualised, re-categorised and measured multiple capitals as a form of non-financial value using the balance sheet approach and integrated the capitals within a balanced scorecard. The new approach enabled the company to visualise the interactions and potential trade-offs among various capitals. The study provides insight into the firm-level implementation of the International IR Framework, explaining how it enables a company to reflect on non-traditional forms of capital, including IC.

Extending the theme explored by Doni et al. (2019), Massingham et al. (2019) provide a conceptual essay that integrates critical concepts from the balanced scorecard with specific measures of integrated thinking and value creation. The purpose is to provide a new learning and growth perspective for the balanced scorecard that incorporates specific measures of integrated thinking and value creation. The authors argue that the new learning and growth perspective, which operates in tandem with the International IR Framework and integrated thinking, will enable organisations to better appreciate human and structural capital and their role in value creation.

Finally, Stacchezzini et al. (2019) explore the conceptualisation of IC elements in the context of IR and the functions that integrated reporters assign to IC elements. The authors use social ontology theory and apply this to an energy sector company. In-depth interviews were undertaken with corporate staff. The study reveals that the meaning of IC only emerges during the process of preparing the integrated report. The integrated thinking phase facilitates a dialogue between departments and actors in constructing IC accounts. Their study is the first to explore IC ontology empirically within an IR context. It opens paths to further research on the relationships between IC and integrated thinking.

5. Further extending intellectual capital through integrated reporting

The papers published in this special issue provide a useful foundation for extending the research project on IR-led IC accounting. However, there is a lack of research in this special issue that goes much beyond the third-stage IC research, which is directed at strengthening IC practices inside organisational boundaries (Guthrie et al., 2012). Dumay and Garanina (2013) coin the term “fourth stage IC” to conceptualise IC as an extra-organisational phenomenon which “relates directly and powerfully to environmental and social justice” (Dumay and Guthrie, 2017, p. 40). Arguably, IR is a potential enabler of this fourth-stage IC accounting because IR can promote an understanding of IC extending beyond its creation, utilisation and impacts within economic boundaries of organisations to its role within the broader eco-system.

Arguably, IC accounting within IR has a role to play in promoting good corporate citizenship and interactions with the broader community. A careful examination of the International IR Framework reveals that social capital is seen more as an input into a business model whereby the main outputs are manufactured and financial capitals. As Casonato et al. (2019) highlight in this special issue, it is entirely possible for a company to leverage its capitals to create financial capital for shareholders and managers at the expense of customers, many of whom are the most vulnerable members of society. While creating
wealth is an anticipated and desirable outcome for a company, one must ask what cost this has to society? It is important to understand the moral and ethical impacts of leveraging the capitals according to the International IR Framework, considering its focus is primarily benefiting the providers of financial capital, who readily reward managers for creating wealth that has been extracted from those who often have less. Further research is needed to understand how companies, shareholders and managers should use the principles of IC and IR to create more social capital instead of creating financial capital at any cost.

Several scholars criticise IR for ignoring social and ecological sustainability (Flower, 2015; Milne and Gray, 2013), despite the GRI and The Prince’s Accounting for Sustainability being two of the founding members of the original International Integrated Reporting Committee (later, the Council) (Gleeson-White, 2014). However, some scholars claim that IR is arguably more capable of connecting with environmental sustainability with its inclusion of natural capital that broadens performance measurement beyond financial sustainability (De Villiers and Maroun, 2018). For example, in this special issue, Stacchezzini et al. (2019) highlight that IR enables IC to be conceptualised beyond a narrow economic sense to one that is conditional on sustainability-oriented financial value creation. Again, environmental sustainability is not a new line of inquiry for IC researchers, with several papers having been published connecting IC and ecological sustainability (e.g. Demartini and Paolini, 2013; Wasiluk, 2013). However, like IC, some IR researchers are making the connection even though the link is not explicit.

As with social capital, it can be argued that it is entirely possible to have natural capital as an input, but if it is depleted in the business process that creates financial capital, the moral and ethical implications of IR in describing how this takes place are questionable. However, considering the fact that most IC reports and IC within integrated reports convey predominantly good news (Beretta et al., 2019), what is the likelihood of any company describing how they are not sustainable and damage natural capital in the pursuit of financial capital? More research should shed light on how IC is connected to ecological sustainability in the IR process.

Another issue tackled by scholars, practitioners and society is the United Nations Sustainable Development Goals (UNSDGs) that seek to eliminate poverty by 2030 (UNDP, 2015). As Bebbington and Unerman (2018, p. 2) advocate these goals are the “salient point of departure for understanding and achieving environmental and human development ambitions up to (and no doubt beyond) the year 2030”. Already, the IIRC has issued a position paper entitled “The Sustainable Development Goals, Integrated Thinking and The Integrated Report” (Adams, 2018), which, if implemented, will be a significant point of departure for IR and IC accounting. Consistent with the argument that the International IR Framework is currently “too deeply rooted in the business case for sustainability rather than the sustainability case for business” (Thomson, 2015, p. 21) the position paper attempts to align the UNSDGs to the IR business model rather than the IR business model to the UNSDGs (Adams, 2018, p. 33). To enable IR to be rooted in the sustainability case for business, there is a need for research that investigates cases in which UNSDGs have been relied upon as a force for economic, social and environmental sustainability, rather than as “a force for financial stability and sustainability” as advocated in the current International IR Framework (IIRC, 2013, p. 2). Research on topics such as green IC (e.g. Chang and Chen, 2012; Chen, 2008), which has had some coverage in the IC literature in the past, can be reinvigorated and extended in light of the potential to align UNSDGs with IR. In this regard, it is timely to expect a shift in the focus of IC accounting from IC that is good for the company to IC that can be deployed to overcome environmental and social problems, helping to make the world a better place for future generations. According to this paradigm, IC accounting within IR should not be about making more companies more financially sustainable in the long term while ignoring the risks that issues such as climate change will
have on their business model (TCFD, 2016). Currently, the International IR Framework does not openly address ecological sustainability and social justice, and future research should identify whether it should, if so how and what implications it has for IC accounting.

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Developing trust through stewardship

Implications for intellectual capital, integrated reporting, and the EU Directive 2014/95/EU

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Abstract
Purpose – This paper examines the gap between reporting and managers’ behaviour to challenge the current theoretical underpinnings of intellectual capital (IC) disclosure practice and research. The authors explore how the key features from IC and integrated reporting can be combined to develop an extended model for companies to comply with EU Directive 2014/95/EU and increase trust in corporate disclosures and reports.
Design/methodology/approach – This essay relies on academic literature and examples from practice to critique the theories that explain corporate disclosure and reporting but do not change management behaviour. Based on this critique, the authors argue for a change in the fundamental theories of stewardship to frame a new concept for corporate disclosure incorporating using a multi-capitals framework.
Findings – We argue that, while the inconsistency between organisations’ reporting and behaviour persists, increasing, renewing or extending the information disclosed is not enough to instil trust in corporations. Stewardship over a company’s resources is necessary for increasing trust. The unanticipated consequences of dishonest behaviour by managers and shareholders compels a new application of stewardship theory that works as an overarching guide for managerial behaviour and disclosure. Emanating from this new model is a realisation that managers must abandon agency theory in practice, and specifically the bonus contract.
Research limitations/implications – We call for future empirical research to explore the role of stewardship theory within the dynamics of corporate disclosure using the approach. The research implications of those studies should incorporate the potential impacts on management behaviours within a stewardship framework and how those actions, and their outcomes, are disclosed for rebuilding public trust in business.
Practical implications – The implications for integrated reporting and reports complying with the new EU Directive are profound. Both instruments rely on agency theory to coax managers into reducing information asymmetry by disclosing more. However, agency theory only re-affirms the power managers have over corporate information. It does not change their behaviour, nor to act in the interest of all stakeholders as the stewards of an organisation’s resources.
Social implications – We advocate that, in business education, greater emphasis is needed on how stewardship has a more positive impact on management behaviour than agency, legitimacy and stakeholder theories.
Originality/value – We reflect on the current and compelling issues permeating the international landscape of corporate reporting and disclosure and explain why current theories which explain corporate disclosures do not change behaviour or engender trust in business and offer an alternative disclosure model based on stewardship theory.
Keywords Integrated reporting, Intellectual capital, Agency theory, Corporate disclosure, Stewardship theory, EU Directive 2014/94/EU
Paper type Conceptual paper
1. Introduction

We live in a world of distrust. It is a sad indictment on our modern society that, in most countries, society distrusts the very institutions that are supposed to be its pillars (Ries et al., 2018). Regrettably, there is a loss of trust in business because people do not know which companies and brands are honest or acting in their best interests. The recent Volkswagen “defeat device” scandal is a perfect example of how the trust in a company and brand was destroyed overnight (Hotten, 2015). In the defeat device scandal, Volkswagen sold investors and consumers a “lemon” (Akerlof, 1970). Governments responded with instruments demanding mandatory disclosure and greater transparency, to which companies and other self-interested stakeholders countered with voluntary disclosure instruments of their own making.

The recent development of the Integrated Reporting framework is a primary example of how the accounting profession has reacted by promoting more disclosure to counteract the loss of trust in accounting emanating from the Global Financial Crises (International Integrated Reporting Council (IIRC), 2013; Gleeson-White, 2014). Similarly, the European Union has implemented EU Directive aimed at rebuilding trust with “investors and consumers” (European Union, 2014, p. 1). Also, while recent years have witnessed an increasing amount of mandatory and voluntary company disclosures to engage with stakeholder (Bartels et al., 2016), for many companies, the aim of disclosing material issues is to rebuild their legitimacy and their licence to operate (Suchman, 1995). Meanwhile, public trust in companies continues to decline (Ries et al., 2018). Thus, there is a discrepancy between how companies “walk the talk” concerning their social responsibility.

In this essay, we investigate these two responses to increasing investors and consumers’ distrust to build upon our understanding of intellectual capital (IC) and the lessons learned from IC practice and reporting. We argue that by using the lessons learned from IC reporting, we can avoid making the same errors when implementing integrated reporting and the EU Directive. As a result, we first develop a disclosure model that incorporates the key features from IC and integrated reporting and exemplify how these features can be used by companies to comply with the EU Directive. Next we examine the relationship between reporting and management behaviour to challenge the current theoretical underpinnings of corporate disclosure practice and research.

A distinguishing feature of our essay is a critique of agency, legitimacy, and stakeholder theory, which scholars normally use to explain why companies disclose or report information. However, these theories do not explain how management behaviour might be guided or changed to foster honest disclosures. Drawing upon the theoretical critique, we contribute by developing a theory that more disclosure does not increase trust. Therefore, our analysis has two levels: a practice-oriented level discussing how reporting practices can change to adhere to the EU Directive; and a theoretical level, which examines the theoretical underpinnings of corporate reporting and disclosure.

We argue that proper stewardship of a company’s resources is a key necessity for increasing trust. A new concept of stewardship theory is required that serves as an overarching guide to inform managerial behaviour and disclosure. Emanating from this new model is a realisation that we must abandon agency theory practice, and specifically the bonus contract because dishonest and profit-seeking behaviour by managers and shareholders has had unanticipated consequences.

This essay and the concepts and models within it have profound implications for integrated reporting and reports prepared under the new EU Directive. Both instruments aim to reduce information asymmetry and promote greater levels of corporate disclosure using agency theory as a counsellor for change. However, using agency theory only reaffirms the power managers have over corporate information. It does not change their behaviour to act in the interests of all stakeholders or to be honourable stewards of
organisational resources. Further, we advocate the need for more emphasis in business education on how stewardship is different from agency, legitimacy, and stakeholder theories and how it impacts management behaviour more positively.

This paper is structured as follows. Section 2 traces the critical issues underpinning the EU Directive, IC and integrated reporting to introduce an extended capitals model for disclosures and reporting. Section 3 is a critique of the three main theories explaining the rationale for corporate reporting and disclosure as background to our thesis on trust and disclosure. In section 4, we draw on stewardship theory and explain our model. Section 5 concludes the essay with the implications of our study for practice, education, and research.

2. IC, integrated reporting and the EU Directive: changing corporate reporting and managerial practices

2.1 IC and the EU Directive

In the late 1990s and early 2000s, IC reporting was high on the agenda of many companies, academics and policymakers. During this time, IC reporting was seen as a new way of understanding the difference between a company’s market value and its book value (Nielsen et al., 2006). IC reporting helped to explain how many companies measure, manage, and create value through intangible assets. However, as Dumay (2016) outlines, by 2012, we had witnessed the death of IC reporting in practice – not due to a lack of interest in IC but rather because there was more interest in managing IC than reporting it (Schaper et al., 2017). Thus, IC reporting has a link between reporting and management.

Another problem with IC is not just how it is used, but also what it means because many different words and definitions are used synonymously to identify and describe IC. For example, in the USA, the term “intangible assets” is what Europeans call IC. Additionally, the definition of IC is broad and varied, and its purpose is also widely debated. The debate inspired Dumay (2016) to redefine IC based on the original definition by Stewart (1997). Dumay’s revised definition changes its purpose from creating financial wealth to different forms of value, being utility, social and environmental value. Dumay (2016, p. 169) defines IC as:

[...] the sum of everything everybody the company knows that gives it a competitive edge [...] IC is intellectual material, knowledge, experience, intellectual property, information [...] They can be put to use to create wealth [value].

Dumay’s (2016) new definition highlights four key value elements. First, there is monetary or financial value, which is essential for operating any organisation. Even non-profit organisations need to understand and use money to operate. Thus, comprehending how organisations use and create economic wealth to achieve their objectives is an essential element of understanding value. Second, organisations need to create utility value, which establishes the usefulness of the products and services people consume. If those products and services are not useful, they do not have value. Third, organisations need to provide wide-ranging social value – things that provide jobs, infrastructure, economic benefits for society, and so on. Fourth, organisations also have to be aware of their ecological footprint and not consume or deplete natural resources beyond what is needed. Thus, Dumay’s (2016) new definition of IC is similar to the objectives of the new EU Directive, as both concentrate on how corporations are dealing with important societal issues rather than reporting how they create wealth. The new definition links IC with how management policies and managers’ decisions link with societal issues.

Unlike IC reporting, which has always been voluntary, the EU Directive on non-financial and diversity information recently introduced new mandatory reporting practices in the European Union (2014). Arguably, this is the first time that non-financial information, will be part of a mandatory reporting scheme for major companies globally. Under corresponding laws enacted in the EU’s member states, companies with more than 500
employees and other specified large undertakings need to prepare a non-financial statement that, at a minimum, pertains to environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters, supply and subcontracting chains and diversity information. Some member states, such as Sweden for example, have reduced the threshold to 250 employees. It is estimated more than 6000 companies (Bold, 2017) will need to comply with the new Directive. The EU Directive is the greatest revolution in corporate reporting for European listed companies since the introduction of International Financial Reporting Standards in 2005.

Reporting IC and non-financial information are not new to the EU. In the early days of IC, the EU participated in developing the RICARDIS (European Commission (EC), 2006) framework to help develop innovation in SMEs. Another attempt at developing an IC guideline for Europe is the “InCAS: Intellectual Capital Statement – Made in Europe” project. InCAS was also aimed at “Developing an Intellectual Capital report […] for small and medium-sized enterprises which are the backbone of the European economy” (Humphreys et al., 2010, p. 6). There has been some success with the InCAS project as it continues to be rolled out to many SMEs through a consultancy service and mainly rebadged as a German initiative (Bornemann and Alwert, 2007; Bornemann, 2017). However, as Dumay (2016) reports, that for larger listed companies, IC reporting is at a dead end, and the International Integrated Reporting Framework (IIRF) is seen to be the new hope for reviving interest in IC reporting.

The EU has also made previous attempts to introduce some social and environmental information into companies’ annual reports and management commentaries (see the EU Directive 2003/51/EC). Moreover, some of the European States, such as France, began to mandate CSR reporting even before the new Directive (Delbard, 2008). The new EU regulation is not limited to improving corporate disclosure and enrich mandatory reporting with further non-financial information. The EU Directive aims to change management behaviours, like other recent corporate governance policies, such as King III and IV in South Africa. For example, King III promotes principles to foster organisations to embrace a more inclusive corporate governance model that takes into account the expectations of their stakeholders (Dumay et al., 2017). Similarly, the main rationale of the EU Directive is to foster the firms’ commitment to more sustainable development (European Union, 2014). Thus, any regulation and policy agenda for improving corporate reporting also has important internal managerial implications.

2.2 IC disclosure and its theoretical base

Traditionally, IC uses a tripartite model that includes human, structural and relational capital. While this model has been modified many times, it remains the most widely recognised classification system for IC. A classification system is important because it gives managers and scholars a way of identifying measuring, managing, and reporting IC. Consider, for example, Skandia’s initial IC statements. The objective was to disclose IC to investors and providers of capital so they can better understand companies in the new knowledge economy created value (Petty and Guthrie, 2000). However, as Dumay (2012) outlines, the theory behind IC reporting and value creation remain unproven to this day. Despite this, many managers and scholars still believe that disclosing IC through corporate reporting creates economic value. Bismuth and Tojo (2008, p. 242) espouse this theory as follows:

Ensuring that the non-financial and information is consistent comparable over time and across companies, [and is] material and reliable would allow investors to better assess future earnings and the risks associated with different investment opportunities, thus reducing information asymmetry, reducing biased or unfounded earnings estimates, unrealistic valuations and unjustified share price volatility. This in turn increases market liquidity. There is evidence that improved information about intellectual assets and company strategy improves [the] ability of firms to secure funding at a lower cost of capital.
What Bismuth and Tojo’s (2008) theory highlights are the major problems of information asymmetry. Information asymmetry is the fundamental result of an agency problem where owners contract managers to provide them, and the capital markets, with information because most investors do not participate in the managing the firm (Healy and Palepu, 2001).

Healy and Palepu (2001, p. 406) argue that the “demand for financial reporting and disclosure arises from information asymmetry and agency conflicts between managers and outside investors”. From this theoretical perspective, corporate disclosure aims to reduce information asymmetry within capital markets to increase market liquidity (Kim and Verrecchia, 1994), reduce the cost of capital and prevent share price volatility (Lang and Lundholm, 2000; Lambert et al., 2007). However, managers, like any actor, can also be seen as self-interested wealth creators (Shapiro, 2005). Through this lens, these managers, who produce and own the information, are likely to withhold it unless it is beneficial for them to release. For example, Dumay (2012) outlines that within their discretionary powers, most managers are more prompt to disclose good news but will withhold bad news until its disclosure becomes urgent, required or is revealed by a third party.

Managers withholding bad news contrasts agency theory which posits that, under certain conditions and incentives designed to align the interests of principals and agents, managers will disclose both good and bad news because not disclosing bad news will lower the level of investor trust in the company. As with many economic theories, the assumptions in information asymmetry theory rely on actors behaving rationally (Morris, 1987). However, the assumption of rational human behaviour often fails to consider the role of trust in the principal-agent relationship (Shapiro, 2005). Trust is seen as a source of social capital (Shapiro, 2005) – as a stock of value that can be enriched or destroyed when the agent acts against the agency rules. Thus, investors may not support companies that do not disclose bad news.

While Agency theory seems logical, academic research supports Dumay’s (2012) position, and several practical examples demonstrate the controversial relationship between theory and corporate reluctance to disclose negative, but relevant information. Moreover, although information asymmetry represents the prominent theoretical rationale that justifies corporate reporting and disclosure, it again unveils the importance of managerial behaviour and traits in corporate reporting. Managers control the information, and they decide what to disclose based on self-interested economic rationality.

While we argue that IC disclosure is based mainly on information asymmetry and agency theory arguments, An et al. (2011) claim it is a more comprehensive multi-theoretical approach. Here they identify “agency theory, stakeholder theory, signalling theory, and legitimacy theory, [are] integrated in terms of the interrelated concepts relating to voluntary IC disclosure” (An et al., 2011, p. 571). However, the limitation of the An et al. (2011) claim is that they theorise about voluntary disclosures, while the EU Directive is mandatory. Therefore, their theorisation intends to explain the motivation behind voluntarily disclosing IC, rather than how managerial and reporting behaviour changes under mandatory reporting requirements.

2.3 From IC to an extended capitals model
While Dumay (2016) announces the death of IC reporting, he also signals the possible reinvigoration of interest in IC disclosure through the IIRF. Arguably, one useful aspect of the IIRF related to IC is the six capitals model as shown in Figure 1. The six capitals model is important because it is one of the few models that recognises and incorporates both financial and non-financial capitals along with natural capital. Some of the early models of IC included financial capital, such as the Skandia model, which has dominated early research and in practice (Skandia, 1994). While the Skandia model included financial
capital, it was silent on the environment, and thus natural capital, as found in the IIRF, is not present.

However, the multiple-capitals model found in the IIRF can be seen as a way to embed social and environmental issues into traditional corporate performance models such as IC and the Balanced Scorecard (see Yongvanich and Guthrie, 2006). As such, it represents an open conceptual framework for producing relevant information for stakeholders and reflects a renewed concept of IC that embraces multi-capital value creation (Howitt and Thurm, 2018). As Dumay (2016, p. 175) argues:

> When you take away the physical capitals of financial, manufactured and natural capital, the remaining three intangible capitals broadly align with IC’s three capitals: human capital with human capital; social and relational capital with relational capital; and IC with structural capital. This has ushered in a new era of hope for the IC reporting faithful that IC reporting is firmly back on the agenda of companies, especially large listed companies, which are the target of the IIRC and the [IIRF].

Therefore, the six capitals model is an extension of the tripartite IC model and recognises that all forms of capital are essential for producing goods and services and that, in theory, interactions between each of the capitals is needed to create value.

The six capitals model reflects a theory known as the resource-based view (RBV) of the firm. However, beyond recognising that interactions between resources create value, RBV theory also recognises that there is a causal ambiguity about which combinations of resources are exactly responsible (Dierickx and Cool, 1989). Ambiguity makes an arduous task of identifying the contribution or value creation/disruption for each capital. Arguably, the IIRF helps reduce the ambiguity by using the six capitals as inputs and outputs of a company’s business model (IIRC, 2013). Doing so helps the providers of financial capital better understand how the company creates value.

IC scholars are also interested in understanding the IIRF, and how it can be used to disclose IC because the IIRC (2013) renews the dialogue about how intangible resources
contribute to financial value creation (Beattie and Smith, 2013; Dumay, 2016). As a result, the need to understand value creation and the interaction between resources, or capitals, is evidenced by an increasing academic interest in understanding integrated thinking, as an internal and managerial reflection of integrated reporting (Feng et al., 2017; La Torre et al., 2019). Thus, concepts such as integrated thinking are designed to change management behaviours as a form of management control, not just change IC reporting content (Dumay and Dai, 2017).

The IIRC defines integrated thinking is “the active consideration by an organisation of the relationships between its various operating and functional units and the capitals that the organization uses or affects” (IIRC, 2013, p. 2). It represents the most substantial managerial changes promised by integrated reporting in action. La Torre et al. (2019) contribute to rethinking and reshaping the concept of integrated thinking, by highlighting the link between strategy, resources and teleoffective structures. They define integrated thinking as (La Torre et al., 2019):


Thus, integrated thinking shows that corporate reporting initiatives are not only limited to improving reporting and corporate disclosure but rather changing corporate and managers’ behaviours. Integrated thinking turns into an attempt of aligning behaviours and reporting so that the reporting fairly reflects and guides external and internal actions.

2.4 The extended capitals model to implement the EU Directive

The EU Directive continues to use the paradigm that rewarding managers for disclosing non-financial information will be rewarded by the investment community. In the context of agency theory, this is known as signalling, which overlaps rather than competes with agency theory assumptions (Morris, 1987). As Connelly et al. (2011) explain, signalling theory describes the behaviour of two parties with access to different information: the sender who chooses “whether and how to communicate (or signal) that information”, and the receiver who “must choose how to interpret the signal”. The EU Directive specifically outlines that “Investors’ access to non-financial information is a step towards reaching the milestone of having in place by 2020 market and policy incentives rewarding business investments and efficiency under the roadmap to resource-efficient Europe” (EU Directive, 2014). Thus, the EU Directive is designed to entice undertakings to divulge more information than would be normally expected under previous reporting laws.

While reporting under the new EU Directive is compulsory, no single EU State prescribes a particular reporting framework to comply with the law. The disadvantage for companies is knowing which reporting framework they should use among a large set of competing frameworks (La Torre, Sabelfeld, Blomkvist, Tarquinio and Dumay, 2018). However, the advantage is that companies can select any framework they desire to provide the required reporting content. Therefore, for most companies reporting will be “business as usual”, as they can choose to continue using any of the current reporting frameworks, such as the GRI and the IIRF (Dumay and Hossain, in press). Currently, the GRI provides specific guidelines to inform companies on how they can use the GRI to comply with the EU Directive (GRI and Global Sustainability Standards Board, 2017). Similarly, the IIRF can also be used to comply with the EU Directive. However, the IIRF has not issued any specific guidelines on how to comply with the EU Directive.

While the IIRF does not include any specific guidelines to comply with the EU Directive, other forces at play suggest that the IIRF might become a prime candidate for compliance because the main proponent of the EU Directive is Richard Howitt, who was a Member of...
the European Parliament at the time the EU Directive became law. Moreover, Richard Howitt left the EU Parliament to become the new CEO of the IIRC in 2016. Richard Howitt is therefore inextricably linked to the EU Directive and integrated reporting and, arguably, has the political connections and influence to promote integrated reporting as a solution to comply with the EU Directive (Monciardini et al., 2016). The following figures show some of the potential mappings between the IIRF and the EU Directive.

First Figure 2, illustrates a direct one-to-one mapping of the six capitals to the essential elements of the EU Directive. The six capitals appear on the left. Given the IIRF refers to structural capital as IC, which may be confusing, we have substituted some terms from the tripartite model of IC including the term relational capital for simplicity (see Dumay, 2016). What Figure 2 shows is how these six capitals directly map to the reporting requirements in the EU Directive. Thus, with little effort, it would be possible to use the IIRF to comply with EU Directive.

Alternatively, the six capitals and EU Directive framework are so flexible that you could also have one-to-many relationships, as shown in Figure 3. Here, we show that
relational capital applies to each of the EU Directive elements. For example, relational capital can be used to explain the processes organisations implement to deal with anti-corruption and bribery.

Similarly, relational capital is an important element in managing supply and subcontracting chains. The difference between Figure 3 and Figure 2 is that a one-to-many mapping contributes to understanding the instrumental functions of IC for improving the specific disclosure requirement to comply with the EU Directive, whereas a one-to-one mapping aims to align the six capitals with a particular EU Directive theme. Hence, the flexibility of IC and the six capitals allows companies to map the elements from the IIRF easily to any of the elements within the EU Directive and understand how to manage IC and its impact on each capital.

Considering the flexibility of IC model and our use of the IIRF as a base framework for complying with EU Directive, we can also further modify Figures 2 and 3 to include the business model as espoused by the IIRF. The business model helps explain how a firm’s resources (i.e. capitals) are used, consumed, employed and finally affected by a company’s operations and their value creation process. Beattie and Smith (2013, p. 243) argue that business models offer “a powerful overarching concept within which to refocus the IC debate” because such a “holistic, multi-level, boundary-spanning and dynamic” idea traces a high-level concept of value creation involving integrated IC disclosure within the business model story.

In essence, we agree with the need to show the business model, but our experience with IC reporting tells us that companies are reluctant to disclose their full business model when it means divulging commercially sensitive information. Hence, Figure 4 shows the business model as a black box because businesses rarely detail it in IC or integrated reports. Business model information should describe how a firm’s resources are combined, used, and further developed to create value. Disclosing the strategic resources and capabilities that underpin a firm’s success may lead to a concerning competitive disadvantage for many organisations (Beattie and Smith, 2013). Therefore, displaying the business model as a black box allows companies the flexibility to detail information about their business model without needing to stick to the complex model currently prescribed in the IIRF. However, we do follow the input and output model as suggested by the IIRF. In this context, the six capitals and the elements of the EU Directive become a business model’s inputs and outputs.

**Figure 4.** A new model incorporating the six capitals, business model and EU Directive elements.
3. Lessons learned from IC reporting to inform future practice

As Dumay et al. (2010) outline in their discussion of the GRI, it is important to reflect on past practices and theories to understand future practices. For example, our model includes the core elements of IC, even though IC reporting has ceased to exist in any meaningful way. Most companies that experimented with its practice only did so for a short time but could not see the value of disclosing what they saw as essentially sensitive information (Schaper et al., 2017). However, this does not mean that managing the six capitals and taking the outcomes desired by the EU Directive into consideration is not worthwhile undertaking. Mouritsen et al. (2001) argue that the main benefits of measuring, visualising, and managing IC are internal. Thus, by understanding what works and doesn’t, and by recognising past mistakes from IC reporting, we can learn how to better comply with the EU Directive.

One of the first lessons learned is to understand the actual problem. Unfortunately, with IC, sometimes it seemed it was a solution looking for a problem (Andriessen, 2004), rather than a solution to criticisms that financial reporting does not provide enough information for users. Considering that the primary audience of an integrated report is the providers of financial capital, the EU Directive also espouses that compliant non-financial reports are useful for investors. However, the text in the EU Directive expands beyond just investors and outlines the problem (European Union, 2014, p. 1):

The European Parliament acknowledge[s] the importance of business[es] divulging information on sustainability such as social and environmental factors, with a view to identifying sustainability risks and increasing investor and consumer trust.

The above quote is important because it gives us key clues as to the real problem the EU Directive is trying to overcome, which is fundamentally different to IC which sought to enhance the deficiencies of financial accounting. The two keywords are “divulging” and “trust”. First, the word divulging means to make known private or sensitive information. Thus, divulging is a much more powerful word than either reporting or disclosure as commonly found in the reporting frameworks of IC or integrated reporting (Dumay, 2016). According to Dumay (2016), the words reporting and disclosure, while often used synonymously, mean different things. A report is a detailed periodic account of a company’s activities financial condition and prospects made available to shareholders and investors, while disclosure is a revelation of information that was previously secret or unknown. Hence, the word divulging is far more powerful because it calls upon managers to unearth information that is both private and sensitive, which under normal circumstances would not be made available in a company’s disclosures or reports.

The antonym of divulging is concealment, and it appears that the European Parliament is responding to society’s concerns that enterprises in Europe are concealing too much information from investors and consumers. As a result, investors and consumers do not fully trust businesses in Europe. Evidence of this distrust is found in the recent Edelman Trust Barometer (Ries et al., 2018), which measures how the general public trusts institutions such as the media, NGOs, government and businesses. Institutions are ranked in the distrust territory when their score falls below 50; 50 to 59 is neutral, and scores above 60 are positive. Businesses in Europe (Ireland (40), France (43), the UK (43), Germany (44) and Spain (49)) are in distrust territory. Only Italian business are in neutral territory (52), while the Netherlands has trust in business (60). Hence, it is unsurprising that the European Parliament has been forced to regulate corporate disclosures to entice businesses to divulge more information.

The Volkswagen defeat device scandal is a prominent example of why Europeans do not trust companies. This scandal was first uncovered in the USA when the Environmental Protection Agency uncovered that Volkswagen was systematically using a defeat device engineered to hide the fact that Volkswagen diesel vehicles polluted 40 times more than the
When news of the scandal broke on 21 September 2015, the price of Volkswagen shares collapsed, wiping out billions of both dollars and euros in investors’ money (Snyder and Jones, 2015). Additionally, consumer trust in Volkswagen was irrevocably damaged because Volkswagen purposefully, and dishonestly advertised clean diesel vehicles, when in fact the vehicles polluted more than alternative vehicles. As CEO Martin Winterkorn said before he departed, Volkswagen has “broken the trust of our customers and the public” (Hotten, 2015). Hence, when corporations like Volkswagen, conceal critical issues that are later exposed, both investors and consumers suffer, and lose trust in corporations.

Further, it is not only the investors and consumers that suffer. Volkswagen’s employees and those in related businesses who depend on their relationship with Volkswagen as part of their day-to-day lives (Levin, 2015). For example, Volkswagen is now in the process of laying off more than 30,000 workers as a direct result of cutting costs to pay billions of penalties and restitution for the scandal (McHugh, 2016). Hence, when a company like Volkswagen sneezes – everybody catches a cold (Farneti et al., 2018).

When companies do not divulge material information to investors, information asymmetry causes market uncertainty resulting in over or undervalued share prices. More importantly, when companies behave badly, there are “economic costs of dishonesty” (Akerlof, 1970, p. 488). The fact that Volkswagen did not divulge its use of defeat devices earlier caused investors to overvalue Volkswagen shares until the market became informed about the defeat devices. The economic cost to investors was measured in billions as Volkswagen’s share price tumbled by more than 30 per cent in a single day. Moreover, these losses do not even include the flow on effects to other stakeholders, such as employees and their families. In essence, Volkswagen shares had an appearance of quality when in fact they were not “good” shares to own, but rather “lemons” lacking the quality shareholders expected (Akerlof, 1970, p. 489).

Similarly, consumers were left with lemons because they thought they were buying a clean diesel-powered car when they were buying a greenhouse gas generator on wheels. Subsequently, the price for new and used diesel-powered Volkswagens plummeted, in many cases leaving customers with a liability rather than an asset. Additionally, another cost is the loss of sales by legitimate businesses who were selling quality products. However, because consumers purchased the Volkswagen lemons instead of quality automobiles from honest automakers their sales suffered (Akerlof, 1970, p. 495). In the end, the ultimate cost of dishonesty is lack of trust because “the difficulty of distinguishing good quality from bad is inherent in the business world” (Akerlof, 1970, p. 500). If a consumer cannot easily distinguish one from the other, then they cannot trust the company.

Economic and social theories espouse that such managers can curtail dishonest[1] practices by building trust through contracts (agency theory), a company’s desire to operate with a social licence to operate (legitimacy theory), or the power of stakeholders (stakeholder theory). These theories are the cornerstones of academic research into alternate forms of voluntary corporate and IC disclosure (An et al., 2011; Dumay et al., 2018). However, as Gray (2001) laments in his aptly titled article, after “Thirty years of social accounting, reporting and auditing: what (if anything) have we learnt?” Fast forward to 2018 and Gray’s question is still relevant because, despite the interest in developing corporate accountability that began in the early 1970s, there are continuing calls for more accountability. Information asymmetry continues to exist, and society continues to mainly distrust the very institutions that should be the pillars of our modern society (Ries et al., 2018).

It is fair to say the so-called “improvements” brought about by both voluntary and involuntary corporate disclosure frameworks have not translated into improvements in practice. The failure of IC reporting is a primary example (Dumay, 2016). If we did trust companies and other social institutions, we would not need more voluntary and
regulated frameworks. For example, according to Bartels et al. (2016, p. 12), more than 100 new mandatory sustainability reporting instruments were introduced between 2013 and 2016, along with a proportionally greater increase in voluntary disclosure frameworks. Two of the most prominent are the mandatory EU Directive (European Union, 2014) and the voluntary IIRF (IIRC, 2013). Overall, as at the beginning of 2016, there were almost 400 instruments in 64 countries, which demonstrates the continuing efforts that both governments and the proponents of voluntary frameworks are directing towards trying to achieve transparency and accountability (Bartels et al., 2016). Unfortunately, this explosion in reporting instruments is a reflection of society’s dissatisfaction with sustainability disclosures and the corporate reporting status quo. Companies are still not responding to stakeholder concerns to a satisfactory standard, despite nearly a half-century of trying to entice them to do so. It is apparent that neither the carrot nor the stick is working (see Bartels et al., 2016).

Our theory on corporate disclosure is the antithesis of de Villiers and van Staden (2006) ideas. They argue that less disclosure can have a legitimising effect. We argue that increasing levels of disclosure and reporting can have a de-legitimising effect due to the level of distrust we have with companies, matched with increasing mandatory and voluntary disclosure instruments. Thus, the lessons learned from other failed attempts at reporting, such as IC reporting, have not drastically changed the way academics justify reporting as a solution (Dumay et al., 2018), or why companies continue to attempt to legitimise their existence through reporting (Guthrie and Parker, 1989). If reporting was going to save the world, surely it should have done so by now (Dumay et al., 2016).

The next section examines why these three prominent voluntary disclosure and reporting theories are used to explain why managers disclose or report. While these theories do philosophically work to explain management behaviour, understanding what drives management behaviour is also essential because without changing behaviours, changes in practice to increase trust are not possible.

3.1 Why theories linked to voluntary disclosure do not work to change behaviour

In the previous section, we show the linkage between reporting and managers’ behaviours is the base theoretical rationale behind voluntary and regulated disclosure. In this section, we discuss why agency, legitimacy and stakeholder theories do not work to change or guide behaviours that are honest, and instead may encourage dishonest behaviour. As we outlined earlier, these theories are at heart of explaining why companies voluntarily disclose IC but do not explain how to change management behaviours (An et al., 2011). Additionally, we outline why managers might disclose more information rather than less because disclosing more allows companies to disclose their dishonest claims and misrepresent the quality of their products and services.

3.1.1 Agency theory. The problem of information symmetry continues to be the foundational problem in corporate disclosures. According to Healy and Palepu (2001), there are three ways to resolve the information symmetry problem. First managers and investors can enter into contracts whereby management is incentivised to disclose complete information. Second, third-party intermediaries, such as the business press or analysts, uncover and disclose the information held by managers. These are also known as involuntary disclosures (Dumay and Guthrie, 2017). Third, government regulation can force managers to disclose private information.

The first solution seems plausible because managers and investors enter into contracts to encourage full disclosure and if the contracts operate as intended, the problem is solved. However, this solution is only plausible if it is in the best interests of the investors to have managers that fully disclose all information. However, as we have learned by analysing IC
reporting, disclosing negative or commercially sensitive information is not in the best interest of investors or managers (Schaper, 2016). Similarly, Milne (2002, p. 369) argues that “positive accounting theorists’ attempts to colonize social and environmental accounting research have proved a failure”. Furthermore, bonus contracts, a key feature of agency theory, do not always result in a positive effect because, sometimes, there are unintended consequences.

The unintended consequences of bonus contracts occur when managers and investors act dishonestly and do not consider other stakeholders. As Kerr (1995, p. 12) outlines, while we hope for the bad news to come out early, the market rewards “reporting good news, whether it’s true or not”. Therefore, what is the incentive for a manager with a bonus contract to disclose anything but good news, or for an investor to discourage such behaviour? Additionally, dishonest behaviour is encouraged when both managers and investors benefit from dishonest behaviour.

A prime example related to IC is the failure of Skandia to continue to promote and grow IC reporting as they issued their last IC report in 2000 (Dumay, 2016). When new management took over in the early 2000s, some managers did the opposite and harvested the wealth from the company for their and others’ benefit. The excess harvesting saw the “former chief executive of Swedish insurer Skandia [...] sentenced to two years in prison for fraud. Lars-Eric Petersson, who was fired in April 2003, was convicted of handing out 156 million kronor ($21.4 million) in bonuses to company executives without board approval” (Anon., 2006). Thus, when we have companies that continue to grow, we also have to recognise that someone wants to harvest that growth and there is the potential for dishonest behaviour during the harvest.

Another example of dishonest behaviour is in Australia, where a recent government enquiry (Royal Commission) is investigating misconduct in Australia’s banks and financial system. The Royal Commission evidences how employees, motivated by bonus contracts, acted in their self-interest at the expense of customers by selling them products they did not need and charging exorbitant commissions. In the worst cases, some deceased customers were being charged fees for financial advice they obviously could not act upon. In several instances, where the behaviour was discovered by the financial institutions, little or no action was taken nor was the behaviour reported to the appropriate authorities, customers, or the general public. Meanwhile, bank profits and share prices soared. Hence, public trust in the Australian financial system has been damaged by revelations of dishonest behaviour and misconduct uncovered by The Royal Commission (Muldowney, 2018).

The above examples show that agency theory is much better explaining why there is dishonest behaviour and why managers do not disclose bad news rather than doing anything to prevent it. This undisclosed dishonest behaviour forms the impetus for the second solution – third-party intermediaries such as the business press and analysts who uncover the secrets held by managers and stronghold financial information providers, such as Bloomberg’s (Dumay and Guthrie, 2017). Arguably, managers should be afraid of having bad news disclosed before discovery by a third party. However, this is only true if the managers bear the full cost of the dishonesty. In the case of the Australian banking system, the managers responsible for the dishonest behaviour have largely collected their bonuses and moved on.

The third solution, government regulation, also appears not to work. If government regulation did work, then we should already see an adequate amount of regulation. However, as we can see from the increase in regulatory instruments designed to get companies to disclose more information, current regulations are not working. Moreover, they are unlikely to work for three reasons. First is the ease with which most companies can
respond to increased reporting requirements while maintaining a business as usual approach, given that most big companies already comply with regulated or quasi-mandatory reporting instruments and use multiple voluntary frameworks such as the GRI (Dumay and Hossain, in press). Second is the general lack of substantial penalties for companies who do not comply with reporting requirements (Farneti et al., 2018). Third is that most of the recent advances in corporate disclosure adopt a “comply or explain why not” approach. These approaches mean that, if a company does not want to make a disclosure, they have to explain why and they still comply. For example, the EU Directive has a safe harbour provision, whereby an undertaking does not need to disclose commercially sensitive information (European Union, 2014). Thus, the lack of penalties and the safe harbour provisions are why Farneti et al. (2018) question whether or not the new EU Directive is essentially a “toothless tiger”.

3.1.2 Legitimacy theory. Legitimacy theory is arguably the most commonly used theory to explain why companies seek to establish the licence to operate in society through corporate reporting (Dumay et al., 2018). Since its inception as a theory for explaining corporate disclosures, its ability to explain disclosure has come into question. In the case of an Australian mining company, BHP, Guthrie and Parker (1989, p. 343) find that 100 years of reporting failed “to confirm legitimacy theory as the primary explanation” for their social disclosures. However, since then, several authors have advocated that legitimacy theory offers a rigorous explanation as to why companies report social and environmental information. For example, Patten (1992, p. 471) found a significant increase in environmental disclosures of petroleum firms as a result of the Exxon Valdez oil spill in Alaska, to “support the legitimacy theory arguments”. Furthermore, O’Donovan (2002, p. 344) on the validity of legitimacy theory investigates the micro-application of legitimacy theory as a tactic to explain why companies use disclosures in response “to legitimacy threatening environmental issues/events, and dependent on whether the purpose of the response is designed to gain, maintain or repair legitimacy, are reported”. However, what is clear about the research into legitimacy theory is that it is mainly used to explain what managers disclose in response to threats to an organisation’s legitimacy.

Responding to legitimacy threats is inevitably like “closing the stable door after the horse has bolted”. While it does change reporting behaviour, the real question is whether managers learn a lesson from the disaster. As O’Donovan (2002, p. 344) points out, organisations can repair (respond), maintain or gain legitimacy, with the latter being a proactive, rather than a reactive strategy (see also Suchman, 1995). However, it is unfortunate to see that many companies are in reactive mode when responding to legitimacy threats and that most do not “learn a lesson” and then change managerial behaviours. A prime example is the Australian financial institution studied by Beck et al. (2017, p. 198). This company lost the trust of its customers, employees, the financial regulator and other stakeholders due to a scandal that saw them dive into the depths of mistrust and turn to corporate social responsibility reporting to rebuild the trust:

The [scandal] in January 2004 rocked our stakeholders and released a public backlash against [us] and its culture. Our stakeholders asked for greater transparency and accountability, and told us we need to rebuild trust with them.

We had reached a strategic inflection point that was challenging but also brought opportunity for change. Many changes have been made to the Board and senior management. We are also changing our leadership teams, our structures, our culture and our strategies.

This report is a tangible demonstration that we will continue to strengthen our business practices and lift the level of transparency and accountability of the [financial institutions] on issues that are important to our stakeholders.
Rebuilding trust with stakeholders does not happen overnight, and seven years passed before the company’s disclosures evidenced that it normalised its legitimacy in society. While the company’s disclosures were advocating normalised legitimacy, behind the scenes, it was a different story with the company being involved in burgeoning scandals that again threaten its legitimacy (Casonato et al., forthcoming):

In 2015, several of [the company’s] employees were terminated after being found guilty of forging customer signatures and advising people to make hazardous investments and risky loans. CBD paid millions of dollars in compensation to the customers that had received bad advice.

Another example occurred in 2016 when one of [the company’s] financial advisers was found guilty of engaging in misleading and deceptive behaviour to favour particular clients. He was able to retrieve sensitive information about a superannuation fund by pretending to be a member and then use that information to improperly transfer funds to his clients.

Unsurprisingly, the first scandal gets scant mention in the company’s annual report, while the second receives no mention. It is important to note that these are just two of many examples of dishonest behaviour in the Australian financial system that appear locked to a reward system that gives substantial bonuses to employees for achieving sales and profit targets, often at the financial and emotional expense of their customers. Thus, despite the proclaimed good intentions to rebuild trust in their company, this company’s organisational culture has not sufficiently changed to prevent dishonest behaviour and further scandals (Casonato et al., forthcoming). Importantly, we want to emphasise that we do not paint all managers with the same dishonesty brush, but there are certainly enough rotten apples to spoil the barrel.

3.1.3 Stakeholder theory. Stakeholder and legitimacy theory are similar, except that they operate at different levels. As van der Laan (2009, p. 17) explains, legitimacy theory operates at a higher level to understand the relationships between organisations, society and particular stakeholders, while stakeholder theory operates at the micro-level to understand how organisations interact with stakeholders in practice. Hence, legitimacy theory and stakeholder theory are not separate theories but overlapping theories. According to Hasnas (2013, p. 49), there are three approaches to stakeholder theory: descriptive/empirical, which concentrates on explaining corporate behaviours; instrumental, which investigates how managers identify and manage stakeholders to achieve organisational objectives; and normative, which advocates the moral and philosophical reasons for managing companies.

Unlike our critique of agency and legitimacy theory, stakeholder theory can help explain a manager’s behaviour, rather than mainly why companies report information. The normative branch of stakeholder theory, sometimes known as the ethical branch of stakeholder theory, works in opposition to agency theory, which assumes that managers are self-interested. However, stakeholder theory purports that managers are not simply self-interested; they also act in the interest of their stakeholders (Hasnas, 2013). Therefore, our critique of stakeholder theory deals with how managers manage stakeholders and communicate with them in reports and disclosures.

Engaging in stakeholder theory helps to explain how and why the gap between corporate disclosure and corporate actions persists. Cho et al. (2015, p. 81) argue that to respond to “conflicting stakeholders demands”, organisations must fall into “organized hypocrisy”, which creates inconsistencies between an organisation’s talk, decisions, and actions. Accordingly, organisations use reporting and disclosure to develop and maintain different “organisational façades” as “symbolic fronts” to manage such contrasting pressures (Cho et al., 2015). Therefore, corporate disclosure and reporting is a result of a corporation’s intention to produce an iconic image in response to general stakeholder pressure, as an artefact of the most powerful stakeholders’ pressure.
From a corporate reporting perspective, managing stakeholders and reporting on process and outcomes is a core part of published reports. The main issue is the concept of materiality. It is important for companies to show they are managing the material issues that are important to the company and stakeholders (Dumay et al., 2015). However, in non-financial reporting materiality becomes more important because reports have long been questioned for their relevance.

Some companies have responded by including a materiality matrix in their reports. A materiality matrix shows how stakeholder theory is used in practice to align issues that are important to the company with powerful stakeholders. However, a materiality matrix also highlights how powerful stakeholders drive management behaviour rather than a company’s own moral and philosophical beliefs – corporate culture. Therefore, if a company and its managers are driven to act in the interests of powerful stakeholders, of which shareholders are likely the most representative category, then the moral and philosophical ideals of the company and its managers will be compromised by the motive of profit. It is a vicious cycle that reinforces bonus contracts and leads to dishonest behaviours (Casonato et al., forthcoming). Hence, instrumentally applying stakeholder theory is unlikely to prevent managers from withholding information or acting dishonestly.

### 3.2 Why more disclosure does not increase trust

In this section, we offer an antithesis to de Villiers and van Staden (2006, p. 763) who argue that legitimacy theory predicts reductions in social disclosures “as much as it predicts maintaining or increasing disclosure levels”. We argue the opposite because if the predictions did come true then “the idea that social disclosures will be maintained at present levels, or increased over time, to avert legitimacy crises” should, by now, also have become true. However, as evidenced in the Edelman Trust Barometer, there is overall distrust in business across Europe and many other countries like Australia (45), where the largest listed companies predominantly issue mandatory and voluntary social and environmental reports (Australian Council of Superannuation Investors, 2017). Globally, trust in business remains unchanged and is neutral. Therefore, business is still in need of significant improvement in behaviour to become trustworthy.

In Figure 5, we graph the business trust levels for Australia and the number of corporate social responsibility reports issued from 2012 to 2016 (Source: CorporateRegister.com). What we can observe from this graph is that the number of reports is fairly steady, as is the level of trust. In the first four years, we also witness opposite movements in the number of reports and trust, while in 2016 there is an increase in both reports and trust. The graph illustrates some initial evidence to support our argument – that more disclosure does not increase trust – but rather works in contrast to de Villiers and van Staden (2006, p. 763) theory.

![Figure 5. Business trust vs number of reports in Australia 2012–2016](image-url)
Figure 6 provides further early evidence to support our argument in the European context. It shows the statistical results of our analysis of a sample of European countries (France, Germany, Italy, the Netherlands, Ireland, Poland, Spain and UK)[2]. This Structured Equation Model draws on the level of trust and the number of reports per country from 2012 to 2016 (40 observations). Our model tests whether the annual change in the number of reports (the exogenous variable) has any influence on the following variables:

1. trust level, regarding absolute value on the Edelman Trust Barometer;
2. annual change in trust level as a percentage rate of change in the above variable over the previous year; and
3. annual change in trust level as a percentage rate of change in variable 1 over the following year.

The results demonstrate that changes in the extent of corporate disclosure do not influence the level of trust (variable 1). Nor do changes in disclosure influence trust in the following years (variable 3). Indeed, in both cases, the beta coefficients measuring the intensity of the relations are almost zero and carry no statistical significance ($p > 0.05$). Instead, interestingly, we find a high and statistically significant intensity between the extent of disclosure in previous years and changes in trust level. Therefore, while we cannot provide evidence that disclosure influences current and future trust, we can see some early evidence that trends in the number of reports follow the rate of change in trust levels based on previous years.

Further support of our theory is found in Abhayawansa et al.’s (in press) study about the usefulness of integrated reporting as perceived by sell-side analysts who represent and make recommendations to investors about investing in companies. Abhayawansa et al. (in press) find that analysts want to maintain their independence in forming an opinion about a company and its potential. Specifically, the analysts do not want their opinion contaminated by corporate communications such as integrated reports. One interviewee outlines “[…] my job is to make my own view. So I don’t carry [Company Y’s] views across. I have to be sceptical of everything until I learn/find out what I can trust and what I can’t trust”.

Sources: Trust: Ries et al. (2018); Number of reports corporateregister.com as at 1 June 2018

Figure 6. Structured Equation Model between disclosure and trust
Thus, the issue of trust, or more specifically mistrust, in what a company discloses taints corporate disclosures and reports because they are normally biased to tell the bright side while ignoring the dark side. Additionally, the analyst “ought to explain the complex interrelationships and dependencies between the factors that affect the company’s ability to create value”, because analysts see it as their job to unpack information, not the report’s (Abhayawansa et al., in press, p. 23).

Last, we also argue that an increased disclosure does not always instil trust or develop legitimacy. For example, “green washing” is a well-known and researched issue (Mahoney et al., 2013; Kim and Lyon, 2015) Volkswagen practised greenwashing prior the defeat device scandal, as evidenced on their website. As Dumay and Guthrie (2017, p. 36) describe, “when accessing Volkswagen’s 2014 annual report online, a pop-up window appears announcing how fuel consumption and CO₂ values in the media database are incorrectly stated”. Additionally, a market for lemons formed when advertising campaigns back up the announcements. Dishonest claims and advertising steal sales away from more honest automakers because, at the time those claims were made, consumers trusted Volkswagen and their legitimacy was enhanced. However, Volkswagen built a fragile house of playing cards, and as the volume of dishonest disclosures increased, the house collapsed under its own weight.

4. Stewardship: the way forward for IC and corporate disclosure
The failure of IC reporting to make up for the deficiencies of accounting must be accepted as a fact. Similarly, we need to learn from the failure to understand why voluntarily disclosing information is also failing to change behaviour. Additionally, we can see from Dumay’s (2016) revised IC definition that IC has fundamentally changed from a new way of understanding how to create economic value, to understanding how it contributes to society and the environment.

Our critique of the theories and our anti-thesis of corporate disclosure and reporting is important for understanding how we can develop a way forward for IC as a part of a wider corporate disclosure framework. We specifically talk about disclosure rather than divulging or reporting because we are interested in how companies make something previously unknown known (Dumay, 2016). We also share Dumay’s (2016) view that reporting should be a summarised artefact of management actions. Providing a summary does not mean that reporting is not useful. Reporting can be useful for introducing and providing a summary of a company’s actions over a specific time period. Some stakeholders do not regularly engage with a company on a day-to-day or month-to-month basis – particularly, potential stakeholders. Therefore, each stakeholder’s information needs are different (Dumay and Tull, 2007).

Additionally, we need to consider the different ways that a company can disclose information to all stakeholders and engage in a two-way dialogue. As Cooper and Owen (2007, p. 653) argue, enhancing accountability depends on a dialogical process that starts from a “communicative action” but cannot be limited to itself. Thus, to reform corporate accountability, the dialogical process underlying corporate disclosure needs to be extended to the participation of stakeholders and inclusive governance (Cooper and Owen, 2007). From an IC and integrated reporting perspective, this represents a substantial extension to the concept of IC and integrated reporting that Eccles and Krzus (2010) describe in their book One Report. Here, Eccles and Krzus (2010, p. 10) advocate:

The integration of financial and nonfinancial reporting is about much more than simply issuing a combined paper document. It involves using the Internet to provide integrated reporting in ways that cannot be done on paper, such as through analytical tools that enable the user to do his or her own analysis of financial and nonfinancial information. It also involves providing information that is of particular interest to different stakeholders.
One Report provides a conceptual platform that is supplemented by the technology platform of the company’s Web site, from which much more detailed data can and should be provided to meet the information needs of a company’s many stakeholders.

However, in their study on integrated reporting, Stubbs and Higgins (2018, p. 505) find that “none [of the investors and regulatory and standard-setting bodies interviewed] talked about stewardship, and only two talked about accountability”, so demonstrating that “accountability is not at the forefront, economic decision-making is”. Accountability causes us to reflect and rethink the role of corporate disclosure and its impact on trust.

4.1 Stewardship theory as a basis for corporate behaviour and disclosure

Our way forward supports and draws on the notion of One Report to develop what we call “stewardship disclosures”. Stewardship disclosures are based on stewardship theory, which is the antithesis of agency theory as Davis et al. (1997, p. 20) outline:

Economic approaches to governance such as agency theory tend to assume some form of homo-economicus, which depict subordinates as individualistic, opportunistic, and self-serving. Alternatively, sociological and psychological approaches to governance such as stewardship theory depict subordinates as collectivists, pro-organisational, and trustworthy.

Stewardship theory is a counterpoint to agency theory because it rejects the economic assumption that managers are always “individualistic, selfish, opportunistic, and only look after their own interests” (Dominguez-Escrig et al., 2018, p. 3). Stewardship theory emerges from psychological and sociological roots and acknowledges that managers are motivated by collectivistic, pro-organisational and trustworthy purposes (Davis et al., 1997; Dominguez-Escrig et al., 2018). Stewardship is one of the three elements of an ethical leader, who, by acting as a “house guardian”, is responsible for, and in the service of, others. Thus, a leader is a servant who prioritises the common good and acts for the benefit of others (Gini and Green, 2014).

Behaving like a steward is motivated not only by extrinsic (social) factors and ethical pressure but mostly by intrinsic and psychological factors, such as human higher-order needs (e.g. growth, self-fulfilment) that dominate survival needs (Davis et al., 1997). In the stewardship theory, the stewards, as opposed to the agents, identify themselves with their organisation, its mission and objectives and they use their personal power instead of the institutional power rising from their position (Davis et al., 1997; Aßländer et al., 2016). Furthermore, according to Hernandez (2012), two psychological dynamics enact a stewardship behaviour that sacrifices short-term personal gains to protect the long-term well-being: cognitive mechanisms, which develop concerns for the others; and effective mechanisms, which build emotional commitment with others. Therefore, stewardship theory overcomes the simplistic and rational character of human beings founding agency theory and enlarges it to a multitude of traits shaping human behaviour.

Dominguez-Escrig et al. (2018) underline that stewardship behaviour also unveils intergenerational dilemmas. As Hernandez (2008, p. 122) states, “stewardship behaviour is created through social exchanges between leader and follower(s) that extend across generations”. As a steward of resources, a leader should act in the interest of the organisation and the external communities as well. In managing the consumption of the natural resources, their decisions go beyond the private organisational interests, seeking profits for their shareholders; they also concern meeting the societal demands and preserving the natural resources for future generations (Heuer, 2010). Thus, stewardship theory and behaviour represent the ground of the organisations’ commitment to sustainability that should inform their corporate governance.
Stewardship behaviour unveils not only the importance of ethical governance for sustainability (Caldwell et al., 2008) but also challenges the established structure of corporate governance. Donaldson and Davis (1991) demonstrate that, while according to agency theory the separation of incumbency of roles of board chair and CEO is needed to protect the shareholders’ interests, the empirical evidence fails to demonstrate this. Instead, the empirical test provides support for stewardship theory. The authors demonstrate that “the returns to shareholders are improved by combining, rather than by separating, the role-holders of the chair and CEO positions” (Donaldson and Davis, 1991, p. 62). Similarly, Muth and Donaldson (1998) findings are contrasting agency theory where an independent board adds shareholder value, providing evidence supporting stewardship theory. However, Nicholson and Kiel (2007) find that, among the three dominant theories of corporate governance (agency theory, stewardship theory and resource dependence theory), no single theory explains a general pattern between board characteristics and firm performance. Thus, while the relationship between the board of directors and firm performance has been explained by different contingencies, stewardship theory still provides stronger support for fostering managers’ longer-term view and their stronger commitment to the organisation and its objectives (Vallejo, 2009). The commitment occurs by allowing managers to act autonomously instead of placing controls based on incentives.

Such an effect on corporate governance also influences corporate accountability and disclosure, because stewardship behaviour builds the trust that corporate disclosure is not able to produce alone. Caldwell et al. (2010) argue that, when leadership behaviours are perceived as trustworthy, acting according to ethical stewardship, leaders are viewed as ethical stewards and trust increases. Empirical research also supports such a relation between stewardship theory and trust, in contrast to agency theory (Aßländer et al., 2016). Hence, introducing stewardship theory to corporate disclosures forces us to relinquish the trappings of homo-economicus, who is driven and controlled by bonus contracts and other financial rewards. Only when the temptation of a bonus is removed might investors, and consumers begin to rightly believe that managers and their companies are trustworthy and that they will not be sold lemons. Removing bonuses would require changes to the governance and mechanisms of economic incentives, which no longer views managers as self-interested actors, but as stewards of resources.

4.2 A model for stewardship disclosure in practice

Stewardship disclosures are a flexible way for companies to comply with the varying mandatory disclosure requirements in different jurisdictions and to marry these with the many different frameworks available to voluntarily disclose information to investors and other stakeholders. Accounting information exists because of the demand for stewardship (Gjesdal, 1981). However, Stubbs and Higgins’ (2018, p. 504) findings concerning regulatory reforms in integrated reporting raise concerns whether or not “integrated reporting [and the IIRF] will enhance accountability and stewardship of the broad base of capitals”. Therefore, a new corporate disclosure approach informed by stewardship theory can help improve accountability and foster stewardship behaviours. To translate stewardship disclosure into action, organisations need to jointly follow three principles: timeliness, fairness and trust as a stock.

Primarily, stewardship disclosures are based on a managerial process that ensures the information required by investors and stakeholders is released promptly using the most appropriate channel to disclose (being one-way) or communicate (being two-way) with investors and stakeholders. Therefore, stewardship disclosures do not rely on periodic reporting frameworks as favoured by the GRI and integrated reporting but foremost rely on providing the most up-to-date information possible in an easily accessible manner.
For example, as La Torre, Botes, Dumay, Rea and Odendaal (2018) argue, the risk of data breaches in the current digital ecosystem is a compelling concern for companies and customers. Moreover, when a data breach impacting customers’ privacy occurs, there is a need to disclose the incidents to interested parties in a timely fashion.

Second, the most important thing about stewardship disclosures is that they are as honest and as transparent as reasonably possible because there is always critical information that interests investors and stakeholders that is too commercially sensitive to disclose (for a more detailed model see Dumay et al., 2015, p. 6). However, achieving trustworthy disclosures is only possible if managers consider themselves as stewards of organisational resources, rather than seeking how to maximise wealth before considering the impact their actions might have on other people.

Last, managers must see stakeholders’ trust as a stock of value. Even though we might give a simple and unique meaning to trust, Baldvinsdottir et al. (2011) demonstrate that there are several definitions of trust in the accounting literature. However, in this paper, we engage Tomkins’s (2001) definition of trust:

The adoption of a belief by one party in a relationship that the other party will not act against his or her interests, where this belief is held without undue doubt or suspicion and in the absence of detailed information about the actions of that other party.

Trust is social capital (Shapiro, 2005) that forms the foundations of a democratic society (Putnam, 1993). It also fits well with the six capitals model we outline. As a stock of value, enriching or destroying trust happens when managers adopt an honest or dishonest approach to disclosure. Therefore, when managers choose to disclose or hide information, they should look at the potential and future implications of their ideas about trust as a stock. This approach to trust requires that businesses adopt more inclusive and pluralistic governance that encloses and synthesises the interests of a wide range of stakeholders, as they are the trust-keepers. Thus, we build on our earlier discussion of extending the six capitals model to comply with the EU Directive and extend the model further to include stewardship (Figure 7), which is essential if companies are to rebuild trust with investors and consumers.

One big question is can the model work? We believe so, and there is evidence in Australia with the example of Bank Australia, which is a customer-owned bank, rather than being listed on the Australian Securities Exchange. Hence, the Bank Australia business model is different because it removes the agency relationship and through their “Responsible Banking” culture

![Figure 7. A new model incorporating stewardship, the six capitals, business model and EU Directive elements](image-url)
and engenders stewardship. Their breaking of the agency theory model is evidenced in their remuneration policy and perhaps, more importantly, its disclosure (Bank Australia, 2017, p. 14):

As our customers expect, we take a responsible approach to remuneration, offering fair and competitive salaries to our people. We do not offer sales based commissions to our staff or bonuses to our executives, which means our focus remains on our customers’ best interests at all times.

The Bank Australia annual report also demonstrates the flexibility of reporting because it incorporates AA1000 Accountability Principles Standard 2008, the IIRF and the GRI in its reporting model. This is an example of how a company can tailor its communication using different frameworks and adjust them to suit its circumstances as shown in Table I. Additionally, Bank Australia provides a “News” section on its website where customers and other stakeholders can get updated disclosures on what Bank Australia is doing. The page includes several topics including Corporate, Business and Community, Managing my money, Borrowing, Investing for my future, People, Planet, Prosperity and Arts and culture [3] and is updated on a continual basis. The initiative is a prime example of using the internet to disclose information as it happens rather than waiting to issue a corporate social responsibility, sustainability, integrated or annual report.

5. Conclusion
In this paper, we reflect on the current and compelling issues permeating the international landscape of corporate reporting and disclosure. The EU Directive is a regulatory action that reflects the societal and political demands for more disclosure by business. While the European regulation mandates that large undertakings report on non-financial information, little is still known about how companies can adopt and pursue the final purpose of the EU Directive. The EU Directive adopts a “smart regulatory” approach, which combines mandatory disclosure requirements with voluntary aspects that translates into practice (Johansen, 2016). This paper contributes to developing practical and theoretical recommendations to put the EU Directive into action and achieve its goals of rebuilding lost customer and investor trust in business and institutions.

We demonstrate that companies can apply the six capitals model to comply with the EU Directive and extend the traditional tripartite model of IC. The six capitals model fits well with the social and environmental themes required by the EU Directive and can make visible the way resources (both tangible and intangible) are used, consumed and combined to create value. However, as we demonstrate, this is not enough to achieve the EU Directive’s goal of rebuilding trust, as demanding more disclosure does not create the conditions or incentives for honesty or complete information. A shift away from the main theoretical paradigms is needed to support fair corporate reporting and disclosure.

<table>
<thead>
<tr>
<th>Framework</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>AA1000 Accountability Principles Standard 2008</td>
<td>To guide the development of our stakeholder engagement strategy</td>
</tr>
<tr>
<td>Integrated Reporting Framework</td>
<td>To guide our approach to identifying, analysing and prioritising the material issues for the report</td>
</tr>
<tr>
<td>Global Reporting Initiative’s (GRI) G4 sustainable reporting framework</td>
<td>To guide how we identify indicators for reporting. This report does not report on the full list of GRI indicators; rather, it covers a selection of indicators that are a priority for our customers</td>
</tr>
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Table I. Bank Australia’s reporting frameworks 2017

Source: Bank Australia (2017, p. 35)
Theoretically, agency theory, legitimacy theory and stakeholder theory are not able to prevent the trap of bonus contracts, and, while they continue to explain the economic rationale of corporate disclosure, they are not able to overcome *homo-economicus* who is driven and controlled by financial rewards. Therefore, we advocate the theory of stewardship and its application in the six capitals model to foster and instil mechanisms for stewardship disclosures grounded in the three principles of timeliness, fairness, and trust as a stock.

5.1 Implications for IC and integrated reporting

Dumay (2016) declared the death of IC reporting, and there does not appear to be a great resurgence in reporting on IC even with the IIRC’s six capitals model. According to Dumay *et al.* (2017, p. 467), most integrated reports barely even refer to the six capitals and therefore “lack both form and substance when reporting value creation”. Thus, there has been no resurgence in IC reporting, and it appears that the IIRF continues to struggle to find acceptance. However, we advocate that companies should adopt and adapt the different frameworks available to suit their own needs and context. As with the Bank Australia example, they use different frameworks and channels to best communicate with their customers and other stakeholders. We do not recommend blind adherence to one framework for disclosure or one reporting channel because they are unlikely to be useful for providing timely or material information.

We do not see a resurgence of reporting knowledge or capital, but what we do see is an opportunity for companies to use the amended six capitals model to understand how each of the capitals interacts to create value (Dumay, 2009). As Schaper *et al.* (2017, p. 88) outline, measuring, managing and reporting IC is mainly an internal management process “because companies most likely would prefer not to disclose value relevant information”. Therefore, any information disclosed is likely to be only the tip of the iceberg and many other material issues of interest to customers and stakeholders will remain behind the veil of information asymmetry. However, the most important implication for IC and integrated reporting is the application of stewardship theory to help guide management behaviours.

Stewardship is in stark contrast to the agency theory perspective taken in the current IIRF because it replaces the primary objective of providing more detailed information with the providers of financial capital, with the primary objective of being steward of all the resources a company uses. Eliminating the agency focus of the IIRF, and replacing it with a stewardship focus, has the power to change management behaviour. However, as the case of Bank Australia demonstrates, to truly eliminate the agency focus, companies must remove bonus contracts and replace them with a fair wage for all employees and Directors.

5.2 Implications for the EU directive

One key attribute of the EU Directive is the ability for companies to report using a myriad of different frameworks. However, the EU Directive still appears stuck in an agency perspective because it is still signalling to companies that they will be treated better if they disclose and report more, that is if they reduce information asymmetry. If we take an agency perspective, then information asymmetry appears to be the problem. However, if we take a stewardship perspective, we are not trying to get companies to divulge any more information because most large companies already disclose and report volumes of information through either mandatory or voluntary instruments. Bartels *et al.* (2016) show that since 2013 there has been a significant increase in disclosures and reports in Europe, yet there is still a lack of trust in European countries. Therefore, it is not the volume of information withheld; it is the concealment of dishonest behaviour that impacts trust.

The only way to break free from an agency perspective is to instil and apply the concept of stewardship within the EU Directive in place of agency theory. Hence, specific guidance should be included for companies as a part of the bribery and corruption requirements to
disclose and report on how they are eliminating agency contracts and replacing them with adequate and fair remuneration to remove the temptation from managers to behave dishonestly. However, while we are optimistic about stewardship and its ability to change how managers focus and manage a company’s resources, it requires changes in organisational culture, which is not easy in the short-term (Merchant and Van der Stede, 2007), especially if a company sees its organisational culture as a cornerstone of its success (Dumay and Dai, 2017).

5.3 Implications for education
The prevalence of reward systems (result controls) in organisations is still promoted and taught in our management schools. However, change is needed, and we need to realise that the only way to encourage a new way of thinking is to educate our future managers and shareholders the virtues on stewardship over agency. The need to change a business culture is what is preventing further change because, by tackling the information asymmetry problem, we are limiting ourselves to a vicious cycle of trying coax information from managers, thus instilling in them their power over information rather than relinquishing control.

The only way to remove the information control problem is to eliminate the need to control information. If managers operate as stewards for information, then more honest behaviours and disclosures will be the result. Accordingly, the only information withheld will be immaterial or too sensitive to disclose because it is not in the interest of the stakeholders to disclose it. Thus, we need to teach the virtues of stewardship in our universities rather than teach students how to obtain and control information to serve their needs.

5.4 Limitations and future research
In this paper, we propose a novel theoretical and practical approach by incorporating IC, integrated reporting and the EU Directive with stewardship theory to create a new model for corporate disclosure. The model has relevant implications for both practice and research but, while we provide examples of evidence supporting our argument on the need for a stewardship disclosure, there are still few empirical cases that can advance our thesis. Therefore, we call for future empirical research to explore the role of stewardship theory within the dynamics of corporate disclosure and apply our approach to research the implications of reporting on management behaviours. By this, we mean engaging the stewardship framework to help understand its impact on managing a company, how managers disclose actions and outcomes are, and the effects on rebuilding public trust in business.

Notes
1. We continue to use the words “dishonest” and “dishonesty” to be consistent with the terminology used in Akerlof (1970).
2. The sample selection has been limited by the available data in the Edelman Trust Barometer report (Ries, 2018). The source of the data about the number of reports is Corporateregister.com.

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The influence of integrated reporting and internationalisation on intellectual capital disclosures

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Abstract

Purpose – The purpose of this paper is to examine whether preparing an integrated report and/or whether cross-listing is associated with more intellectual capital (IC) disclosure.

Design/methodology/approach – The paper compares the content of IC disclosures of matched samples of companies.

Findings – The findings show that companies preparing an integrated report disclose more IC information, and that companies exposed to international capital market pressures through cross-listing do not disclose more IC information.

Research limitations/implications – The findings imply that integrated reporting (IR) is likely to increase IC disclosures and also that future IC disclosure research may have to take into account whether companies prepare an integrated report.

Practical implications – The results will be of interest to the proponents of IC and of IR, including the developers of the IR framework, regulators and companies considering IR.

Originality/value – This is one of the first studies to assess the influence of preparing an integrated report on the level of IC disclosure.

Keywords Integrated reporting, Intellectual capital, Intellectual capital disclosure, Voluntary disclosure, Internationalisation

Paper type Research paper

1. Introduction

In a recent paper, de Villiers and Sharma (2018) critically assess the influence of integrated reporting (IR) on intellectual capital (IC) disclosures, concluding that the renewed interest IR brings to IC will benefit IC research and disclosure. IR is a move to combine disclosures of six capitals, including the three IC capitals, in an integrated manner (de Villiers et al., 2014; Guthrie et al., 2017; de Villiers, Hsiao and Maroun, 2017; de Villiers, Venter and Hsiao, 2017). de Villiers and Sharma (2018) do not provide any empirical evidence to support their argument that IR will increase IC disclosure. This paper aims to provide such evidence by utilising the unique setting of South Africa, where local listed companies have to prepare an integrated report or explain why they do not (in practice, almost all of them prepare an integrated report, instead of an annual report), but where companies listed on the Johannesburg Stock Exchange (JSE) as a secondary listing (i.e. their primary listing is somewhere else) can choose whether they prepare an integrated report or not (in practice, about half of them prepare an integrated report while the other half do not). Companies with secondary listings on the JSE have a primary listing in the developed world, e.g., on the London Stock Exchange. Managers of companies listed on more than one stock exchange, with investors from more than one societal setting, may feel the need to disclose the IC information expected in each listing location. Prior studies provide evidence in support of this notion, finding that companies listed on multiple stock exchanges voluntarily disclose more financial information (Ahmed and Courtis, 1999; Broberg et al., 2010;
Meek and Gray, 1989). Similar findings have been reported for corporate social responsibility disclosures (Fifka, 2013; Hackston and Milne, 1996) and for IC disclosures (Kang and Gray, 2011; Oliveira et al., 2006). The South African setting allows the authors to test whether companies that prepare an integrated report disclose more IC information, and whether companies with exposure to an international market disclose more IC information. While Melloni (2015) investigates IC disclosures in integrated reports and finds the IC disclosures to be optimistic and used for opportunistic purposes, she does not examine whether companies that produce an integrated report disclose more IC information.

Initially, IC research was dominated by normative arguments for the disclosure of IC as well as normative disclosure frameworks (Guthrie et al., 2012). This was followed by a stage characterised by content analyses, initiated by the seminal research by Guthrie and Petty (2000). During this stage, the most important question being asked was what is being disclosed. IC research is now said to have entered several new stages, namely, the third, more critical stage (Dumay and Garanina, 2013; Guthrie et al., 2012), and a fourth stage of systemic IC research has been suggested (Dumay and Garanina, 2013) and further developed by Secundo et al. (2016). Recently, Dumay et al. (2018) suggest a fifth stage of IC research without boundaries as a worthwhile enterprise. Better, more nuanced understandings are now being formed about the causal relationships at work around IC disclosure. This paper aims to contribute to these understandings by focussing on the reasons for companies to disclose more IC information. Therefore, this paper is not just interested in what kind of IC is disclosed, or to lament about how little is disclosed, which Dumay and Cai (2014) warn against, rather the paper examines whether internationalisation and/or IR are associated with more IC disclosure.

Therefore, the paper uses content analysis to investigate the following research questions:

**RQ1.** Do companies disclose more IC information when they are exposed to additional international markets?

**RQ2.** Do companies disclose more IC information when they produce an integrated report?

This study uses a matched sample (based on industry and size) of companies that are cross-listed with those that are only listed on the JSE. The companies only listed on the JSE prepared integrated reports, whereas half of the cross-listed companies prepared an integrated report. The paper content analyses the primary corporate annual reports of the sample of companies, being annual reports for some and integrated reports for others, using the disclosure index of Abeysekera and Guthrie (2005), as modified by Wagiciengo and Belal (2012).

The findings show that more IC is disclosed by the preparers of integrated reports, not by cross-listed companies. This paper is amongst the first to investigate IC disclosure in integrated reports. The findings may inform the further development of IR guidelines by the IIRC. For example, the IR guidelines may be expanded to provide more specific guidance on IC disclosures. Regulators may use the results as an input when considering whether to mandate IR. For example, regulators may consider mandating IR in order to enhance IC disclosures. The results improve the understanding of the impact of IR and internationalisation on IC disclosure.

### 2. Literature review

Voluntary disclosure involves disclosure in the excess of mandated requirements that managers of a company may deem to be relevant (White et al., 2007; de Villiers and Vorster, 1995; de Villiers, 1998). Prior research has investigated why managers choose to voluntarily disclose non-financial information (Beattie and Smith, 2012; de Villiers, 1999; Marr et al., 2003). Reporting of non-financial information has been found to be value-relevant, reducing
the cost of equity capital and improving analyst forecast accuracy (de Villiers and Marques, 2016; Dhaliwal et al., 2011, 2012). Although IC itself has been found to have a positive impact on market value and financial performance (Abdolmohammadi, 2005; Chen et al., 2005; Swartz et al., 2006), IC disclosures have also been found to be of low quality, often providing qualitative rather than quantitative information (Guthrie et al., 2006). If voluntary disclosure is positively correlated with performance and market value, and negatively correlated with cost of capital, the question may be asked why companies do not disclose more IC information.

Capital market equity investors are seen as important stakeholders when managers make voluntary disclosure decisions. In a meta-analysis of research into the determinants of voluntary disclosure, Ahmed and Courtis (1999) found that the listing status of a company, whether it is listed on one exchange or multiple exchanges, was significantly positively associated with voluntary disclosure. Early studies by Gray et al. (1995) and Meek and Gray (1989) found that internationally listed companies disclosed more information, including IC information, in their annual reports than domestically listed companies. Similar results are reported by Broberg et al. (2010) and García-Meca et al. (2005). Haniffa and Cooke (2005), focusing on corporate social reporting, found a significant association between foreign listing and increased corporate social disclosures. Kang and Gray (2011) focussed specifically on the voluntary disclosure of intangible assets and found no effect on their disclosure measure from foreign listing. This paper similarly focusses on voluntary IC disclosure and uses a more robust research design to answer the first research question RQ1.

There are several guidelines and frameworks for the external reporting of IC (Abhayawansa, 2014; Guthrie et al., 2012). Early IC research suggested normative disclosure frameworks (An et al., 2011). The literature then moved on to content analyses to report what and how much IC was being disclosed, often using content analysis to collect empirical data (Guthrie et al., 2004; Abeysekera, 2006). The number of papers providing normative frameworks has declined since the early years of IC research (Guthrie et al., 2012). Recently, the IR framework specifically highlighted six capitals, three of which equate to the IC categories (Beattie and Smith, 2013). Early evidence indicates that IR is value relevant, i.e. makes a difference to investors’ valuation of firms (Baboukardos and Rimmel, 2016). In terms of IR studies, studies provide empirical evidence into the types of disclosures provided and the factors that may drive such disclosure, but have not specifically focussed on IC disclosure (Haji and Anifowose, 2016; Joubert, 2014; Mio and Fasan, 2014; Setia et al., 2015; Veltri and Silvestri, 2015; Wild and van Staden, 2013), with the exception of Melloni (2015) who report that IC disclosures in IR are generally used for opportunistic reasons. In recent studies, Dumay et al. (2017) focus on the impediments to IR implementation, while Guthrie et al. (2017) rely on case-based evidence and de Villiers, Hsiao and Maroun (2017) propose a conceptual model of influences around IR.

More relevant to the current study, Wild and van Staden (2013) examined the disclosures in 58 integrated reports, including 14 South African companies, finding that 90 per cent of the integrated reports sampled addressed human and social capital (Wild and van Staden, 2013). A number of studies have investigated IC disclosure in sustainability reports which preceded IR (Cinquini et al., 2012; Oliveira et al., 2010). Oliveira et al. (2010) investigated IC reporting in sustainability reports of Portuguese companies. They found that the items of IC disclosure relating to strategy, processes and human capital were disclosed the most. The reporting of IC information in the sustainability reports of Italian companies was analysed by Cinquini et al. (2012). The level of Global Reporting Initiative framework adherence was found to be significantly associated to higher IC disclosures (Cinquini et al., 2012).

April et al. (2003) and Wagiciengo and Belal (2012) examined IC disclosure by South African companies before the advent of IR. Both studies focussed on the top 20
South African companies based on market capitalisation. In the earlier study, relational capital had been the most reported category at 40 per cent of IC disclosure (April et al., 2003). In the later study, human capital had almost doubled from the earlier levels to more than 60 per cent of IC disclosure; the most reported sub-category was employment equity issues with Black Economic Empowerment being the most reported item (Wagiciengo and Belal, 2012). These studies examined disclosure in annual reports, while the current paper investigates disclosure in annual and integrated reports to answer the second research question: RQ2.

3. Hypotheses development
Managers voluntarily disclose information to meet investor expectations, which benefits the managers in terms of enhanced career prospects and bonus remuneration (Healy and Palepu, 2001). Voluntary disclosures are influenced by the country in which the company operates, as shown in multi-country accounting studies (e.g. de Villiers and Marques, 2016), because investors have different expectations regarding the information they expect companies to disclose in different countries (Cahan et al., 2016). Therefore, companies that cross-list in another country could be exposed to expanded demands for disclosure. Investors’ information needs are important, since their assessment of companies’ risks and opportunities will influence share prices and thereby managers’ prospects and bonuses. Where companies do not disclose the information needed to fully assess risks and returns, investors protect themselves by assuming the worst case scenario, which is known as adverse selection (Healy and Palepu, 2001). Therefore, when a company has more than one set of investors in different countries to consider, it may lead to the disclosure of more IC information to assist investors to fully assess risks and returns on the basis of the IC information. IC disclosures may also be used as a signalling device (Healy and Palepu, 2001), allowing management to signal the value creation opportunities in IC. Prior studies provide evidence in support of these arguments, finding that companies listed on multiple stock exchanges voluntarily disclose more financial information (Ahmed and Courtis, 1999; Broberg et al., 2010; Meek and Gray, 1989). Similar evidence have been reported for corporate social responsibility information (Fifka, 2013; Hackston and Milne, 1996), and for IC disclosure (Kang and Gray, 2011; Oliveira et al., 2006).

On the other hand, managers may regard IC as proprietary information, which they do not want to share in the belief that doing so could compromise the company’s competitive advantage (Beattie and Smith, 2012). Therefore, sharing such information involves proprietary costs, which managers would want to avoid. If this view prevailed, listing on another stock exchange should not influence the disclosed IC.

The first hypothesis is stated in the alternative form:

\[ H1. \] Cross-listed companies are likely to disclose more IC information than companies with a single listing.

Investors’ information needs are continuously evolving with more and more investors now taking non-financial information into account to assess companies’ risks and prospects (Robecosam, 2017). Managers respond to these evolving information needs by disclosing more and more non-financial information (KPMG, 2017), including a move towards integrated reports (de Villiers et al., 2014). IR specifically prompts managers to consider each of the capitals, including the three IC capitals, and then to make decisions regarding their disclosure (IIRC, 2013; Setia et al., 2015). This specific link between IR and IC has led to the speculation that IR will increase attention on and disclosures of IC (de Villiers and Sharma, 2018). On the basis of these arguments, the authors expect that companies that produce an integrated report will disclose more information about all of the capitals, including IC, than companies that do not produce an integrated report. Consistent with this argument,
IC disclosures may be used by managers to signal the value creations opportunities for their companies within IC.

On the other hand, the IR framework suggests that reports should be concise and deal only with material matters (IIRC, 2013). If companies follow this suggestion and keep their integrated reports short, this may require a reduction in IC disclosures. However, in practice South African-integrated reports are no shorter than annual reports. Another argument that IC disclosures might not be influenced by IR is the proprietary cost argument, i.e. managers may be reluctant to disclose IC information on any platform if they believe such disclosure will compromise the company’s competitive advantage.

The second hypothesis is stated in the alternative form:

\[ H2. \text{ IR-producing companies are likely to disclose more IC information than non-IR producing companies.} \]

4. Method

Content analysis has been extensively used in IC reporting research since Guthrie et al.’s (2004) paper on “Using content analysis as a research method to enquire into intellectual capital reporting”. Following Guthrie et al.’s (2004) paper, many content analysis IC studies were published, e.g. Dumay and Cai (2014) analysing 110 articles using content analysis. Much criticism has been levelled at IC content analysis researchers, particularly at the lack of rigour with which they apply the basic logic of content analysis design (Dumay and Cai, 2014, 2015). Many papers attempted to determine the most commonly disclosed IC categories or examined the amount and nature of voluntary IC disclosure, replicating these studies in various country and industry settings.

This paper does not just examine the amount and nature of IC information voluntarily disclosed. Instead, this study compares the disclosures of different types of companies to examine which conditions drive managers to make IC disclosure decisions.

4.1 Sample selection and data sources

In total, 40 companies were selected from the 271 companies listed on the main board of the JSE at 31 December 2013. In order to select and match cross-listed companies with locally listed companies, cross-listed companies were extracted from this population and 20 companies were selected using sequential random sampling. The selected cross-listed company was then matched with a locally listed company for industry and company size. If an appropriate match was not found, the next cross-listed company was selected. A sample of 40 companies was considered sufficient to achieve statistically significant results.

For each of the companies in the sample, a PDF copy of the 2013 integrated report was obtained from the company’s website. If the company did not prepare an integrated report, the annual report was obtained. Additional data required in the regression model were obtained from company annual or integrated reports and the INET BFA database.

4.2 Coding, collecting and summarising the data

The content analysis is based on the index used by Abeysekera and Guthrie (2005), which was also used by De Silva et al. (2014) and Wagiciengo and Belal (2012). The four items in the employee welfare sub-category have been excluded from the final analysis as South African companies include a formal remuneration report, disclosing the remuneration of directors and officers, in their audited annual financial statements. The 34 items in the research instrument are classified into three categories, i.e., relational capital, human capital and structural capital, and into nine sub-categories (see Table AI).
The 2013 reports were imported into Atlas.ti for coding purposes. The content analysis was done manually and Atlas.ti was used to record the manual coding and to calculate the word count. Atlas.ti was used to capture the manual process of highlighting and coding the reports in much the same way as if printed reports had been used. This aided the coder in documenting coding decisions made and in reviewing and amending early coding decisions as more experience was gained. This also facilitated the second review of the coding. Performing the manual coding process in an electronic format made it easier to store, retrieve, manipulate, check and correct the data.

Sentences, graphics, charts and tables were used as the basis of coding. Pictures were not coded. Where a sentence related to more than one IC category, the sentence was coded to the predominant theme taking the context of the paragraph or section into account. Where a sentence was easily and equitably divisible between two or more IC categories, the words or phrases within the sentence were coded to the applicable IC category. The same is applied to graphics, charts and tables (see Appendix 2 for coding instructions).

One of the fundamental premises of content analysis is that the extent of information disclosed about different categories of information is assumed to reflect the importance that management of a company place on that particular information (Krippendorff, 2013). Therefore, wherever multiple disclosures are made of the same or similar information, these disclosure occurrences are coded and included in the word count.

Previous studies have also investigated the form of IC disclosure, being qualitative or quantitative, with quantitative disclosure being more highly regarded as being measurable and verifiably than purely descriptive disclosure. This study does not focus on the form of disclosure but the use of word count does reflect the impact of form. For example, in an effort to emphasise the importance of certain information, management may disclose such information in a narrative form as well as in graphics, tables or graphs. As graphs and tables often contain the current year plus multiple prior periods, or information is split into various sub-categories within graphs and tables, companies with more quantitative disclosure are more likely to have higher word counts overall, and higher word counts for those IC categories that they consider to be more important.

Although content analysis has been extensively used in IC research, it suffers from a number of limitations.

First, the width and depth of the IC concept requires transparency in the classification scheme used (Beattie and Thomson, 2007). The classification scheme used in this study is clearly defined and disclosed and has been used in a number of previous studies (Abeysekera and Guthrie, 2005; De Silva et al., 2014; Wagiciengo and Belal, 2012).

Second, coding may be regarded as subjective. However, Milne and Adler (1999) reported that even a novice coder can be relied upon when analysing aggregate total disclosures. For analysis of disclosures into sub-categories, less experienced coders can be relied upon after a period of training, involving the coding of about 20 reports (Milhe and Adler, 1999). The high-level results of total volume of disclosure and the categorisation into relational capital, human capital and structural capital may, therefore, be more reliable than the results relating to the lower level subcategories and individual items within subcategories. However, in this study, the coder coded 46 integrated or annual reports, and reviewed the coding of the initial reports in an iterative process after the first 20 reports had been coded. The other author performed a limited review of the coding.

4.3 Measurement of IC disclosure metrics

Three metrics, similar to those used by Li et al. (2008), are used in this study: a disclosure index, ICINDX, which indicates the variety of IC disclosure, and word count as a percentage of total word count[2] (ICWC%) to indicate the emphasis placed on IC. ICINDX is used in the results section with the results for ICWC% reported in robustness tests.
For the purposes of calculating the disclosure index, each item in the research instrument is scored one if it is disclosed and zero if it is not. The disclosure index (ICINDX) is calculated by dividing the total score for the company by the total available items in the research instrument. The ICINDX measure, therefore, ranges from 0 to 1.

4.4 Model
The relationship between IC disclosure and listing status is examined by way of a regression, following Li et al. (2008). If $\beta_1$ is positive and significant, the hypothesis that cross-listed companies will disclose more IC information is supported:

$$
ICD = \beta_0 + \beta_1 CROSS_i + \beta_2 BoardIndep_i + \beta_3 Dual_i + \beta_4 LnTA_i + \beta_5 IndFin_i + \beta_6 IndIndus_i + \beta_7 Loss_i + \beta_8 LnMTB_i + \beta_9 Lev_i + \epsilon_i,
$$

where $ICD$, IC disclosure index (ICINDX); IC word count percentage (ICWC%); $CROSS = 1$ if the company is cross-listed; 0 if otherwise; $BoardIndep = proportion$ of independent non-executive directors on the board (proxy for board composition, per cent); $Dual = 1$ if the role of chairman and CEO are held by the same person; 0 if otherwise; $LnTA = natural$ log of total assets (proxy for company size); $IndFin = 1$ if the company is in the financial industry grouping; 0 otherwise; $IndIndus = 1$ if the company is in the industrials industry grouping; 0 otherwise; $Loss = 1$ if the company reported a loss in the previous financial period; 0 otherwise (proxy for company performance); $LnMTB = natural$ log of market-to-book value ratio (share price at end of 2012 financial period divided by ordinary shareholders equity, per cent); $Lev = total$ liabilities divided by total assets at the end of the 2012 financial period, per cent.

4.5 Independent variable
The data are obtained from company annual or integrated reports and the INET BFA database. The variable of interest, CROSS, is an indicator variable coded 1 for cross-listed companies, otherwise 0.

4.6 Control variables
Two aspects of board independence (BoardIndep and Dual) are included as control variables in the model. Size has a positive impact on corporate disclosures including IC disclosure (Ahmed and Couris, 1999; Striukova et al., 2008). The natural log of total assets is used as a measure of size. The expectation is that the level of IC disclosure will increase with increased company size.

Industries have unique business models, infrastructures, competition landscapes and operating cultures, and IC will, therefore, differ between industries (Burgman and Roos, 2007). For example, certain elements of relational capital such as brands and customers may not be as important for resources companies as for industrial or financial companies. In order to control for industry differences, companies are grouped into three industries (resources, financials and industrials), with dummy variables included in the model.

Profitable companies have the resources to ensure voluntary disclosures cover all aspects including IC. Because profitability, measured as profit after interest and tax divided by total assets, is not normally distributed it is replaced by a dummy variable which is coded 1 if the company made a loss in the 2012 financial year and 0 otherwise. A negative relationship is expected between this variable and the level of IC disclosure.

Companies with higher levels of debt may disclose more IC information if lenders are expected to be interested in or affected by such information. Leverage is measured as total liabilities to total assets and the expectation is that IC disclosure levels will increase with increased leverage.
The ratio of market-to-book value has been used as a measure of information asymmetry by some and as a measure of growth potential by others; but it is also viewed by some as a better control for industry market structure, especially for companies operating in multiple industries than a dummy variable for industry (de Villiers and van Staden, 2011). Market-to-book value is, therefore, used in this study as a control. Companies with higher market-to-book values will most likely come from industries characterised by high IC. The expectation is, therefore, that companies with a higher ratio will disclose more IC information.

4.7 Grouping of companies for comparison purposes
In order to test the hypothesis that companies preparing an integrated report will disclose more IC information, the sample was divided into two groups which are further divided into two sub-groups. All cross-listed companies in the sample are in Group 1, while matched locally listed companies are in Group 2. Companies in Group 1a prepared an integrated report, while companies in Group 1b did not. Group 2 is similarly sub-divided into groups 2a and 2b on whether the cross-listed companies they are matched with prepared an integrated report (Group 2a) or not (Group 2b).

5. Findings
5.1 Descriptive statistics
The descriptive statistics indicate that there are no statistically significant differences between the independent variables of the locally listed and cross-listed companies (Table I). The cross-listed companies appear to be larger than the locally listed companies based on total assets, but this is not statistically significant. The corporate governance measures indicate that approximately half of the directors are independent and non-executive and 30 per cent of companies have the same person filling the role of chief executive officer and chairman of the board.

For the full sample (untabulated), the mean IC index is 0.5272 with structural capital scoring highest and relational capital, lowest. The mean length of the reports, measured using word count, is approximately 47,000 words (untabulated). Almost 12 per cent of these words are related to IC with the highest proportion relating to human capital. Relational capital, human capital and structural capital make up 23, 63 and 14 per cent of the IC disclosure, respectively. This breakdown is very similar to the findings of Wagiciengo and Belal (2012).

When the IC disclosures of the cross-listed and local groups are compared (Table I), the variable ICINDX of the cross-listed companies is significantly lower than that of the locally listed companies ($p < 0.05$) indicating that cross-listed companies do not disclose more IC items. This difference arises in the human capital and structural capital categories. These results do not support the hypothesis for cross-listed companies.

5.2 Correlations
Table II presents the Pearson and Spearman correlation matrices. Correlations between independent variables and variance inflation factors were scrutinised and no issues of multicollinearity were identified.

As expected, ICINDX is significantly positively correlated with company size, market-to-book value and leverage, and significantly negatively correlated with loss making. Industrial companies are positively correlated with a greater variety of IC disclosure.

5.3 Regression results – does cross-listing affect IC disclosure?
The results of the multivariate analysis based on the full sample of 40 companies are shown in Table III. The sign of the coefficient of cross-listed (CROSS) is negative, indicating that
Table I. Descriptive statistics comparing locally listed and cross-listed companies

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Locally listed companies</th>
<th>Cross-listed companies</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min.</td>
<td>Max.</td>
<td>Mean</td>
</tr>
<tr>
<td>ICINDX</td>
<td>0.3235</td>
<td>0.7941</td>
<td>0.5838</td>
</tr>
<tr>
<td>RelCapINDX</td>
<td>0.0000</td>
<td>0.9000</td>
<td>0.5000</td>
</tr>
<tr>
<td>HumCapINDX</td>
<td>0.3158</td>
<td>0.7895</td>
<td>0.5947</td>
</tr>
<tr>
<td>StrCapINDX</td>
<td>0.2000</td>
<td>1.0000</td>
<td>0.7100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Continuous variables</th>
<th>Dummy variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BoardIndep</td>
<td>n</td>
</tr>
<tr>
<td></td>
<td>TA</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>LnTA</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>MTB</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>LnMTB</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Lev</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Dual</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>IndRes</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>IndFin</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>IndIndus</td>
<td>20</td>
</tr>
</tbody>
</table>

Notes: ICINDX, IC disclosure index; BoardIndep, proportion of independent non-executive directors on the board (per cent); TA, total assets; LnTA, natural log of total assets; ROA, return on assets; MTB, market-to-book value ratio; LnMTB, natural log of MTB; Lev, leverage; CROSS, cross-listed/locally listed (dummy); Dual, dual role of chairman and CEO (not dummy); IndRes, resources company; IndFin, financial company; IndIndus, industrial company. t-stats is the t-statistic (two-tailed) from comparing the means of the two groups using an independent samples T test; z-stat is the z-statistic from comparing the medians of the two groups using a Mann–Whitney U-test. *, ** Significant at the 5 and 10 per cent levels, respectively.
<table>
<thead>
<tr>
<th>Expected sign</th>
<th>ICINDX</th>
<th>CROSS</th>
<th>BoardIndep</th>
<th>Dual</th>
<th>LnTA</th>
<th>IndRes</th>
<th>IndFin</th>
<th>IndIndus</th>
<th>Loss</th>
<th>LnMTB</th>
<th>Lev</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICINDX</td>
<td>-0.295</td>
<td>0.387*</td>
<td>-0.327*</td>
<td>0.513**</td>
<td>-0.350*</td>
<td>-0.100</td>
<td>0.507**</td>
<td>-0.393*</td>
<td>0.402*</td>
<td>0.437**</td>
<td></td>
</tr>
<tr>
<td>CROSS</td>
<td>-0.312*</td>
<td>0.150</td>
<td>0.218</td>
<td>0.013</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.180</td>
<td>-0.108</td>
<td>-0.178</td>
<td></td>
</tr>
<tr>
<td>BoardIndep</td>
<td>+</td>
<td>0.324*</td>
<td>0.066</td>
<td>-0.308</td>
<td>0.338**</td>
<td>-0.148</td>
<td>0.180</td>
<td>-0.030</td>
<td>-0.010</td>
<td>0.153</td>
<td>0.236</td>
</tr>
<tr>
<td>Dual</td>
<td>-</td>
<td>-0.284</td>
<td>0.218</td>
<td>-0.369***</td>
<td>0.085</td>
<td>-0.089</td>
<td>-0.023</td>
<td>0.126</td>
<td>-0.091</td>
<td>0.262</td>
<td>-0.269</td>
</tr>
<tr>
<td>LnTA</td>
<td>+</td>
<td>0.476**</td>
<td>-0.001</td>
<td>0.241</td>
<td>0.003</td>
<td>-0.584***</td>
<td>0.422***</td>
<td>0.195</td>
<td>-0.490***</td>
<td>0.360*</td>
<td>0.388*</td>
</tr>
<tr>
<td>IndRes</td>
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<td>0.000</td>
<td>-0.057</td>
<td>-0.089</td>
<td>-0.605***</td>
<td>-0.590***</td>
<td>-0.471***</td>
<td>0.416***</td>
<td>-0.293</td>
<td>-0.442***</td>
<td></td>
</tr>
<tr>
<td>IndFin</td>
<td>-0.127</td>
<td>0.000</td>
<td>0.123</td>
<td>-0.023</td>
<td>0.476***</td>
<td>-0.599***</td>
<td>-0.424***</td>
<td>-0.270</td>
<td>0.042</td>
<td>0.363*</td>
<td></td>
</tr>
<tr>
<td>IndIndus</td>
<td>0.476**</td>
<td>0.000</td>
<td>-0.071</td>
<td>0.126</td>
<td>0.161</td>
<td>-0.471***</td>
<td>-0.424***</td>
<td>-0.173</td>
<td>0.357*</td>
<td>0.100</td>
<td></td>
</tr>
<tr>
<td>Loss</td>
<td>-0.431*</td>
<td>0.180</td>
<td>0.040</td>
<td>-0.091</td>
<td>-0.468***</td>
<td>-0.416***</td>
<td>-0.270</td>
<td>-0.173</td>
<td>-0.593*</td>
<td>-0.200</td>
<td></td>
</tr>
<tr>
<td>LnMTB</td>
<td>+</td>
<td>0.473**</td>
<td>-0.073</td>
<td>0.243</td>
<td>0.070</td>
<td>0.161</td>
<td>-0.098</td>
<td>-0.128</td>
<td>0.239</td>
<td>-0.477***</td>
<td>0.088</td>
</tr>
<tr>
<td>Lev</td>
<td>+</td>
<td>0.443**</td>
<td>-0.182</td>
<td>0.315**</td>
<td>-0.279**</td>
<td>0.527***</td>
<td>-0.448***</td>
<td>0.414***</td>
<td>0.051</td>
<td>-0.197</td>
<td>0.140</td>
</tr>
</tbody>
</table>

Notes: For all variable descriptions see Table I; *Correlation is significant at the 0.1 level (two-tailed); **Correlation is significant at the 0.05 level (two-tailed) (one-tailed for those variables with an expected sign); ***correlation is significant at the 0.01 level (two-tailed) (one-tailed for those variables with an expected sign)
cross-listed companies disclose less variety of IC items than locally listed companies, after controlling for various other variables. However, it is only weakly significant at the 10 per cent level.

These multivariate analyses give no support for the hypothesis that cross-listed companies disclose a greater level of IC information.

5.4 Non-parametric tests – does IR affect IC disclosure?

Non-parametric Kruskal–Wallis tests were used to compare the scores of the four groups to determine whether there is a difference in disclosure levels between the groups. The results of these tests are presented in Table IV.

The comparison of groups 1a and 2a (Panel A) shows no significant difference in IC disclosure. This further confirms that cross-listed companies do not disclose more IC information. Although Macias and Farfan-Lievano (2017) suggest that companies exposed to international markets are more likely to choose IR, this does not appear to lead to more IC disclosure.

When comparing groups 1b and 2b (Panel B), the ICINDX measure is higher for Group 2b (i.e. IR companies), with the human capital index being most significant ($p < 0.01$) and structural capital index being slightly less significant ($p < 0.05$). These results are reconfirmed in Panel C, which shows that Group 1b companies (non-IR companies) disclose statistically significant less IC information than all IR companies combined (groups 1a, 2a and 2b).

These comparisons provides evidence in support of the hypothesis that IR companies disclose a greater variety of IC information (due to the prompts to consider and disclose all of the capitals, including IC).

5.5 Robustness tests – alternative IC measures

When the IC disclosure metric (ICINDX) is replaced in the regression analysis with the measure of disclosure emphasis (ICWC%), the model has lower explanatory power ($\text{Adj. } R^2$ of 0.297) (untabulated) and the variable of interest, CROSS, is not significantly related to ICWC%.

The results of the non-parametric Kruskal–Wallis tests hold when the IC disclosure metric is replaced by ICWC% (untabulated).
These results lend further evidence in support of the hypothesis that companies that prepare an integrated report disclose more IC information. Specifically, IR companies disclose a greater variety of IC information and place a greater emphasis on IC information in their reports.

6. Discussion
The findings provide evidence that IR-producing companies disclose more IC, specifically human capital disclosures, characterised by a greater variety of items and more emphasis on human capital. However, as du Toit (2017) points out, in order to be meaningful, these disclosures need to be provided in a format that is accessible (i.e. readable).

The findings imply that the prompt to consider all of the capitals when preparing an integrated report leads to an increase in IC disclosure. However, the increase is mostly on human capital, not on relational or structural capital. This may be due to proprietary costs having a strong impact on the decision to disclose information that may compromise a company’s competitive advantage (Beattie and Smith, 2012). Another view is that IR

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>ICIND × Mean</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a – Cross-listed with IR</td>
<td>9</td>
<td>9.00</td>
<td>0.159</td>
</tr>
<tr>
<td>2a – Locally listed with IR</td>
<td>9</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>Relational capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a – Cross-listed with IR</td>
<td>9</td>
<td>8.50</td>
<td>0.650</td>
</tr>
<tr>
<td>2a – Locally listed with IR</td>
<td>9</td>
<td>10.50</td>
<td></td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a – Cross-listed with IR</td>
<td>9</td>
<td>10.22</td>
<td>0.339</td>
</tr>
<tr>
<td>2a – Locally listed with IR</td>
<td>9</td>
<td>8.78</td>
<td></td>
</tr>
<tr>
<td>Structural capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a – Cross-listed with IR</td>
<td>9</td>
<td>8.11</td>
<td>1.328</td>
</tr>
<tr>
<td>2a – Locally listed with IR</td>
<td>9</td>
<td>10.89</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – Cross-listed and no IR</td>
<td>11</td>
<td>8.50</td>
<td>4.714**</td>
</tr>
<tr>
<td>2b – Locally listed and IR</td>
<td>11</td>
<td>14.50</td>
<td></td>
</tr>
<tr>
<td>Relational capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – Cross-listed and no IR</td>
<td>11</td>
<td>11.09</td>
<td>0.091</td>
</tr>
<tr>
<td>2b – Locally listed and IR</td>
<td>11</td>
<td>11.91</td>
<td></td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – Cross-listed and no IR</td>
<td>11</td>
<td>7.55</td>
<td>8.267***</td>
</tr>
<tr>
<td>2b – Locally listed and IR</td>
<td>11</td>
<td>15.45</td>
<td></td>
</tr>
<tr>
<td>Structural capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – Cross-listed and no IR</td>
<td>11</td>
<td>8.82</td>
<td>3.977**</td>
</tr>
<tr>
<td>2b – Locally listed and IR</td>
<td>11</td>
<td>14.18</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel C</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – cross-listed and no IR</td>
<td>11</td>
<td>13.41</td>
<td>5.618**</td>
</tr>
<tr>
<td>1a, 2a, 2b – all companies with IR</td>
<td>29</td>
<td>23.19</td>
<td></td>
</tr>
<tr>
<td>Relational capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – cross-listed and no IR</td>
<td>11</td>
<td>17.95</td>
<td>0.734</td>
</tr>
<tr>
<td>1a, 2a, 2b – all companies with IR</td>
<td>29</td>
<td>21.47</td>
<td></td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – cross-listed and no IR</td>
<td>11</td>
<td>11.18</td>
<td>9.775***</td>
</tr>
<tr>
<td>1a, 2a, 2b – all companies with IR</td>
<td>29</td>
<td>24.03</td>
<td></td>
</tr>
<tr>
<td>Structural capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1b – cross-listed and no IR</td>
<td>11</td>
<td>15.14</td>
<td>3.410</td>
</tr>
<tr>
<td>1b, 2a, 2b – all companies with IR</td>
<td>29</td>
<td>22.53</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: ICINDX is a measure of the variety of intellectual capital disclosure; Group 1b – cross-listed companies that do not prepare integrated reports; Group 1a – cross-listed companies that prepare integrated reports; Groups 2a and 2b – locally listed companies that prepare integrated reports; Groups matched on industry and size. **, ***Significant at the 5 and 1 per cent levels, respectively.

Table IV. Comparison of groups with Kruskal–Wallis $\chi^2$ statistic.
preparers report the good work they do and their business culture to employees, customer and other stakeholders (Dumay and Dai, 2017), or as a way of signalling good intentions or good management (Healy and Palepu, 2001).

7. Conclusion
This is one of the first studies to assess whether preparing an integrated report affect the level of IC disclosure. Evidence support the hypothesis that IR leads to more IC disclosure, specifically to a greater variety of IC items disclosed and to a greater emphasis on IC in the report. However, the study does not find evidence that companies exposed to different investor groups through cross-listing on another stock exchange disclose more IC information. More specifically, the results show that locally listed companies that prepare an integrated report disclose more IC information than a matched sample of cross-listed companies that do not prepare integrated reports, and also that there is no statistically significant difference between the IC disclosures of locally listed and cross-listed companies that all prepare integrated reports. This implies that the consideration of a wider range of capitals under IR leads to more IC disclosure. Regarding specific IC capitals, this paper finds that companies preparing an integrated report disclose a greater variety of human capital items and place a greater emphasis on human capital.

There are several limitations in this study. First, there is subjectivity in the use of content analysis to score IC disclosure. However, this research uses the latest content analysis methods based on articles published in the top journals in the field. Second, the study does not take into account other disclosure channels that may be linked to an integrated report such as website disclosure. Third, the small sample size and limiting the location of the companies to those listed in South Africa may limit the generalisability of the findings.

The results of this study may inform the further development of IR guidelines by the IIRC, particularly around whether more detailed guidance should be given regarding IC disclosures in integrated reports. The findings also imply that future IC disclosure research should control for whether companies prepare an integrated report or not. This study contributes to the debate about whether IR should be mandated by providing insights from an environment where IR is required on an “apply or explain” basis. For example, regulators may consider mandating IR in order to enhance IC disclosures.

This is an early study into IC disclosure in integrated reports. Future research could usefully explore the relationships identified in the paper in greater depth using a larger sample size, different locations and other methodologies, such as case studies and interviews with management to understand the process of reporting IC in integrated reports. A longitudinal study comparing IC disclosure before and after IR could also be a fruitful area for future research. In addition, whereas the current paper does not address whether IC disclosures in integrated reports are value relevant (Baboukardos and Rimmel, 2016), this could be examined in future studies.

Notes
1. In South Africa, companies listed on the JSE are required to apply King III, which specifies an integrated report, on a “apply or explain” basis.

2. Total word count of the annual or integrated report excludes certain sections: the contents page, the section often labelled “about the report”, company statutory information including annual financial statements, mineral resources and reserves report, and shareholder information sections. Sections that are not considered voluntary (such as statutory information and mineral resources and reserves reports) are excluded.
References


Appendix 1

Following definitions were used by Wagiciengo and Belal (2012) and Li et al. (2008)

**EC  ** Relation capital

<table>
<thead>
<tr>
<th>Brand building</th>
<th>Information about, e.g., brand names, brand images, brand awareness, brand loyalty (e.g. word-of-mouth advocacy), brand-building strategies and activities and brand-related sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Brands</td>
<td></td>
</tr>
<tr>
<td>2  Customers</td>
<td>Reference to overall satisfaction of customers, customer needs, customer loyalty and customer relations</td>
</tr>
<tr>
<td>3  Quality standards</td>
<td>Includes ISO accreditations, reference to quality initiatives</td>
</tr>
<tr>
<td>4  Business partnering</td>
<td>Collaborations established with other business partners. It covers issues such as strategic alliances, joint venture and partnership for the purpose of working together to improve effectiveness and efficiency by combining each other’s advantages. Also includes industry involvement and collaboration with government</td>
</tr>
<tr>
<td>5  Business collaborations</td>
<td></td>
</tr>
<tr>
<td>6  Licence agreements</td>
<td>Any licence agreement signed</td>
</tr>
<tr>
<td>7  Franchise agreements</td>
<td>Any franchise agreement signed</td>
</tr>
<tr>
<td>8  Distribution/supplier relationships</td>
<td>Reference to distribution channels (appropriate mechanisms of getting products and services into the market, such as distributors, agents, dealers), relationship with suppliers, such as knowledge of suppliers, relationships with them)</td>
</tr>
<tr>
<td>9  Market share</td>
<td>A statement about the share of the market or competitive position that is held by the company/product/brand. NB: this does not include reporting regarding volume</td>
</tr>
<tr>
<td>Corporate image building</td>
<td></td>
</tr>
<tr>
<td>10 Favourable contracts</td>
<td>A contract obtained because of the unique market position held by the company. It includes description of the contract and the favourable relationships</td>
</tr>
</tbody>
</table>

**HC  ** Human capital

<table>
<thead>
<tr>
<th>Employment equity</th>
<th>Employment equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Race</td>
<td>Any steps mentioned or confirmation of the position on race</td>
</tr>
<tr>
<td>12  Gender</td>
<td>Any steps mentioned or confirmation of the position on gender</td>
</tr>
<tr>
<td>13  Disability</td>
<td>Any steps mentioned or confirmation of the position on disability</td>
</tr>
<tr>
<td>14  Religion</td>
<td>Any steps mentioned or confirmation of the position on religion</td>
</tr>
<tr>
<td>15  BEE</td>
<td>Any disclosures of corporate BEE initiatives</td>
</tr>
<tr>
<td>16  Disadvantaged</td>
<td>Measures aimed at employees from disadvantaged background</td>
</tr>
<tr>
<td>17  HIV/AIDS</td>
<td>Reference to treatment of employees with HIV as well as company initiatives</td>
</tr>
<tr>
<td>Employee relations</td>
<td>Employee relations</td>
</tr>
<tr>
<td>18  Union activity</td>
<td>Trade union relations (including discussions of wage negotiations and strikes)</td>
</tr>
<tr>
<td>19  Employees thanked</td>
<td>Thanks given to the employees, including directors</td>
</tr>
<tr>
<td>20  Community involvement</td>
<td>Company and employee involvement in community-based activities</td>
</tr>
<tr>
<td>21  Employees featured</td>
<td>Any “named” employees in report or employees that have won awards</td>
</tr>
<tr>
<td>Employee-related measures</td>
<td>Employee-related measures</td>
</tr>
<tr>
<td>22  Education levels</td>
<td>Reference to organisational learning different from vocational qualifications</td>
</tr>
<tr>
<td>23  Expert seniority</td>
<td>Technical and management skills in production, operations</td>
</tr>
<tr>
<td>24  Employee numbers</td>
<td>Employee count of a firm, employee breakdown by, e.g. market (business operation or geographical segments), department and job function, and information about its changes and reasons for such changes</td>
</tr>
<tr>
<td>25  Professional experience</td>
<td>Number of years worked, previous experience – particularly with directors. Average professional experience of employees</td>
</tr>
</tbody>
</table>

Table AI. Intellectual capital content analysis guide (continued)
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>26 Age</strong></td>
<td>Biological age of employees in the company. Includes qualitative description of age-related advantages/strengths of a company’s employees, and indicators such as average age of a company’s employees and age distribution</td>
</tr>
<tr>
<td><strong>27 Value-added statements</strong></td>
<td>Clear discussion of employees usually in terms of remuneration (wages and salaries) or information related to the contribution of human resources to increase the value of the corporation. Value-added per expert</td>
</tr>
<tr>
<td><strong>Employee safety</strong></td>
<td>A statement regarding safety of employees, or safety measures that have been implemented</td>
</tr>
<tr>
<td><strong>28 Health and safety</strong></td>
<td>Share and option schemes</td>
</tr>
<tr>
<td><strong>29 Employee share and option schemes</strong></td>
<td>Reference to remuneration of directors</td>
</tr>
<tr>
<td><strong>30 Compensation executive</strong></td>
<td>Reference to remuneration of employees</td>
</tr>
<tr>
<td><strong>31 Compensation employee</strong></td>
<td>Additional non-financial benefits such as health insurance</td>
</tr>
<tr>
<td><strong>32 Employee benefits</strong></td>
<td>Qualifications held by employees and directors – referring to education, managed and monitored by trade and professional organisations, received by an employee/director for a particular vocation that proves the skill, knowledge and understanding he/she has to do a job well</td>
</tr>
<tr>
<td><strong>33 Vocational qualifications</strong></td>
<td>Any management initiatives that encourage career development amongst employees. Including employee development policies and programmes (e.g. succession planning), recruitment policies (e.g. internal promotion). Indicators include change of employee seniority and rate of internal promotion</td>
</tr>
<tr>
<td><strong>34 Career development</strong></td>
<td>Any mention of training programmes including training policies, training time, attendance, investment in training, number of employees trained per period and training results/effectiveness/efficiency</td>
</tr>
<tr>
<td><strong>35 Training programs</strong></td>
<td>Entrepreneurial spirit, innovativeness, proactive and reactive abilities, changeability, empowerment/responsibility taking, employee engagement (e.g. employee suggestion systems/consultations), creativity, knowledge sharing</td>
</tr>
<tr>
<td><strong>36 Entrepreneurial spirit</strong></td>
<td>Information systems and networking systems (the systems available in a company that allow interaction of people via a broad array of communication media and devices, e.g., voicemail, e-mail, voice or video conferencing, the internet, groupware and corporate intranets, personal digital assistants and newsletters). Includes e-commerce</td>
</tr>
<tr>
<td><strong>37 Systems</strong></td>
<td>Management processes or technical processes implemented, including reference to proprietary technology. Including sales tools, company co-operation forms, corporate specialisation, operation or administrative processes; utilisation of organisation resources, processes/procedures/routines, and documentation that enables the company or employees to follow. Indicators include efficiency, effectiveness and productivity</td>
</tr>
<tr>
<td><strong>38 Processes</strong></td>
<td>Reference to working culture (management philosophy and corporate culture). Management philosophy is the way the leaders in the organisation think about the organisation and its employees, while culture is the norms, values and beliefs shared by the employees of the organisation. Corporate culture is the set of key values, beliefs, attitudes and understanding share by people and groups in an organisation, which controls the way members of the organisation interact with each other and with other stakeholders. It includes description of the</td>
</tr>
<tr>
<td><strong>39 Philosophy and culture</strong></td>
<td>(continued)</td>
</tr>
</tbody>
</table>
Appendix 2

Coding instructions for content analysis (Adapted from: De Silva et al., 2014)

(1) An intellectual capital disclosure in the integrated or annual report refers to any sentence, graphical representation or numerical data that can be identified as intellectual capital based on the intellectual capital explanations. Pictures must not be coded, but captions belonging to those pictures must be coded.

(2) All intellectual capital disclosures must be specifically stated and cannot be implied.

(3) Intellectual capital disclosures that can be coded into one or more items should be coded as belonging to all relevant items.

(4) Disclosures that are mandatory under financial accounting reporting standards are disregarded.

(5) Several sections of the annual report are omitted from the content analysis. These include:
   - Contents page.
   - Statutory information.
   - Auditors report.
   - Financial statements and notes to the financial statements.
   - Shareholder information, e.g., announcements, AGM notice.

Note: *Excluded from final analysis

Table AI.

<table>
<thead>
<tr>
<th>IC disclosures</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Intellectual property</td>
</tr>
<tr>
<td>Referring to the assets of a company that are protected by law (patents, copyrights, trademarks, trade secrets, licences, commercial rights and other related items)</td>
</tr>
<tr>
<td>41 Financial relations</td>
</tr>
<tr>
<td>Defined as the favourable relationships the company has with investors, banks and other financiers, financial ratings, financial facilities available and listings</td>
</tr>
</tbody>
</table>

Corresponding author
Charl De Villiers can be contacted at: charl.devilliers@auckland.ac.nz

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Abstract

Purpose – The purpose of this paper is to present a new learning and growth perspective for the balanced scorecard (BSC) that includes more specific measures of integrated thinking and value creation to help improve integrated reporting (IRW). Practical, relevant definitions of these historically vague concepts may improve intangible asset disclosures (IAD) and increase uptake of the IRW framework.

Design/methodology/approach – The paper is conceptual. The authors use organisational learning to theorise about the learning and growth perspective of the BSC, within the context of the practice of IAD.

Findings – Several criticisms of IAD, the IR framework and the BSC have acted as barriers to implementing the IR framework. The improved version of the BSC’s learning and growth perspective, presented in this paper, addresses those criticisms by redefining the concept of integrated thinking (learning) and more fully connecting that learning to future value creation (growth). The model is designed to be used in tandem with the IR framework to operationalise integrated thinking. A new BSC strategy map illustrates how this revised learning and growth perspective interacts with the other three BSC perspectives to create long-term shareholder value through the management and growth of knowledge within an organisation.

Research limitations/implications – Organisational learning is an important source of competitive advantage in the modern knowledge economy. Here, the authors encourage further debate on how to report and disclose information on intangible assets, driven by a new conceptual strategy for organisational learning that fully supports the BSC’s capacity to help integrated thinking and future value creation for the IR framework.

Practical implications – From its roots as a performance measurement system, the BSC has become a widely used strategy execution tool. The IR framework has struggled to gain traction, but still has value in exploring intangible assets and its disclosure from a systems thinking perspective. The model is designed to bring an explicit understanding of how to improve integrated thinking for the IR framework, facilitating better measurement, management and reporting of human and structural capital. By doing so, the new model enables a firm to use the BSC to engage with IR more effectively, which should also be useful for practitioners given the widespread use of the BSC.

Originality/value – The analysis of the BSC’s learning and growth perspective reveals two dichotomies – one between resources and growth, and another between systems and capability. The revised perspective resolves these dichotomies with clear, forward-focused measures of learning and intangible asset growth, and multiple vertical and horizontal connections between the perspective’s four constructs. The authors demonstrate practical paths to value creation through a range of strategic impacts.

Keywords Systems thinking, Balanced scorecard, Integrated reporting, Integrated thinking, Intangible asset disclosure, Learning and growth

Paper type Research paper

1. Introduction
The International Integrated Reporting Council (IIRC) recently sought feedback about the enablers, incentives and barriers to implementing its International integrated reporting framework (IRF). Inspired by this call, we present a proposal that shows how an improved balanced scorecard (BSC) might remove some barriers preventing companies from implementing the IRF while improving the disclosure of intangible assets (see also Dumay et al., 2017).
Practitioners commonly cite two main factors that inhibit wider acceptance of the <IRF>. First, <IR> is supposed to connect to the internal activities of an organisation, but it is unclear whether this happens in practice—an issue not widely explored in the research (Dumay et al., 2017, p. 473). Second, two of the <IRF>’s main concepts, integrated thinking and value creation, are only vaguely defined (Dumay et al., 2017, p. 465). When combined, these two factors cloud the benefits the <IRF> can bring to companies when implementing. The BSC and particularly its use as a tool to execute strategy presents an opportunity to extend intellectual capital research to address these issues. We examine how an improved learning and growth perspective within the BSC might create more explicit measures of integrated thinking and value creation for the <IRF>.

Many public and private sector organisations use the BSC because it helps evaluate and illustrate the cause and effect relationships between actions and goals. However, the BSC has also evolved into a tool to execute strategy (Kaplan and Norton, 2006). Previous research establishes how BSC can create and report the value of intellectual capital, and provides a framework for integrated thinking (Kaplan and Norton, 2001). However, this raises a question. In providing a framework for integrated thinking, can the BSC’s learning and growth perspective also integrate the <IRF>’s six capitals?

The BSC’s learning and growth perspective already closely aligns with human and structural capital for understanding growth in an organisation’s performance and prospects (Kaplan and Norton, 2006). Human and structural capital are the foundations of integrated thinking in the <IRF> and arguably lead to value creation (World Intellectual Capital Initiative, 2013). However, both integrated thinking and value creation are ambiguous terms as currently applied in the <IRF> (Dumay et al., 2017). The ambiguity of the terms, thus, presents an opportunity to redefine integrated thinking within the <IRF> and define its role in “value creation” (IFAC, 2017, p. 6). We do so by incorporating integrated thinking into the BSC’s learning and growth perspective as a widely accepted growth measure.

When amending the BSC’s learning and growth perspective we examine it from three perspectives. First, does it answer Dumay’s (2016) call for improved intangible asset disclosures (IAD) to be forward-focused and interactive? A next-generation BSC should enable internal control of intangibles, and creating practical value by disclosing new information that is important to investors and or stakeholders. Second, Nielsen et al. (2017) critique the BSC for being too abstract to capture value creation. A fourth-generation BSC should have inputs and outputs that persuade companies to use <IR> for more than just impression management. The third is whether an improved learning and growth perspective can adequately measure the drivers of organisational learning (Massingham, 2018).

2. Linking the concepts

Before developing our essay, we define core concepts to ensure the reader uses the same terms and meanings as we do. For example, we use the term “intangible assets” instead of “intellectual capital” for three reasons. First, the term “intangible assets” is often used interchangeably with the terms intellectual capital, intangible resources, intangible capital and intellectual property, even though they are not synonymous (Eccles and Krzus, 2010; Giacosa et al., 2017). Second, practitioners use the term intangible assets more frequently than intellectual capital, and its use outside academia is growing (Cuozzo et al., 2017). Additionally, the IIRC (2013) refers to “knowledge-based intangibles” to describe intellectual capital, which is more closely related to structural capital in the tradition tripartite intellectual capital model (Dumay, 2016, p. 175). Additionally, most practitioners
will use the IIRC’s definition of intellectual capital, rather than the tripartite definition used by academics (Cuozzo et al., 2017). Arguably, stakeholders, including investors, need open, transparent and comprehensive information about a company for evaluating its economic and business activities (Nielsen and Madsen, 2009). IAD is one of several activities companies undertake to communicate with their stakeholders (Cuozzo et al., 2017). Within these communication processes, Dumay (2016, p. 178) distinguishes between reporting and disclosure by outlining that reporting is a “detailed periodic account of a company’s activities, financial conditions, and prospects that is made available to shareholders and investors” typically found in the summarised information provided in financial and non-financial reports. Disclosure, on the other hand, reveals information about a company’s assets and resources that was previously secret or unknown. Thus, when dealing with disclosure, we are interested in new, rather than previously known company information.

Research into IAD has reached maturity and seems to be losing momentum (Cuozzo et al., 2017, p. 20). According to Cuozzo et al. (2017, p. 17), only 15 per cent of papers on IAD propose new models and only two new models appear since 2012. The declining momentum presents an opportunity for innovation in IAD, “such as integrating reporting, disclosure in ecosystems, and stakeholder engagement” (Cuozzo et al., 2017, p. 10). What our essay responds to is Cuozzo et al.’s (2017, p. 22) call for IAD research by looking at how disclosing of new information might create practical value (Dumay, 2016). Further, reporting new information within the context of <IR> may represent a new measure of organisational learning because companies may improve their internal knowledge about themselves rather than go through a “tick box” reporting exercise (Nielsen et al., 2017). Once companies realise that they understand how <IR> works internally, they might also recognise what not to disclose and prevent giving away commercially sensitive information in a publicly available report (Schaper et al., 2017).

2.1 Integrated reporting and integrated thinking

The <IR> is an umbrella approach that is supposed to pull together the key elements of corporate reporting (IIRC, 2013). Thus, the <IR> fits with fourth stage IC research, which explores intangible assets and its disclosure from a systems thinking perspective that includes internal and external ecosystems and its impacts (Dumay and Garanina, 2013). A systems thinking approach helps to contemplate complex issues and is:

[...] the ability to embrace interrelatedness and dependencies envisioning the dynamic complexity of organisational influences and relationships and contrast these with the detailed micro-level complexity. (Oliver et al., 2016, p. 230)

As the International Federation of Accountants (IFAC) recently stated in a policy paper:

IFAC considers integrated reporting as the way to achieve more coherent corporate reporting, fulfilling a need for a single report that provides a fuller picture of organizations’ ability to create value over time. (IFAC, 2017, p. 1)

Organisations today use a wide range of measurement frameworks and regulations, which result in a variety of reports and communication with stakeholders.

Furthermore, IFAC concludes that accountants have an important role in developing and implementing <IR>, defined as:

A process that results in communication by an organization, most visibly a periodic integrated report, about value creation over time. An integrated report 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. It aims to be most relevant for those who make capital allocation decisions. (IFAC, 2017, p. 6)
IFAC also indicates its strong support for the <IRF>, which focuses on six capitals spanning tangible and intangible assets being financial, manufactured, intellectual, human, social and relationship, and natural capital (IIRC, 2013). The IIRC define an integrated report as follows:

An integrated report aims to provide insight about the resources and relationships used and affected by an organisation – these are collectively referred to as “the capitals” in this Framework. It also seeks to explain how the organisation interacts with the external environment and the capitals to create value over the short, medium and long-term. (IIRC, 2013, p. 4)

For managers, one proposed benefit from using the <IRF> is its capacity to capture the “ability of an organization to create value for itself [which] enables financial returns to the providers of financial capital” (IIRC, 2013, p. 10). The interrelated nature of the <IRF> fits the cause and effect nature of <IR>. Therefore, the IIRC proposes that the <IRF> is a way to align disclosing intangible assets with contemporary global trends in financial reporting. These trends require reports to connect with environmental, social, and governance issues and can help investors better determine a company’s future financial performance and the expected risks and returns associated with an investment (Dumay and Hossain, in Press).

However, the IIRC also argues that <IR> can have internal benefits emanating from integrated thinking, which the IIRC defines as:

[…] the active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects. Integrated thinking leads to integrated decision-making and actions that consider the creation of value over the short, medium and long-term. (IIRC, 2013, p. 33)

However, Dumay et al. (2017, p. 466) argue that integrated thinking, as it currently stands in the <IRF>, is a “newly invented abstract concept broadly open to interpretation”. The abstract nature of integrated thinking is advantageous for <IR> because it is a rhetorical term easily accepted by academics and practitioners (Feng et al., 2017).

Maybe the term integrated thinking is more acceptable because people criticise financial reporting for focusing too much on what has happened, rather than what will happen (Mouritsen et al., 2001). For example, Dumay (2016) calls for IAD to be forward-focused. Importantly, knowledge is also forward-focused because it is one of the few resources that does not normally lose its value with use and is integral to developing intangible assets (IIRC, 2013, p. 12). Therefore, switching to a forward-thinking approach using integrated thinking as part of the <IRF> to report on prospects for future growth requires a focus on growing organisational knowledge similar to the BSC’s learning and growth perspective (Kaplan and Norton, 1992) and is examined next.

2.2 Connecting the <IRF> to the BSC’s learning and growth perspective

When Kaplan and Norton (1992) introduced the BSC, it represented a radical and innovative approach to measuring organisational performance. Kaplan and Norton (1992, p. 201) emphasised the importance of an integrated approach to reporting intangible assets early on in the BSC’s evolution:

The strategic role of intangible assets cannot be addressed on a stand-alone basis. An integrated program is required to support the enhancement of all the organisation’s intangible assets.

Within the BSC, the word “balanced” reflects the balance between financial and non-financial measures, short and long-term goals, reflective and predictive indicators (i.e. lag and lead) (Hepworth, 1998, p. 559). This balance is within the four different BSC perspectives: “Financial”, “Customer”, “Internal” and “learning and growth” (Kaplan and Norton, 2001, p. 77).
The forward focus of the learning and growth perspective is designed to complement the other three perspectives to create value that is relevant to a business. As explained previously, value creation is a vague concept for <IR>. Knowledge generation and knowledge application drive value creation in the knowledge economy (Grant, 2013b). These activities lie at the core of the BSC’s learning and growth perspective. Kaplan (2010, p. 2) explains how this occurs:

 [...] the Balanced Scorecard [...] was based on a multi-company research project to study performance measurement in companies whose intangible assets played a central role in value creation. Norton and I believed that if companies were to improve the management of their intangible assets, they had to integrate the measurement of intangible assets into their management systems.

When discussing the conceptual origins of their views on value creation, Kaplan (2010, p. 9) explains that “intangible assets seldom have value by themselves”. The BSC’s approach to value creation is explained further by this comment:

The value does not reside in any individual intangible asset. It arises from creating the entire set of assets along with a strategy that links them together. The value creation process is multiplicative, not additive. (Kaplan, 2010, p. 9)

The BSC, therefore, proposes that value creation requires bundling intangible assets with tangible assets to create value (Kaplan, 2010). Three dimensions explain the level of interaction learning and growth has with leadership and organisational development, human capital development and knowledge sharing. A standard knowledge strategy map as illustrated in Figure 1 demonstrates the relationships between these dimensions:

1. Leadership and organisational development: three measures in the BSC fit within the innovation process (the internal perspective): innovative strategy, fast decision making and the need for change. Better innovation processes (learning and growth) lead to improved customer relationships (customer), and, in turn, to increased

![Image](image-url)

**Figure 1.** The balanced scorecard’s strategy maps

**Source:** Adapted from Kaplan and Norton
revenues (financial). These cause and effect relationships reflect a growth strategy, as seen on the right side of Figure 1.

(2) Human capital development: employee retention, training in best practice, competency mapping and workforce planning are the BSC measures for operations management processes (internal perspective). Improved quality in these processes (learning and growth) leads to more satisfied customers (customer) and improved cost structures (Financial). These pathways fit within a productivity strategy (the left side of Figure 1).

(3) Knowledge sharing: capturing and sharing best practices and lessons learned sit within an organisation’s regulatory and social processes (internal perspective). Learning and growth in these processes lead to improving the brand image (customer), which enhances customer value (financial), again reflecting a growth strategy (the right side of Figure 1).

In this way, the learning and growth perspective appears to do a satisfactory job of explaining the interactions between the four elements of the strategy map. However, these connections are implicit, not explicit. Moreover, the processes used to manage customers or use intangible assets more efficiently are conspicuously absent.

When comparing the measures within the learning and growth perspective to the IFAC (2017) criteria, with a specific focus on their forward-facing connections to business models or value creation, there are some striking correlations. The measures for controlling risk, cultural values, and the need for change in the leadership and organisational development construct of the BSC (Kaplan and Norton, 2006) match multiple IFAC criteria including materiality (measurability), relevance (usability), reliability (audibility), comparability (trend analysis), proportionality (all types of organisations) and assurance (user confidence) (IFAC, 2017). These criteria provide a sound basis for assessing the organisation’s creativity and, therefore, measuring its growth prospects. Here, the learning and growth perspective is forward-focused and flexible enough to cover new business models for organisational development.

Human capital development in the BSC is measurable through the morale of the workforce, the use of best practice techniques, training and access to external knowledge (Kaplan and Norton, 2006). These measures also meet several IFAC criteria including materiality, relevance and comparability (IFAC, 2017). While more difficult to measure than with a simple survey, this information does provide a basis for assessing an organisation’s capabilities and, therefore, its potential for growth. However, the difficulties associated with measuring workforce capabilities, such as gaps in competency, raise questions about this construct, particularly regarding reliability, proportionality and assurance (IFAC, 2017). These measures also lack a sense of future workforce requirements. Therefore, the learning and growth perspective is not forward-looking or flexible enough to cover new business models regarding human capital development.

Knowledge sharing in the BSC focuses on measuring the extent to which people share tacit knowledge through best practice and lessons learned (Kaplan and Norton, 2006). These indicators meet several IFAC criteria – materiality, relevance, reliability and comparability – but are only somewhat easier to measure than evaluating employee competency. This information provides a basis for assessing the organisation’s memory and, therefore, measures the sustainability of an organisation’s growth. However, while simplistic values for these measures are easy to record (e.g. how many best practices are in use), the impact of these activities is more difficult to assess (Massingham and Massingham, 2014). Again, there are doubts about this construct, particularly regarding proportionality and assurance, and the historical nature of this knowledge also lacks a sense of future relevance. Therefore, the learning and growth perspective is not forward-looking regarding knowledge sharing and is not flexible enough to cover new business models (Nielsen et al., 2017).
Dumay et al. (2017, p. 466) propose that translating the concept of integrated thinking into practice requires changes in behaviour through cultural controls. Organisational culture is already part of the BSC’s learning and growth perspective, which helps achieve the cultural changes necessary to implement integrated thinking. Change is possible by aligning integrated thinking in the IRF with the learning and growth perspective in the BSC as both concepts cut across internal business processes, unlike functional departments which may operate as silos. Overall, linking the IRF’s six capitals to the cause and effect relationships in the BSC may recognise the need for cultural change so that integrated thinking can permeate the internal organisation so that change can occur.

2.3 The need for change

Change is needed because as Cuozzo et al. (2017) argue, company annual reports are not the best source of disclosure because they are backward-looking, and communication is one-way. However, businesses today require forward-looking, interactive disclosure (Dumay, 2016). Similarly, Busco and Quatrone (2018) describe the incomplete space of accounting regarding the inadequacy of its representations and performance measures. The current frameworks for IAD and performance measurement include activity-based costing, the BSC, just-in-time, business excellence, intellectual capital reporting and knowledge management (Nielsen et al., 2017). All these frameworks emerged in the 1980s and 1990s in response to scholarly criticisms that challenged the traditional view of accounting from a financial or economic perspective (Gaffikin, 2008). However, Nielsen et al. (2017) argue that, while these frameworks have served a useful purpose, they represent strategic thinking from a bygone era and are no longer relevant.

Change is also needed in the BSC because as Nielsen et al. (2017) argue, the BSC is “dead” and needs replacing by new methods of IAD that link value creation and performance measurement to contemporary business models. They critique the BSC for being too abstract, too subjective and relying too much on the designer. They expose the difficulties with benchmarking and highlight how the BSC fails to explain the interdependencies between the four perspectives. Further criticisms include the lack of management applications and decision support, and that the BSC does not reflect the reality of contemporary business. These criticisms emerge in the BSC’s inputs and outputs. The inputs are dependent on the designer’s cognitive abilities. While Kaplan and Norton do provide guidelines on how to design the BSC’s strategy maps, the framework assumes the designer has sufficient knowledge to interpret the literature and guide the process within a company (Nielsen et al., 2017).

Kaplan and Norton did not intend the process of designing a strategy map to be linear. Rather, they argue it should come as an iterative interaction between the four perspectives (Kaplan and Norton, 2004). The iterative interactions place considerable pressure on the cognitive limits of the designer to gather necessary information and consider all the causal relationships. The outputs are dependent on indirect interdependencies between the four perspectives (Marr et al., 2004). Even though one of the BSC’s main attractions is its ability to explain value creation, Nielsen et al. (2017) argue that the BSC is too abstract to capture real differences in value creation. They cite Norreklit (2009) who argues that using the BSC to generate performance measures tends to lead to identical performance measures across companies in vastly different industries.

The BSC’s focus on intangible assets and the need for management strategies that depend on large-scale change led to a third generation of the BSC where Kaplan and Norton (2004) explain how to use strategy maps to convert intangible assets into tangible outcomes. In this version of the BSC, they explore integration to align intangible assets, internal processes, and stakeholder and financial outcomes (Kaplan and Norton, 2006). The 2006 version of the BSC tries to integrate intangible assets, internal processes and
A new learning and growth perspective should enable internal control of intangibles and offer information for external stakeholders because integrated thinking in practice requires changes in behaviour through cultural controls (Dumay et al., 2017, p. 466), and how the use of the capitals impacts on the organisation, and thus cultural values should also be reported to key stakeholders (IIRC, 2013). The perspective could consist of a general framework for measuring intangible assets with the capacity to adapt to the firm’s requirements. That said, any further development of the BSC would need to retain the essence of Kaplan and Norton’s ideas:

- align performance measurement with strategy and action – within the context of stakeholder needs; and
- ensure all three areas of intangible assets – human, information and organisational capital – work together to generate value through internal processes and ultimately to the customers, shareholders and stakeholders (Kaplan and Norton, 2006).

The <IR> includes all four dimensions of the BSC: financial, customer, internal and learning and growth. It distinguishes tangible assets into financial and manufactured capital. One major difference between the BSC and <IR> is there is no mention of natural capital in the BSC. The environment is part of corporate governance in typical BSC strategy map (see Figure 1), but it is somewhat hidden. For this essay, we include natural capital with the physical capitals as they are inputs to the BSC’s internal perspective quadrant, and generally have a physical form that you can touch, feel and see, as opposed to knowledge that is ephemeral. While natural capital is physical capital, it is not a resource owned by the organisation. Therefore, the internal processes manage environmental issues.

Next, we present a conceptual model to improve <IR> by redefining integrated thinking using theory from the BSC, <IR>, and organisational learning literature.

3. Reconceptualising organisational learning

This section presents a new conceptual model for the BSC that redefines integrated thinking to improve <IR>. In doing so, it builds on Yongvanich and Guthrie’s (2006) method for combining elements of different bodies of research. The new model addresses the BSC’s abstractness in inputs and outputs and aligns those metrics with contemporary business models. The result is a platform for theorising about the practice of IAD and identifying opportunities for case study research that creates value by understanding how organisations develop and use intangible assets (Guthrie et al., 2012).

In this section, the main theoretical focus is on learning and growth. Whereas Yongvanich and Guthrie (2006, p. 318) brought together “the strengths of the models developed in the three extant bodies of research”; the focus in this paper is on improving the weakest area of the BSC. Thus, we aim to strengthen the learning and growth perspective due to its link to intangible assets and potential to improve performance. Consistent with Yongvanich and Guthrie’s (2006) method, the conceptualisation of organisational learning aims to broaden the focus of IC and BSC reporting on economic and noneconomic performance.

3.1 Organisational learning

Organisational learning is the process of moving from unskilful knowing to skilful knowing, which may involve individuals, groups or organisations, depending on the nature of the knowledge required (Massingham, 2018). In this essay, we use several widely accepted principles about organisational learning as a platform to explore the theories that underpin
learning and growth: learning modes, learning types and learning levels. Learning modes comprise the behavioural perspective (Gutherie, 1935; Eisenberger et al., 1990; Massingham, 2016), the cognitive perspective (Bruner et al., 1956; Riggs et al., 1994), and the social perspective (Bandura, 1997; Reed et al., 2006). Learning types are typical of single-loop, double-loop (Argyris and Schön, 1978) and triple-loop learning (Easterby-Smith and Lyles, 2003). Learning levels occur at the individual, group, organisational and inter-organisational layers (Nonaka and Takeuchi, 1995).

3.2 Conceptualisation

Figure 2 summarises the conceptualisation of organisational learning used in this essay. There are four quadrants representing BSC constructs:

2. Competency: filling human capital gaps via internal development, acquisition or partnerships.
3. Cultural alignment: creativity, flexibility, adaptability and responsiveness to change.

These BSC constructs are defined further in column 2 in Table I.

The figure covers four important topics which combine to measure a firm’s performance regarding organisational learning. The building blocks of competitive advantage sit at the top right of Figure 2. These are resources and capabilities. The drivers of organisational performance, systems and growth, sit at the bottom left.

Figure 2 presents a map of these four terms, based on the dichotomies between resources and growth and systems and capabilities. The first of these dichotomies reflect the resource-based view of a firm where knowledge resources are fostered to achieve a sustainable competitive advantage. The second dichotomy reflects the knowledge-based view of a firm, which focuses on the sources of competitive advantage. In this way,
the two dichotomies combine to generate and sustain heterogeneous firm performance. These dichotomies tie organisational learning to firm strategy and lay a platform for connecting the BSC’s learning and growth perspective to the other three dimensions. Conceptualising organisational learning as a map with four quadrants provides a way to measure firm performance and strategy execution. In this way, each quadrant is a strategic tool.

3.3 Learning modes
Quadrant 1 includes the three learning modes: cognitive, behavioural and social. Each combines to measure the learning potential of a workforce, akin to an organisation’s IQ.

The cognitive mode is the process of reflection on one’s personal experience or experiences of others (Bruner et al., 1956). It is an opportunity for people to pause and reflect on their work, at which point they recognise the need to learn. Cognition during reflection allows people to realise there is something they do not know, and their work may be easier, more efficient, better or more effective if they knew more. Organisational performance in the cognitive mode is measurable by the quantity and quality of peer assists, after-action reviews and retrospects (Massingham and Massingham, 2014). The impact on strategy is access to organisational memory.

The behavioural mode is the process of decision making about whether to act on the realisation that one needs to learn. People design actions to achieve an intended consequence, then monitor and assess whether their actions have been effective (Argyris, 1987). Designing actions is planned behaviour, and behaviourism explains how people take responsibility for their actions given the consequences (Argyris and Schön, 1974). The goal of these theories is to help people make correct decisions about their behaviour at work. Behaviourism allows employees to determine whether making an effort to learn is worthwhile. Organisational performance in the behavioural mode is measurable by the quantity and quality of lessons learned, improvements to activities, less reinventing of the wheel and reduced time for search cycles (Massingham and Massingham, 2014). The impact on strategy is continuous improvement.

The social mode sees learning as easier to do by observing and interacting with others (Bandura, 1997). It considers motivation to learn as both intrinsic and extrinsic, in the sense that learners determine intrinsic learning goals and motives, and the knowledge community provides extrinsic rewards. In knowledge management, the social mode has two social capital concepts: collective efficacy beliefs and collective outcome expectancy (Massingham, 2016) along with learning roles. These concepts explain that if employees respect the abilities of their co-workers and feel the group can produce high-quality work, they are more likely to engage in positive work behaviours associated with knowledge sharing. Organisational performance in the social mode is measurable by the quantity and quality of cross-unit cooperation, teamwork and collaboration (Massingham and Massingham, 2014). The impact on strategy is internal connectivity.

3.4 Learning levels
Quadrant 2 includes the learning levels: individual, group, organisation and inter-organisation. These learning levels combine to measure workforce competency, similar to an organisation’s knowledge bank or its stock of knowledge resources.

Individual-level learning is the achievement of skilful knowing, that is, competency. Skilful knowing sees work as an adaptive process where the individual tries to turn given situations into preferred situations (Aakhus, 2007). Rather than follow bureaucratic guidelines, professional practice involves a process of problem-framing and problem-solving based on the individual’s theory of practice (Schön, 1983). The individual uses their experience to make sense of the work situation. In this way, knowledge not only involves
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**Learning modes: Quadrant 1**

**Cognitive mode**
- Capture and share lessons learned
  - Quantity and quality of peer assists, after action reviews and retrospects
  - Intellectual capital
  - Timeframe Reliability Proportionality Assurance (IFAC)
  - Access to organisational memory

**Behavioural mode**
- Capture and share best practice
  - Quantity and quality of lessons learned captured, improvements to activities, less reinventing the wheel, and reduced search cycle time
  - Intellectual capital
  - Continuous improvement

**Social mode**
- Employee retention, e.g. job rotation, global postings
  - Quantity and quality of cross-unit cooperation, teamwork, collaboration
  - Social capital
  - Internal connectivity

**Learning levels: Quadrant 2**

**Individual**
- Competency gaps, e.g. identify competencies by strategic job families and develop programs to fill the gap
  - Proportion of employees learning by doing
  - Relevance Reliability Assurance (IFAC)
  - Human capital
  - Workforce alignment

**Group**
- Not covered
  - Proportion of employees accessing social capital
  - Human capital
  - Efficient knowledge flows

**Organisational**
- Improved training, e.g. internal universities, codifying and sharing best practice
  - Proportion of employees following standard operating procedures
  - Intellectual capital
  - Compliance with best practice

**Inter-organisational**
- Make v buy decisions, e.g. recruiting, training, career planning and outsourcing
  - Proportion of employees using external knowledge resources
  - Intellectual capital
  - Knowledge acquisition

**Learning types: Quadrant 3**

**Single loop**
- Not covered
  - Proportion of employees doing work correctly, i.e. not making mistakes
  - Materiality Relevance Reliability Comparability Timeframe Assurance (IFAC)
  - Intellectual capital
  - Consistency

**Double loop**
- Not covered
  - Proportion of employees problem solving, i.e. discovering a better way
  - Intellectual capital
  - Creativity

**Triple loop**
- Develop strategy, e.g. innovation: sustain a
  - Proportion of employees learning
  - Intellectual capital
  - Innovation

(continued)
technical knowledge but also judgement, that is, one’s competence at handling complexity, instability and value conflicts when engaging people or problem situations at work (Schön, 1983). Competence allows the individual to learn from their experience, that is, reflective practice, and to apply these learnings to a new work situation. Thus, there are multiple best solutions which are context sensitive. Organisational performance in individual-level learning is measurable by the proportion of employees that are learning by doing. The impact on strategy is workforce alignment.

Group level learning requires an individual to learn from others, which implies awareness that there may be more than one best solution but the group is best placed to decide between the options. Group learning also allows for multiple contexts and multiple expert groups, recognising that when a group creates knowledge, it results in collective know-how (Edmondson et al., 2003). This tacit social capital is organisational knowledge found within unique organisational context or work situation. Tsoukas and Vladimirou (2001) call this a corpus of generalisations, that is, “It is how we do business around here”. Organisational performance in group-level learning is measurable by the proportion of employees accessing social capital. The impact on strategy is efficient knowledge flows.

Learning at the organisational level requires individuals to learn from their organisation. Individuals must recognise that there is only one best solution for any given situation, and can apply that process to any context (Reagans and McEvily, 2003). This tacit organisational knowledge integrates across groups and communities. It may be codified as structural capital and captured in databases, policies, procedures and reports. Performance in organisational level learning is measurable by the proportion of employees following standard operating procedures. The impact on strategy is complying with best practice.

Inter-organisational level learning recognises that firms may also choose to fill their knowledge gaps externally from the knowledge marketplace (Reagans and McEvily, 2003).
Managers may choose to acquire knowledge from external experts via three different employment modes: alliance, contracting and recruitment (Lepak and Snell, 2002). In each case, the organisation purchases external expertise to fill a knowledge gap. The acquisition also enables knowledge strategy to explore new business models, for example, hybrids (Grant, 2013a), which challenge underlying assumptions about traditional hierarchical structures and organisational boundaries. An alternative knowledge-based view of the firm perspective sees alliances as accessing, rather than acquiring, a partner’s knowledge (Grant, 1997). Accessing such knowledge increases the use of knowledge resources—an advantage that is enhanced when a situation involves uncertainty or requires an early-mover advantage in the market. Organisational performance in inter-organisational level learning is measurable by the proportion of employees using external knowledge resources. The impact on strategy is knowledge acquisition.

3.5 Learning types

Quadrant 3 includes the learning types: single, double and triple-loop. These learning types combine to measure the workforce’s culture. In this sense, they are like an organisation’s shared mental models, that is, its reflective practice.

3.5.1 Single-loop learning. Single-loop learning concerns compliance. It is about learning to do things the right way. Single-loop learning emerged from Argyris and Schön’s (1978) definition of organisational learning as a process of detecting and correcting errors within organisational contexts, processes and behaviours. This definition sees learning as improving work performance, but it also includes the need to prevent or even eliminate mistakes. Single-loop learning is about doing work correctly and providing management with control over work activity by capturing organisational knowledge as best practice and making it accessible to employees via policies and procedures. Employees are expected to follow these policies as a best practice of the organisation’s theory-in-use (Argyris and Schön, 1978). Easterby-Smith and Lyles (2003) distinguish single-loop learning into two stages: local and closed.

At the local stage, those who tacitly know underlying structures and assumptions make decisions and tend to focus on what rather than why something needs doing. At the closed stage, knowledge resides in silos. Workgroups generate formal routines to make processes uniform and predictable. Standardisation, performance feedback and statistical measurement are the key at this stage. Learning exploits the known rather than exploring the unknown (Easterby-Smith and Lyles, 2003). Organisational performance regarding single-loop learning is measurable by the proportion of employees doing work correctly, that is, not making mistakes. The impact on strategy is consistency.

3.5.2 Double-loop learning. Double-loop learning is about innovation. It is about learning to do the right things and learning to recognise that as organisations change so do their customers and their competitive environment. Employees are encouraged to challenge the underlying assumptions about the work they do. Rather than asking “Am I doing this right?”, they should be asking “Am I doing the right thing?”. Double-loop learning encourages employees to be entrepreneurial, to be risk takers, to play creativity games, to develop new ideas, experiment, discover and innovate. There are positive consequences for employees who become skilful knowers—creativity and innovation among them. Easterby-Smith and Lyles (2003) describe double-loop learning as the open stage. It enables employees to explore wide learning possibilities. Organisational performance in double-loop learning measurable by the proportion of employees engaged in problem solving, that is, “discovering a better way”. The impact on strategy is creativity.

3.5.3 Triple-loop learning. Triple-loop learning is about the learning itself. It is about bringing learning into performance. In this sense, triple-loop learning is the process...
of learning from actions, where individuals reflect on how they created new and better ways to perform work activities and how this became organisational best practice (double-loop learning), and, moreover, how they might do this better next time. It is change and improvement in how the organisation learns. Triple-loop learning questions not just what they learn but the way they learn. Easterby-Smith and Lyles (2003) describe triple-loop learning as the deep learning stage. It enables employees to profoundly question the way they perform tasks and brings reflection to all actions. Organisational performance in triple-loop learning is measurable by the proportion of employees learning from changing the way they perform tasks. The impact on strategy is innovation.

3.6 Learning styles
Quadrant 4 includes the learning styles: diverging, assimilating, converging and accommodating. These learning styles combine to measure the workforce’s learning practice, that is, an organisation’s learning routines or how learning embeds into daily work. Kolb’s (1984) organisational learning model explains learning practice:

1. concrete experience, where a new situational experience is encountered, or an existing experience must be reinterpreted;
2. reflective observation, where inconsistencies between a new experience and previous understandings must be resolved;
3. abstract conceptualisation, where reflection gives rise to a new idea or the modification of an existing abstract concept; and
4. active experimentation, where the learner applies ideas to the world around them to see what results.

Much of Kolb’s theory is concerned with the learner’s internal cognitive processes. However, it also includes behavioural aspects, particularly with active experimentation. The four descriptors are part of a two-dimensional matrix with each quadrant named using a verb: feeling, watching, thinking and doing. The theory combines these elements to produce four learning styles, representing the way people prefer to learn (Kolb, 1984):

1. Diverging (feeling and watching): these people can look at things from different perspectives. They are sensitive. They are creative and like brainstorming.
2. Assimilating (watching and thinking): these people prefer a concise, logical approach. They excel at understanding complex information and organising it in a clear, logical format. They are most interested in ideas and abstract concepts.
3. Converging (doing and thinking): this group uses their learning to find solutions to practical issues. They prefer technical tasks and are less concerned with people and interpersonal aspects. They solve problems and make decisions by finding solutions to questions and problems. They like to experiment with new ideas, to simulate and to work with practical applications.
4. Accommodating (doing and feeling): these people are hands-on and rely on intuition rather than logic. These people use other people’s analysis and prefer to take a practical, experiential approach. They tend to rely on others for information rather than conduct their own analyses.

Organisational performance in learning practice is measurable by the proportion of employees using their preferred learning styles to learn when they need to. The impact on strategy is building learning into performance.
4. Redefining integrated thinking through integrated governance and culture

The goal in developing a new version of the BSC’s learning and growth perspective is to improve the <IRF> by redefining the concept of integrated thinking, while also addressing criticisms of vague concepts and measures in the BSC and the <IRF>. The initial foundations of integrated thinking define it as a strategy that connects governance, past performance and prospects with functional departments (World Intellectual Capital Initiative, 2013). Therefore, redefining integrated thinking for the <IRF> must involve the relationships between organisational units and the capitals used or affected within the context of decision making to create future value. As Dumay and Dai (2017) rightly point out, there cannot be a separation of integrated thinking from management control and culture. The IIRC (2013, p. 25) recognises the connection when defining its governance principle:

- Specific processes used to make strategic decisions and to establish and monitor the culture of the organisation, including its attitude to risk and mechanisms for addressing integrity and ethical issues.
- Particular actions those charged with governance have taken to influence and monitor the strategic direction of the organisation and its approach to risk management.
- How the organisation’s culture, ethics and values are reflected in its use of and effects on the capitals, including its relationships with key stakeholders.

However, management control, being governance, is treated as a separate concept to integrated thinking, when in fact they are closely related, if not inextricably entwined. Hence we introduce the term integrated governance to represent the internal decision-making focus of the new learning and growth perspective of the BSC presented in this essay.

Hence, the next two sub-sections address the practical concerns about integrated thinking and connectivity within the context of control (governance) and culture. We develop a tool (Figure 3) that is useful for internal management processes and decision making (an internal dimension of IR), and for external corporate reporting.

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**Figure 3.** The balanced scorecard’s strategy maps new L&G for integrated reporting
The tool is a revised version of the BSC, with a strengthened learning and growth perspective, to encourage the adoption of another reporting framework – the <IRF>. This essay contributes to this operationalisation by using the four constructs in the new learning and growth perspective – learning levels, learning modes, learning types and learning styles – (Figure 3) to integrate learning and growth with the other BSC perspectives. The following conclusions relate to how the four BSC perspectives can be operationalised to generate integrated thinking:

1. Learning modes: the behavioural, cognitive and social measures (Quadrant 1 Figure 2) align with the BSC’s internal perspective. The learning modes drive performance in three of the traditional BSC strategy map’s internal perspective processes (see Figure 1) – in operational management processes (continual improvement), innovation processes (accessing organisational memory) and regulatory and social processes (connectivity); except customer management. The words in brackets are the strategy forward-focused outcomes (column 6) from Table I. They may generate improved customer value propositions, that is, the customer perspective (see Figure 1), and onwards towards improvements in three of the four financial drivers (the financial perspective) (excepting capacity utilisation) (see arrows in Figure 3). These relationships reflect strategies for productivity and growth, with the connection to growth being stronger.

2. Learning levels: the individuals, groups, organisations and multiple organisations measures (Quadrant 2, Figure 2) align with the BSC’s internal perspective in the following manner. The learning levels drive performance in three of the traditional BSC strategy map’s internal perspective processes (see Figure 1) – in the operations management processes (compliance with best practice), innovation processes (workforce alignment, knowledge acquisition), and regulatory and social processes (knowledge flows). The words in brackets are the strategy forward-focused outcomes (column 6) from Table I. Each learning level shares linkages across three of the four internal dimensions with the same characteristics as the learning modes.

3. Learning types: the measures for single-, double- and triple-loop learning (Quadrant 3, Figure 2) align with the BSC’s internal perspective. The learning types drive performance in three of the traditional BSC strategy map’s internal perspective processes (see Figure 1) – in the operations management processes (consistency), innovation processes (innovation), and regulatory and social processes (creativity), again with links across three of the four internal dimensions, and again with the same characteristics as learning modes and levels. The words in brackets are the strategy forward-focused outcomes (column 6) from Table I.

4. Learning styles: the measures for diverging, assimilating, converging and accommodating (Quadrant 4, Figure 2) align with the BSC’s internal perspective. The learning styles drive performance in three of the traditional BSC strategy map’s internal perspective processes (see Figure 1) – fit within the customer management process (building learning into performance), which leads to improved product/service attributes (the customer perspective) and increased asset utilisation (the financial perspective). The processes are the remaining internal perspective from the traditional BSC strategy map (see Figure 1) not covered by learning modes, levels or types (see above); while the words in brackets are the strategy forward-focused outcomes (column 6) from Table I. These relationships fit within a productivity strategy.

Figure 3 illustrates how the new version of learning and growth perspective would improve <IR > through a redefinition of integrated thinking. Integrated thinking implies
that the connection between various value drivers enables value creation (La Torre et al., 2019). The value drivers in Figure 3 are:

- **learning and growth perspective**: systems and capabilities (e.g. the knowledge capitals);
- **internal perspective**: attributes and relationships (e.g. competency);
- **customer and growth perspective**: resources and growth (e.g. improvement); and
- **financial perspective**: long-term shareholder value (e.g. cost reduction).

In Figure 3, the arrows illustrate the tool’s connectivity of information. Busco and Quattrone (2018) discuss how accounting may act as a maieutic machine to sustain innovation through generative in-tensions. Their idea is that the incompleteness of accounting information generates a desire for improvement in itself. They conceptualise this tension between current accounting and desired accounting as a rhetorical journey with beliefs and rituals following a route with a flow and a movement (Busco and Quattrone, 2018). In this essay’s conceptualisation, the rhetorical journey is organisational learning, and the route is the knowledge flows, that is the arrows connecting information (see Figure 3). Integrated thinking is embedded in the new learning and growth perspective (see Figure 2) systems and capabilities, which operationalises in the internal perspective’s attributes and relationships, which combine to generate indirect value via the customer perspective and direct value via financial performance. While the practical implementation of this tool requires management decision making necessary to improve organisational learning; it is also useful for external reporting of the organisation’s performance and growth prospects, that is its ability to measure and manage the <IR> capitals.

### 4.1 Integrated governance

Integrated governance (to the left in Figure 3) occurs through capability and competency in the internal perspective, and through systems and knowledge sharing in the new learning and growth perspective. When combined, these refined perspectives result in the customer value attributes “improvement”, “best practice” and “speed”, drawn from the strategy elements in column 6 of Table I. This integrated governance creates value for shareholders via improved resource management; mainly from cost reductions and the capacity utilisation increases in intangible assets generated from improved learning.

Integrated governance is a management control perspective enabling integrated thinking and helps produce an integrated report while also facilitating behavioural change (Dumay and Dai, 2017). The control provided by the new tool’s integrated governance is compliance with activities necessary to achieve the financial goals and customer value proposition on the left-hand side of Figure 3. Table I outlines examples of the behavioural change required.

Column 1 of Table I lists the performance drivers for each of the four quadrants in the organisational learning model (Figure 2). Column 2 is the measures of the performance drivers we found in the current BSC learning and growth perspective. This analysis highlights the BSC’s abstractness against each performance driver that compares the need for strengthening. Column 3 is a new measure for the new learning and growth perspective (Figure 2). Columns 2 and 3 represent an integrated organisational learning framework combining the current and new learning and growth perspectives. Column 4 is the performance driver’s fit with the standard measures for IAD and column 5 is the match with the six capitals of the <IRF>. The last column connects the new concepts for value creation to strategy.

Examples of behavioural change generated by integrated governance are found in the rows in Table I regarding learning modes (Quadrant 1) and learning levels (Quadrant 2). These are examples of what Dumay and Dai (2017, p. 580) call personnel controls: “Selecting and training employees in such a way that they understand the nature of their duties, can
complete their tasks competently and perform to the best of their ability”. The example in Dumay and Dai’s (2017) paper is employee training. However, training in what? Column 2 (current BSC) measures this as organisational level learning (Quadrant 2) with the examples of internal universities and codifying and sharing best practice. Column 3 (new BSC) provides seven groups of examples as diverse as conducting after-action reviews to accessing social capital. Column 6 explains the measures of successful integrated governance for each performance driver such as workforce alignment and efficient knowledge flows. For example, a high proportion of employees following standard operating procedures will improve compliance with best practice generating productivity gains from organisational learning. This comprehensive framework embeds integrated thinking into an organisation’s activities.

4.2 Integrated culture
Value creation (to the right in Figure 3) occurs through an alignment between systems, culture and capability in the internal perspective which we define as an integrated culture (Dumay and Dai, 2017). Combining these elements translates into the customer value attributes “innovation”, “performance” and “creativity”, drawn from the strategy elements in Table I. This future thinking through integrated culture creates value for shareholders via improved growth; mainly the increased revenues and differentiation generated by growth in intangible assets.

Value creation is the external reporting focus of the new learning and growth perspective of the BSC presented in this essay. Integrated culture enables integrated thinking and helps produce an integrated report while facilitating attitudinal change (Dumay and Dai, 2017). The cultural change provided by the new tool’s value creation are improved relationships between employees and their organisation with activities necessary to achieve the financial goals and customer value proposition on the right-hand side of Figure 3.

Table I provides examples of the attitudinal change required regarding learning types (Quadrant 3) and learning styles (Quadrant 4). These are examples of what Dumay and Dai (2017, p. 580) call cultural controls: “controls which shape the shared traditions, norms, beliefs, values, ideologies, attitudes and ways of behaving in an organisation”. The examples (Dumay and Dai, 2017) are the code of conduct, socialisation between employees and inspirational leadership. Column 2 (current BSC) measures this as triple-loop learning (Quadrant 3) with the example of a risk-taking culture and converging (Quadrant 4) with the example of empowered decision making. Column 3 (new BSC) provides five groups of examples as diverse as learning in action to aligning learning styles. Column 6 explains the measures of successful value creation for each performance driver such as creativity and building learning into performance. For example, aligning an individual’s preferred learning style with their staff training will improve their emotional relationship with their organisation leading to positive social behaviours associated with organisational learning such as sharing, cooperation and collaboration. This comprehensive framework embeds integrated thinking into an organisation’s activities.

5. Conclusion
5.1 Summary of findings
This essay sets out to amend the BSC’s learning and growth perspective to improve <IR> through a redefinition of integrated thinking. As a contribution to the research on intangible assets, the revised model for learning and growth improves IAD with organisational learning theory and incorporates those ideas into the <IRF>. In part, criticisms of vagueness in the two main concepts of the <IRF>: integrated thinking and value creation motivated our study. Similar criticisms apply to the BSC. The new learning and growth perspective sharpens the focus on these concepts to create clearer measures for
managing and reporting human and structural capital. With these improvements, we hope that firms can use the BSC to engage with \(<\text{IR}\)>.

To accompany the new learning and growth perspective, we developed a new BSC strategy map to illustrate how these redefined concepts connect with the \(<\text{IRF}\>\)’s implementation of integrated thinking to create long-term shareholder value via the management and growth of knowledge resources.

The essay had three main objectives. First, to amend the BSC’s learning and growth perspective to improve \(<\text{IR}\>) by redefining the concept of integrated thinking. The organisational learning conceptualisation addresses the need for IAD to be forward-focused and interactive. The integrated governance in the new BSC tool (left-hand side of Figure 3) addresses the need for internal control of intangibles; while the value creation (right-hand side of Figure 3) creates practical value by disclosing new information that is important to investors and or stakeholders.

Second, the new learning and growth perspective must include measures which are not abstract to capture real differences in value creation. The measures outlined in Table I have inputs (performance drivers and organisational learning concepts) and outputs (strategy outcomes) that may persuade companies to use \(<\text{IR}\>) for more than just impression management.

Third, the improved learning and growth perspective must adequately measure the drivers of organisational learning. The organisational learning conceptualisation creates value by understanding how organisations develop and use intangible assets. We adapt Yongvanich and Guthrie’s (2006) method of bringing together the strengths of the models from different areas of research; however, our approach is to address the weaknesses (i.e. criticisms) of the BSC and \(<\text{IR}\>) , by using the strengths of organisational learning.

5.2 Limitations
A limitation is that it addresses mainly the three capitals aligned with the tripartite model of intellectual capital. We do not explore manufactured or natural capital because these are inputs into processes governed by knowledge. Additionally, financial capital is aligned with the BSC’s financial quadrant and is input to the business model and of course from a BSC and \(<\text{IR}\>\) perspective, the primary output. Also, we do not debate about whether or not creating financial capital at the expense of other capitals is morally acceptable or just. However, the authors do recognise that all organisations need to create financial capital while at the same time considering the use of all resources including natural resources. A further study is possible that investigates how the authors’ improved \(<\text{IR}\>\) model can better utilise and consider environmental and social sustainability, and not just financial sustainability.

5.3 Implications for researchers and practitioners
We argue that integrated thinking requires using a systems thinking approach to provide a more nuanced understanding of how it occurs in practice (Oliver et al., 2016). The organisational learning conceptualisation presented in this essay provides this nuance. The nuance in the new BSC tool (see Figure 3) emerges in its integrated governance and integrated controls; and includes “soft integrated thinking” and “hard integrated thinking” (Oliver et al., 2016, p. 243). Integrated governance is achieved by hard integrated thinking which uses causal modelling to identify necessary activities. Integrated controls are achieved by soft integrated thinking using generative reasoning to enable reflection and creativity for future growth prospects. The new BSC tool also provides evidence for the effectiveness of integrated thinking as a cultural control. Dumay and Dai (2017, p. 593) found that management saw “the advantages of integrated thinking to break down silos, other employees did not”. The difference is that managers and employees will benefit from organisational learning and, therefore, cultural change to become a learning organisation might gain more support.
One of the main attractions of the BSC is that it attempts to connect intellectual assets with value creation, primarily through its learning and growth perspective. This notion fits with Guthrie et al.’s (2012) call for developing future research into understanding how organisations develop and use intangible assets. Dumay (2016) makes a similar call for IAD to be forward-focused and interactive. Hence, the central focus of the revised perspective is a new conceptualisation of organisational learning that answers these calls. The theoretical constructs of learning modes, learning levels, learning types and learning styles along with our redefinition of integrated thinking address the problem of abstraction posed by Nielsen et al. (2017). The new measures in Figure 2 explain how these four constructs develop and grow intangible assets through <IR>, and the two dichotomies – resources-growth and systems-capability – address the forward focus of IAD.

The interactions between the new learning and growth perspective and business strategy happen through multiple vertical and horizontal connections within the new BSC strategy map. The result is value creation reflected in a range of strategic impacts. This new BSC learning and growth perspective model has the potential to become part of the global evolution in corporate reporting. Integrating this new perspective with <IR> could help to build investor and stakeholder confidence, improve future performance, and drive business leaders and investors to embrace the <IRF>. More importantly, it should have an impact on internal behaviours and attitudes.

5.4 Future research
Although the essay is conceptual, it does highlight some exciting future research opportunities to test the ideas presented here in a longitudinal empirical study. Organisational learning is an important source of competitive advantage in the twenty-first century knowledge economy. This essay encourages further debate on how to report and disclose information on intangible assets and their growth, driven by a new conceptualisation of organisational learning, tied to strategy, with the aim of supporting the process, customer and financial perspectives of an organisation.

The essay contributes to Yongvanich and Guthrie’s (2006) idea that an integrated approach needs to include issues of public concern (outside-inward) and business strategy (inside-outward). The BSC is useful for the business strategy part of <IR>. We have followed Yongvanich and Guthrie’s (2006) suggestion to use the BSC to analyse and identify areas where firms can improve their performance (inside-outward). Whereas this essay aimed to improve <IR> through a redefinition of integrated thinking; it transformed into an exercise to improve processes, management control being integrated governance and organisational culture through integrated culture. In this way, we are not only improving the <IRF>, but we are also improving what organisations report, and internal behaviours and attitudes. What organisations report reported and how it could improve internal behaviours and attitudes continue to be an area for future research (Dumay et al., 2016).

References


New learning and growth perspective for the BSC


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An intellectual capital ontology in an integrated reporting context

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Abstract
Purpose – The purpose of this paper is to investigate the intellectual capital (IC) ontology in an integrated reporting context to explore the function that integrated report (IR) preparers assign to IC elements and the role of integrated thinking in this process.
Design/methodology/approach – Social ontology theory helps elucidate how an energy-sector company socially constructed an IC ontology in which IC is a core element of the value creation story told in the IR. The empirical analysis benefited from in-depth interviews with the corporate staff.
Findings – The subjective nature of IC ontology emerges, in that IC’s function is defined during the very process of IR preparation. The intangible elements drive sustainability-oriented financial value creation according to the sustainability approach embraced by the company’s business model. Integrated thinking both facilitates this perspective on IC is shared among various departments of the company and provides a procedure for scrutinising what counts as IC in this integrated reporting context.
Research limitations/implications – The research scope is limited to the IR preparation process. Further research could explore IC ontologies beyond this process.
Originality/value – This study is the first to explore IC ontology empirically within an innovative integrated reporting context. It opens paths to further research on the relationships between IC and integrated thinking.

Keywords Integrated reporting, Intellectual capital, Integrated thinking, Social ontology

1. Introduction
The new paradigm of integrated reporting aims to provide a holistic portrayal of a company’s value creation process. It also traces directions for future corporate reporting through its ability to combine financial and non-financial information in a single document (De Villiers et al., 2014; Dumay et al., 2016). This means the integrated report (IR) provides an impetus for an interconnected approach to corporate reporting, referring to “corporate strategy, how the strategy translates into a firm’s business model, and how the business model takes advantage of the six forms of capital […] to create or destroy value” (De Villiers, Venter and Hsiao, 2017, p. 939).

According to the International Integrated Reporting Framework published by the IIRC (2013), IRs should recognise the involvement of both tangible and intangible capital in explaining the value creation process. The Framework thereby redefines the reporting boundary by considering, in addition to financial capital, five other forms of capital: manufactured, intellectual, human, social and relationship and natural (IIRC, 2013, § 2.10). What is generally referred to as intellectual capital (IC) – comprising human, structural and relational forms of capital (Stewart, 1997; Sveiby, 1997) – in the IC literature is captured in the combination of the following three forms of capital defined by the International Integrated Reporting Framework (IIRC, 2013): “intellectual capital”, “human capital” and “social and relationship capital” (Guthrie et al., 2012; Beattie and Smith, 2013; Melloni, 2015; Dumay, 2016).
Hence, integrated reporting represents new hope for IC because it repositions IC on corporate agendas (Dumay, 2016). More precisely, integrated reporting places IC in the centre of the value creation story (Abhayawansa, 2014; Dumay and Cai, 2014) and explores its connections with a concept that is central to IR: value creation (de Villiers and Sharma, 2018). The International Integrated Reporting Framework enhances the relevance of IC within the value creation story built by IR:

Under [integrated reporting], if IC, human capital, or relationship capital is set to play an important value creation role in the future of an organization, then this value creation story, with IC at its core, has to be told in the [IR] (de Villiers and Sharma, 2018, p. 11).

IR preparers are urged to explain the role of IC in value creation (IIRC, 2016). However, the way in which IC is intended to contribute to value creation within a company cannot be assumed: it reflects IR preparers’ interpretations. Indeed, prior IC research has elucidated the unstable, subjective ontology of IC, with calls for additional research to explore the role of IC for value creation (Mouritsen, 2006, 2009). Given that IC is a malleable and fragile concept (Mouritsen, 2006), its assessment requires further development to support interventions, rather than mandating definitive measures of its value (Mouritsen, 2009). Integrated thinking can play an important role in moulding how IC is meant to contribute to value creation. It may facilitate organisational departments in coming to agree on the role of IC within a company, and in defining the connections between IC and the corporate strategy, governance, past performance and future prospects (de Villiers et al., 2014; Dumay, Bernardi, Guthrie and La Torre, 2017; Feng et al., 2017).

Prior integrated reporting research mainly focuses on IC disclosures in reports (Melloni, 2015; Setia et al., 2015; Ahmed Haji and Anifowose, 2017) without exploring empirically how companies deal with IC in their IR preparation process. Furthermore, there is scant research on the role of integrated thinking in this process, although integrated thinking might be applied to actively considering the IC’s contribution to value creation (Feng et al., 2017). To address this gap, the present study investigates how IR preparers define the IC’s function while preparing the IR, and the role of integrated thinking in this process.

In exploring how IC ontology is socially constructed through IR preparation, this study turns to the social ontology theory introduced by the philosopher John R. Searle (1995, 2006, 2008). Searle’s approach helps clarify the analysis and interpretation of how IR preparers collectively assign a function to IC elements and establish what counts as IC in an integrated reporting context. The case study focuses on an integrated reporting pioneer that operates in the energy sector, and has already published several annual IRs. In-depth interviews with managers and employees involved in the IR preparation process provide the key empirical material to inform the detailed description of IC ontology.

This study contributes to extant literature by extending analyses of the subjective ontology of IC (Mouritsen, 2006, 2009; Vlismas and Venieris, 2011) in a specific and novel integrated reporting context. It also responds to calls to explain how IC exists in the process of integrated reporting (Cuozzo et al., 2017; Dumay, Guthrie and Rooney, 2017). The study clarifies in detail the nexus between integrated reporting and IC, a noteworthy topic that, apart from some exceptions (Melloni, 2015; Feng et al., 2017), has received little empirical research attention. By exploring how IR preparers come to share a collective view about the role of IC in the IR value creation story, this study specifies the relationships among IC, integrated reporting and integrated thinking (Chaidali and Jones, 2017; de Villiers, Venter and Hsiao, 2017; Feng et al., 2017). In light of the call for additional guidance on the conceptualisation and implementation of integrated thinking (IIRC, 2017, 2018), this study offers practical insights on how integrated thinking emerges and stimulates collective reasoning about IC in the IR preparation process.
The paper proceeds as follows: Section 2 provides a review of extant research on both IC ontology and the role of IC in the integrated reporting context. Section 3 theoretically frames the study, and Section 4 presents the case-study context and the research methodology. Section 5 highlights the findings and discusses them according to the theoretical framework and prior research. Section 6 concludes by highlighting the implications, contributions and limitations of this study.

2. Literature review

The ontology of IC is a challenging, underdeveloped topic that has attracted the attention of several scholars who have proposed conceptual frameworks to shed light on IC modes of existence (Mouritsen, 2006, 2009; Vlismas and Venieris, 2011). Mouritsen (2006) problematises the lack of a unique, rigorous definition of IC. Drawing on Latour (1986), Mouritsen (2006) also theorises two approaches to studying IC: the ostensive and the performative, each of which relies on different ontological assumptions. In the ostensive approach, IC is represented by broad, discrete components, and its contribution to value creation can be measured by causal models. In contrast, in the performative approach, IC is represented by idiosyncratic, context-specific components, and its contribution to value creation cannot be measured objectively because “IC is co-produced in the course of its application” (Mouritsen, 2006, p. 824).

Advancing the performative approach, Mouritsen (2009) also argues that although measuring IC is difficult, measurements are necessary for developing knowledge about how IC transforms into value. Mouritsen (2009) rejects the possibility of a perfect correspondence between IC and numbers but supports the idea of a measurement related to the visibility of IC in action (i.e. in interaction with other forms of capital such as manufactured capital and natural capital). According to Mouritsen (2006, 2009), the subjective nature of IC entails ontological subjectivity. He contends that the absence of a shared definition of IC and the malleability of IC elements (i.e. human, structural and relational capital) mean that IC changes depending on the different systems of corporate goals in which it is situated by managers. Thus, Mouritsen (2009) maintains that IC “classification is a construction done by a ‘we’” (p. 155) and recognises IC measurements as “constitutive” of IC because they enable reasoning on the relationship between the IC elements (i.e. human, structural and relational capital) and value creation. Furthermore, IC measures can help managers transform and intervene on a company’s processes (Mouritsen, 2004, 2009). Actors mobilise IC elements according to their function and effects, such that:

IC is what it has come to be in the situation in hand […] IC elements are mobilized and related to effects that themselves are invented in the network where IC is given meaning (Mouritsen, 2006, p. 823).

In formulating their ontological proposition for the IC domain, Vlismas and Venieris (2011) offer an interdisciplinary synthesis. They particularly analyse the ontological perspectives of different IC research streams (e.g. accounting and economics, strategic management, organisational learning and knowledge) and identify generic categories of IC elements. Their conceptual investigation implies that several disciplines and different elements underlie IC’s contribution to value creation. Other scholars affirm IC as a primary source of corporate value (Marr and Chatzkel, 2004; O’Donnell, 2004; Cuganesan, 2005; Beattie and Smith, 2013), proposing that IC contributes to value creation through the “central concepts” (Mouritsen, 2009, p. 154) of human, structural and relational forms of capital (Guthrie et al., 2012; Abhayawansa et al., 2018). The intangible and intertwined nature of these forms of capital complicates the measurement of IC’s contribution to value creation (Mouritsen, 2006, 2009).

To overcome the challenge, some scholars recommend visual maps and similar tools to illustrate the role of IC in the value creation processes (Marr et al., 2004; Giuliani, 2016; Zakery et al., 2017); other scholars argue that the fragile, ambiguous nature of IC requires
alternative modes (e.g. narrative techniques) to reflect accurately how it drives value creation (Cuganesan, 2005; Dumay, 2009). Murthy and Mouritsen (2011) argue that the connections between IC and value creation may be multidirectional and non-linear, such that any relationship is changeable according to the context. Dumay (2016) states that context is key to understand IC because it influences both the effect of IC on value creation and the characterisation of the value (i.e. monetary, utility, social and sustainable value) at the basis of the value creation process.

Acknowledging IC as a source of value creation also requires new reporting paradigms to “supplement and complement traditional financial statements by providing information on intangible value drivers or corporate IC” (Abhayawansa, 2014, p. 101). In particular, integrated reporting seeks to overcome the shortcomings of traditional financial reporting (Owen, 2013; Rowbottom and Locke, 2016), and the International Integrated Reporting Framework (IIRC, 2013) places IC in a subset of forms of capital that can lead to corporate success. Accordingly, prior studies identify integrated reporting as a relevant opportunity for rekindling IC reporting (Dumay, 2016; Dumay et al., 2016; Feng et al., 2017; de Villiers and Sharma, 2018).

Given that integrated reporting represents a valuable clarification of the often-missed interplay between IC and other corporate resources (Cuozzo et al., 2017; Dumay, Guthrie and Rooney, 2017), high-quality integrated reporting requires embedding an integrated thinking approach into corporate reporting practice (de Villiers, Venter and Hsiao, 2017). A background paper on connectivity jointly developed by the International Integrated Reporting Council (IIRC) and the WICI (2013) conceptualises integrated thinking in terms of connections among strategy, governance, past performance and future prospect, as well as across functional departments. In gathering the experiences of some integrated reporting pioneers, the CIMA (2017) provides recommendations on how to “make integrated thinking happen” (p. 18). It particularly suggests creating cross-functional groups involved in business planning, measuring and reporting, as well as in identifying drivers and activities that allow the execution of the corporate business model. The staff members of finance departments likely play a major role in driving integrated reporting and thinking. A survey on integrated thinking undertaken by the SAICA (2015) notes that specific tools such as key performance indicators and the balance scorecard may assist companies in enhancing integrated thinking; however, this survey also highlights that few companies have engaged with such tools while preparing their IR. Similarly, the NIBR (2018) states the importance of identifying key performance indicators and dedicated dashboards to integrated reporting and thinking.

In the academic literature, Feng et al. (2017) empirically identify active board, management involvement and cross-organisational teams for IR preparation as examples of how integrated thinking emerges. Chaidali and Jones (2017) suggest that integrated thinking “help[s] organisations to demonstrate the interconnectivity between strategy, strategic objectives, performance, risk and incentives” (p. 16). In arguing that integrated reporting requires managers to engage in integrated thinking, de Villiers, Hsiao and Maroun (2017) consider “breaking down the barriers between departments and stimulating strategic dialogue between financial and non-financial teams” (p. 454) as relevant aspects of integrated thinking. Similarly, Guthrie et al. (2017) demonstrate that cross-functional teams emerge as important mechanisms of change in the path towards integrated thinking and reporting. However, Dumay and Dai (2017) observe that managers of the same company may express opposite views on the capability of integrated thinking to overcome organisational silos. They ascribe this controversial perception on integrating thinking to the greater efforts made by the IIRC in arguing for “why” companies need to prepare IR rather than explaining “how” companies should operationalise integrated thinking.
As demonstrated by the results of a global consultation on its International Integrated Reporting Framework (IIRC, 2017), the IIRC is working to address the criticisms of the concept of integrated thinking. Following this consultation, the IIRC constituted a network group on “Integrated Thinking and Strategy” (IIRC, 2018) that is meant to collect case studies and examples of current practices on integrated thinking and further develop this concept.

Despite the call for further exploration of integrated thinking in practice (de Villiers et al., 2014; Dumay et al., 2016; IIRC, 2017, 2018; Rinaldi et al., 2018), no prior research has inspected how integrated thinking influences IR preparers’ engagement with IC in the integrated reporting process. Drawing on social ontology theory (Searle, 1995, 2006, 2008), the present research aims to address this gap by investigating the “social existence” of IC in a company that engages in integrated reporting.

3. Theoretical frame
Searle (1995) addresses social ontology, or “how social facts exist” (p. 5), defining social facts as those “facts in the world […] that exist only because we believe them to exist” (p. 1). That is, social facts arise through intentional human activity that represents objects and imposes them a function that would otherwise not be performed simply by virtue of the nature of the object itself. For example, a stone (object of the world) represents a paperweight only if intentional human activity imposes this function on the stone (i.e. to keep loose papers in place); this function does not depend on the stone’s own physical nature. Searle (1995) argues that human beings create human institutions as systems of shared, established rules.

In outlining his theory, Searle (1995, 2006) also distinguishes brute facts from institutional facts. Brute facts exist independently of human institutions (e.g. mountains); institutional facts require, for their existence, human institutions (e.g. money). To this ontological distinction, Searle (1995) adds an epistemic distinction based on the truth or falsity of judgements about facts in the world. In particular, features of objects can be observer-independent (or intrinsic) in nature or observer-relative, that is, “relative to the intentionality of observers” (Searle, 1995, p. 9). Observer relativity implies the ontological subjectivity of the object, but this subjectivity does not prevent human beings from conducting epistemically objective representations of that object. Accordingly, Searle (1995) claims that institutional facts are ontologically subjective: they exist only to the extent that conscious agents experience them. He justifies this subjective mode of the existence of institutional facts through the observer relativity of the functions, that is, the roles that conscious agents (in line with their beliefs and purposes) assign to institutional facts. Searle (1995, 2006) also argues that institutional facts may be epistemically objective in the sense that they can be ascertained as true or false according to an objective procedure of verification that is independent of the opinions or attitudes of observers.

Furthermore, Searle (1995) identifies three primitive elements that are necessary to account for the ontology of social reality: “assignment of function”, “collective intentionality” and “constitutive rules” (p. 13). The assignment of function refers to the capacity of conscious agents to impose functions (Y) on objects (X) according to their practical interests. Functions are thus always observer-relative, assigned depending on the interests of specific users and situated into a system of purposes, objectives and values. Collective intentionality refers to the capacity of conscious agents to engage in cooperative behaviours and share beliefs, interests and intentions. Collective intentionality implies a common sense of doing something together that allows the object (X) to perform the assigned function (Y) by virtue of a collective acceptance. For example, Searle (2008) refers to status function, which exists when a certain function of a particular object is collectively
accepted and relates the construction of the status function to the construction of an institutional fact, which “works to the extent that it is collectively accepted” (p. 453). Finally, constitutive rules create the very possibility for social facts to exist. Assigning a status function becomes a regular activity performed by conscious agents, such that rules become institutionalised and assume a logical form of “X counts as Y in context C” (Searle, 1995, p. 26). Therefore, constitutive rules allow that “anything that satisfies the X condition counts as having the Y status function” in a given context C (Searle, 2008, p. 453).

Given that IR may provide a means to mobilise IC, in moulding the company’s value creation story (Dumay, 2016; de Villiers and Sharma, 2018), this social ontology theory seems insightful for exploring the social existence of IC in an integrated reporting context. Social ontology theory particularly helps depict the function assigned to IC, the constitutive rules that cause corporate elements such as IC to exist in that context and the cooperative behaviour through which IR preparers share their views and socially construct IC. Prior accounting research has demonstrated the potential of Searle’s theory to elucidate how measurement and reporting principles are socially constructed and the role of corporate reporting preparers in moulding the social existence of these principles (Barker and Schulte, 2017; Lai et al., 2017). In adopting this approach, the authors are aware that the findings of the analysis focus on the contingent aspects of IC ontology detected in the case study, rather than provide insights into any stable dimensions of IC that could be identified by drawing on different theories of ontology (Vlismas and Venieris, 2011).

4. Case-study context and methodology

4.1 The company

This research draws on the case of a multinational corporation working in the energy sector, which is given the fictitious name “Energy Co.” or simply “the Company” for reasons of confidentiality. The Company’s business model targets value creation in terms of profitability, growth and efficiency improvements. It also seeks to preserve the environment and improve the well-being of the populations involved in its business operations. Its continuous investments in research and development (R&D) and technology, and its innovative attitudes to enhancing intellectual property represent major drivers of the sustainability approach that inform its business model. The Company has pioneered integrated reporting and annually issues an IR. It has also demonstrated its commitment to integrated reporting by embracing several IIRC initiatives aimed at developing best practice and sharing its experiences on integrated reporting. Since its initial adoption of integrated reporting, the Company has sought to identify the most effective way of explaining how IC contributes to value creation. Therefore, exploring Energy Co. can provide interesting insights into an IC ontology in the integrated reporting context.

4.2 Research approach

The research draws on social ontology theory (Searle, 1995, 2006, 2008), which requires understanding how IC as an institutional fact is structured through IR preparation. To reach such understanding, the study seeks to analyse Searle’s three primitive elements – assignment of function, collective intentionality and constitutive rules – with reference to a single case study.

To guarantee confidentiality, both the Company and the interviewees remain anonymous. Only the departments in which the interviewees are employed are generically mentioned; each department is described by reference to its function within the Company, without revealing its exact name. The confidential policy also prevents direct citation of the interviews and assigning specific information to any interviewees (i.e. no disclosure of “who said what”). These stringent confidentiality measures might seem to limit
the study, but they ensured that the interviewees could speak freely. Thus, the study benefits from this degree of freedom to speak and provides a comprehensive account of the social ontology of IC in the context of IR preparation.

4.3 Data collection and analysis

The study is based on eight in-depth interviews conducted with Energy Co. “insiders” – specifically, actors in departments that are directly or indirectly involved in IR preparation. The individual interviews were conducted between March and November 2017. They lasted for 55–110 min (approximately 70 min on average). Interviewees were representatives of the following departments: accounting and finance, sustainability, investor relations and risk management. Within the Company, the accounting and finance department is responsible for materially drafting the IR, and the other departments participate in meetings, brainstorming sessions and other efforts to define which IR contents are relevant to the Company. The interviewees were managers and employees who have been working for Energy Co. for periods ranging from 10 to 25 years.

In conducting the interviews, the focus was to gain understanding of the process of IR preparation and how IC “exists” for integrated reporting purposes, that is, how the Company’s actors behave and interact to define IC, which function they assign to IC and which constitutive rules allow them to identify IC in this specific context. The issues to address during the interviews were derived from social ontology theory (Searle, 1995, 2006, 2008) and include the conditions required and tools adopted by the Company to identify, measure and represent IC in its IRs. The interviews also probed IC-related activities and initiatives, the history of IR in the Company, contributions by and interactions among actors involved in the process of IR preparation.

To ensure traceability and mitigate contingent concerns about methodological rigour and inherent subjectivity, the analyses were documented step by step. In the first stage of analysis, the key concepts related to the issues mentioned in the interviews were identified. Each author separately examined the interview notes, and then the entire research team focused on identifying the primitive elements outlined by Searle (1995). No substantially different interpretations arose among the authors. In the second stage of the analysis, the authors discussed the overall IC ontology that existed in the Company’s integrated reporting process.

Before conducting the interviews, the authors also carefully read all the IRs prepared by the Company, the financial reports it published prior to the shift to IR and the sustainability reports it published in the last ten years. In particular, this reading allowed gathering preliminary information about the Company and drafting the interviews. As another source of preliminary information, the authors examined the Company’s website to identify its IC-related initiatives. The authors also participated in public workshops, academic conferences and roundtables at which Company representatives explained its shift towards integrated reporting.

5. Findings and discussion

5.1 Collective intentionality

The process of IR preparation at Energy Co. involves several departments. The accounting and finance department is the “owner” and “coordinator” of this process. It defines the IR’s contents, collects non-financial information from other departments, interacts with the chief executive officer (CEO) to agree on the IR “philosophy” and then refines the final version before approval by the board of directors.

While preparing the IR, the accounting and finance department particularly benefits from collaboration and interactions with the sustainability department. The latter provides
information on specific social and environmental initiatives developed by the Company, but it also shares its views on the Company’s mission, strategy and business model. Its perspective is particularly relevant to defining the IR’s contents because both the chair of the board of directors and the CEO of Energy Co. consider sustainability a “core concept” of the Company’s value creation process, and often share this view in letters to shareholders and during “investor days” or official meetings to present the Company’s corporate strategy. The sustainability department supports the accounting and finance department in explaining to IR readers the sustainability approach manifested in the Company’s business model, as well as the drivers of the Company’s value creation process. The planning and control department offers pertinent details about core ideas and implementation of the corporate strategy, as established by the board of directors.

The need to explain the sustainability approach emerged at the very beginning of the Company’s integrated reporting project, and required that the accounting and finance department began reasoning about the best way to explain the role of non-financial capital in creating value. The staff of this department particularly felt compelled to explain that the Company’s business model was not solely supported by “tangible capital”. The Company interprets IC as comprising three of the six capitals outlined by the International Integrated Reporting Framework (i.e. “intellectual capital”, “human capital” and “social and relationship capital”). That is, the Company employs IC as an umbrella term that considers IC to be more than patents and research expenditures and activities, in that it also refers to human (e.g. skills), structural (e.g. internal procedures) and relational (e.g. alliances) components. This interpretation of IC captures all the elements of IC generally referred to in the literature when defining IC (Stewart, 1997; Sveiby, 1997), and requires the accounting and finance department to share its view about how IC contributes to value creation. The Company’s departments engage in several cooperative behaviours that lead to a collective acceptance of the interpretation of IC (Searle, 1995). Particularly, the sustainability and the investor relations departments participate in meetings organised by the accounting and finance department to promote a common view of IC’s role in value creation. The sustainability department shares the results of its prior focus groups that aim to gather managers’ ideas about the Company’s IC and its relationships with corporate sustainability issues. The investor relations department helps explain investors’ information needs in relation to IC and creating value. The Company primarily addresses its IR to investors (shareholders and debtholders), so the investor relations department must gather investors’ expectations about non-financial information. The risk management department is also (indirectly) involved in explaining IC’s role in creating value; it provides the sustainability department with pertinent risk measures about non-tangible assets. The sustainability department then shares this information with the accounting and finance department, and together they decide how to incorporate these measures in IR sections devoted to the business model and forms of capital. Finally, the CEO and the board of directors put their imprint on the integrated reporting process by communicating to the corporate departments and external stakeholders the centrality of sustainability in value creation.

In discussing the best way to explain how IC creates value, the different departments also express different opinions about its measurement. Each department uses specific metrics to measure this contribution, as reflected in brainstorming activities that aim to measure the effect of the Company’s current work-safety project on value. The departments involved in the brainstorming were all aware that the project had succeeded in increasing the IR preparers’ awareness about health and safety issues and decreasing injuries. However, some departments believed that the cost reductions associated with fewer injuries represent a proper proxy of the effect of the work-safety project on value creation, while others maintained that cost reduction was only a (minor) aspect of the value created through this initiative. In the IR preparers’ view, the “value” of people’s safety cannot be measured in
terms of saved costs. For the IR preparation, IR preparers sought some form of quantification in relation to avoided accidents, reduced training expenses or increased productivity due to the more consistent presence of personnel at work. However, some departments also identified an incoherence between the resulting value and their view of reality. In the years since the first IR was prepared, the IR preparers have continued to struggle to find common metrics for measuring the degree to which IC affects financial performance because they disagree on the assumptions that underlie the measurements, thus creating value they perceive as unreliable. Despite the desire to identify appropriate metrics, these metrics remain an expected achievement of their efforts in measuring the IC's contribution to value creation.

In brief, the IR preparers at Energy Co. deal with IC through cooperative reasoning that aims to understand how IC creates value. The intention of these IR preparers is to develop a shared explanation of how IC performs its value creation function. As highlighted by prior research (Guthrie et al., 2012; Beattie and Smith, 2013; Melloni, 2015; Dumay, 2016), IC is intended to capture three of the six capitals outlined by the International Integrated Reporting Framework (i.e. “intellectual capital”, “human capital” and “social and relationship capital”) (Guthrie et al., 2012; Beattie and Smith, 2013; Melloni, 2015; Dumay, 2016). Thus, the IR preparers assume an active role in defining what counts as IC within their reporting context.

In balancing the financial outcomes expected by shareholders with the sustainability approach that informs the Company’s business model, IR preparers struggle to find intangible drivers of sustainability actions that create financial value. Their collective intentionality (Searle, 1995) is necessary for defining how IC supports financial value creation by means of socially and environmentally sustainable actions. This collective intentionality stems from brainstorming and other joint activities, such that IR preparers engage in cooperative reasoning, which helps them overcome boundaries between functional departments and share ideas about what constitutes IC. IR preparers work to develop a unique viewpoint on how IC delivers financial value. As suggested by Mouritsen (2006), the way IC contributes to value creation depends on the situation at hand, beyond any formulas included in predictive frameworks or models. Although the Company’s departments do not always agree on what is the best way to explain IC’s role in creating value, they share a common idea of what IC is. That is, they might debate the value of IC in an IR preparation context, but there are no disputes about how IC should be defined. The IC elements are meant to be intangible drivers for sustainability-based financial value creation, an interpretation that is evocative of both IC’s assigned function in the integrated reporting context and the constitutive rules (Searle, 1995) for recognising corporate resources as IC.

5.2 Constitutive rules
To function as IC within the Company’s integrated reporting context, a corporate resource, asset or state of being (hereafter, corporate element) must satisfy three constitutive rules (Searle, 1995). First, the corporate element needs to be intangible. That is, the Company’s business model is not supported solely or exclusively by tangible assets: both financial capital and manufactured capital are relevant, but intangible elements are also important. Even if the intangible elements are not easy to measure, they are crucial for allowing the Company’s business model to create value.

Second, the (intangible) corporate elements must support actions that are sustainable from a social or environmental perspective. These elements must respect, protect or improve the quality of the environment in which the Company operates and/or guarantee the safety and well-being of employees and local communities that are involved directly or indirectly in its business activities.
Third, the sustainable actions driven by the (intangible) corporate elements must foster financial value creation. The IR preparers recognise non-tangible elements as IC only to the extent that they affect the Company’s financial performance, directly or indirectly, in terms of revenues, expenses, cash flows and financial ratios (e.g. leverage ratio, return on assets, breakeven point). According to the Company’s IR preparers, the effect of IC is mostly indirect, but the preparers strive to identify this effect and detail the path by which a corporate element induces one or more non-financial results and thereby affects financial outcomes. This path may require several steps, together with a deep knowledge of the Company’s business model and value creation process.

These three constitutive rules create the conditions that must be met to allow IC to exist in the context of Energy Co.’s integrated reporting (Searle, 1995). For example, the Company’s IRs offer explanations of corporate programmes for employee safety, noting that Energy Co. leveraged intangible elements (e.g. personnel skills, organisational procedures) to enhance its financial performance (lower injury costs in the income statement), which was made possible through multiple corporate actions designed to decrease the number of injuries. These corporate actions ranged from careful asset management and plant design to constantly developing ad hoc process manuals and training aimed to disseminate safety information to workers. The IR preparers also cite the Company’s careful analysis of the causes of previous adverse incidents related to safety, which informed new intervention plans and systematic emergency-management procedures, including safety contracts with any suppliers working on production sites.

Another of the Company’s projects provides an example of an activity that does not meet three constitutive rules. Energy Co. developed a local project to support the population of one of its host countries through resettlement, livelihood restoration, access to water, improved hygiene and sanitary conditions, on-grid and off-grid electrification and primary education programmes. The project succeeded in benefitting the local population, achieving the sustainability requirement, but IR preparers did not consider the third constitutive condition satisfied, that is, they could not identify contingent effects in relation to cost reductions, revenue increases or cash flow optimisation. Therefore, the project was not included in the IR, but was fully described in the sustainability report that Energy Co. continues to publish in parallel with its IR.

Thus, in the context of the Company’s integrated reporting, IC refers to intangible drivers of the sustainability actions that affect financial value creation. In the Company’s IRs, this status emerges in a connectivity map that explains the contribution of the IC (and other forms of capital) to value creation. The IC is represented as intangible elements that are mobilised through sustainable actions that in turn affect financial performance. For example, the IRs portray connections between social and relationship capital (an IC component) and cash flows by showing how the IC elements favour dialogue with trade unions and cooperation with host-country populations. This representation is particularly helpful in demonstrating the effect of stakeholder-engagement activities on financial performance and the role of social and relationship capital in this process. Measuring the financial effects of (avoided) strikes and the (lack of) welcoming by populations remains a work in progress for the Company, but the connectivity map offers a pertinent representation of the benefits that arise from this specific IC element and its related sustainable actions.

An internal debate among IR preparers emerged to define the role of the time-to-market in the value creation process. According to some IR preparers, time-to-market is an intermediate, non-financial outcome generated by the soft competences of the Company’s human capital (a component of its expanded notion of IC) that enables the Company to develop discovered resources faster than it once did. An accelerated time-to-market leads to lower unitary operating expenditures, intended as the ultimate financial outcome obtained.
However, according to other IR preparers, time-to-market is an intangible driver of financial value creation that helps the Company enjoy immediate positive effects on its cash flows. After careful reasoning, the former perspective has been collectively identified as the most appropriate.

These findings support Mouritsen’s (2009) argument that despite it being impossible to obtain a perfect representation of IC with numbers, IC measures help identify its intrinsic features. For example, the connectivity map provides an overall representation of the complex process in which IC is embedded, and clarifies IC features (i.e. intangibility, sustainability, contribution to financial performance) and the hidden links between IC and financial performance.

5.3 Assignment of function
At Energy Co., IC serves as an intangible driver for sustainable financial value creation. In line with Searle’s ontology, this function is assigned to multiple corporate elements that act as IC in the value creation story told by the IRs, coherently with the system of purposes that the Company aims to accomplish (i.e. sustainability approach and financial success). For example, this function is ascribed to intellectual property (e.g. patents, rights and licences, software, copyrights), knowledge management through innovative procedures and protocols, and information and communication technologies. This broad set of elements, referred to as “research and development”, is likely to affect the Company’s value creation by enhancing competitive advantage, productivity and operational efficiency; creating licenses to operate; and mitigating risk exposure. To allow these IC elements to enhance value creation, R&D activities and partnerships are required.

Other corporate elements that provide intangible drivers of sustainable value creation include the health and safety of the employees, skills and competences of the employees, respect for diversity and integrity. These “people and safety” elements affect value creation by enhancing productivity, efficiency, competitiveness, risk mitigation, company reputation, innovation and the capability to attract new talent. The most relevant actions in this realm are investments in corporate integrity, safety-improvement projects, diversity and inclusion of employees and efforts to enhance employees’ capabilities and skills.

Relationships with stakeholders of any kind (e.g. customers, suppliers, industrial partners, local communities, governments, non-governmental organisations, universities, labour unions, other associations) also serve as intangible drivers for sustainable value creation. These elements of IC, referred to as “social, human well-being and transparency” by the IR preparers, influence value creation by enhancing the Company’s reputation, alignment with international best practice, competitive advantage and market share. The elements also have benefits in relation to customer retention, supplier reliability, time-to-market reduction and country-risk mitigation. The most relevant actions for these IC elements are community investments and training on human rights and other social issues.

A table presenting the Company’s key performance indicators and value creation in the IRs highlights functions of IC elements in supporting sustainable value creation. This table links the three categories of the IC elements to corporate value creation. It also presents key performance indicators that the Company’s managers use to make strategic decisions and assess the outcomes of these decisions. For example, the main key performance indicators associated with R&D are the number of patents held, number of innovation and research partnerships activated, investments in R&D activities and identifiable outcomes. Ultimately, all these key performance indicators deal, more or less directly, with measurable financial outcomes.

In brief, the general function of IC as a value creator is exploited to align the goal of financial value creation with sustainability, which is core to the Company’s business approach. Therefore, through the assignment of function (Searle, 1995), IR preparers
inflect the value creation function of IC according to the Company’s characterisation of value and its way of doing business. As predicted by de Villiers and Sharma (2018), if IR preparers are aware of the importance of IC for corporate financial performance, they place IC at the core of the value creation story told in the IR. Dumay (2016) argues that the effect of IC on value creation depends on context; the present study goes further to suggest the ways in which IC delivers value result from the functions that IR preparers assign to IC. That is, in this case study, IC can only be defined by considering the Company’s sustainability approach to the business.

6. Conclusion
The ontology of IC remains an underdeveloped topic. Most research approaches IC by applying a conceptual lens, without exploring empirically how IC is socially constructed within companies. This case study addresses that gap by investigating the ontology of IC in the flourishing context of integrated reporting. Specifically, it analyses how IR preparers deal with IC while preparing the IR and highlights the role of integrated thinking in this process.

The analysis reveals that IC displays a subjective ontology (Searle, 1995) – as an institutional fact, IC exists to the extent that IR preparers define its contribution to value creation. The IC ontology emerges through its subjective nature, such that IC’s function is not assumed, but rather defined in the very process of IR preparation. In the case study, the way in which IC is socially constructed is moulded by both financial goals and the sustainable approach of the business model. This ontology of IC is subjectively established according to the system of corporate values and purposes that inform the Company’s performance and business model. Three constitutive rules are the basis of IC’s existence in the integrated reporting context: to act as IC, a corporate element must be intangible in nature, drive (social and environmental) sustainable actions and contribute to financial value creation. That is, the IC elements work as intangible drivers for sustainability-based financial value creation, and as intangible assets, resources and states of being, they enable socially and environmentally sustainable actions to generate financial outcomes. This function is socially constructed because it derives from and possibly changes with IR preparers’ collective understanding of how IC exists in the value creation process.

Integrated thinking appears to play a major role in shaping this subjective ontology because it underlies the possibility of enacting cooperative reasoning in relation to how IC performs as an intangible sustainability driver. Integrated thinking particularly emerges as a shared sense of doing, which involves all IR preparers’ common ideas about how IC exists in the process of IR preparation. Integrated thinking moulds this subjective ontology of IC, in that it triggers a holistic, systems-based understanding of interdependencies that bridge IC with value creation. In particular, the analysis reveals interaction among departments and the constitution of cross-functional groups as important aspects of integrated thinking, which is in line with the arguments of practitioners and academics (WICI, 2013; CIMA, 2017; de Villiers, Hsiao and Maroun, 2017; Dumay and Dai, 2017; Feng et al., 2017; Guthrie et al., 2017). While these studies generically highlight the relevance to integrated reporting of breaking down organisational silos, the present research elucidates how various departments of a real-world company work together to understand IC’s contribution to value creation. Prior research has underlined the role of finance departments in driving integrated reporting and thinking (CIMA, 2017), yet the present analysis demonstrates that what counts as IC in an integrated reporting context is not entirely influenced by the (financial) mindset of the department that “owns” the IR preparation process (i.e. accounting and finance). Other departments, such as the sustainability, investor relations and risk management departments, play a substantial role in defining the function of IC by offering their view on IC’s contribution to value creation.
The IR preparers’ ability to define the connections between IC and corporate strategy, business model and performance emerges as another important component of integrated thinking (Dumay and Dai, 2017). Integrated thinking particularly supports the epistemic objectivity of IC (Searle, 1995) by outlining an objective procedure that IR preparers apply to scrutinise how IC influences the process of (financial) value creation by means of (social and environmental) sustainability initiatives. IR preparers subjectively come to define IC’s function, but the epistemic process is developed objectively. Whether corporate elements work as IC depends on three constitutive rules, and if any one of these rules is not met, the corporate elements cannot function as IC in the Company’s value creation story told in the IR.

The connectivity map and the key performance indicators and value creation table are used to ensure the objective identification of what serves the IC function in the integrated reporting context, requiring preparers to reflect on the connections between IC and the corporate strategy, business model and performance. Indeed, preparers must deal with the map and the table while identifying what counts as IC in the integrated reporting context. Preparers are particularly required to focus on intangible assets, sustainability actions and financial performance as interconnected aspects of the value creation process. They endeavour to define cause-and-effect relationships between IC (and other forms of capital) and value creation, with sustainable actions as mediators. In addition, IR preparers must determine how IC is embedded in corporate sustainable actions that may favour financial value creation. That is, they require an enhanced understanding of the hidden connections among IC, sustainable actions and corporate financial performance. The IR preparers are required to explain how IC is part of the Company’s business model but also to problematise and create a visual depiction of the connections between IC and value creation. This entire process requires insightful reasoning about the connections among strategy, the business model, non-financial outcomes and financial value creation (Chaidali and Jones, 2017; de Villiers, Venter and Hsiao, 2017).

The findings of the present study reveal the role of connectivity maps, key performance indicators and value creation tables in stimulating integrated thinking about the connections between IC and a company’s strategy, business model and performance. These findings are in line with prior studies that highlight the role of specific tools (e.g. key performance indicators and dashboards) in enhancing integrated thinking and reporting (SAICA, 2015; NIBR, 2018). Furthermore, the present study extends prior research detailing instruments that help to visualise IC (Marr et al., 2004; Cuganesan, 2005; Dumay, 2009; Giuliani, 2016; Zakery et al., 2017). Indeed, it demonstrates that such instruments are critical for objectively scrutinising what counts as IC in the integrated reporting context. Echoing Mouritsen (2009), the connectivity map and the key performance indicators and value creation table are constructive and constitutive of the epistemic objectivity of IC.

These findings contribute to extant literature in several ways. First, this study provides empirical evidence of the possibilities created by integrated reporting. While previous research studies predict that integrated reporting offers a new opportunity for IC (Dumay, 2016; de Villiers and Sharma, 2018), this study provides practical insights into how integrated reporting represents this “new deal”. IR preparers must specify the relevance of IC within the value creation story told through the IR. In turn, IR appears poised to become a document of reference for companies that depend on IC, as suggested by Cuozzo et al. (2017). IR is also a trigger for collective reasoning about the modes of existence of IC in the value creation process, as suggested by the emerging literature (e.g. Dumay, 2016; de Villiers and Sharma, 2018). Second, this study expands the analysis of the subjective ontology of IC by offering an empirical perspective. By addressing the ontological subjectivity of IC in a specific and novel integrated reporting context, the study demonstrates that the existence of IC depends on the function that IR preparers assign to IC. By doing so, the study advances knowledge and understanding of the subjective mode of existence for IC, adding practical
insights to the more conceptual views currently available (e.g. Mouritsen, 2006, 2009; Vlismas and Venieris, 2011). Third, the empirical analysis addresses the underexplored interplay between IC and integrated thinking, elucidating the role of integrated thinking in defining the ontology of IC in a specific integrated reporting context. Integrated thinking allows IR preparers to gain an enhanced awareness of IC through their proactive consideration of IC within a network of corporate resources (Cuozzo et al., 2017; Dumay, Guthrie and Rooney, 2017). In particular, integrated thinking acts as an underlying mechanism that arises during IR preparation, which helps IR preparers develop a common understanding of the ways in which IC supports value creation processes. Moreover, integrated thinking allows the identification of a procedure for scrutinising what can be considered IC in this integrated reporting context. The connectivity map and the key performance indicators and value creation table ensure this objective identification of IC in relation to its contribution to value creation processes.

The findings of the present study also have practical implications. The study recommends that IR adopters promote integrated thinking to discern how IC contributes to the value creation processes. Involving various functional departments, as well as the board of directors and the CEO, is particularly beneficial in this endeavour. In line with the call to address criticisms of the concept of integrated thinking (Dumay and Dai, 2017; IIROC, 2017, 2018), the IIRC might consider introducing specific guidelines to help IR preparers design appropriate IC-related maps and tables. Indeed, this study demonstrates that maps and tables are tools that support integrated thinking in relation to making connections between IC and corporate strategy, business model and performance.

However, the scope of this study is limited to IC ontology in the context of IR preparation, and relies on interviews with staff members (directly or indirectly involved in the IR preparation process) from only one company. The research focused on the “social existence” of IC within the integrated reporting context. Further research could compare this ontology with that emerging in other reporting contexts (e.g. sustainability reporting). Moreover, future research could expand the scope of the present research and continue to explore how IC ontology emerges in other companies, in the same or in other sectors.

References


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Does environmental, social and governance performance influence intellectual capital disclosure tone in integrated reporting?

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Abstract
Purpose – The integrated reporting framework seeks to connect a firm’s financial and non-financial performance in a single report by displaying how different forms of capital contribute to the firm’s value creation. Drawing on impression management and incremental information approaches, the purpose of this paper is to examine how the content and semantic properties of intellectual capital disclosure (ICD) found in integrated reports is associated with firms’ performance.

Design/methodology/approach – All reports by European listed firms from 2011 to 2016 available via the integrated reporting emerging practice examples database are analysed. Content analysis is used to assesses the quality of ICDs, whereas a regression analysis tests the variation in semantic properties of ICDs according to firms’ performance.

Findings – ICDs in integrated reports are mainly discursive, with a backward looking orientation and a limited focus on human capital. On average, more than half of each ICD is conveyed in a positive tone. As the optimistic tone in firms’ ICDs increases, so too does their non-financial performance measured in terms of environmental, social and governance aspects. This finding supports the incremental information approach.

Originality/value – This paper contributes to the current literature on ICDs by introducing new evidence on firms’ motivations for non-financial disclosures in integrated reports. By taking a more comprehensive theoretical approach, namely, testing both impression management and incremental information hypotheses, this research extends on prior studies which tested similar relationships in integrated reports but focussed only on the impression management hypothesis.

Keywords Financial performance, Integrated reporting, Intellectual capital, Content analysis, Non-financial performance, Tone analysis

Paper type Research paper

Introduction
In terms of both mandatory and voluntary disclosures by firms, the accounting literature continues to look beyond quantitative elements contained therein towards the narrative analysis of text (Beattie et al., 2004; Li, 2010b). In this respect, narrative statements in annual reports, analyst reports and recommendations, management speech, corporate social responsibility (CSR) reports, intellectual capital statements and environmental reports are the most analysed types of documents (Merkley, 2013; Adams, 2015; Abhayawansa and Guthrie, 2016a, b; Druz et al., 2017; Hummel et al., 2017). With the growing literature on, and professional attention towards, the integrated reporting initiative, there has been greater attention to content analysis of such reports to assess how firms’ report their performance.

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Following the integrated thinking approach, integrated reports should disclose the value creation process of firms by highlighting the interconnections between the three components of intellectual capital: human capital, structural capital and relational capital, along with other forms of capital such as natural, financial and manufactured capital (IIRC, 2013). Outsiders use information contained in these reports to make important decisions (e.g. investment vs disinvestment) affecting firms (IIRC, 2013). Thus, the verifiability of voluntary disclosures is pivotal for increasing the accuracy of analysts’ forecasts about firms’ future performance (Hussainey and Walker, 2009). Moreover, not only the content but also the tone of narrative disclosures has an effect on market decision-making activities (Li, 2010b; Merkley, 2013; Arena et al., 2015; Druz et al., 2017; Hummel et al., 2017). Different theoretical approaches have been proffered to explore and understand the tone adopted by those responsible for writing voluntary disclosures. One of the emergent and most discussed approaches is impression management (Hooghiemstra, 2000; Clatworthy and Jones, 2001; Merkl-Davies and Brennan, 2007), which contends that managers present their firm’s performance in a more favourable light to manipulate stakeholder decisions. This social psychological theory is in stark contrast to the incremental information approach (Merkl-Davies and Brennan, 2007), which is based on agency theory and argues that firms providing more information reduce information asymmetries between management and the market. Thus far, the empirical literature testing these two theoretical approaches in the context of voluntary disclosures has yielded contradictory findings. To elaborate, studies testing the impression management hypothesis have found that managers manipulate the tone of voluntary non-financial disclosures (Abhayawansa, 2011; Melloni, 2015; Abhayawansa and Guthrie, 2016a, b). However, other studies investigating the tone of non-financial voluntary disclosures by testing both the impression management and increasing information hypotheses have reported empirical findings in line with the increasing information approach (Merkley, 2013; Arena et al., 2015; Hummel et al., 2017). This equivocality in the extant literature calls for more research on this topic to better illuminate the value relevance of non-financial voluntary disclosures (e.g. Cahan et al., 2016; Hummel et al., 2017).

Accordingly, this study aims to answer the following research question:

\textbf{RQ1.} Does non-financial performance affect the tone of intellectual capital disclosures (ICDs) in integrated reports?

According to previous literature, there is a dearth of research exploring the association between non-financial performance, more specifically environmental, social and governance (ESG) performance, and the tone of ICDs in integrated reports (Beattie et al., 2004; Li, 2010b). One of the few studies testing this relationship yielded non-significant results (Melloni et al., 2017). To address the research question, data are taken from all available integrated reports issued by European listed firms from 2011 to 2016 that can be downloaded from the IIRC database \((n = 102)\). This sample is then subjected, first, to a content and tone analysis before regression analysis is used to quantify the relationship between financial and non-financial performance, on the one hand, and the tone of ICDs on the other.

The empirical findings generated herein could contribute to the literature in several ways. This study extends collective understanding on the value relevance of ICDs, because it assesses whether ICDs directly reflect the non-financial performance of firms (Abhayawansa, 2011; Abhayawansa and Guthrie, 2016a, b). A tone consistent with the firm’s performance will provide higher value for investors and society as a whole (IIRC, 2013; Adams, 2015). Furthermore, results from this study could help augment the theory of voluntary disclosure (Verrecchia, 2001; Beattie et al., 2004) and better optimise its use in practice. Moreover, the study contributes to the debate on motivations for issuing voluntary disclosures (i.e. voluntary disclosure strategies) and provides a test of the impression management vs the incremental information approach in the context of ICDs. Prior research
testing, these dual and competing views, has found that the decision to issue ESG disclosures is explained more effectively by the incremental information approach than by social psychological theories (Merkley, 2013; Arena et al., 2015; Hummel et al., 2017). Thus, this research will provide evidence on whether ICDs “obfuscate” or better convey ESG performance (Li, 2010b) whilst also contributing to debates concerning the preparation and configuration of integrated reports and the exploitation of integrating thinking. Since the framework of integrated reporting is still evolving (IIRC, 2013, 2014), analysing how disclosures are presented can provide insights to understand if such reports are more conducive to forward looking (past-oriented), positive (non-positive) and numeric (discursive) disclosures. Finally, in terms of integrated thinking, the empirical findings from this study could increase knowledge about the link between different forms of capital, namely, human, structural and relational capital (IIRC, 2013; Flower, 2015).

Practical and policy implications can also be drawn. A wide range of stakeholders may be interested in the findings of this study. Investors could benefit from this research through more accurate investment decisions based on information that fairly reflects firms’ future value creation capabilities. Moreover, financial analysts can gain from this study by providing less uncertain forecasts of firms’ future performance based on the information disclosed in integrated reports. Customers/suppliers can benefit from improved knowledge on firms’ ethical disclosure behaviours to inform their decisions about buying/selling goods. Policy makers and regulatory stakeholders could acquire a better understanding of whether integrated reports are a reliable way of communicating a firm’s ESG performance and thus whether existing controls, legislation and oversight operations are fit for purpose.

The remainder of the paper is structured as follows. In the following section the authors review the relevant literature and develop a set of hypotheses on the link between a firm’s performance and its disclosure tone. Next, the methodology used to test the research hypotheses is delineated and described before presentation of the empirical results. Finally, the results are discussed and conclusions are offered, including suggestions for future research.

**Background and hypotheses**

*Financial performance and disclosure tone*

Following Merkl-Davies and Brennan (2007) and Clatworthy and Jones (2001), discretionary disclosure strategies can be explained from two different and competing perspectives, namely, incremental information and impression management (Arena et al., 2015; Johnstone, 2016). The incremental information approach argues that managers do not have an incentive to manipulate voluntary disclosures, since they are motivated to issue more information to mitigate the deleterious effects of information asymmetries (Verrecchia, 2001), in this way reducing the cost of capital and increasing the market value of the firm (Healy and Palepu, 2001; Johnstone, 2016). Thus, according to this view, if managers manipulate disclosures, the market will be able to detect such distortion and punish the firm by reducing the market value of its stock (Clarkson et al., 2008). However, according to the impression management approach, managers are motivated to manipulate voluntary disclosures to report their firm’s performance in a more favourable light because the market is unable to distinguish between accurate and distorted disclosures (Clatworthy and Jones, 2001). Indeed, impression management as an academic pursuit can be defined as “a field of study within social psychology studying how individuals present themselves to others to be perceived favourably by others” (Hooghiemstra, 2000, p. 60). Extant research on impression management has adopted different theoretical perspectives, namely, agency theory (Li, 2008), signalling theory (Rutherford, 2003), legitimacy theory (Hooghiemstra, 2000), stakeholder theory (Diouf and Boiral, 2017) and institutional theory (Bansal and Clelland, 2004), and appears in different disciplinary domains including psychology (Gioaba and
Prior studies on impression management have revealed a relationship between disclosure tone and litigation risk, specifically firms that are sued tend to issue more forecasts and report higher sales growth than non-sued firms (e.g. Rogers et al., 2011). Similarly, Rogers and Stocken (2005) provide evidence that managers issue biased earnings forecasts when investors have limited ability to detect misrepresentation. Misstatements or misrepresentations can also result in financial statement fraud (Rezaee, 2005). Thus, as argued by Yuthas et al. (2002), managers use impression management to “strategically […] manipulate the perceptions and decisions of stakeholders” (p. 142). The relationship between disclosure tone and financial information is not confined to the analysis of financial statements. Prior research has investigated the impact of the tone of ICDs in analyst reports (Abhayawansa, 2011), CSR reports, environmental reports and integrated reports (Melloni, 2015; Hummel et al., 2017; Melloni et al., 2017). Abhayawansa (2011) found that most of the ICD in analysts’ reports is conveyed in a positive, rather than a negative or neutral, tone. Hummel et al. (2017) found that there is a significant inverse relationship between financial performance and tone of CSR disclosure; this result is stronger in liberal market economies compared with coordinated market economies. Further, when companies report declining financial performance, the tone of ICDs is more optimistic than it is in cases of increasing performance (Melloni, 2015). These findings clearly raise questions about the reliability and utility of this kind of voluntary disclosure. Even though most prior research findings support the impression management approach, in line with recent studies on voluntary disclosure strategies (Arena et al., 2015), both the incremental information and impression management viewpoints will be tested herein. Specifically, the following hypotheses will be tested:

\[ H1a. \] There is a positive relationship between the financial performance of firms and the optimistic tone of ICDs in integrated reports (incremental information hypothesis).

\[ H1b. \] There is an inverse relationship between the financial performance of firms and the optimistic tone of ICDs in integrated reports (impression management hypothesis).

**Non-financial performance and voluntary disclosure tone**

Although most of the literature on the association between a firm’s performance and disclosure tone has focussed primarily on financial performance, there are some exceptions. The impression management hypothesis has also been tested with regard to the relationship between the tone of voluntary disclosures and non-financial performance (Melloni et al., 2017). In line with legitimacy theory (Hopwood, 2009), the extant literature on the tone of voluntary disclosures has dedicated a lot of attention to ESG performance. Melloni and her colleagues (2017) tested the “management obfuscation hypothesis” (Li, 2008), which is consistent with the impression management approach, contending that managers tend to hide bad news about their firm’s performance while emphasising good news. Specifically, those authors analysed the link between weak ESG performance and optimistic disclosure tone in integrated reports; however, their results did not allow them either to confirm or reject the management obfuscation hypothesis in this specific case (Melloni et al., 2017). Another stream of literature takes a wider theoretical perspective by testing both the incremental information and impression management hypotheses. For example, Arena et al. (2015) found that the tone of environmental disclosures is related to future environmental performance, as such, their results confirm the incremental information hypothesis. Similarly, Hummel et al. (2017) found that social performance positively affects the tone of non-financial disclosures in the UK and the USA (Hummel et al., 2017). Since there is no clear consensus on which theoretical view (incremental information vs impression management)
best describes the relationship between non-financial performance and the tone of voluntary disclosures, the following hypotheses will be tested:

\( H2a \). There is a positive relationship between the non-financial performance of firms and the optimistic tone of ICDs in integrated reports (incremental information hypothesis).

\( H2b \). There is an inverse relationship between the non-financial performance of firms and the optimistic tone of ICDs in integrated reports (impression management hypothesis).

**Methodology**

**Sample selection and data collection**

To test the research hypotheses, all integrated reports from European listed companies issued between 2011 and 2016, and available in the IIRC’s integrated reporting emerging practice examples database as of 15 December 2017, were downloaded.

All 163 reports available in this database were manually screened. This resulted in 51 reports being excluded for referring to unlisted firms. Furthermore, ten additional integrated reports were discounted because either financial or non-financial information for the particular company/year was not available. The remaining 102 reports thus constitute the study sample (Table I).

These 102 reports pertain to 62 different firms in different industry sectors (basic materials – 11.76 per cent; consumer goods – 13.73 per cent; consumer services – 6.86 per cent; financial services – 24.51 per cent; healthcare – 19.78 per cent; industrials – 11.76 per cent; oil and gas – 5.88 per cent; professional services – 1.96 per cent; real estate – 1.96 per cent; technology – 3.92 per cent; telecommunications – 0.98 per cent; utilities – 5.88 per cent), in various European countries (Denmark – 4.90 per cent; France – 3.92 per cent; Germany – 1.96 per cent; Greece – 1.96 per cent; Italy – 10.78 per cent; Luxembourg – 0.98 per cent; the Netherlands – 15.69 per cent; Spain – 4.90 per cent; Sweden – 0.98 per cent; Switzerland – 4.90 per cent; the UK – 49.02 per cent) and in different years (2011 – 19.61 per cent; 2012 – 5.88 per cent; 2013 – 15.69 per cent; 2014 – 20.59 per cent; 2015 – 19.61 per cent; 2016 – 18.63 per cent).

Financial and non-financial data were collected from the Eikon DFO Database (Datastream and Asset4) from 2011 to 2016.

**Data analysis**

Data analysis proceeded in two stages. First, a content analysis was performed to assess ICDs and their linguistic attributes. Second, an inferential regression analysis was performed to test the hypothesised associations between firms’ performance and the tone of ICDs.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Country</th>
<th>No. of IR</th>
<th>Industry</th>
<th>No. of IR</th>
<th>Year</th>
<th>No. of IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>50</td>
<td>Financial services</td>
<td>25</td>
<td>2011</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>16</td>
<td>Consumer goods</td>
<td>14</td>
<td>2012</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>11</td>
<td>Consumer services</td>
<td>7</td>
<td>2013</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
<td>Basic materials</td>
<td>12</td>
<td>2014</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>5</td>
<td>Industrials</td>
<td>12</td>
<td>2015</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>4</td>
<td>Utilities</td>
<td>6</td>
<td>2016</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>5</td>
<td>Healthcare</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>5</td>
<td>Technology</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>2</td>
<td>Oil and Gas</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1</td>
<td>Professional services</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>Real estate</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Total</td>
<td>102</td>
<td></td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

Table I. Number of integrated reports by country, industry and year
Content analysis

From a methodological point of view, ICDs have tended to be investigated using content analysis (Dumay and Cai, 2014) and by referring to the linguistic attributes of the communication therein (Beattie and Thomson, 2007). Content analysis can be defined and understood as a research technique designed and operationalised to ensure replicability and validity of inferences generated from text and applied to the context of their use (Krippendorff, 2004). The context of the present analysis is embodied in the study’s research question which seeks to understand if and how non-financial performance affects the tone of ICDs in integrated reports. Consistent with previous studies (e.g. Melloni, 2015; Abhayawansa and Guthrie, 2016a), the unit of analysis considered is the text unit, defined as a sentence including a single piece of information (Beattie et al., 2004; Beattie and Thomson, 2007). The content analysis was undertaken by adopting a coding technique to identify information referring to intellectual capital, and then classifying these instances according to the categories in Table II (Melloni, 2015; Abhayawansa and Guthrie, 2016a).

Coding was performed using computer assisted qualitative data analysis software (CAQDAS), namely NVivo11 Pro. As suggested by Silverman (2013, p. 273) “the main purpose of using NVivo was to code data into a broad brushstroke coding frame”. Many benefits of using specific qualitative analysis software such as this is identified in the literature, including the possibility to aggregate codes, auto-coding based on set criteria and the possibility to apply common word count techniques (Massaro et al., 2015). In particular, CAQDAS aims at increasing the accuracy and transparency of the data analysis process, by providing a reliable and general picture of the data (Richards and Richards, 1994; Welsh, 2002).

Disclosure quality was proxied for by considering the type of ICD following norms in the literature (Melloni, 2015). The identification and classification of instances related to intellectual capital was based on the categorisation scheme proposed by Abhayawansa and Guthrie (2016a) according to which three intellectual capital components are delineated: human capital, structural capital and relational capital. Adoption of these three classes is justified based on their use in the literature and in applied practices (Bozzolan et al., 2003; Abhayawansa and Guthrie, 2016b; Benevene et al., 2017; Dumay and Guthrie, 2017).

Consistent with previous studies, human capital is captured by “know-how, education, vocational qualification, work-related knowledge, work-related competences, entrepreneurial spirit”, structural capital by “intellectual property, research & development, corporate governance, business model, organisational and management structure, management philosophy, corporate culture, management processes, policies and practice” and relational capital by “brands, customers, customer loyalty, company names, distribution channels, business collaborations” (Abhayawansa and Guthrie, 2016a, p. 36).

<table>
<thead>
<tr>
<th>Type of capital</th>
<th>Human capital</th>
<th>A text unit referring to the know-how, education, vocational qualification, work-related knowledge and competencies and entrepreneurial spirit of firm’s employees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Structural capital</td>
<td>A text unit referring to the intangible infrastructure and the intellectual property of the firm</td>
</tr>
<tr>
<td></td>
<td>Relational capital</td>
<td>A text unit referring to the value of the relationships with external stakeholders and of the firm reputation</td>
</tr>
<tr>
<td>Type of evidence</td>
<td>Discursive</td>
<td>A text unit disclosed in narrative/written form with a non-numerical meaning in relation to an IC subcategory</td>
</tr>
<tr>
<td></td>
<td>Numerical</td>
<td>A text unit disclosed in numerical form in relation to an IC subcategory</td>
</tr>
<tr>
<td>ICD tone</td>
<td>Positive</td>
<td>A text unit in a IC subcategory including good news for the company</td>
</tr>
<tr>
<td>Time orientation</td>
<td>Forward looking</td>
<td>A text unit in an IC subcategory referring to the firm’s future prospects, strategy and expectations</td>
</tr>
<tr>
<td></td>
<td>Backward looking</td>
<td>A text unit in an IC subcategory referring to the past or present</td>
</tr>
</tbody>
</table>

Table II. Definitions of content categories
Several authors suggest that merely investigating the crude volume of ICDs may be misleading (Toms, 2002; Beattie and Thomson, 2007). Therefore, quality measures are introduced pertaining to disclosure tone and time orientation. It has been suggested that human, structural and relational capital do not vary systematically as a function of firms’ characteristics (Abhayawansa and Guthrie, 2016a). For this reason, additional quality measures are investigated with respect to aggregate intellectual capital.

The type of evidence refers to the extent to which the coded intellectual capital text unit is communicated discursively or quantitatively (Beattie et al., 2004). A text unit is coded as quantitative evidence disclosure if it contains a number(s) and as discursive evidence otherwise.

ICD tone was captured by coding intellectual capital text units according to a word classification scheme derived from Loughran and McDonald’s Financial Sentiment Dictionary (Loughran and McDonald, 2011). This is a dictionary specifically designed to extrapolate the tone of content in corporate disclosures (Li, 2010a; Brown and Tucker, 2011). Word-frequency tone measures are equivalent to a naïve Bayesian machine-learning tone measure and can create replicable results (Li, 2010a; Henry and Leone, 2016). Therefore, each IC text unit was classified as embodying a positive disclosure tone if it contained one of the words listed in the positive word lists in the dictionary.

Similarly, time orientation was also measured by referring to the same source, Loughran and McDonald (2011), and considering the StopWords identified. Consequently, intellectual capital text units are categorised as forward looking if they contain references to future development of the firm and as backward looking if the sentences have a historical orientation. See Table AI for example words.

Table II summarises the categorisation applied to the pieces of information referring to intellectual capital in the sample of integrated reports (Melloni, 2015; Abhayawansa and Guthrie, 2016a).

Statistical analysis
Next, the hypotheses are tested using multiple linear regression (Table III):

$$ICD\_TONE = \beta_0 + \beta_1DECL\_FIN\_PERF + \beta_2ESG\_SCORE + \beta_3SIZE$$

$$+ \beta_4ENV\_SENS\_IND + \beta_5TIME\_FORWARD + \beta_6TIME\_BACKWARD + \beta_7EVID\_DISCURSIVE + \beta_8EVID\_NUMERICAL + \beta_9ANGLO\_MODEL$$

$$+ \beta_{10}YEAR\_2012 + \beta_{11}YEAR\_2013 + \beta_{12}YEAR\_2014 + \beta_{13}YEAR\_2015$$

$$+ \beta_{14}YEAR\_2016 + \epsilon.\ (1)$$

The dependent variable, ICD_TONE, represents the tone of ICDs. In terms of the independent variables, a dummy variable is configured to indicate whether a firm’s financial performance is declining or not (DECL_FIN_PERF) whilst ESG_SCORE is a continuous variable reflecting each firm’s ESG performance (Thomson Reuters, 2018). Control variables are added to capture firm size (SIZE), environmental sensitivity of the industry to which the firm belongs (ENV_SENS_IND), orientation of text units (TIME_FORWARD, TIME_BACKWARD), type of text units (EVID_DISCURSIVE, EVID_NUMERICAL), a country dummy (ANGLO_MODEL) and year dummies (YEAR_2012, …, YEAR 2016).

Some controls are inserted in the models in accordance with the prior literature, specifically, firm size, country, sector, year of voluntary disclosure, historically oriented (forward looking) information and discursive (numerical) voluntary disclosure. A growing stream of literature has identified firm size as a potential predictor of the tone of voluntary disclosures, although most of the reported findings are not statistically significant (Striukova et al., 2008; Abhayawansa and Guthrie, 2016a; Hummel et al., 2017). Prior literature has found that historically oriented ICDs occur more frequently in analyst
recommendations to sell firms’ stock, whereas this orientation is less frequently reported when analysts provide a hold recommendation (Abhayawansa and Guthrie, 2012). Firms with low performance may lack intellectual capital, which is a driver of their future value (Abhayawansa and Guthrie, 2012). Forward-looking disclosure is relevant to outsiders since it enhances the capability of the market to predict a firm’s future performance (Hussainey et al., 2003). Analysts usually base their forecasts of firms’ performance on forward looking information such as internal strategies and changes in the external environment (Baginski et al., 2004). With regard to both numerical and discursive voluntary disclosures, prior studies contend that both of these types of disclosure are value relevant (Asquith et al., 2005; Twedt and Rees, 2012; Abhayawansa and Guthrie, 2016a). The extant empirical literature also contains evidence suggesting that firms’ disclosure trends are a function of their sector of operation (Depoers, 2000; Bozzolan et al., 2003; Veltri and Silvestri, 2015). Country is used as control variable, since different geographical contexts may systematically impact on the tone of voluntary disclosures (Baginski et al., 2002; Abhayawansa and Abeysekera, 2009; Melloni, 2015). Consistently with prior literature, the differences in accounting models are controlled by splitting the sample into two sub-samples: firms adopting the Anglo-American accounting model and firms using the European-Continental accounting model (Othman and Zeghal, 2006; Ooghe and De Langhe, 2002). Finally, year dummies are used to identify any salient temporalities in the analysed sampling frame (Ahmed Haji and Mohd Ghazali, 2012).
Results

Content analysis results

Content analysis of the 102 integrated reports generated 210,813 text units related to ICDs (Table IV). On average, 1.4 per cent of each integrated report was dedicated to the disclosure of intellectual capital information. Within these text units, ICDs were not distributed in a balanced manner. Instead, marked differences can be demarcated: structural and human capital are, respectively, the most (61 per cent) and least (2 per cent) reported categories. Regarding time orientation, the results show that ICDs are overwhelmingly backward looking (91 per cent). Finally, the type of evidence contained in ICDs is primarily discursive (87 per cent), rather than numerical (13 per cent).

Inferential results

Table V details summary statistics for the variables subjected to inferential analyses with a correlation matrix provided in Table VI to give an introductory overview in terms of bivariate associations.

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of capital</td>
<td>Human capital</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>Structural capital</td>
<td>61.36</td>
</tr>
<tr>
<td></td>
<td>Relational capital</td>
<td>36.89</td>
</tr>
<tr>
<td>Type of evidence</td>
<td>Discursive</td>
<td>86.75</td>
</tr>
<tr>
<td></td>
<td>Numerical</td>
<td>13.25</td>
</tr>
<tr>
<td>Time orientation</td>
<td>Forward looking</td>
<td>9.19</td>
</tr>
<tr>
<td></td>
<td>Backward looking</td>
<td>90.81</td>
</tr>
</tbody>
</table>

Table IV.
Findings on IC disclosure

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD_TONE</td>
<td>960.4706</td>
<td>474.7506</td>
<td>261</td>
<td>2,782</td>
</tr>
<tr>
<td>DECL_FIN_PERF</td>
<td>0.500</td>
<td>0.5025</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ESG_SCORE</td>
<td>74.9281</td>
<td>10.3508</td>
<td>52.64</td>
<td>93.91</td>
</tr>
<tr>
<td>SIZE</td>
<td>7.5537</td>
<td>0.8185</td>
<td>6.0770</td>
<td>9.2151</td>
</tr>
<tr>
<td>ENV_SENS_IND</td>
<td>0.3529</td>
<td>0.4802</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TIME_FORWARD</td>
<td>8.7941</td>
<td>7.0336</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>TIME_BACKWARD</td>
<td>85.7352</td>
<td>76.5739</td>
<td>4</td>
<td>411</td>
</tr>
<tr>
<td>EVID_NUMERICAL</td>
<td>253.1275</td>
<td>191.7593</td>
<td>11</td>
<td>908</td>
</tr>
<tr>
<td>EVID_DISCURSIVE</td>
<td>1,676.608</td>
<td>1,007.063</td>
<td>0</td>
<td>5,410</td>
</tr>
<tr>
<td>ANGLO_MODEL</td>
<td>0.4902</td>
<td>0.5024</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>YEAR_2016</td>
<td>0.1863</td>
<td>0.3912</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>YEAR_2015</td>
<td>0.1960</td>
<td>0.3990</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>YEAR_2014</td>
<td>0.2059</td>
<td>0.4063</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>YEAR_2013</td>
<td>0.1569</td>
<td>0.3654</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>YEAR_2012</td>
<td>0.0588</td>
<td>0.2364</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: $n = 102$. ICD_TONE, IC disclosure tone; DECL_FIN_PERF, declining financial performance that is a dummy variable equal to 1 if the firm’s ROE is decreasing, 0 otherwise; ESG_SCORE, ESG Score; SIZE, size of the firm; ENV_SENS_IND, environmental sensitive industry; TIME_FORWARD, forward-looking IC disclosure; TIME_BACKWARD, backward looking IC disclosure; EVID_DISCURSIVE, discursive IC disclosure; EVID_NUMERICAL, numerical IC disclosure; ANGLO_MODEL is a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; YEAR_2012 is a dummy variable for year 2012; YEAR_2013 is a dummy variable for year 2013; YEAR_2014 is a dummy variable for year 2014; YEAR_2015 is a dummy variable for year 2015; YEAR_2016 is a dummy variable for year 2016

Table V.
Descriptive statistics
<table>
<thead>
<tr>
<th></th>
<th>ICD_TONE</th>
<th>ESG_SCORE</th>
<th>DECL_FIN_PERF</th>
<th>TIME_BACKWARD</th>
<th>TIME_FORWARD</th>
<th>EVID_DISCURSIVE</th>
<th>EVID_NUMERICAL</th>
<th>ENV_SENS_IND</th>
<th>ANGLO_MODEL</th>
<th>SIZE</th>
<th>ENV_SENS_IND</th>
<th>ANGLO_MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD_TONE</td>
<td>1.000</td>
<td>-0.1466</td>
<td>(0.0411)</td>
<td>0.6470</td>
<td>0.629</td>
<td>0.6473</td>
<td>0.4973</td>
<td>0.4973</td>
<td>0.0980</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.2742</td>
</tr>
<tr>
<td>ESG_SCORE</td>
<td>-0.1466</td>
<td>1.000</td>
<td>(0.0411)</td>
<td>0.6470</td>
<td>0.629</td>
<td>0.6473</td>
<td>0.4973</td>
<td>0.4973</td>
<td>0.0980</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.2742</td>
</tr>
<tr>
<td>DECL_FIN_PERF</td>
<td>0.6470</td>
<td>0.629</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>TIME_BACKWARD</td>
<td>0.629</td>
<td>0.6470</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
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<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>TIME_FORWARD</td>
<td>0.6473</td>
<td>0.6473</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>EVID_DISCURSIVE</td>
<td>0.4973</td>
<td>0.4973</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>EVID_NUMERICAL</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>ENV_SENS_IND</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>ANGLO_MODEL</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0980</td>
<td>0.0980</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
<td>0.0001**</td>
</tr>
<tr>
<td>ENV_SENS_IND</td>
<td>0.4973</td>
<td>0.4973</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
<td>0.0001**</td>
</tr>
<tr>
<td>ANGLO_MODEL</td>
<td>0.2742</td>
<td>0.2742</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>0.0001**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Notes: Number of observations: 102. ICD_TONE, IC Disclosure Tone; DECL_FIN_PERF, Declining Financial Performance that is a dummy variable equal to 1 if the firm's ROE is decreasing, 0 otherwise; ESG_SCORE, ESG Score; ENV_SENS_IND, Environmental Sensitive Industry; TIME_FORWARD, Forward-looking IC Disclosure; TIME_BACKWARD, Backward-looking IC Disclosure; EVID_DISCURSIVE, Discursive IC Disclosure; EVID_NUMERICAL, Numerical IC Disclosure, ANGLO_MODEL, a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; SIZE, size of the firm. p-values are in parenthesis. * indicate a significance degree between 0.10 and 0.05, ** between 0.05 and 0.01, and *** between 0.01 and 0.
Next, inferential tests of difference, namely t-tests, were performed to identify whether there are significant differences in ICD tone according to performance type (Kim, 2015). These tests are used to foreground, rather than complement, the subsequent regression analysis because they are inherently limited by their inability to generate results which are valid in ceteris paribus terms. Two groups were configured on the basis of financial performance: firms with declining (group “Yes”) and increasing (group “No”) financial performance. Considering non-financial performance, firms were divided into two groups depending on whether their ESG_SCORE was below (“Low ESG_SCORE”) or above (“High ESG_SCORE”) the median value (Kurtulust and Davist, 1982). The results nominally suggest that when financial performance is decreasing, firms tend to use more positive sentences in disclosing intellectual information; however, this is not statistically significant. In terms of non-financial performance, High ESG_SCORE firms are more likely to disclose intellectual capital information in a positive tone. But, again, this result is not statistically significant (Table VII).

Regression results are presented in Table VIII. The performance of the model is very good with an Adj. $R^2$ of 81.69 per cent. In terms of performance, at the coefficient level, the results do not reveal a statistically significant relationship between a firm’s declining financial performance and positive ICD tone in its integrated report. As such neither $H1a$ nor $H1b$ are supported. In other words, this study does not offer corroborating evidence for either the incremental information or impression management hypotheses with regard to financial performance. However, by contrast, the results demonstrate that higher non-financial performance in firms is associated with a more optimistic tone in ICDs thereby supporting $H2a$ and refuting $H2b$.

Furthermore, results with respect to the control variables also yield interesting insights. First, larger firms are associated with a more pessimistic ICD tone. Thus, smaller firms disclose more positive intellectual capital information in their integrated reports compared to their larger counterparts. Furthermore, those firms who put forward a greater amount of text on voluntary information exhibited a more positive tone in their ICDs than do other firms. Moreover, those integrated reports focussing more on backward-looking ICDs exhibit a more positive tone compared to those that disclose less backward looking information. Lastly, neither the country or year dummies are statistically significant; thus, the tone of ICDs is temporally and spatially invariant.

To gauge the extent to which parametric assumptions were upheld, various diagnostics were carried out (multicollinearity, heterogeneity, heteroskedasticity and autocorrelation) (see Tables AII–AIV).

Variance inflation factors (VIFs) were calculated to gauge the extent of multicollinearity between modelled variables. VIFs greater than 10 are problematic because they indicate biased coefficient standard errors (Gujarati, 2003). In the research model, there is no evidence of serious multicollinearity as all VIFs are lower than 10. Next,

### Table VII.

$t$-test results on the differences in the tone of ICD based on declining financial performance and ESG score (non-financial performance)

<table>
<thead>
<tr>
<th></th>
<th>DECL_FIN_PERF</th>
<th>ICD_TONE</th>
<th>ESG_SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Low</td>
</tr>
<tr>
<td>Observations</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Mean</td>
<td>988.725</td>
<td>932.216</td>
<td>901.765</td>
</tr>
<tr>
<td>SE</td>
<td>78.685</td>
<td>52.000</td>
<td>57.563</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>561.920</td>
<td>371.351</td>
<td>411.083</td>
</tr>
<tr>
<td>$t$-test ($p$-value)</td>
<td>0.550</td>
<td>0.214</td>
<td></td>
</tr>
</tbody>
</table>

Notes: **,**,**,**Indicate a significance degree between 0.10 and 0.05, 0.05 and 0.01, and 0.01 and 0, respectively.
<table>
<thead>
<tr>
<th>Statistical model dependent variable: ICD_TONE</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECL_FIN_PERF</td>
<td>−47.778</td>
<td>−36.380</td>
</tr>
<tr>
<td></td>
<td>(42.770)</td>
<td>(42.858)</td>
</tr>
<tr>
<td></td>
<td>[44.192]</td>
<td>[43.347]</td>
</tr>
<tr>
<td>ESG_SCORE</td>
<td>5.005**</td>
<td>4.352*</td>
</tr>
<tr>
<td></td>
<td>(2.219 )</td>
<td>(2.229 )</td>
</tr>
<tr>
<td></td>
<td>[2.286 ]</td>
<td>[2.311 ]</td>
</tr>
<tr>
<td>SIZE</td>
<td>−98.402***</td>
<td>−86.748***</td>
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<tr>
<td></td>
<td>(29.741)</td>
<td>(30.229)</td>
</tr>
<tr>
<td></td>
<td>[30.742]</td>
<td>[30.229]</td>
</tr>
<tr>
<td>ENV_SENS_IND</td>
<td>−54.290</td>
<td>−59.387</td>
</tr>
<tr>
<td></td>
<td>(49.702)</td>
<td>(49.274)</td>
</tr>
<tr>
<td></td>
<td>[47.035]</td>
<td>[47.272]</td>
</tr>
<tr>
<td>TIME_FORWARD</td>
<td>0.244</td>
<td>0.682</td>
</tr>
<tr>
<td></td>
<td>(3.078 )</td>
<td>(3.057 )</td>
</tr>
<tr>
<td></td>
<td>[3.024 ]</td>
<td>[2.955 ]</td>
</tr>
<tr>
<td>TIME_BACKWARD</td>
<td>1.541***</td>
<td>1.462***</td>
</tr>
<tr>
<td></td>
<td>(0.401 )</td>
<td>(0.399 )</td>
</tr>
<tr>
<td></td>
<td>[0.369 ]</td>
<td>[0.367 ]</td>
</tr>
<tr>
<td>EVID_DISCURVIAL</td>
<td>0.3671***</td>
<td>0.3577***</td>
</tr>
<tr>
<td></td>
<td>(0.027 )</td>
<td>(0.027 )</td>
</tr>
<tr>
<td></td>
<td>[0.028 ]</td>
<td>[0.028 ]</td>
</tr>
<tr>
<td>EVID_NUMERICAL</td>
<td>−0.0398</td>
<td>−0.400</td>
</tr>
<tr>
<td></td>
<td>(0.143 )</td>
<td>(0.256 )</td>
</tr>
<tr>
<td></td>
<td>[0.125 ]</td>
<td>[0.221 ]</td>
</tr>
<tr>
<td>ANGLO_MODEL</td>
<td>−33.426</td>
<td>−36.354</td>
</tr>
<tr>
<td></td>
<td>(49.666)</td>
<td>(49.176)</td>
</tr>
<tr>
<td></td>
<td>[56.771]</td>
<td>[56.931]</td>
</tr>
<tr>
<td>YEAR_2016</td>
<td>12.821</td>
<td>14.023</td>
</tr>
<tr>
<td></td>
<td>(68.587)</td>
<td>(67.873)</td>
</tr>
<tr>
<td></td>
<td>[77.620]</td>
<td>[76.781]</td>
</tr>
<tr>
<td>YEAR_2015</td>
<td>−28.707</td>
<td>−23.528</td>
</tr>
<tr>
<td></td>
<td>(67.359)</td>
<td>(66.716)</td>
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<td></td>
<td>[67.826]</td>
<td>[67.867]</td>
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<td>[58.779]</td>
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<td>23.448</td>
</tr>
<tr>
<td></td>
<td>(70.602)</td>
<td>(70.147)</td>
</tr>
<tr>
<td></td>
<td>[64.677]</td>
<td>[66.211]</td>
</tr>
<tr>
<td>YEAR_2012</td>
<td>−44.617</td>
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<tr>
<td></td>
<td>(98.640)</td>
<td>(49.274)</td>
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<tr>
<td></td>
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<td>[60.669]</td>
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<tr>
<td>ESG_SCORE × EVID_NUMERICAL</td>
<td>216.327**</td>
<td>(128.508)</td>
</tr>
<tr>
<td></td>
<td>[92.017]</td>
<td>[92.017]</td>
</tr>
<tr>
<td>cons</td>
<td>652.120**</td>
<td>−178.742</td>
</tr>
<tr>
<td></td>
<td>(262.524)</td>
<td>(556.550)</td>
</tr>
<tr>
<td></td>
<td>[337.704]</td>
<td>[444.281]</td>
</tr>
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<td>102</td>
</tr>
<tr>
<td>$F$ ($p$-value)</td>
<td>33.19 (0.000)</td>
<td>31.82 (0.000)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>84.23%</td>
<td>84.73%</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>81.69%</td>
<td>82.07%</td>
</tr>
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</table>

**Notes:** ICD_TONE, IC disclosure tone; DECL_FIN_PERF, declining financial performance; ESG_SCORE, ESG score; SIZE, size; ANGLO_MODEL is a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; ENV_SENS_IND, environmental sensitive industry; TIME_FORWARD, forward-looking IC disclosure; TIME_BACKWARD, backward-looking IC disclosure; EVID_DISCURVIAL, discursive IC disclosure; EVID_NUMERICAL, numerical IC disclosure; YEAR_2012 is a dummy variable for year 2012; YEAR_2013 is a dummy variable for year 2013; YEAR_2014 is a dummy variable for year 2014; YEAR_2015 is a dummy variable for year 2015; YEAR_2016 is a dummy variable for year 2016; ESGSCORE × EVID_NUMERICAL: ESG Score × Numerical IC disclosure. Standard errors are in round parentheses. Heteroskedasticity-robust standard errors are reported in square parentheses below the usual standard errors. *, **, *** Indicate a significance degree between 0.10 and 0.05, 0.05 and 0.01, and 0.01 and 0, respectively.

**Table VIII.** Empirical results of the statistical models.
A sensitivity analysis was carried out to gauge autocorrelation. To ensure the ICD tone of a firm is not dependent on the tone used by the same firm in previous integrated reports, models were re-estimated for subsets of observations, considering only the first year in which each firm published an integrated report (Table AII). The generated results are reasonably stable vis-à-vis the original model, thus, it is possible to rule out substantive autocorrelation because prior disclosures do not affect the ICD tone used in the integrated report under analysis.

Next, a Breusch–Pagan test confirmed the presence of heteroscedasticity at the 0.05 level suggesting biased coefficient standard errors (Table AIII). However, and as reported in Table VIII, the authors calculate standard errors which are robust to this parametric violation (Solon et al., 2015; Wooldridge, 2015).

Robustness analysis
To explore whether the ICD tone had an impact on financial and non-financial performance, a regression analysis is performed with an ICD tone as an independent variable and lagged variants of financial and non-financial performance as alternate dependent variables (Arena et al., 2015). The results (Table AIV) were insignificant for both types of performance which accords with expectations (Abhayawansa, 2011; Abhayawansa and Guthrie, 2016a, b; Melloni et al., 2017).

Additional analysis
To further investigate the relationship between a firm’s non-financial performance and the ICD tone in its integrated report, the authors estimated an additional model using moderated regression analysis (MRA):

\[
\text{ICD\_TONE} = \beta_0 + \beta_1 \text{DECL\_FIN\_PERF} + \beta_2 \text{ESG\_SCORE} + \beta_3 \text{SIZE} \\
+ \beta_4 \text{ENV\_SENS\_IND} + \beta_5 \text{TIME\_FORWARD} + \beta_6 \text{TIME\_BACKWARD} \\
+ \beta_7 \text{EVID\_DISCURSIVE} + \beta_8 \text{EVID\_NUMERICAL} + \beta_9 \text{ANGLO\_MODEL} \\
+ \beta_{10} \text{YEAR\_2012} + \beta_{11} \text{YEAR\_2013} + \beta_{12} \text{YEAR\_2014} + \beta_{13} \text{YEAR\_2015} \\
+ \beta_{14} \text{YEAR\_2016} + \beta_{15} \text{EVID\_NUMERICAL} \times \text{ESG\_SCORE} + \epsilon. \tag{2}
\]

MRA is “a specific application of multiple linear regression analysis, in which the regression equation contains an ‘interaction term’” (Hartmann and Moers, 1999, p. 293). As such this model introduces an interaction term – i.e. the amount of an ICD expressed in numerical terms (EVID\_NUMERICAL) – to the previous model to moderate the relationship between non-financial performance (ESG\_SCORE) and ICD\_TONE. The theoretical justification for this analysis according to the prior literature posits that, ceteris paribus, quantitative voluntary disclosures are considered more relevant than qualitative disclosures (Toms, 2002; Bozzolan et al., 2003; Hutton et al., 2003). Hutton et al. (2003) showed that good news accompanied by verifiable supplementary disclosure is associated with positive market reactions, whereas good news supported by qualitative disclosure is associated with insignificant market reactions. Further, Toms (2002) argued that in the context of CSR, quantitative disclosure is more accurate than qualitative disclosure. Bozzolan et al. (2003) embedded the higher quality of quantitative ICD compared to qualitative ICD in their measurement methodology by assigning a higher weight to quantitative ICD. Thus, the interaction between non-financial performance and quantitative ICD is expected to show a greater “effect size” (Hartmann and Moers, 1999, 2003) on the relationship between non-financial performance and the tone of the ICD. The effect size concerns the increase (decrease) in the coefficient of the interaction term compared to the direct effect (Hartmann and Moers, 1999). Herein, the effect of non-financial performance moderated by quantitative
Disclosure resulted in a sizeable increase in the relevant regression coefficient. Therefore, this finding emphasises that positive non-financial performance has a more positive effect on ICD tone when that performance is accompanied by verifiable quantitative ICD.

The performance of this augmented model is very good and, indeed, marginally higher than the baseline specification (Adj. $R^2 = 82.07$ per cent). This new model is also not associated with inferior robustness in terms of multicollinearity as measured by VIFs (Table AIII). As for the model defined by Equation (1), a Breusch–Pagan test confirmed the presence of heteroscedasticity at the 0.05 level suggesting biased coefficient standard errors (not tabulated). However, and as reported in Table VIII, the authors calculate standard errors which are robust to this parametric violation (Solon et al., 2015; Wooldridge, 2015).

Discussion

This study has analysed the relationship between firms’ financial and non-financial (ESG) performance and the tone of ICDs in integrated reports. Prior studies have used different approaches to measure the qualitative information contained in corporate disclosures, such as the naïve Bayesian algorithm and psychological and financial dictionaries (Henry, 2008; Kothari et al., 2009; Loughran and McDonald, 2011). Scholars have investigated the concept of “tone at the top” in relation to different topics such as financial reporting as well as organisational and accounting practices (McGrath et al., 2001; Schroeder, 2002; Schwartz et al., 2005; Dechow et al., 2011; Patelli and Pedrini, 2015), while others have applied tone analysis to voluntary reports (Arena et al., 2015). As concerns voluntary disclosures, prior research has analysed the impact of ICD tone on analyst reports (Abhayawansa, 2011), CSR reports and integrated reports (Melloni, 2015; Hummel et al., 2017; Melloni et al., 2017). Results of the empirical research are discussed in the following sub-sections.

Financial performance and ICD tone in integrated reports

The results of this study do not support the impression management approach. Indeed, results show that negative financial performance is not significantly associated with a positive ICD tone in integrated reports. Thus, the findings from this study are not aligned to that part of the literature which revealed unethical behaviours by managers in disclosing information during financial crisis (Graham et al., 2005; Desai et al., 2006; Holder-Webb and Cohen, 2007; Kothari et al., 2009). More broadly, the results of this study are inconsistent with that part of the literature which states that managers may manipulate voluntary disclosures, emphasise positive information and underestimate poor future performance, especially if the firm is experiencing financial difficulty (Clatworthy and Jones, 2001).

Non-financial performance and ICD tone in integrated reports

Results from the regression analysis demonstrated that non-financial performance is positively associated with an optimistic ICD tone in integrated reports. This provides support for the incremental information hypothesis with regard to the association between non-financial performance and ICDs in integrated reports (Merkl-Davies and Brennan, 2007). These findings extend that part of the literature focussing on non-financial performance in environmental disclosure (Merkley, 2013; Arena et al., 2015; Hummel et al., 2017) by adding new knowledge on the effect of a similar relationship (non-financial performance and ICD tone) in a more comprehensive reporting context. In fact, integrated reports provide information on both the financial and non-financial performance of firms, and are, thus, more informative compared to partial reporting activities because they integrate different types of capital according to the integrated thinking approach (Perego et al., 2016). Therefore, results from this study contribute to that stream of literature on the value relevance of ICDs in integrated reports (Haller and Staden, 2014; Adams, 2015) by supporting its usefulness to
market analysts, investors and society as a whole for the purpose of adequately conveying non-financial information. By adopting a more comprehensive theoretical approach – testing for both the impression management and incremental information hypotheses – this research extends prior studies that have tested similar relationships in integrated reports but focussed only on the impression management hypothesis (Melloni et al., 2017).

Additional findings

The results from this study are in line with those scholars who have revealed a negative relationship between firm size and disclosure tone (Hummel et al., 2017). Furthermore, the findings are consistent with prior research which has suggested that firm size is a pivotal predictor of the tone of voluntary disclosures (Abhayawansa and Guthrie, 2016a, b). The findings from this study are also consistent with that part of the literature which contends that discursive voluntary disclosures are value relevant (Asquith et al., 2005; Twedt and Rees, 2012; Abhayawansa and Guthrie, 2016a). Results suggest that firms disclosing a greater amount of discursive information concerning intellectual capital tend to exhibit a more optimistic tone compared to other firms, which is consistent with signalling theory (Arena et al., 2015), and, in contrast to those studies, which support the impression management approach (Abhayawansa and Guthrie, 2016a, b). However, findings from the moderated regression appear to contribute to that stream of literature suggesting that more verifiable and quantitative voluntary disclosures accompanying good news on performance is preferable to qualitative disclosures (Toms, 2002; Bozzolan et al., 2003; Hutton et al., 2003). Moreover, the present study has pointed out that the relationship between ICD tone and voluntary disclosure is time, sector and location invariant. These results extend the prior research on ICD disclosures, which focusses on a single point in time (e.g. Bontis, 2003), a single sector (e.g. Cerbioni and Parbonetti, 2007) or a single country (e.g. An et al., 2015).

Conclusions

Drawing on impression management and incremental information approaches, the main purpose of this study was to examine how the content and semantic properties of an ICD found in integrated reports are associated with firms’ performance. Empirical findings suggest that ICDs in integrated reports are mainly discursive, with an orientation to the past and a limited focus on human capital. Additionally, as the optimistic tone in firms’ ICDs increases, so too does their non-financial performance, hence this finding is consistent with the incremental information approach. Limitations and implications of this study, as well as future research avenues, are discussed in the following sub-sections.

Limitations of the research

In common with applied research more generally, this study is not without limitations. The analysed research model included only a limited set of endogenous and exogenous variables expected to impact on the relationship between firms’ performance and ICD tone in integrated reports. However, results from this research contributed to shed some lights on the topic under investigation. Moreover, this study considered the whole integrated report, without comparing results obtained from different sections. Nevertheless, according to available literature, this is the first study to analyse ICD tone manipulation throughout the entirety of these reports. In addition, the sample used in this study is limited to European listed firms. However, this study considered the peculiarities referring to Anglo-American and European-Continental accounting models. Also, given the limited availability of integrated reports from European listed firms, and in common with similar studies (Melloni et al., 2016), the minimum acceptable sample size for regression analyses has barely been met (Green, 1991). Nevertheless, the results from this study enrich the collective knowledge in this domain. Furthermore, the
sample includes integrated reports published between 2011 and 2016. It is worth noting that reports issued in 2011 and 2012 refer to a period prior to the publication of the international integrated reporting framework (IIRC, 2012). Nonetheless, findings from this study are time invariant. A further methodological limitation could be related to the adoption of commonly used dictionaries in the tone analysis to estimate the semantic properties of disclosures. Next, it is important to emphasise that assessing disclosure quality is a complex matter, subject to debate and disagreement (Cerbioni and Parbonetti, 2007). In fact, while financial statement disclosures are regulated by generally accepted concepts of quality, it is not clear how narrative disclosure quality can be robustly assessed (Beretta and Bozzolan, 2008). Finally, the sample is composed of integrated reports disclosed on a voluntary basis. Therefore, it is possible that only firms with high levels of non-financial performance opt to pursue disclosure. However, notwithstanding the importance of this potential selection bias, the lack of data from alternative sources means that this limitation has to be endured.

Theoretical implications
This study adds knowledge to the extant literature in five ways. First, it contributes to voluntary disclosure theory (Verrecchia, 2001; Beattie et al., 2004) by providing further evidence concerning the voluntary disclosure strategies adopted by companies in practice (Merkel-Davies and Brennan, 2007). The results herein are in line with previous studies, according to which non-financial disclosures are mainly discursive and backward looking (Beattie et al., 2002; Vanstraelen et al., 2003).

Second, by differentiating between financial and non-financial performance, this study has demonstrated that disclosure strategies vary according to the type of performance. In line with classical signalling (Spence, 1973), legitimacy (Hopwood, 2009) and stakeholder theories (Freeman, 1984), this empirical study is the first of its kind to yield significant results supporting the incremental information hypothesis with regard to non-financial performance. Therefore, it has been argued here that the disclosure of non-financial performance mitigates information asymmetries and provides useful information to external stakeholders. This finding is in contrast to that part of the literature supporting the impression management and “management obfuscation” hypotheses (Abhayawansa, 2011; Melloni, 2015; Abhayawansa and Guthrie, 2016a, b).

Third, the study extends the literature on integrated thinking and integrated report preparation (IIRC, 2013; Flower, 2015). Previous studies have found that mandatory reports contain much more information related to relational capital than to human and structural capital (Guthrie and Petty, 2000; Brennan, 2001; Bozzolan et al., 2003). By contrast, in this study, on average, more than half of the ICD in integrated reports concerns structural capital. However, this seeming disjoint may be a methodological artefact. Indeed, this study mainly considered discursive ICDs, while other studies referred principally to numerical indicators of intellectual capital. Moreover, the analysis focussed specifically on firms’ integrated reports rather than ICDs in other sources. In an increasing number of mandatory disclosures, non-financial information is being voluntarily reported (Leung et al., 2015). However, the integrated reporting framework explicitly indicates that intellectual capital should be reported in integrated reports (IIRC, 2013). As such, generalising results across different dissemination fora is hindered by potential selection biases.

Fourth, results from this study add new knowledge to the literature on the value relevance of ICDs (Abhayawansa, 2011; Abhayawansa and Guthrie, 2016a, b), since they support the hypothesis that ICDs reliably represent firms’ non-financial performance. Thus, investors and financial analysts should not be dissuaded from looking at the voluntary information disclosed in integrated reports more closely to make more efficient decisions.

Fifth and finally, this study contributes to the debate on the so-called fourth stage of research in intellectual capital (Dumay et al., 2016) by shining a light on ICDs in integrated
reports and highlighting what “was previously secret and unknown’, so that all stakeholders understand how an organisation takes into consideration its ethical, social and environmental impacts” (p. 180). The following sub-sections present a more detailed discussion of the theoretical contributions of this study.

**Implications for practitioners**

The results from this study have several practical and policy implications. First, analysts and investors can benefit from more accurate forecasts on future performance because they can now make their decisions on the assumption that managers adopt different disclosure strategies with regard to different types of company performance (Hutton et al., 2003). Indeed, investor judgments are influenced by (positive and negative) disclosure tone (Hales et al., 2011). IIRC and voluntary disclosure standard setters can take advantage of the empirical findings of this analysis by suggesting measures for control regarding unethical behaviour in integrated reporting. Those responsible for preparing integrated reports are also expected to take advantage of the results of this study by extending their knowledge on how to effectively disclose intellectual capital in their reports. Customers/suppliers can be encouraged to look more closely at the non-financial voluntary disclosures of salient firms to decide whether or not to enter into trading relationships based on the ethical disclosure behaviours of those firms. Finally, society will avail of a better understanding of the dynamic relationship between firms’ performance and their reporting behaviours.

**Possible areas for future research**

This study opens interesting avenues for future research. In fact, there is a scope to explore if and how other (endogenous and exogenous) variables impact on the relationship between firms’ performance and ICD tone in integrated reports. It would be interesting if future research controlled for financial crises also. In addition, it would be fruitful for future research to explore distinctions in ICD tone in different sections of integrated reports. Further research could also investigate differences in tone practices across continents or country types, e.g., liberal market economies vs coordinated market economies (Hummel et al., 2017). Additionally, there is a scope for explicitly considering if and how introduction of the IIRC impacted on the tone of ICDs as well as the relationship between tone and firms’ performance. In the interests of replicability, from a methodological standpoint, further research could consider the development of customised measures of disclosure quality, since content analysis with automatic codification is an emerging practice in accounting, taxonomies are still imprecise. Empirical findings from this research could be corroborated by future testing and exploration, including through meta-analyses and systematic reviews also (Stanley and Jarrell, 1989). Finally, future research could seek to investigate the reasons why firms decide not to disclose non-financial information.

**References**


Appendix

<table>
<thead>
<tr>
<th>Positive words</th>
<th>Forward looking</th>
<th>Backward looking</th>
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<tbody>
<tr>
<td>ABLE</td>
<td>I’LL</td>
<td>COULD</td>
</tr>
<tr>
<td>ABUNDANCE</td>
<td>IT’LL</td>
<td>COULDN’T</td>
</tr>
<tr>
<td>ACCLAIMED</td>
<td>THEY’LL</td>
<td>DID</td>
</tr>
<tr>
<td>ACCOMPLISH</td>
<td>WE’LL</td>
<td>DIDN’T</td>
</tr>
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<td>ACHIEVE</td>
<td>WILL</td>
<td>FOLLOWED</td>
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<td>ADEQUATELY</td>
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<td>GONE</td>
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<td>ALLIANCE</td>
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<td>ASSURE</td>
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<tr>
<td>ATTAIN</td>
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<td>INDICATED</td>
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</table>

Table AI.
The table below is an extraction of the word list used by Loughran and McDonald (2011)

Table AII.
Results of the sub-sample analysis (only one IR per firm) – Model 3

<table>
<thead>
<tr>
<th>Statistical model (dependent variable: ICD_TONE)</th>
<th>Model 3</th>
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<td>DECL_FIN_PERF</td>
<td>23.769 (59.936)</td>
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<tr>
<td>ESG_SCORE</td>
<td>8.590** (3.191)</td>
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<tr>
<td>ANGLO_MODEL</td>
<td>-69.551 (59.259)</td>
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<tr>
<td>ENV_SENS_IND</td>
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</tr>
<tr>
<td>TIME_FORWARD</td>
<td>4.662 (2.962)</td>
</tr>
<tr>
<td>TIME_BACKWARD</td>
<td>1.451** (0.648)</td>
</tr>
<tr>
<td>EVID_DISCURSIVE</td>
<td>0.337*** (0.037)</td>
</tr>
<tr>
<td>EVID_NUMERICAL</td>
<td>0.027 (0.174)</td>
</tr>
<tr>
<td>YEAR_2016</td>
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<tr>
<td>YEAR_2015</td>
<td>-117.629 (84.580)</td>
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<td>YEAR_2014</td>
<td>70.520 (71.767)</td>
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<tr>
<td>YEAR_2013</td>
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<td>YEAR_2012</td>
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<td>357.497 (349.790)</td>
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<td>No. of obs</td>
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<td>F (p-value)</td>
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<td>$R^2$</td>
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</tr>
<tr>
<td>Breusch–Pagan $\chi^2$ (p-value)</td>
<td>61.00 (0.4397)</td>
</tr>
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</table>

Notes: ICD_TONE: IC disclosure tone; DECL_FIN_PERF, declining financial performance; ESG_SCORE, ESG Score; SIZE, size; ANGLO_MODEL is a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; ENV_SENS_IND, environmental sensitive industry; TIME_FORWARD, forward-looking IC Disclosure; TIME_BACKWARD, backward-looking IC disclosure; EVID_DISCURSIVE, discursive IC disclosure; EVID_NUMERICAL, numerical IC disclosure; YEAR_2012 is a dummy variable for year 2012; YEAR_2013 is a dummy variable for year 2013; YEAR_2014 is a dummy variable for year 2014; YEAR_2015 is a dummy variable for year 2015; YEAR_2016 is a dummy variable for year 2016. Standard errors are in parentheses. **,***Indicate a significance degree between 0.05 and 0.01, and 0.01 and 0, respectively.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>1/VIF</th>
<th>Model 2</th>
<th>1/VIF</th>
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<tr>
<td>TIME_BACKWARD</td>
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<td>2.33</td>
<td>0.428390</td>
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<td>1.33</td>
<td>0.751039</td>
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<td>MEAN VIF</td>
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Breusch–Pagan – $\chi^2$ (p-value) 6.55 (0.011) 6.52 (0.011)

**Notes:** ICD_TONE, IC disclosure tone; DECL_FIN_PERF, declining financial performance; ESG_SCORE, ESG score; SIZE, size; ANGLO_MODEL is a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; ENV_SENS_IND, environmental sensitive industry; TIME_FORWARD, forward-looking IC disclosure; TIME_BACKWARD, backward-looking IC disclosure; EVID_DISCURSIVE, discursive IC disclosure; EVID_NUMERICAL, numerical IC disclosure; YEAR_2012 is a dummy variable for year 2012; YEAR_2013 is a dummy variable for year 2013; YEAR_2014 is a dummy variable for year 2014; YEAR_2015 is a dummy variable for year 2015; YEAR_2016 is a dummy variable for year 2016
Statistical model | Model 4 (dependent variable: ROE_{n+1}) | Model 5 (dependent variable: ESG_SCORE_{n+1})
--- | --- | ---
ICD_TONE | 0.007 (0.007) | 0.008 (0.005)
ESG_SCORE | 0.191 (0.145) | 0.894*** (0.101)
ROE | 0.794*** (0.062) | −0.020 (0.044)
SIZE | 1.481 (2.067) | −2.019 (1.482)
ANGLO_MODEL | 1.337 (3.190) | 1.891 (2.188)
ENV_SENS_IND | −6.600* (3.280) | −2.964 (2.436)
TIME_FORWARD | 0.023 (0.196) | −0.139 (0.134)
TIME_BACKWARD | −0.048* (0.027) | −0.010 (0.019)
EVID_DISCURSIVE | −0.001 (0.003) | −0.002 (0.002)
EVID_NUMERICAL | −0.004 (0.009) | 0.005 (0.007)
YEAR_2016 | 1.705 (4.362) | 2.086 (2.919)
YEAR_2015 | 5.157 (4.802) | 3.474 (3.776)
YEAR_2014 | 3.653 (4.219) | 4.471 (2.871)
YEAR_2013 | −1.416 (4.471) | 2.572 (3.041)
YEAR_2012 | 6.427 (6.081) | 3.522 (4.133)
cons | −24.895 (18.038) | 17.678 (12.840)
No. of obs | 99 | 93
$F$ (p-value) | 19.62 (0.000) | 8.65 (0.000)
$R^2$ | 78.0% | 62.75%
Adj. $R^2$ | 74.03% | 55.49%

Notes: ICD_TONE, IC disclosure tone; DECL_FIN_PERF, declining financial performance; ESG_SCORE, ESG score; SIZE, size; ANGLO_MODEL is a variable equal to 1 if the firm adopts the Anglo-American accounting model, 0 otherwise; ENV_SENS_IND, environmental sensitive industry; TIME_FORWARD, forward-looking IC disclosure; TIME_BACKWARD, backward-looking IC disclosure; EVID_DISCURSIVE, discursive IC disclosure; EVID_NUMERICAL, numerical IC disclosure; YEAR_2012 is a dummy variable for year 2012; YEAR_2013 is a dummy variable for year 2013; YEAR_2014 is a dummy variable for year 2014; YEAR_2015 is a dummy variable for year 2015; YEAR_2016 is a dummy variable for year 2016. Standard errors are in parentheses. *, ***, Indicate a significance degree between 0.10 and 0.05, and 0.01 and 0, respectively.

Table AIV. Results of the further analysis

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The role of IC

Strategic information disclosure, integrated reporting and the role of intellectual capital

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Abstract

Purpose – The purpose of this paper is to use a theoretical and empirical model to investigate the adoption of the integrated reporting (IR) framework as a strategic choice to signal intellectual capital (IC) to equity investors, with specific reference to the pharmaceutical industry.

Design/methodology/approach – The choice of drafting an integrated report is modelled as a means for managers to strategically disclose price-relevant information related to IC. The voluntary disclosure model developed by Verrecchia (1983) is used, also introducing the role of financial analysts to derive a directly reproducible empirical equation.

Findings – Theoretically, as IR requires managers to exert an effort in reporting activity, this work shows that in equilibrium, only firms with sufficient IC have decided to adopt IR, resulting in rational investors’ willingness to pay more only for the forecasted earnings of integrated reporters. This theory is tested in the pharmaceutical sector, where the modelling choice is probably more valid, with mixed results.

Research limitations/implications – When compliant with the International Integrated Reporting Council’s (IIRC) standards, IR provides the means to disclose IC in a perfectly verifiable way. Furthermore, since the IIRC has only recently been established, the conclusions have only been tested on a limited data set.

Originality/value – This work connects the value relevance of IR to IC by adopting an equilibrium approach, which, in turn, provides specific indications of how to build a consistent empirical test of the theory.

Keywords – Value relevance, Integrated reporting, Intellectual capital, Equilibrium, Pharmaceutical sector, Strategic information disclosure

Paper type Research paper

1. Introduction

The value relevance of intellectual capital (IC) and integrated reporting (IR) has been extensively studied in the literature. With a few exceptions (e.g. Garanina and Dumay, 2017), prior works have mostly considered them in isolation, either focussing on the impact of IC disclosure on a firm’s value and financing cost or on the value relevance of IR. The theoretical foundations underlying a manager’s choice to disclose IC and its relation to IR have been mostly left untouched. IC is largely subject to voluntary disclosure, which this paper considers a strategic communication decision to influence investors’ perception of a company[1], as discussed in Verrecchia’s (1983) and Dye’s (1985) seminal works. If a manager is concerned with his or her company’s market value and discloses “non-fundamental” information to offer its best representation, measuring the value relevance of IR and IC disclosure could be more difficult than expected, as the estimation of a standard linear regression model could be invalidated by self-selection (Heckman, 1978; Leuz and Verrecchia, 2000).

Based on the previous considerations, this paper aims to establish a concrete link between IC and IR and verify whether companies adopting the latter to disclose the former have, ceteris paribus, higher valuations, given their expected profits (consensus earnings). Combining different elements from the strategic accounting disclosure literature, this paper attempts to answer the following three research questions, specifically referring to sectors...
such as the pharmaceutical industry, where IC could be considered the key value-relevant information disclosed in an integrated report:

**RQ1.** (Theory): can IR be represented as an equilibrium phenomenon related to voluntary IC disclosure?

**RQ2.** (Theory-empirics): what are the consequences of the empirical testing of IR-IC value relevance?

**RQ3.** (Empirics): do the data support the conjecture that IR is a means to strategically disclose IC price-relevant information? Are companies that adopt IR valued more, *ceteris paribus*, given their short-term outlook (consensus earnings estimates)?

To provide concrete answers, this study builds an empirically testable general equilibrium model with imperfect information. The interaction between managers and investors is modelled as a persuasion game, where the former can withhold “unfavourable” information related to IC, but any disclosure must be truthful (Stocken, 2013). The roles of equity research firms and financial analysts are also introduced. This feature of the model relates to the consistent use of consensus estimates to assess the value relevance of IR, as stock market prices should reflect current unreported earnings rather than those already realised. Hence, when measuring the value relevance of IR/IC disclosure in terms of higher pricing of consensus earnings through simple linear regressions, it should also be considered whether analysts already include IC in their forecasts. In this case, observing a further “pricing effect” in regression coefficients could be less likely, especially if investors could be modelled as risk-neutral or minimally risk-averse.

From a theoretical perspective, this study’s model provides formal support to traditional arguments related to the value relevance of IR and IC disclosure, also explaining why only some firms decide to adopt the IR framework (*RQ1*). The model presumes that managers gain direct benefits from their companies' market value and that IC positively contributes to the success of a company’s business. Furthermore, IC is viewed as managers’ private information, which can be credibly disclosed by adopting the IR framework. This, in turn, requires managers to put more effort into administrative, reporting and compliance activities; thus, only firms with sufficiently high IC decide to adopt the IR in equilibrium. Consequently, firms without sufficient IC should be, *ceteris paribus*, valued identically, while the others will be worth more, the higher their IC is (*RQ1* and *RQ3*).

From an empirical perspective, the model suggests that managers’ strategic behaviour introduces a self-selection bias in standard linear regression models, which have been used extensively in prior empirical studies. If not properly treated, such bias eventually invalidates any statistical result, and this study’s theoretical framework provides a solution consistent with the hypothesis to be tested (*RQ2*). Furthermore, explicitly introducing the role of financial analysts in its model, this paper shows that their forecasts hardly consider the effects of IR and IC disclosure. In this way, this paper provides additional support to several empirical strategies, including this study’s (*RQ2*). In particular, this study suggests that the market value of companies adopting IR should be more sensitive to analysts’ earnings forecasts, as a consequence of IC disclosure (*RQ2–RQ3*).

As a productive factor, IC is fundamental in knowledge-based industries (Hansson, 1997; Ellis and Seng, 2015). Thus, the assumptions used to build this study’s equilibrium model are more likely to occur in the pharmaceutical industry, where IC plays a key role in successfully developing new drugs and obtaining approval from regulatory authorities (e.g. Zucker *et al.*, 1994; Boekestein, 2006; Kamath, 2008; Ghosh and Mondal, 2009; Kim and Kumar, 2009). Therefore, this study tests its model on large pharmaceutical companies and finds both positive and negative evidence regarding the value relevance of IR as a device to strategically disclose IC (*RQ3*).
This paper has a twofold novelty. First, it provides a concrete equilibrium link between the choice of adopting IR and disclosing IC, considering managers’ self-interested behaviour to maximise their companies’ market value. In doing so, this paper identifies the International Integrated Reporting Council’s (IIRC) IR framework as a “natural” enforcement device that prevents managers from disclosing misleading information regarding IC. Second, this study tests the value relevance of IR as a means to strategically disclose IC with reference to a fully specified equilibrium model. This study’s empirical model is derived from “first principles”, supporting the econometric identification of key parameters. Although most of the components of this model are not novel in the microeconomic literature, to the authors’ best knowledge, this is the first work that explicitly investigates the equilibrium relation between IR and IC, focusing on the related empirical consequences. This study’s empirical results provide some evidence supporting the theory (RQ1), although the robustness to small sample or regression modifications is lower than expected (RQ3).

The rest of this paper is organised as follows. Section 2 reviews related contributions. Section 3 presents the theoretical framework that allows this study to establish IC and IR in equilibrium. Section 4 discusses the research methodology, and Section 5 deals with the results obtained for the pharmaceutical sector. Finally, Section 6 summarises this study’s findings and conclusions.

2. Literature review

The disclosure of IC is a broadly accepted condition to assess a company’s value efficiently and make investment decisions consciously (Brennan and Connel, 2001; Bukh, 2003; Yongyanich and Guthrie, 2005; Swartz et al. 2006; Ghosh and Wu, 2007; Zambon and Marzo, 2007; Li et al., 2008; Alwert et al., 2009; Abhayawansa and Guthrie, 2010; Gamerschlag, 2013). To this extent, several authors have pointed out that conventional value metrics have progressively become complementary and have therefore partially lost their absolute predominance (Collins et al., 1997; Barth and Clinch, 1998; Francis and Shipper, 1999; Lev and Zarowin, 1999; Breton and Taffler, 2001; Bozzolan et al., 2003; Brown et al., 1999; Givoly et al., 2016). Various studies suggest that investors and other stakeholders consider IC disclosure useful in understanding long-term growth opportunities (Edvisson and Malone, 1997; Cumby and Conrod, 2001; Eccles et al., 2001; Holland and Johanson, 2003; Cuganesan and Dyma, 2009; Abhayawansa and Guthrie, 2010).

The relationship between IC disclosure and its impact on corporate value has been extensively studied in the literature. Van der Meer-Kooistra and Zijlstra (2001) were among the first researchers to show how IC disclosure positively influenced market capitalisation and stakeholder confidence. Considering a sample of Taiwanese companies, Chen et al. (2005) showed how IC positively correlated to market value and financial performance. In an empirical study of Fortune 500 company annual reports, Abdolmohammadi (2005) found evidence of a positive relationship between IC disclosure and market valuations. Vafaei et al. (2011) confirmed this result by analysing a sample of companies traded on the British, Australian, Hong Kong and Singapore stock markets. Similar results were obtained by Gamerschlag (2013) in Germany, as well as Ellis and Seng (2015) in New Zealand. Considering stocks listed on the ASX, Dumay and Tull (2007) observed that the diffusion of IC-related information in price-sensitive announcements had an impact on subsequent cumulative abnormal returns.

However, none of the previously mentioned works was based on a formal theory relating managers’ preferences to the choice of disclosing IC or adopting the IR framework. The strategic nature of disclosing IC price-relevant information through IR had been mostly left untouched. As a consequence, empirical results based on simple linear regressions could be invalidated by self-selection (Heckman, 1978; Leuz and Verrecchia, 2000).
Nonetheless, Orens et al. (2009) showed that higher IC disclosure reduced capital cost, using a robust econometric methodology based on Botosan’s (1997) and Leuz and Verrecchia’s (2000) contributions.

Regarding financial analysts’ behaviour, Ghosh and Wu (2007) showed how the analysts’ opinions were also influenced by IC disclosure. On the contrary, Alwert et al. (2009) found that more complete information did not necessarily translate into better ratings (based on research conducted on German firms) because greater transparency tended to underline both strengths and weaknesses. This paper takes a different approach and explores equity research firms’ incentive to include the effects of IC in their forecasts, the latter being managers’ private information.

The value relevance of IR has been studied but not as the outcome of strategically disclosing IC, to the best knowledge of this paper’s authors. For instance, Baboukardos and Rimmel (2016) documented that following the introduction of the King III reform (IR) in South Africa, investors were more willing to pay for corporate earnings. Bernardi and Stark (2018) argued that the compulsory adoption of IR improved the understanding about ESG performance, while Lee and Yeo (2016), Barth et al. (2017) and Zhou et al. (2017) extensively studied the economic benefits and opportunities gained by adopting IR.

Beattie and Thomson (2007), Alwert et al. (2009) and Abhayawansa (2013) suggested in more general terms that an integrated approach representing a company’s business model (Bukh, 2003; Bini et al., 2016) would likely increase the informative content of IC disclosure. Consequently, IR could overcome the limitations of standard financial reporting (Previs et al., 1994; Wallman, 1995; Eccles and Krzus, 2010; Eccles et al., 2010; Abeysekera, 2013; Beattie and Smith, 2013; Eccles and Krzus, 2014), depending on the change in the company’s thinking approach (Camodeca and Almici, 2017a, b).

Nevertheless, Melloni et al. (2017) noticed a frequent lack of the required conciseness, completeness and balance in integrated reports, especially in conjunction with poor social performance. Other authors raised concerns about the role of IR as a means to disclose IC (Dumay, 2016; Dumay and Guthrie, 2017; Nielsen et al., 2017). While this paper does not deal with the value relevance of corporate social and environmental performances, it acknowledges that IR could be a potential device for impression management (Melloni, 2015), used to persuade myopic investors. If the non-financial contents (e.g. IC) of IR are hardly verifiable, managers could be intentionally vague or overly optimistic in their messages to investors. Consequently, investors and other stakeholders might pay limited attention to IR. In other words, the assumption of “perfect verifiability” is the critical element of this paper’s framework. However, such assumption is also implicitly embedded in all previously mentioned works related to the value relevance of IR and IC disclosure.

In general, there would be deep research and policy implications if the assumption of perfect verifiability was dropped. On one hand, prior results should be interpreted with more scepticism, especially in the absence of robust econometric modelling. On the other hand, policy makers should be concerned with the “quality” of IR contents before supporting its adoption. From a theoretical perspective, it would also be inappropriate to model IR/IC disclosure as a persuasion game. A costless signalling game would be more adequate to describe the interaction between managers and investors (Stocken, 2013). In particular, the communication between the two types of stakeholders could result in a babbling equilibrium (Crawford and Sobel, 1982) if managers had a strong incentive to inflate their companies’ market value. In this case, investors would completely ignore the IR contents. Nevertheless, this paper proceeds in an orderly fashion and first investigates whether the data support the value-relevance implications of assuming perfect verifiability of the IC information disclosed in IR.

Finally, Dumay (2012) questioned the generic possibility to test formal theories of IC value relevance. This paper partially agrees with this view, to the extent that IC identification
in the currently available data remains challenging. However, this paper shows that starting from incentives that motivate managers to disclose more information, a falsifiable theory can be built despite the limited data available, restricting the significance of this study’s empirical results.

3. Theoretical framework

This paper studies the choice of adopting an integrated report in a simple two-period exchange economy, where each manager holds private information regarding the probable success of one’s business.

The model presented is a general equilibrium with imperfect information, involving three groups of optimising agents with rational expectations: investors, managers and research firms employing financial analysts. This study’s approach extensively borrows from the strategic accounting disclosure literature (Stocken, 2013), particularly relying on Verrecchia’s (1983) seminal work. Specifically, investors trade with each other in the shares of a continuum of companies listed on a competitive market and rationally process the signals provided by financial analysts and company managers. Each manager operates a different company, consisting of a risky project that in case of default returns nothing to its shareholders; otherwise, some positive, although random, real income is earned. This paper refers to the latter case as the project’s success although the income returned to investors could be potentially lower than the initial share price.

This paper assumes that a company project’s probability ($\theta$) of success is a strictly increasing function of its IC and that such information is unknown to investors unless managers disclose it in a fully verifiable way by adopting the IR framework. Thus, the IIRC acts as an entity that certifies managers’ signals to investors. Although in Verrecchia’s (1983) study, disclosing additional information led to a straight penalty on firms’ profits, this paper assumes that IR requires managers to spend more time on administrative, compliance and reporting activities, leading to their personal detriment[2]. Managers gain direct benefits from their companies’ market value, and this paper shows that in equilibrium, IR is an optimal practice only for firms with sufficient IC, as distinguishing from other firms provide a benefit greater than the private detriment induced by the additional efforts of undertaking a more demanding reporting standard.

To consistently include earnings estimates in the empirical analysis (Sections 4 and 5), this study also explicitly models the interaction between the principal of an equity research firm and the financial analysts employed, assuming that the former is concerned with preserving the relationship with companies to receive coverage fees, while for the latter, it is only the precision of their estimates that matters. Since coverage contracts are signed before managers learn $\theta$, this study shows that managers require analysts to withhold any information related to IC that could otherwise be discovered with due diligence. Consequently, financial analysts provide forecasts that are conditional to the success of each company’s project.

3.1 Investors

A continuum of identical risk-neutral investors, with rational expectations, is bundled in a representative agent, which maximises their expected utility, presented as:

$$c_1 + \mathbb{E}(c_2|\mathcal{F}),$$

where $c_t$ signifies the consumption of a single good available in the economy, while $\mathcal{F}$ denotes the information set available. Investors are endowed with an amount $W$ of consumption goods and shares of the corporate sector, consisting of a continuum of firms $i \in (0, 1)$. Each firm’s stock pays a non-negative random income $y_i[3]$ per share in $t = 2$, and stocks can be traded only at $t = 1$ in exchange for the present consumption of goods.
Based on these assumptions, the sequence of budget constraints is as follows:

\[ c_1 = \int_0^1 p_i \epsilon(i) di - \int_0^1 p_i h(i) di + W, \]  

\[ c_2 = \int_0^1 y_i h(i) di, \]  

(2) 

where \( \epsilon(i) di \) and \( h(i) di \), respectively, denote the initial endowment and intended holdings of a generic firm's \( (i) \) shares, while \( p_i \) represents the related market price. Markets are all competitive in the sense that investors take prices as given, and since investors are all identical, a full interior solution requires the following first-order condition to hold:

\[ p_i = E(y_i | F), \]  

(4) 

so that investors are willing to keep their portfolios unchanged (aggregate consistency)[4], that is:

\[ h(i) = e(i), \quad \forall i \in (0, 1). \]  

(5)

While the stock prices are set as usual by an “auctioneer”, they are determined by investors’ expectations, conditional on the information available in the economy.

3.2 Firms

Each firm \( (i) \) invests in a risky project that returns a non-negative amount of goods \( x_i \) per share if the project itself is successful; otherwise, nothing is earned. The project’s probability of success \( \theta \) defines the firm’s type, which is private information held by the company’s manager, while investors are assumed to dispose of sufficient information to derive the distribution of \( x_i \) on their own. The project’s return in case of success is further intended as the net of a coverage fee, paid to an equity research firm in \( t = 2 \). Thus, \( y_i \) can be written as:

\[ y_i = \begin{cases} x_i > 0, & \theta_i \\ 0, & 1-\theta_i \end{cases}. \]  

(6)

Managers sign coverage contracts with the research firm prior to learning their types, while forecasts are issued in \( t = 1 \) after analysts have performed due-diligence investigations of each company, with the possibility to discover \( \theta \). This paper supposes that \( \theta \) is a strictly increasing function of the firm’s IC, which managers can credibly disclose by adopting the IR framework. The IIRC is supposed to act as an authority that certifies the information disclosed, preventing managers from lying about their companies’ IC and the consequent value of \( \theta \). Furthermore, this paper assumes that \( \theta \) is drawn independently across companies from a common probability distribution \( G(s) = Pr\{\theta < s\} \) and that \( x_i \) is stochastically independent from \( \theta \), with the consequence that \( E(x_i \theta_i) = E(x_i) = \mu_i > 0 \). Such a hypothesis relates to the idea that the firm’s economic size is not necessarily informative about the impact of IC on the success of its business.

While IR allows a manager to signal the firm’s likelihood of success, it also requires the manager to invest additional effort in performing the related accounting, compliance and administrative activities. This paper posits that draughting an integrated report induces private detriment \( (C) \) to the manager’s utility, which becomes greater, the larger the company’s (expected) size becomes:

\[ C_i = \gamma \mu_i. \]  

(7)
Each manager is a decision maker with rational expectations, taking the action of other agents as given, and gains direct benefits from the price of the company shares ($p_0$), which, in turn, depends on the investors’ conjecture about the value of $\theta$, as $\mathbb{E}(y_t) = \mathbb{E}(\theta_t|\mathcal{F})\mu_t$. Thus, if analysts do not disclose $\theta$ through their reports, the manager of a generic company ($i$) decides whether to draft an integrated report to maximise the difference $p_t - C_i$, which represents the manager’s utility function ($U_i$). Formally, the manager’s problem is stated as:

$$\max_{IR \in \{0, 1\}} \mathbb{E}(\gamma \mu IR = 1),$$

s.t. $$\mathbb{E}(y_t|IR) = \theta_t \mu IR = 1 + \mathbb{E}(\theta_t|IR = 0) \mu_t [1 - \mathbb{P}(IR = 1)],$$

where $IR = 1[6]$ corresponds to the decision to draft an integrated report in $t = 1$ instead of adhering to standard accounting practices.

If analysts are interested in disclosing $\theta$, either explicitly or implicitly through their forecasts, they should first perform an extended due-diligence examination of a company to assess its IC. This step could burden managers with additional requests (e.g. documentation, on-site visits, interviews). This paper assumes that managers cannot escape from these activities, entailing an additional effort equivalent to draughting an integrated report. Since coverage contracts are signed prior to the $\theta$ being known, managers are (ex ante) better off if analysts do not disclose $\theta$ as:

$$\mathbb{E}(U|\text{Analysts disclose } \theta) = \mathbb{E}(\theta) \mu - \gamma \mu,$$

$$\mathbb{E}(U|\text{Analysts do not disclose } \theta) = \mathbb{E}(\theta) \mu - \mathbb{P}(IR = 1) \gamma \mu.$$

Indeed, it follows that $\mathbb{E}(U|\text{Analysts disclose } \theta) \leq \mathbb{E}(U|\text{Analysts do not disclose } \theta)$, as the probability that the firm will adopt IR in equilibrium ($\mathbb{P}(IR = 1)$) cannot be greater than 1. In other words, because disclosing IC requires some effort in any case, managers prefer to decide themselves when it is worth doing so.

Thus, managers find it optimal to contractually require research firms to avoid disclosing $\theta$. To enforce this requirement, this paper posits the existence of a contractual provision that in case of IC ($\theta$) disclosure, managers are allowed to terminate coverage contracts without paying fees.

### 3.3 Financial analysts

A research firm’s principal employs financial analysts to predict the outcomes of companies’ projects, in exchange for coverage fees. Financial analysts are only concerned with the precision of their forecasts to maintain their reputation and minimise the risk of a quadratic loss function around each prediction ($f$) they make. Hence, analysts solve the following problem:

$$\min_f \mathbb{E}[(f - y)^2 | \eta],$$

where $\eta$ represents any conditioning variable. Taking a first derivative of the objective function with respect to $f$ immediately reveals that analysts always find it optimal to predict $y$ with its (conditional) expected value:

$$f = \mathbb{E}(y|\eta).$$
As stated, the research firm’s profitability is subject to the non-disclosure of $\theta$. Violating this agreement would always result in losing coverage fees, as managers could improve their companies’ profits regardless of the actual effect of the disclosed information. The research firm principal’s problem consists of deciding whether to ask analysts to issue a forecast conditional to the project’s success ($y_i = x_i > 0$). Recalling the independence between $\theta_i$ and $x_i$, if the principal opts for this solution, analysts do not need to assess IC and let:

$$f_i = \mathbb{E}[y_i | \text{success}] = \mathbb{E}[x_i] = \mu_i.$$  \hspace{1cm} (13)

In this case, investors can discover $\theta_i$ only if firm $i$ decides to disclose it through IR.

Conversely, in case of unconditional forecasts, analysts would try to predict $y_i$ so as to achieve the highest precision possible; they would let:

$$f_i = \mathbb{E}[y_i] = \theta_i \mathbb{E}[x_i] + (1-\theta_i) \cdot 0 = \theta_i \mu_i,$$  \hspace{1cm} (14)

after an extended due-diligence study of IC ($\theta$). As investors hold enough information to compute $\mathbb{E}[x_i]$ on their own, Equation (14) implies that they could discover $\theta_i$ by reverse engineering, resulting in the violation of the agreement with the managers and lost coverage fees. Hence, the research firm’s principal finds it optimal to ask analysts to issue forecasts conditional to $y_i = x_i > 0$, and forecasts are to some extent optimistically biased, as:

$$f_i = \mu_i > \theta_i \mu_i.$$  \hspace{1cm} (15)

Financial analysts do not add any information to what is already in the hands of investors because the information needed to derive $\mu_i$ is common knowledge. Equation (15) states that analysts’ estimates are not informative about a company’s IC, consistent with the research firm principal’s incentives. However, estimates are “precise”, conditional on each project’s success.

### 3.4 Equilibrium

By definition, in equilibrium, agents behave according to the assumptions made, and the resulting actions are consistent with each other[7]. Having included the investors’ optimal behaviour in the managers’ problem, what remains is deriving the solution to the latter, as the optimal behaviour of financial analysts has already been considered. Similar to Verrecchia’s (1983) findings, $P1$ contains the main result related to the persuasion game involving managers and investors[8], that is, a threshold $\theta^*$ exists such that only firms with $\theta_i \geq \theta^*$ adopt IR in equilibrium.

The main difference from Verrecchia’s (1983) framework lies in considering several firms simultaneously. However, as each manager’s disclosure problem appears independent from those of the others, this study obtains similar results. This is a consequence of having assumed $\theta$ as independently distributed across firms, as well as independently from $\mu$. For the sake of completeness, a formal proof of the previous statements is included as follows:

$P1$. If $G(\cdot)$ is a $C^1[0, 1]$ function, $\theta^* \in [0, 1]$ exists, such that in equilibrium, firms decide to adopt IR if $\theta_i \geq \theta^*$, and:

$$\mathbb{E}(\theta | \theta; IR = 0) = \frac{\int_{0}^{\theta^*} g(\theta) \partial \theta}{G(\theta^*)},$$  \hspace{1cm} (16)

where $g(\theta) = \frac{d}{d\theta} G(\theta)$. Furthermore, if $\theta^* \in (0, 1)$, then:

$$\theta^* - \gamma = \frac{1}{G(\theta^*)} \int_{0}^{\theta^*} g(\theta) \partial \theta.$$  \hspace{1cm} (17)
Proof. To prove the proposition, it should first be noted that the choice of adopting IR is independent of \(\mu_i\), as it is a constant that equivalently affects all payoffs and does not influence the distribution of \(\theta\). Second, since \(\theta\) is independently distributed across firms, the fact that a company finds it optimal to disclose its type does not allow making an inference about the others' types. Hence, the focus can be on the disclosure problem of each firm in isolation, which can be represented equivalently as follows:

\[
\max_{IR = 0, 1} \begin{cases} (\theta - \gamma), & IR = 1 \\ \mathbb{E}(\theta|IR = 0), & IR = 0 \end{cases}
\]  

(18)

The remainder of the proof is similar to that of Stocken (2013), except that \(\theta\) is allowed to be arbitrarily distributed to the support \([0, 1]\), and corner solutions are explicitly discussed. Suppose that the "indifference" condition:

\[
\theta^* - \gamma = \mathbb{E}(\theta|IR = 0),
\]

(19)

is satisfied for \(0 < \theta^* < 1\). Firms with \(\theta = \theta^*\) are indifferent to adopting IR, while those with \(\theta > \theta^*\) will find it beneficial to adopt it as \(\theta - \gamma > \mathbb{E}(\theta|IR = 0)\). For firms with \(\theta < \theta^*\), managers will instead find it more convenient to avoid disclosing their firms' types as \(\mathbb{E}(\theta|IR = 0) > \theta - \gamma\). Hence, IR is adopted if \(\theta > \theta^*\), provided that Equation (19) admits a solution on the open interval \((0, 1)\). To this extent, the hypothesis of rational expectations in turn requires that investors' expectations be consistent with managers' disclosure policy, that is, \(\mathbb{E}(\theta|IR = 0) = \mathbb{E}(\theta|\theta < \theta^*) = \int_0^{\theta^*} g(\theta)\theta d\theta/G(\theta^*)\) (Bayes’ rule). Therefore, Equation (19) becomes in equilibrium:

\[
\theta^* - \gamma = \frac{1}{G(\theta^*)} \int_0^{\theta^*} g(\theta)\theta d\theta.
\]

(20)

Finally, if Equation (20) does not admit a solution on the open interval \((0, 1)\), then either all firms adopt IR or no firm does; either \(P_1 = \theta \mu_i\) or \(P_1 = \int_0^1 g(\theta)\theta d\theta\) for every firm. This is equivalent to letting \(\theta^* = 0\) and \(1\), respectively. The former case occurs if \(\gamma = 0\), while the latter holds true whenever Equation (20) implies \(\theta^* \geq 1\).

3.5 Theoretical results

According to \(P1\), the equilibrium pricing kernel of the economy can be written as:

\[
p = \mathbb{E}(y|IR) = \begin{cases} \theta \mu_i, & IR = 1 (\theta^* < \theta < 1) \\ \int_0^{\theta^*} g(\theta)\theta d\theta/\tilde{G}(\theta^*) \mu_i, & IR = 0 (\theta \leq \theta^* < 1). \end{cases}
\]

(21)

In words, managers find it beneficial to adopt IR only when IC (\(\theta\)) is sufficiently large, as distinguishing from other firms provide a benefit greater than the private detriment induced by the additional efforts of undertaking a more demanding reporting standard. Consistent with managers' incentives, Equation (21) states that companies adopting IR enjoy higher market multiples (\(p/f\)), the higher IC (\(\theta\)) is:

\[
\frac{p}{f}\bigg|_{IR = 1} = \theta > \frac{p}{f}\bigg|_{IR = 0} = \mathbb{E}(\theta|\theta \leq \theta^*).
\]

(22)

Conversely, firms without sufficient IC to reach \(\theta^*\) are valued identically, as investors can only infer that IC is insufficient to motivate the adoption of IR. Consequently, investors are,
ceteris paribus, overpaying low IC companies and underpaying those with a higher IC but still inadequate to motivate managers to disclose more information. This effect should be negligible whenever IC has a limited impact on a firm’s business, while it might be appreciable in sectors (e.g., the pharmaceutical industry) where factors such as innovation and quality of research play a crucial role.

3.6 Preliminary empirical considerations

The price of a generic company's shares can be equivalently represented as:

\[ p_i = E(y_i | IR_i) = E(\theta | \theta \leq \theta^*)f_i \cdot I(IR_i = 0) + \theta f_i \cdot I(IR_i = 1), \]  

(23)

because in equilibrium, \( f_i = \mu_i \). Equations (22) and (23) contain the results that this study intends to test by using actual financial data, that is, whether companies adopting IR are "valued more" as a result of disclosing "high" IC. An empirical version of the theoretical model presented is of immediate derivation, as stock prices are linear in \( f_i \), with different "slopes", depending on whether or not IR is adopted. Proving this claim starts with rewriting Equation (23) equivalently as:

\[ p_i = E(\theta | \theta \leq \theta^*) (1 - D_i) f_i + E(\theta | \theta > \theta^*) D_i f_i + Z_i, \]

(24)

where \( D_i = I(IR_i = 1) \), and \( Z_i = \theta f_i D_i - E(\theta | \theta > \theta^*) D_i f_i \). Since \( \theta \) is independently distributed from \( \mu \), and \( f = \mu \), it follows that:

\[ E[z_i | f_i, D_i] = D_i f_i \cdot [E(\theta | D_i) - E(\theta | \theta > \theta^*)] = 0, \]

(25)

as \( D_i = 1 \iff \theta > \theta^* \). Therefore, this study's model is formulated equivalently as:

\[ p_i = E(\theta | D_i = 0) f_i + [E(\theta | D_i = 1) - E(\theta | D_i = 0)] D_i f_i + Z_i, \]

(26)

where \( Z_i \) denotes a residual component satisfying the exogeneity condition \( E[Z_i | f_i, D_i] = 0 \).

Equation (26) is a convenient formulation\[9\] of the model because it does not require observing \( \theta \) and still allows testing this study’s theory. However, an empirical counterpart of the project’s returns should first be considered because the model is intentionally abstract in this sense. A first obvious choice consists of employing earnings-per-share (\( eps \)) as an empirical substitute for \( y \), which is based on the evidence that prices tend to follow the expectations for current unreported (FY1) earnings (Table II, Section 5). In this respect, a consensus earnings estimate (\( f(eps_{1,t}^{(1)}) \)) could be used as a straight empirical counterpart of \( f \).

In reality, companies operate (hopefully) for many years; thus, the returns generated by their projects are spread over time. Therefore, to reconcile the model with actual data, it is assumed more generally that \( y \) is proportional to current unreported \( eps \), that is, \( f = k \cdot f(eps_{1,t}^{(1)}) \), \( k > 1 \). Hence, this study’s theoretical model can be represented as:

\[ p_i = \beta_2 f(eps_{1,i}^{(0)}) + \beta_3 f(eps_{1,i}^{(0)}) D_i + z_i, \]  

(27)

where \( z_i = k \cdot Z_i \), while \( \beta_2 = k \cdot E(\theta | D_i = 0) \), and \( \beta_3 = k \cdot E(\theta | D_i = 1) - E(\theta | D_i = 0) \) are parameters to be estimated. Specifically, the term \( \beta_2 f(eps_{1,i}^{(0)}) + \beta_3 f(eps_{1,i}^{(0)}) D_i \) can be defined as a systematic component, while \( z \) is a theoretical residual\[10\]. It should be noted that \( z \) satisfies the ordinary least squares (OLS) exogeneity condition for unbiasedness and consistency, that is, \( E[z_i | f_i, D_i] = 0 \).

A necessary condition to support the claim that IR is value-relevant is that the estimate for \( \beta_3 \) appears to be significantly positive. While this study’s theoretical model could be easily implemented through a linear regression, the strategic nature of IR’s adoption could introduce a self-selection bias in the related OLS estimates.
4. Research methodology

The validity of this study’s theory is tested by considering the pharmaceutical sector, where IC largely contributes to the development of drugs that are able to pass clinical tests and be approved by regulatory authorities. Thus, IC can be considered the key value-relevant information disclosed with IR.

4.1 Data set

This study’s data set considers the major health technology stocks listed on developed markets and classified as Pharmaceuticals: Major, Pharmaceuticals: Generic, or Pharmaceuticals: Other according to Factset’s industry field (FA_FACTSET_INDUSTRY). Since earnings estimates are only periodically revised, the quarterly data are obtained by considering the last business day of each calendar quarter. Analysts’ estimates are obtained from the Factset Estimates database[11], and when more than one analyst covers a company, the median of available forecasts is considered to define a consensus.

The adoption of the IR framework is identified by using the list published on the IIRC website (http://examples.integratedreporting.org/all_reporters). According to the IIRC website, the IR framework was launched in December 2013, which is therefore considered the natural starting observation date; the last observation date is the end of December 2017.

Firms without either a current positive book-value-per-share (bps) or a positive eps forecast for FY1 are excluded because their equity value probably does not fit a simple regression model. Alternatively, a specific dummy variable may have been included in the model, but this solution is not considered in this study because the previously mentioned condition occurs in a limited number of cases. Small-caps are also excluded, considering a minimum requirement of €3.5bn market capitalisation. In particular, companies included in the analysis are required to satisfy this condition at least once in the sample.

After excluding missing data observations, this study’s estimation sample is ultimately composed of 792 observations for 49 companies, of which 11 are integrated reporters, according to the IIRC. The interquartile ranges for market capitalisation, price-to-book ratio and return on equity are (€6.1–7.3bn), (2.1x–5.4x) and (8.6–24.7 per cent), respectively.

In the following subsections, the superscript \((i)\) identifies the company, while the subscript \(t\) refers to the observation date.

4.2 Econometric methodology

To estimate Equation (27) on the data set, this study considers a simple pooled regression model, including the current bps \((\text{bps}^{(i)}_{0,t})\) as the control variable. Furthermore, this study allows the presence of a constant term, that is, an intercept common to all companies. This requires converting all data to euros, using the historical exchange rate, and multiplying per-share data by the number of outstanding shares \((N^{(i)}_{t})\)[12]. Therefore, the regression model is formulated as:

\[
\hat{p}^{(i)}_{t}N^{(i)}_{t} = \beta_{0} + \beta_{1}\text{bps}^{(i)}_{0,t}N^{(i)}_{t} + \left[\beta_{2} f_{1}^{(i)}(\text{eps}^{(i)}_{1,t}) + \beta_{3}D_{t} f_{1}^{(i)}(\text{eps}^{(i)}_{1,t})\right] \cdot N^{(i)}_{t} + \varepsilon^{(i)}_{t},
\]

(28)

where \(\varepsilon\) represents a generic residual component.

Consistent with Equation (26), \(\varepsilon\) shall include the theoretical residual \(z\), which satisfies the exogeneity condition \(\mathbb{E}[z_{t} f(\text{eps}^{(i)}_{1,t}), \text{bps}^{(i)}_{0,t}, D_{t}] = 0\)[13]. However, other sources of disturbance (e.g. omitted variables) could be present in the actual data, potentially correlated to IC and therefore to \(D\). For this reason, this study only requires that \(\mathbb{E}[e^{(i)}_{t} f(\text{eps}^{(i)}_{1,t}), \text{bps}^{(i)}_{0,t}] = 0\) and acknowledges that \(\varepsilon\) could be potentially correlated to IC (endogeneity).
The regression of the equity market value is not new as a statistical testing device used to assess the value relevance of corporate disclosure, and it is also specified in terms of expected equity returns (i.e. the cost of equity), such as in Botosan’s (1997) seminal work. Similarly, Orens et al. (2009) and Boujelbene and Affes (2013) tested the value relevance of IC on a broad set of companies, while Baboukardos and Rimmel (2016) tested the value relevance of IR in South Africa, following the introduction of the King III reform. Dealing with a broader reference, the authors of these studies often included specific control variables (e.g. size, industry and leverage). Having considered large caps operating in the same sector, the inclusion of additional regressors probably increases the chances of over-fitting, especially given the already high explicative power of the simple regression, formulated as follows:

\[ p_i^{(o)}N_i^{(o)} = x_0 + x_1bps_{0,i}^{(o)}N_i^{(o)} + x_2 f\left(eps_{1,i}^{(o)}\right)N_i^{(o)} + \epsilon_i^{(o)}, \]

whose estimates are presented in Table II (Section 5).

With the exception of Orens et al.’s (2009) study, previous empirical work paid limited attention to the equilibrium nature of IC disclosure, which probably induces a self-selection bias in the model. This phenomenon can be observed in Heckman’s (1978) seminal work and, with specific reference to corporate voluntary disclosure, in Leuz and Verrecchia’s (2000) study. A simple examination of Equation (28) suggests that self-selection might be a serious concern in the present study’s case because the error term (\( \epsilon \)) might be correlated to IC and thus to \( \theta \). Since IR is adopted, provided that \( \theta \geq \theta^* \), if \( \epsilon \) and \( \theta \) are correlated to each other, it could no longer be claimed that \( \epsilon \) is exogenous to the whole set of regressors (\( bps_{0,i}^{(o)}, f(eps_{1,i}^{(o)}), D_i \)), namely, \( \mathbb{E}[\epsilon_i^{(o)}|bps_{0,i}^{(o)}, f(eps_{1,i}^{(o)}), D_i] \), could be a function of \( D \). Consequently, the OLS estimator’s direct application to Equation (28) would provide biased and inconsistent estimates for the parameters involved, preventing a fair assessment of the value relevance of IR and IC disclosure.

Nevertheless, this study’s theory provides a concrete backup to the OLS estimation of Equation (28). Proceeding with order, it is assumed that the residual \( \epsilon_i^{(o)} \) can be represented as \( \epsilon_i^{(o)} = N_i^{(o)} \cdot z_i^{(o)} + v_i^{(o)} \), where \( v_i^{(o)} \) denotes an independent and identically distributed (i.i.d.)[14] error with zero expected value and stochastically independent from \( x_i^{(o)} \). Despite IR being endogenous to price determination, this present study shows that in equilibrium, the former depends only on a firm’s IC endowment, which should not be correlated to \( x_i^{(o)} \). (\( bps_{0,i}^{(o)}, f(eps_{1,i}^{(o)}) \)). Thus, recalling that \( \mathbb{E}[z_i^{(o)}|x_i^{(o)}, D_i] = 0 \), this equation can be formulated:

\[
\begin{align*}
\mathbb{E}\left[ \epsilon_i^{(o)} | D_i = 1, x_i^{(o)} \right] &= \mathbb{E}\left[ v_i^{(o)} | \theta_i \geq \theta^* \right], \quad \mathbb{E}\left[ \epsilon_i^{(o)} | D_i = 0, x_i^{(o)} \right] = \mathbb{E}\left[ v_i^{(o)} | \theta_i < \theta^* \right], \\
\mathbb{E}\left[ \epsilon_i^{(o)} | D_i = 1 \right] &= \mathbb{E}\left[ v_i^{(o)} | \theta_i \geq \theta^* \right], \quad \mathbb{E}\left[ \epsilon_i^{(o)} | D_i = 0 \right] = \mathbb{E}\left[ v_i^{(o)} | \theta_i < \theta^* \right].
\end{align*}
\]

(30)

An immediate consequence is that \( \epsilon \) can be ultimately represented as:

\[ \epsilon = \mathbb{E}(v|\theta \leq \theta^*) + \mathbb{E}(v|\theta > \theta^*) - \mathbb{E}(v|\theta \leq \theta^*) \]

\[ \] \[ D + u, \] \[ (31) \]

where \( u \) satisfies the exogeneity condition \( \mathbb{E}[u_i^{(o)}|D_i = 1, x_i^{(o)}] = 0 \). Substituting the former representation of the error term in Equation (28), an equivalent representation of this study’s regression model that can be estimated with OLS is obtained:

\[ p_i^{(o)}N_i^{(o)} = x_0 + x_1D_i + \beta_1bps_{0,i}^{(o)}N_i^{(o)} + \beta_2 f\left(eps_{1,i}^{(o)}\right)N_i^{(o)} + \beta_3 D_i f\left(eps_{1,i}^{(o)}\right)N_i^{(o)} + u_i^{(o)}, \]

(32)

where \( \alpha_0 = \beta_0 + \mathbb{E}(v|\theta \leq \theta^*) \), and \( \alpha_1 = \mathbb{E}(v|\theta > \theta^*) - \mathbb{E}(v|\theta \leq \theta^*) \).
Despite a potential self-selection problem, the theoretical model presented in this paper can still be estimated with OLS, as long as a specific dummy variable is included in the regression. As illustrated, the role of this additional regressor is to correct the self-selection bias resulting from a potential correlation between the regression’s residual and IC.

5. Results

5.1 Preliminary findings
Estimates for Equation (32) suggest that adopting the IR framework increases the sensitivity to \( \text{eps} \) forecasts (Table I), consistent with this study’s theory, and the results are robust to the inclusion of time-fixed effects that are significant although their exclusion does not affect the results. Furthermore, the residual valuation component (\( \omega \)) appears to be significantly higher for companies adopting the integrated report. Similar results are obtained, allowing for heteroscedasticity in the error term.

Although unbiased and consistent, the OLS estimator might be inefficient in the present context. The regression’s residual includes the term \( z_i: [\theta_i D_i - E(\theta|\theta > \theta^s)]kD_i f(\text{eps}^{(i)}_1) \), with the consequence that the variance of the error term (\( u \)) might be a function of consensus \( \text{eps} \) forecasts. As long as the variance of the “additional disturbances” (\( v \)) is predominant, standard confidence intervals could be saved, as errors could be presumed as approximately homoscedastic. Otherwise, specific forms of corrections should be considered. In this respect, by introducing HC3 robust standard errors (Davidson and MacKinnon, 1993), the 95% confidence interval for \( \beta_3 \) remains strictly positive and equal to [0.016–1.548]. In other words, after controlling for heteroscedasticity, the estimate for \( \beta_3 \) remains statistically significant, with a 5 per cent confidence level (\( p \)-value: 4.5 per cent).

5.2 Robustness checks
Due to the small number of integrated reporters, this study then assesses whether the results are robust to small sample modifications. Table II shows the output of estimating Equation (32) without including the top integrated reporter by the combined ranking of the price-to-book value ratio and the return on equity (Novo Nordisk). The omission of this company shifts down the point estimate for \( \beta_3 \), which is no longer statistically significant, considering both regular and robust standard errors. Due to the small sample size in terms of the companies considered, the confidence intervals for regression parameters are quite

<table>
<thead>
<tr>
<th>Coef.: variable</th>
<th>Coeff.</th>
<th>SE</th>
<th>t-stat</th>
<th>p-value (%)</th>
<th>[2.5%]</th>
<th>[97.5%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLS estimates for Equation (32) ( R^2 = 95% ), ( p)-value( (F) = 0.0% )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \alpha_0 ): Intercept</td>
<td>2.268</td>
<td>0.643</td>
<td>3.525</td>
<td>0.0</td>
<td>1.005</td>
<td>3.531</td>
</tr>
<tr>
<td>( \alpha_1 ): Di</td>
<td>5.754</td>
<td>1.371</td>
<td>4.197</td>
<td>0.0</td>
<td>3.062</td>
<td>8.445</td>
</tr>
<tr>
<td>( \beta_1 ): ( bps^{(i)}_0 N^{(i)}_t )</td>
<td>-0.230</td>
<td>0.046</td>
<td>-4.956</td>
<td>0.0</td>
<td>-0.321</td>
<td>-0.139</td>
</tr>
<tr>
<td>( \beta_2 ): ( f(\text{eps}^{(i)}_1)N^{(i)}_t )</td>
<td>16.680</td>
<td>0.219</td>
<td>76.170</td>
<td>0.0</td>
<td>16.250</td>
<td>17.109</td>
</tr>
<tr>
<td>( \beta_3 ): ( D_i f(\text{eps}^{(i)}_1)N^{(i)}_t )</td>
<td>0.782</td>
<td>0.314</td>
<td>2.494</td>
<td>1.3</td>
<td>0.167</td>
<td>1.398</td>
</tr>
</tbody>
</table>

Including time-fixed effects \( R^2 = 96\% \), \( p\)-value\( (F) = 0.0\% \)

<table>
<thead>
<tr>
<th>Coef.: variable</th>
<th>Coeff.</th>
<th>SE</th>
<th>t-stat</th>
<th>p-value (%)</th>
<th>[2.5%]</th>
<th>[97.5%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha_0 ): Intercept</td>
<td>2.194</td>
<td>0.635</td>
<td>3.453</td>
<td>0.0</td>
<td>0.947</td>
<td>3.441</td>
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<tr>
<td>( \alpha_1 ): Di</td>
<td>5.798</td>
<td>1.352</td>
<td>4.289</td>
<td>0.0</td>
<td>3.144</td>
<td>8.451</td>
</tr>
<tr>
<td>( \beta_1 ): ( bps^{(i)}_0 N^{(i)}_t )</td>
<td>-0.217</td>
<td>0.046</td>
<td>-4.741</td>
<td>0.0</td>
<td>-0.307</td>
<td>-0.127</td>
</tr>
<tr>
<td>( \beta_2 ): ( f(\text{eps}^{(i)}_1)N^{(i)}_t )</td>
<td>16.650</td>
<td>0.216</td>
<td>77.017</td>
<td>0.0</td>
<td>16.227</td>
<td>17.076</td>
</tr>
<tr>
<td>( \beta_3 ): ( D_i f(\text{eps}^{(i)}_1)N^{(i)}_t )</td>
<td>0.751</td>
<td>0.301</td>
<td>2.429</td>
<td>1.5</td>
<td>0.144</td>
<td>1.358</td>
</tr>
</tbody>
</table>

Notes: \( F \)-test for poolability: 2.429, \( p \)-value: 0.0 per cent. Confidence intervals for hypothesis testing were obtained under the hypothesis of homoscedasticity.
large, with the consequence that omitting the most expensive and capital-efficient integrated reporter reduces the statistical significance of $\beta_3$.

Finally, estimates are obtained considering $bps$ as an IR-affected variable (see Baboukardos and Rimmel, 2016). This requires modifying Equation (32) as follows:

$$p_i^{(i)} N_i^{(i)} = \alpha_0 + \alpha_1 D_i + \left[ \beta_1 bps_i^{(i)} + \beta_2 f(e_{ps_i^{(i)}}) + \beta_3 D_i f(e_{ps_i^{(i)}}) + \beta_4 D_i bps_i^{(i)} \right] \cdot N_i^{(i)} + u_i^{(i)} \quad (33)$$

As shown in Table II, the inclusion of the term $D_i bps_i^{(i)}$ makes the estimates for both $\beta_3$ and $\beta_4$ jointly insignificant although $\alpha_1$ remains significantly positive. Besides, if the top integrated reporter is excluded by the combined ranking of the price-to-book value ratio and the return on equity (Novo Nordisk), the estimate for $\beta_4$ becomes significantly positive; in contrast, those for $\beta_3$ and $\alpha_1$ are significantly negative and insignificant, respectively. This set of contradictory results might be related to a potential over-fitting, as the original model already has high explicative power. Nevertheless, this study confirms the mixed evidence to support (refute) the value relevance of IR as a device to strategically disclose price-relevant information related to IC.

6. Conclusions
6.1 Results and contributions to the literature
This study has shown how to build a consistent link between the choice of adopting an IR framework and IC by investigating the effect of disclosing the latter through the former on equity valuations ($RQ1$). In doing so, this study has also explicitly modelled the behaviour of equity research firms and financial analysts who might be reluctant to include information related to IC in their estimates.

This study has derived the empirical counterpart of its theoretical model and has provided adequate conditions to test it by estimating a simple linear regression without incurring a self-selection bias ($RQ2$). Using the same methodology, this study has tested for the value relevance of IR as a device to strategically disclose IC in the pharmaceutical sector and has found mixed evidence ($RQ3$). In particular, if the whole set of integrated reporters are considered, this study finds that IR positively affects valuations, with a large degree of confidence. However, a small sample set of modifications, such as the exclusion of the most expensive and capital-efficient integrated reporters, results in the low significance of the coefficient associated with the IR. Similarly, if IR should also affect the role of book value in market valuations, this study finds even more contradictory results. However, this might be due to a potential over-fitting.

**Table II.** Comparison of estimates for Equations (29), (32) and (33)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>$\alpha_0$: Intercept</td>
<td>3.59***</td>
<td>2.27***</td>
<td>2.25***</td>
<td>2.10***</td>
<td>2.25***</td>
</tr>
<tr>
<td>$\alpha_1$: $D_i$</td>
<td>-0.17***</td>
<td>5.75***</td>
<td>5.87***</td>
<td>4.46***</td>
<td>2.06***</td>
</tr>
<tr>
<td>$\beta_1$: $bps_i^{(i)} N_i^{(i)}$</td>
<td>16.58***</td>
<td>16.68***</td>
<td>16.64***</td>
<td>16.35***</td>
<td>16.64***</td>
</tr>
<tr>
<td>$\beta_2$: $f(e_{ps_i^{(i)}}) N_i^{(i)}$</td>
<td>0.78***</td>
<td>1.03</td>
<td>0.39</td>
<td>-3.40***</td>
<td></td>
</tr>
<tr>
<td>$\beta_3$: $D_i f(e_{ps_i^{(i)}}) N_i^{(i)}$</td>
<td>-0.05</td>
<td>0.77***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\beta_4$: $D_i bps_i^{(i)} N_i^{(i)}$</td>
<td>95</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>$p$-value(F) (%)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Notes: Confidence intervals for hypothesis testing are heteroscedasticity robust (HC3). *$p \leq 10$ per cent; **$p \leq 5$ per cent; ***$p \leq 1$ per cent.
6.2 Research limitations
One of the principal limitations of this empirical analysis is the small amount of data available, as the IIRC was established only in 2012, and the list of integrated reporters is dated December 2013. In this sense, the specific treatment of self-selection is also supported by the limited sample variety, and several of the assumptions made could be more flexible when dealing with a broader reference universe. On the theoretical side, this paper assumes that IR, when compliant with IIRC standards, provides a certified and verifiable signal to external stakeholders (e.g., investors). This could be a major limitation, in light of the mixed evidence obtained, and it allows critical thinking about policy and research implications.

6.3 Implications for research
The regression model is based on an equilibrium theory that in turn rests on the critical assumption that IR, when compliant with IIRC standards, provides credible, precise and truthful information related to IC. As long as this assumption can be considered valid, the framework also provides the necessary theoretical elements to support prior results. Nevertheless, this study has shown how the strategic nature of IR adoption and IC disclosure possibly introduces an endogeneity problem in empirical strategies. Consequently, prior results should be considered with some scepticism whenever OLS estimates are obtained without the proper treatment of self-selection.

Nevertheless, this work is not exempt from potential critics. As stated, one of the major limitations is the assumption of perfect verifiability of IR non-financial contents. However, it might be possible that despite the IIRC’s effort, integrated reports often lack the required conciseness and completeness to provide an informative message to shareholders, as noted by Melloni et al. (2017). In particular, if the IR contents are not verifiable, truthful IC disclosure could become impossible whenever managers have the incentive to inflate the market value of their companies. A similar setting could be modelled as “cheap talk”, as shown in Crawford and Sobel’s (1982) seminal work. Thus, in light of this study’s mixed evidence, future research should be more critical about the verifiability of IR contents. While this could require introducing further complexity in research methodologies, the results would benefit from a more general approach.

6.4 Implications for policy
Policy implications are slightly more difficult to establish at this point. Besides, this work has focussed more on the methodological aspects of connecting IR to IC disclosure, as well as the related empirical consequences. However, if this study had definite evidence supporting the claim about value-relevant IR, different supportive policies could be discussed. Examples could be introducing IR as a factor affecting managers’ remuneration policies or tax benefits for increased non-financial disclosure.

Instead, if IR is far from being considered value-relevant, the path is long before “IR-friendly” policies can be discussed. First, regulators and policy makers should be concerned with the quality of the additional information disclosed through IR, and this result might be achieved by introducing specific auditing forms. While this could increase IR costs, investors would definitely benefit from a better non-financial disclosure, especially for what concerns IC. Second, where possible, IC contents should be stated according to common quantitative metrics, easing the tasks of both auditors and investors. In this way, investors could allocate capital systematically to companies with better growth perspectives or lower business risks, increasing the overall quality of their portfolios.
Notes

1. Nevertheless, there are also examples of involuntary disclosure (Dumay and Guthrie, 2017), although they are not the subject of the present work.

2. Holmstrom and Tirole (1997) adopted a similar approach to model a borrower’s incentive to make her risky project successful.

3. Consumptions goods per share.

4. To this extent, it is worth noting that in \( t = 2 \), aggregate consumption will be equal to the real income generated by the corporate sector.

5. Technically, the interaction between managers and investors is modelled as a sequential game with imperfect information.

6. \( I(\text{IR}=1) \) is an indicator function equal to 1 when companies adopt IR.

7. This is a general and modern definition of equilibrium in economics (Fernández-Villaverde et al., 2008). Here, the relevant assumptions are optimising behaviour and rational expectations (consistent beliefs).

8. From a game-theoretical perspective, the equilibrium (solution) concept involved is perfect Bayesian equilibrium.

9. From a microeconometrics perspective, this is a linear mixed model with (partially) random coefficients. Hence, heteroscedasticity might be an issue.

10. For ease of reading, the words residual and error term are used interchangeably. However, this paper always refers to the non-systematic component of a linear model.

11. Fundamental data, stock market prices and exchange rates are also obtained from Factset.

12. Imagine two identical companies, differing only in the number of shares issued; if the model with an intercept is correct, the ratio between the two companies’ intercepts must be equal to the ratio of the number of shares issued, contradicting the hypothesis about a common intercept.

13. This results from the general assumption that \( \theta \) is independent of a firm’s economic size.

14. This assumption is consistent with the studies of Heckman (1978) and Leuz and Verrecchia (2000), where a single source of error is present.

References


The role of IC


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Social capital and integrated reporting

Losing legitimacy when reporting talk is not supported by actions

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Abstract

Purpose – To present the continuation of a case study by Beck et al. (2017) on an Australian bank (CBD) during the period 2004–2013 by examining whether integrated reporting affects relational capital and helps to repair an organisation’s reputation. Both studies examine how a bank rocked by a major scandal in 2004 has attempted to repair its legitimacy through integrated reporting (<IR>). The paper aims to discuss these issues.

Design/methodology/approach – This study is a post facto analysis based on the original research from Beck et al. (2017). The research process involved a case study approach with an analysis framed by impression management theory to investigate whether the information in CBD’s integrated reports is consistent with other information available to investors.

Findings – The authors find there is a gap between what CBD discloses in its integrated reports and what is publicly available in other media. CBD’s talk and actions are not aligned, and that asymmetry translates into a decline of trust in CBD. The bank’s integrated reports reveal how management discloses or withholds information to protect their own interests and at their own discretion. These conclusions indicate that the integrated reporting paradigm is being co-opted by IM strategies to improve legitimacy through trust, reputation and social capital.

Research limitations/implications – Future research needs to reach beyond the organisational boundaries and understand if <IR> adds value for society, or is just a new form of multicapitalism, being an ideology to help the rich become richer? The answers are important if we ever hope to see misconduct disappear from our corporations and for company reports to become documents bearing truth and not espouse rhetoric based on organisational hypocrisy.

Originality/value – The paper adds to the growing body of research investigating <IR> in practice to understand the impact of <IR> and whether it is a new and useful reporting tool or just another management fashion.

Keywords Australia, Reputation, Banking, Integrated reporting, Impression management, Social capital

Paper type Research paper

1. Introduction

This paper presents the continuation of a case study by Beck et al. (2017) on an Australian bank during the period 2004–2013. Referred to as CBD to preserve anonymity, both studies examine how a bank rocked by a major scandal in 2004 has attempted to repair its legitimacy through integrated reporting (<IR>). Beck et al.’s (2017) study focused on the reasons why CBD began its journey towards <IR> and how it developed, finding that the need for cultural change was the impetus behind the shift in its reporting practices. However, since incorporating <IR> into its reporting strategy, CBD has become embroiled in even more scandals and has been openly criticised in the findings of an investigation into misconduct by the Australian banking, superannuation and finance industries. Hence, this study explores the period since 2013 and presents the latest findings regarding the impact of <IR> on information transparency for the providers of financial capital. We analyse how CBD
opportunistically discloses or withholds information, which raises questions about the overall role of intellectual capital and < IR > in cultivating trust and reputation.

While Beck et al. (2017) use legitimacy theory to explain their findings, this paper draws on impression management (IM) theory (Brennan et al., 2009; Melloni, 2015; Diouf and Boiral, 2017) to understand the disclosures in CBD’s Annual Reviews (integrated reports). The use of IM helps to explore whether the bank’s < IR > is steered by managers to achieve specific outcomes (Melloni, 2015). Specifically, we examine whether < IR > affects relational capital and helps to repair an organisation’s reputation by analysing the latest news, investigations into banking misconduct and CBD’s Annual Reviews.

We find there is a gap between what CBD discloses in its integrated reports and what is publicly available in other media. CBD’s talk and actions are not aligned, and that asymmetry translates into a decline of trust in CBD. The bank’s integrated reports reveal how management discloses or withholds information to protect their own interests and at their own discretion. These conclusions indicate that the integrated reporting paradigm is being co-opted by IM strategies to improve legitimacy through trust, reputation and social capital.

Initially, CBD was successful in this endeavour and did repair its legitimacy to some extent. However, the bank is still steeped in organised hypocrisy, where the underlying corporate culture and behaviour has not changed despite normalised accounts to the contrary in its integrated reports (Cho et al., 2015). The corporate veil remains firmly in place, and even though < IR > originally helped to polish CBD’s tarnished reputation, its new-found legitimacy collapsed like a house of cards once further scandals were exposed. Thus, our findings add to the growing body of research investigating < IR > in practice to understand the impact of < IR > and whether it is a new and useful reporting tool or just another management fashion.

The paper has the following sections. Section 2 presents a literature review on the nexus between IC and < IR >. Section 3 illustrates the research context, while Section 4 outlines the methodology and IM theory. Section 5 presents our findings and Section 6 provides the discussion and conclusions.

2. Literature review

An integrated report based on the < IR > framework represents a “concise communication about how an organization’s strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value in the short, medium and long-term” (IIRC, 2013b, p. 1). This section outlines the relationship between < IR > and IC by examining the IC-< IR > nexus (Guthrie et al., 2012; de Villiers and Hsiao, 2018). < IR > critiques found in contemporary accounting literature are also considered (Flower, 2015; Thomson, 2015). Last, we highlight the role that corporate image or reputation plays in disclosures as an important component of relational capital (Dumay and Guthrie, 2017; Dumay et al., 2019).

2.1 The relationship between < IR > and IC

< IR > discloses interactions between financial and non-financial information, with an emphasis on the company’s future value-creation story (Montecalvo et al., 2018). Specifically, IR refers to an organisation’s strategy, business plan and the six capitals, i.e., financial, manufactured, intellectual, human, social and relationships and natural (IIRC, 2013b). IC is reflected in three of the framework’s six capitals because, as de Villiers and Hsiao (2018, p. 485) point out, the “three intangible capitals defined in the < IR > framework as intellectual, human, and social and relationship broadly align with the three components of IC, respectively, structural capital, human capital, and relational capital”. Additionally, both IC and the < IR > framework claim to communicate value creation (Dumay, 2016).
However, what is meant by value creation in both IC and <IR> is often vague (Dumay et al., 2017). Despite widespread interest in managing IC, companies do not typically disclose separate IC reports because of the sensitivity of the information (Schaper et al., 2017). Additionally, there is little evidence of any company issuing stand-alone IC reports since at least 2012 (Dumay, 2016). However, the IIRC is actively promoting the <IR> framework, which has resulted in a resurgence of interest in IC, and since 2012 some companies issue integrated reports. However, the take-up is slower than the IIRC would like (Dumay et al., 2017). Thus, given the nexus between IC and <IR>, studying <IR> practice enriches our understanding of how companies communicate the way they create value. <IR> extends the IC framework by aligning it with the resource-based view of the firm, and this arguably providing a more comprehensive schema for explaining value creation (Riahi-Belkaoui, 2003).

2.2 A critique of <IR>
<IR> was originally founded as part of the sustainability movement. However, the <IR> framework recognises financial sustainability rather than social or environmental sustainability (IIRC, 2013b). Even before the first <IR> guideline, there was academic criticism of its missing links to social and environmental sustainability (Brown and Dillard, 2014). Thus, researchers like Flower (2015) and Thomson (2015) warn us of the missed opportunities for sustainability accounting resulting from <IR>’s failure to embrace all forms of sustainability. The 2013 <IR> framework strays even further from its original sustainability purpose. As Flower (2015) states, <IR> fails to define value clearly – value is explained as value for investors rather than value for society, and the interests of stakeholders are set aside in favour of shareholders. Consequently, he predicts that <IR> will have little impact on corporate reporting practice.

Thomson (2015, p. 18) suggests that it is difficult to disagree with Flower’s conclusions, recognising “a weak, diluted, business-as-usual reporting framework embedded within an explicit capitalist ideology”. However, he indicates that even other initiatives, such as the more recent GRI, lack evidence of their ability to reduce the negative social impacts of corporations. Thomson (2015, pp. 19-20) acknowledges that:

Integrated Reporting could create greater visibility and knowledge of the financial consequences of consuming capitals (financial, manufactured, intellectual, human, social and relationship, and natural) and provide a different lens to re-evaluate organisational practices[...] Integrated Reporting also intends to align reported information investor needs, provide accurate non-financial information, develop trust with key stakeholders[...].

Thus, ideally <IR> could be used to serve the cause of building trust and, in turn, reputation and corporate image. However, he also warns not to assume that sustainable organisational change will occur simply because companies provide new information voluntarily.

Only changes in management can enhance richer corporate disclosure. Whereas <IR> can merely integrate the voices of different communities. As it stands, <IR> is too rooted “in the business case for sustainability rather than the sustainability case for business” (Thomson, 2015, p. 18). However, Thomson (2015) believes that <IR> creates greater visibility of capitals. Others, such as Broadbent (2016), support a similar idea in that <IR> enhances the visibility of non-financial issues and long-term thinking that could lead to positive social and environmental outcomes and even internal change.

2.3 Corporate reputation and relational capital
While <IR> is squarely focused on reporting information to financial capital providers (IIRC, 2013b), information is sometimes needed to respond to legitimacy threats or corporate
image scandals caused by employee or Board misconduct (Beck et al., 2017). Corporate image is an essential element of relational capital because if stakeholders cannot trust the corporation, then its reputation is damaged, as is its licence to operate in society (Petty and Guthrie, 2000). Moreover, if reputation is damaged, relational capital is compromised (de Castro et al., 2004). Once the licence to operate is breached by a scandal, then the main providers of financial capital, namely shareholders, often sell their shares causing share prices to plummet. The consequences are inherently negative for those holding the remaining shares (e.g. Volkswagen, see Snyder and Jones, 2015 and Farneti et al., 2018). Therefore, a good reputation helps to maintain value, whereas a bad reputation destroys value (Gatzert, 2015).

From an agency theory perspective, managers have incentives to withhold information from investors. When a disclosure leads to opposing interests, managers are often reluctant to disclose information about IC, especially commercially-sensitive information (Dumay et al., 2017). The impression is that <IR> is becoming a panacea for IC disclosure and that managers often resort to IM techniques when reporting IC (Melloni, 2015; Dumay et al., 2017). <IR> then becomes a means for managers to disclose what they want rather than a faithful representation of the firm’s activities.

With the evolution of the media and new communication channels, an increasing amount of information is being disclosed against the will of managers, referred to as “involuntary disclosure”. Such information can significantly and immediately impact a company’s share price (Dumay and Guthrie, 2017). Despite increased public access to the traditional role of journalists, not all information is divulged. Not only does involuntary IC disclosure have an impact on corporate performance and corporate image, but it also affects people and society. Implicitly, information shared via the media can affect IC and increase or decrease the level of trust in the firm along with its reputation and relational capital.

This literature review highlights the potential contribution of <IR> to intellectual capital disclosure. To this end, changes at management level are needed to inform different stakeholders and enhance corporate reputation and trust. The latter is dependent on relational capital, being a corporate image and, in turn, corporate reputation. Hence, our research question is:

RQ1. Can <IR> impact relational capital by helping to repair an organisation’s reputation?

3. Context
Our research is part of a longitudinal study that analyses corporate social responsibility reporting in a major Australian bank (CBD) stretching from 2004 to 2013 (Beck et al., 2017). Thus, this paper continues to observe past and further events relevant to the case, as the bank continues its journey towards developing <IR>. What is interesting and novel is that CBD and other Australian banks have their reputations under threat as a result of a Royal Commission into misconduct by the banking, finance and superannuation industries. Given these circumstances, the Royal Commission’s (2018) findings have shaken trust in the banking system and all Australian banks have suffered damage to their reputations. In this paper, we examine bank disclosures for the period 2011–2018 to help us understand how the bank uses <IR> to enhance its reputation, while also choosing not to disclose key issues that may have damaged CBD’s reputation.

In this paper, we build on Beck et al. (2017) who explored the reasons why CBD began its journey towards <IR> by examining how their reporting developed over the years from 2004 to 2013. Beck et al.’s (2017) findings show that early CBD reporting practices mainly focus on investors and other stakeholders with the aim of repairing lost legitimacy, and therefore its reputation, in the wake of a 2004 scandal.
Earlier CBD reports showed that a change in culture was a key aspect of CBD’s reporting activity, as its Chairman espouses in a corporate social responsibility report: “Culture change is now a high priority. In 2004, we developed a new set of Corporate Principles and behaviours as a first step in changing our culture. We are in the process of embedding these Principles into the way we do business every day” (CBD, 2005, p. 3).

During the initial phases of repair (2004–2006), the company restored its legitimacy to operate in society by setting new objectives and striving to align itself with stakeholder expectations (Beck et al., 2017). Beck et al.’s analysis of CBD’s CSR, followed by integrated reports, reveal that the reporting journey helped CBD to repair its image and, for this reason, management wanted to send a strong message to stakeholders.

In the second phase (2007–2009), CBD had regained trust and improved its reputation, meaning that CBD had achieved strategic legitimacy, insofar as it was able to justify its strategy to the public and align it with shareholders’ interests (Suchman, 1995; Dumay et al., 2015). This accomplishment meant the bank was able to prepare more concise corporate social responsibility reports – reports that only contain selective and highly summarised information.

A third and crucial phase for CBD started in 2010 that combines financial and non-financial information into a single report. Here, “material CR performance issues were identified based on stakeholder engagement and business risks” (CBD, 2010, p. 41). Focus drifted from stakeholders to shareholders, and CBD entered the <IR> Pilot Programme in 2011. Adopting the <IR> Framework made CBD part of a movement that was looking to integrate financial and non-financial information. It was also in line with their existing reporting journey.

Over the years, CBD has repeatedly stressed its goal of becoming Australia’s most respected financial institution (Beck et al., 2017). Implicitly, this indicates that there has been no significant change in the organisation’s culture over the last ten years and that its “respectable” ethos was already in place when the first scandals occurred. However, if there is one thing that is difficult to change in an organisation, it is culture. Moreover, evidence shows that it is difficult for <IR> to be a catalyst for cultural change (Dumay and Dai, 2017). According to Suchman (1995), the greater the disclosure of information relevant to stakeholders achieves more institutional legitimacy, which enhances reputation. However, CBD’s culture did not significantly change in the wake of introducing <IR>. Rather, it became an instrument the bank used over the years to achieve institutional legitimacy in theory, but not in substance.

This paper extends Beck et al.’s (2017) case study on CBD in the wake of a Royal Commission conducted in 2017 and 2018. Established in December 2017, the Commission’s crown duty is to investigate misconduct by Australia’s Big4 banks. Among its key findings, this investigation revealed that some CBD staff had participated in serious misconduct resulting in multiple scandals. CBD’s reputation is now under direct threat (Hutchens, 2018; Royal Commission, 2018).

4. Methodology and IM theory
This section covers the methodology and theory used to support the analysis and its limitations.

4.1 Methodology
In essence, this study is a post facto analysis based on the original research from Beck et al. (2017). Since completing that study, one of the authors, who is a resident of Australia, noticed that CBD continued to appear in news reports. When reading CBD’s integrated reports, these scandals were notably absent. Thus, our research process involved a case study approach with an analysis framed by IM theory to investigate whether the information in CBD’s integrated reports is consistent with other information available to investors.
While some findings were based on material analysed in the previous study, the specific data for this analysis was:

- CBD’s Annual Reviews (integrated reports);
- press releases retrieved from the CBD website;
- newspaper articles; and
- data released by the Royal Commission.

Given that CBD is a pseudonym, we have assigned the following codes to data retrieved from CBD:

- CDB 2010 Annual Review.
- CDB 2011 Annual Review.
- CDB 2012a Annual Review.
- CDB 2012b Press release.
- CDB 2014 Annual Review.
- CDB 2015a Annual Review.
- CDB 2015c Press release.
- CDB 2016 Annual Review.
- CDB 2017 Annual Review.

Our main aim is to examine IC disclosures; therefore, we specifically searched for information related to IC within CBD’s reports and the Factiva database. However, we also sifted through the content for mentions of “scandal” associated with CBD. While scanning the data in the Annual Reviews and the media, we confirmed the relevance of three capitals to stakeholders: financial, human and social and relational (see Table I).

We analysed the information deemed material to each capital, and, if relevant, for the company based on a recent analysis of bank scandals by Karp et al. (2018). Material matters affect the organisation’s ability to create value (IIRC, 2013b, p. 18), so we considered the number of customers and employees affected by certain issues as indicative of whether an issue is material or not. We also considered any scandal serious enough to warrant multiple news articles as material to include in an Annual Review. We excluded natural and manufactured capital, which is not significantly material in the review of CDB’s reputation and are not the focus of CBD’s Annual Reviews.

<table>
<thead>
<tr>
<th>Capital type</th>
<th>CBD disclosure</th>
<th>Relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Financial</td>
<td>Yes</td>
</tr>
<tr>
<td>Manufactured</td>
<td>Not relevant</td>
<td>The core business of the bank is not directly interconnected with manufactured capital</td>
</tr>
<tr>
<td>Intellectual</td>
<td>For example employees and technology</td>
<td>Yes</td>
</tr>
<tr>
<td>Human</td>
<td>For example employees</td>
<td>Yes</td>
</tr>
<tr>
<td>Social and relationship</td>
<td>For example customers, society</td>
<td>Yes</td>
</tr>
<tr>
<td>Natural</td>
<td>Not relevant</td>
<td>The core business of the bank is not materially impacted by natural capital</td>
</tr>
</tbody>
</table>

Table I. The six capitals and their relevance
The tone was assessed by the use of negative words, such as “worse”, “adverse”, “negative”, “decrease” and “scandal”. CBD tends not to use such words, especially when describing negative events. We then verified whether the description of events contained forward-looking sentences, referring to future actions and whether external factors are to blame.

As Yin (2014) advocates, we reviewed multiple data sources to triangulate our data and add construct validity to the case study. We also imported the data into a research database (NVivo) to maintain a chain of evidence. Specifically, we compared information contained in the Annual Review, with information from the media and the Royal Commission. The aim was to verify whether the information that was not voluntarily disclosed by the bank, such as press releases, management communications and information from third parties, was consistent with that in its Annual Reviews. More importantly, triangulating the information between CBD’s disclosures and other sources provided a means for examining dubious and contested descriptions in its self-disclosures (Dumay and Lu, 2010). If the corporate veil keeps a scandal hidden or downplayed, then we need to uncover what is hidden for all to see. Thus, IM theory is deemed useful for explaining our findings (Brennan et al., 2009).

4.2 IM theory
IM theory stems from sociology and describes the process of influencing peoples’ perceptions and psychology, i.e., their impressions of other individuals (Leary and Kowalski, 1990). The concept of IM can also be extended to corporate reporting. As Leung et al. (2015, p. 277) state:

In a corporate reporting context, impression management refers to managerial behaviour to strategically select, display and present narrative information in corporate documents in a manner that is intended to distort readers’ perceptions of corporate achievements [...] and influence their impressions of firm performance and prospects[...]. In addition to manipulating the presentation and content of voluntary disclosure, impression management can be reflected in the refusal to communicate (minimal disclosure or nondisclosure) in discretionary narrative disclosure.

Thus, companies can use narratives in a self-serving manner rather than as the objective of performance disclosures. Self-serving disclosure practices often lead to opportunistic disclosure practices (Guillamon-Saorin et al., 2012). Boiral (2013), for example, conducted a study on the counter-accounts of claims made in A and A+ GRI reports. He finds that 90 per cent of negative events are not easily recognised in reports provided. Dingwerth and Eichinger (2010), in studying how information is disclosed using the GRI, find that qualitative data are not systematically provided nor fully reported. That is, narratives are used selectively.

When using selective narratives, qualitative data are unbalanced, making it difficult to understand sustainability impacts. For example, Leung et al. (2015, p. 276) warn about using selective narratives for IM because they can potentially impair reporting quality and note that “managers’ motivations and strategies for discretionary narrative disclosures remain an important area of accounting research”. Oppositely, corporations may “erase or deny the existence of information from the corpus of potential disclosure”, providing an incomplete picture. Or “deliberately conceal corporate information through minimal disclosure” (Leung et al., 2015, p. 278), including deliberately disclosing false information (Farneti et al., 2010).

There is evidence that companies are more likely to disclose positive information in a quantitative format and negative information in a qualitative format. In particular, qualitative and quantitative forward-looking disclosures signal declining performance because they are not verifiable and hence easily prone to IM. Qualitative information and narratives tend not to be comparable, as can be done with quantitative information, and thus have the potential to alter a reader’s impressions of a topic (Brennan et al., 2009, p. 811). Clatworthy and Jones (2003) also find that both declining and wealthy companies disclose a similar amount of bad and good news, which arguably shows that IM is in use. In particular, managers usually attribute
bad news to external factors, while accepting internal credit for good ones. Aerts and Yan (2017) find that companies tend to adopt a different type of approach when disclosing good or bad results. Management tends to give credit to their abilities for successful outcomes, thus conveying authority and a sense of control. A rhetorical style corresponds to negative financial performance (Aerts and Yan, 2017, p. 417).

Extending these conclusions to <IR> and IC is possible. For example, Melloni (2015) adopted Brennan et al.’s (2009) framework to verify how firms handle intellectual capital disclosures in <IR> and whether IM was practised to any extent, finding that manipulation is higher with this type of disclosure. Intellectual capital is not tangible and not as easy to assess as financial value, but knowledge, partnerships, procedures and reputation do create value for a firm. Melloni (2015) hones in on four different aspects of intellectual capital: disclosures (mostly relational capital); the quality of the information; time (forward-looking vs non-forward-looking); and tone. The results confirm a positive correlation between both declining performance and an optimistic tone, and the size of the firm and the value of its intangibles. Melloni (2015) concludes that companies use <IR> opportunistically to alter their public image. Therefore, our focus in this analysis is on intellectual capital disclosures in <IR>, which encompasses CBD’s relationships with its customers (relational capital), its employees (human capital) and its business practices (structural capital) as part of intellectual capital.

5. Findings
This section presents our case study findings on coverage of some of the major scandals that affected CBD between 2012 and 2017 in comparison to the disclosures the bank made in its own reports. To further validate our results, we extended the analysis to involuntary disclosures in the news up until July 2018. A summary of the findings follows in Table II.

5.1 Class action
In 2012, CBD’s investors undertook a class action for poor disclosure and a failure to promptly notify the market of AUD $1.2bn in financial securities exposure backed by US mortgages during the US subprime crisis (2007–2008). The class action was settled with an AUD $115m payment to customers negatively affected by financial losses.

Even though the event received extensive press coverage, CBD failed to mention any information on the scandal. Some disclosure of the class action would have been expected in their Annual Review, or at least its appendices; however, the issue was not mentioned at all. Even if class action involved actions that took place during the period spanning 2007–2008, the settlement involved millions of dollars and thousands of customers. In a subsequent report, CBD stated that it “is committed to doing more for their people – in building a values aligned culture and remaining focused on their broader role in society”, which they saw as “key to them achieving sustainable success” (CBD, 2012).

After the settlement agreement in 2012, the CBD’s secretary affirmed: “The settlement of the class action is a purely commercial decision made in the interests of our shareholders” (Hodge, 2012). The bank clearly saw the decision to settle as the best option available to shareholders and a way for itself to limit losses. Moreover, CBD did not interpret the settlement as an admission of liability and did not consider it material for the following year’s earnings (CBD, 2012). Here, we find that financial and human capital were both affected, yet there was no disclosure in the company’s reports.

5.2 Share price spike
During 2013, CBD faced allegations due to a lack of control over misconduct by one of its trading partners. The trading company’s personnel operated in the market on behalf of CBD
<table>
<thead>
<tr>
<th>Year</th>
<th>Description of the scandal</th>
<th>Disclosure channels</th>
<th>Disclosure in Annual Review</th>
<th>Capital involved</th>
<th>Negative tone</th>
<th>Forward looking</th>
<th>Blame the system for failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>CBD would pay $115m to settle a class action with shareholders. CBD was accused of poor disclosure of its investment in securities backed by subprime mortgages</td>
<td>Class action website Newspapers CBD website ASX Website</td>
<td>No</td>
<td>Financial Human Relational</td>
<td>No</td>
<td>Partly – not insightful</td>
<td>Yes</td>
</tr>
<tr>
<td>2013</td>
<td>Share price spike of the ASX 200 following possible misconduct by trading personnel. Voluntary fine paid by CBD</td>
<td>Yes</td>
<td>Financial (not material) Relational (reputation)</td>
<td>No</td>
<td>No</td>
<td>Partly – not insightful</td>
<td>Yes</td>
</tr>
<tr>
<td>2015</td>
<td>Exchange trader sentenced to seven years jail for insider trading – the fraud amounted to $7m</td>
<td>Newspapers</td>
<td>No</td>
<td>Financial Human Relational (reputation)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2015</td>
<td>CBD UK bank received a $38.8m fine from Britain’s for “serious failings” in handling complaints regarding payment protection insurance to up to 90,000 customers</td>
<td>Newspapers</td>
<td>Information partly provided</td>
<td>Financial (not material) Human Relational</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2015</td>
<td>CBD compensated more than 750 of its financial advice customers a total of $14.5 m between January 2010 and September 2014 as a result of misconduct</td>
<td>Newspapers ASX</td>
<td>Yes</td>
<td>Financial (not material) Human Relational</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2016</td>
<td>Former CBD adviser banned for seven years for engaging in misleading and deceptive conduct</td>
<td>Newspapers ASX CBD website</td>
<td>Yes</td>
<td>Financial Human Relational</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2017/</td>
<td>Royal Commission established</td>
<td>Newspapers ASX CBD website</td>
<td>Yes</td>
<td>Financial Human Relational</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2018</td>
<td>Two former CBD employees banned for providing financial services</td>
<td>Newspapers ASX CBD website</td>
<td>N/A</td>
<td>Relational Human</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table II: Scandals and information
and manipulated share volumes to be sold and bought to cover arbitrage positions, which caused share prices to spike. As a result, the traders were able to alter the stock buyback price the bank had to pay to cover its position in favour of CBD (Durkin, 2013).

The Australian Securities and Investments Commission (ASIC), Australia’s main financial regulator, investigated the incident and discovered that this might not have been the first time traders had engaged in this activity. This unsavoury practice was revealed by both newspapers and ASIC and, once made public, investors were unhappy about the trivial fines and the delay in announcements (Tay, 2013), resulting in negative public opinion (Boyd, 2014). CBD publicly declared that it would enforce a more efficient control system over contracted personnel and make a voluntary contribution to some social projects as a greenwashing gesture (ASIC, 2013).

However, the subsequent Annual Review contained very little information on the settlement. For example, there is no mention of the effect the practice had on shareholders: “In December 2013, [CBD] was subject to an enforceable undertaking from the Australian Securities and Investment Commission relating to potential market misconduct. We agreed to adopt specific monitoring and control systems and made a voluntary contribution of $2m to fund independent financial literacy projects” (CBD, 2014). While investigating CBD, we found that the Swiss bank handling the swap operation had also made an AUD $1m voluntary contribution to social projects. Hence, CBD’s focus was on corrective actions to appease the public and make up for its actions.

Donating money to a good cause was accepted without hesitation by ASIC (Durkin, 2013), but investors were disappointed, and the settlement was hurriedly accepted just a few days before Christmas. However, shareholders also complained that announcements were issued just before market closure and bemoaned the lack of transparency on CBD’s behalf, as the timing did not allow for traders to evaluate and assimilate the quantum of fines. The consensus was that the bank had tried to hide part of the event (Durkin, 2013). In this case, we find that, despite its impact on relational capital, there was little disclosure of the incident or the bank’s actions in its reports.

5.3 Trader sent to jail and fraudulent activities perpetrated in the UK

In 2015, CBD was in the spotlight again concerning two counts of financial market fraud: a former foreign exchange trader was sentenced to seven years in jail for insider trading (Percy, 2015), and CBD received an AUD $38.8m fine from Britain’s Financial Conduct Authority, for failing to provide payment protection insurance for up to 90,000 customers of its UK subsidiary (Ferguson, 2015).

The Annual Review includes vague information about the insider trading charge: “This year most of the breaches investigated by Workplace Relations regarded workplace behaviour issues.” In one example, an employee was found to have engaged in insider trading, unrelated to his work at CBD. The CEO of CBD strongly condemned the activity, which was in breach of “our Code of Conduct, and the employee’s employment was terminated” (CBD, 2014, p. 28). The tone is vague. CBD does not explain the role of the person who was involved in the scandal, nor whether it was an isolated case. As was standard practice, CBD responded to the breach of conduct by firing the employee. That year’s Annual Review invites readers to consult the bank’s website for information on its codes and breaches. While there is a dedicated section on the website, it talks more about potential breaches and the system developed to respond to them rather than disclosing its code of conduct.

The 2015 review also provides some information on the misconduct issue: “In October 2014 further provisions were announced by the CBD Group about Payment Protection Insurance and the UK conduct issues. These charges were taken within the Corporate Functions and Other division of the [CBD] Group” (CBD, 2015a). However, nothing is said
about the type of misconduct, the number of people involved or the impact of the provisions. Therefore, CBD did not disclose any information of worth in favour of a vague reference to “issues that were to be taken care of”.

In his overture message, the Chairman also speaks about the increase in provisions: “The increase in the UK conduct provisions followed a number of new developments in relation to payment protection insurance and interest rate hedging products. These include the run rate of new complaints, the implementation of a new complaints-handling process and the need to re-examine records dating back to pre-2000 periods, which are likely to result in increased payments for both new and closed complaints. While this is an issue facing all UK banks, it is a disappointing outcome”. CBD clearly sees the event as important because it was included in the Chairman’s message. However, it is palpable how CBD is trying to attribute the problem to the system, rather than explain what went wrong internally.

Although the scandal involved the UK branch, doubts about the firm’s practices were rife in the media (Ferguson, 2015), especially since the bank faced allegations almost identical to those in Australia. Not surprisingly, following this event, and after considering the losses incurred by the UK branch over the year, CBD demerged from the UK Group (CBD, 2015a).

The issues that were covered in the media are disclosed in the Annual Review. However, it is difficult to ascertain just how many customers were affected and why such problems arose. Here, we find that human and relational capital was affected.

5.4 The investigation into fraudulent activities
In April 2015, a leak of confidential documents to Fairfax Media led to formal investigations into suspected fraudulent activities by CBD personnel (Ferguson and Williams, 2015). In front of the Senate Economics Reference Committee, CBD declared that a refund campaign was underway to return US$14.5 million to its customers (approximately 750 individuals) as compensation for poor financial advice (CBD, 2015c). Upon conclusion of the investigations, approximately 40 advisors who had given inappropriate financial advice to customers were banned by ASIC (CBD, 2015b). CBD dedicated a paragraph to the issue in its Annual Review: “The vast majority of our employees, more than 1,600 financial planners are doing the right thing. They are providing good advice to everyday Australians concerned about their retirement. Also, with more than 1.7 million customers, our complaint rate of < 1% is small. However, we don’t always get it right” (CBD, 2015). The bank also explains the remediation it wants to implement in response to government scrutiny.

In addition to the AUD $14.5m paid over a four-year period, CBD states that: “Since February 2015, we have paid $1.8 million to 90 customers to resolve their compensation claims” (CBD, 2015). Following the investigation, the bank increased its compensation for complaints, which may be due to its awareness and fear of further issues arising during its time in the spotlight.

5.5 Computer network issues
CBD also faced network issues, which affected 62,000 customers between 2001 and 2015. For over 14 years, the system miscalculated income and tax allocations to customers. The errors were caused by improvements to the system so was not fraudulent activity, but a payment of US$25m to affected customers was levied. However, concerns by the public arose due to the sheer number of customers affected over 14 years (ASIC, 2015). CBD’s response was to focus on the implementation of a new transaction and support platform for customers, but no information was reported on the network issues that had affected the bank during that 14-year period, although a formal announcement to the ASX was made (ASIC, 2015). Despite the effects of this error on financial, human and relational capital, the issues were only addressed superficially. In contrast, much more information was provided through other media.
5.6 The Royal Commission
The incidence of fraudulent activity and cases of misconduct in Australia’s banking, financial and superannuation industries saw a marked increase over the years, resulting in many formal investigations by ASIC. Bowing to public pressure, a Royal Commission was established under the Turnbull government in December 2017 on misconduct perpetrated by the industry. Unfortunately, misconduct is not new to the financial services sector in Australia. Rewards are often based on sales and profits and not on quality outcomes for customers, which encourage personnel to take bigger risks.

In 2018, the CEO of CBD made an announcement to the press, admitting that the bank was not focused on customers: “Well, I think this has been a drift over time where banks have become so complex, maybe so hierarchical, so focused on compliance, rather than truly understanding the client and doing the right thing” (Bianchi, 2018). Thus, an important stakeholder group, its customers, have not been the focus of the bank’s activities, which meant it put profits before customers.

A few months before the release of this statement, CBD released its 2017 Annual Review, and the Chairman’s message did not contain any trace of a potential issue with its stakeholders (CBD, 2017):

The acceleration of our strategy is ambitious – and it is necessary and key to the bank’s sustainability. Without it, we could not continue to deliver for all our stakeholders and achieve our vision of becoming Australia and New Zealand’s most respected bank [...] At [CBD], our culture is fundamental to our ability to deliver for our customers and shareholders, and our people are key to how we deliver. Our people are passionate, have deep relationships with our customers and are motivated by living our five core values each day. They are guided by our purpose to back the bold who move Australia forward. And, they are determined to achieve our vision of being Australia and New Zealand’s most respected bank.

Not all employees were involved in the scandal, and not all customers were affected. However, the Chairman’s message does not hold up with the later announcement made by the CEO regarding objective facts and the bank’s behaviour.

Since the scandal erupted, changes are underway to move incentives from product-based sales to group incentives based on performance (Durkin, 2018; Roddan, 2018a). For the first time, we see these disclosures emphasised. The potential impact on reputation and major financial relevance has resulted in the need for change. Thus, issues associated with financial, human and relational capital were reported in the 2017 and 2018 Annual Review, but richer information was found from other sources.

5.7 Systemic issues resulting in a lowering of trust
The Royal Commission’s charter is to investigate misconduct in the banking industry perpetuated over many years. Even though each case of misconduct can be isolated, so far over 500,000 customers have been affected, and more than 50 organisations and individuals have been banned from providing financial services (Hutchens, 2018). CBD’s CEO recognises that, if all fraudulent behaviour accusations were to be confirmed, it would affect the level of public trust in CBD (Roddan, 2018b). For example, CBD’s reputation among employees has already lowered according to the latest results. Its 2017 Annual Review shows an engagement score of 59 per cent and a slump to 48 per cent in March 2018 (Gluyas, 2018). Employees feel that CBD’s reputation in the community has also lowered over the last few months. Thus, the misconduct lowered both public and internal trust in CBD.

Moreover, the bad news continues to pour in for employees. According to the Chairman, “There will be areas of CBD that will need fewer people and areas that will need different skill sets. This will result in a net reduction in employees currently targeted at
approximately 4,000 people by the end of the 2020 financial year, which is expected to give rise to a restructuring provision of $0.5–0.8bn in the first half of the 2018 financial year” (CBD, 2017). Later reports escalate that number to 6,000 (Gluyas, 2018).

Morgan Stanley signals that a decline in earnings is expected over the next few years (FN Arena, 2018). Therefore, even though financial outcomes have been stable over the years, the latest announcements and the level of trust have affected CBD’s value (Gatzert, 2015) as evidenced by its lowest share price since 2016. While intellectual capital and <IR> disclosures could be used wisely to divulge information to stakeholders, the disclosures seem to have been manipulated simply to improve the company’s image, resulting in the opposite effect.

In the CEO’s latest announcement, he argues that these problems are due to the banking system as a whole, not just CBD: “Financial incentive systems inside banks have encouraged poor behaviour and are ‘seriously overrated’ as a positive motivational tool for staff” (Dunckley, 2018). He believes that people were encouraged to take higher risks in exchange for higher bonuses (Roddan, 2018a) and announced a change in the way bonuses would be calculated for this reason. The new bonus system will take customer advocacy, risk compliance and process improvements into account (Durkin, 2018).

However, despite all the evidence, CBD’s CEO still denies the issues are systemic. As a banker, he was “disappointed” by the revelations from the Royal Commission and believes “we need to be more authentic about saying sorry”. Without any indication of future action to prevent these issues, he still insists there is “hope” (Durkin, 2018).

In conclusion, in June 2018, in the ambit of ongoing investigations, ASIC banned two employees from providing financial services. They were found guilty of accepting false documents to support loan applications (ASIC, 2018). The investigation stemmed from an announcement made in November 2017 by CBD. The bank announced a remediation programme for home loan customers, as more than 2,000 home loans might have been submitted with inaccurate information since 2013 (ASIC, 2018). Thus, concerning 2018, we find that human and relational capital issues were disclosed in CBD’s review. But more information was revealed through the media, and those disclosures affected company trust and reputation.

6. Discussion and conclusion

Our analysis into RQ1 began with Beck et al. (2017), where we explored how CBD had begun to restore their legitimacy by rebuilding “trust” through reporting. The results of this study show that CBD, along with all the other major players, has constantly been stricken by scandals since 2012 (Table I).

CBD recognised its culture needed to change as far back as 2004. However, <IR> research demonstrates that organisational cultures are slow to change, especially when that culture is strong. For <IR>, or any other form of disclosure, to induce any major impact is a fraught task (Dumay and Dai, 2017) and <IR> is not an instrument that can be used to change a culture overnight (Beck et al., 2017; Dumay and Dai, 2017). That said, Beck et al. (2017) recognise that CBD did achieve some level of strategic and institutional legitimacy (Suchman, 1995). However, if this was through <IR>, the lack of coherence between CBD’s reports and the disclosures made by others suggests that IM has been used for many years.

Through our comparison of Annual Reviews and publicly available information, we show a lack of coherence between the disclosures reported in the media and the information presented in CBD’s integrated reports. Using the techniques in Brennan et al. (2009) and Melloni (2015), we find evidence of IM. Table II shows that information was selectively included in CBD’s Annual Reviews whereby CBD mentioned or failed to include either qualitative or quantitative disclosures on events that involved its reputation. Comments by
the CEO that attempted to downplay the severity of the scandals are further evidence of a corporate veil.

Readers may argue that <IR> focuses on the financial sustainability of a firm (IIRC, 2013b, p. 3). Nevertheless, even if CBD practice dictated only disclosing financially-relevant information, it failed to describe the interactions and contributions of the six capitals, and their effect on value creation, especially when it destroys, rather than creates value (de Villiers et al., 2014; Flower, 2015). For example, reimbursements to customers reduce financial capital, which have already destroyed value for customers and thus society (relational and social capital). Additionally, this has flow on effect to employee engagement (human capital) and their and the public’s trust in CBD and is detrimental to CBD’s reputation (relational capital). These practices have continually reflected in CBD’s lack of material human, relational and structural capital disclosures (Roddan, 2018a). In turn, confidence in CBD was lowered and their share prices are also down. Thus, CDB’s Annual Review disclosures do not add to its financial sustainability.

Also, the Royal Commission is investigating misconduct for which banks were partly condemned in the past. The CEO of CBD claims that misconduct is not systematic (Durkin, 2018), and this might be so. However, misconduct seemed to be accepted practice during the years in which CDB was re-establishing its legitimacy through reporting. Thus, CBD has failed to address the risks connected to misconduct and has not divulged particularly relevant issues that might further damage its reputation. The consequence is that CBD’s reputation is now compromised, especially because of Royal Commission’s (2018) findings and despite any information found in its integrated reports.

We find that management adopted IM to present information had already been revealed through non-organisational channels. In general, the Chairman’s and CEO’s messages are characterised by a positive tone and avoids discussing issues (Clatworthy and Jones, 2003), with the notable exception of the explanations about the remediation implemented after the ASIC 2015 and 2017 investigations. The rhetorical discourse is observed when bad events happen (Aerts and Yan, 2017). Phrases such as “We don’t always get it right” (CBD, 2015, p. 10), “Our commitment to improve transparency and openness” (CBD, 2016, p. 12) and “We are committed to the industry initiatives” (CBD, 2015, p. 13) are just a few examples. Thus, CBD has tried to paint a positive picture of itself rather than accept and overcome its misconduct.

Not surprisingly, CBDs financial results for the first half of 2018 were positive (Hill, 2018). Investors are interested in the bottom line and given that certain practices seem entrenched in the system, it is relatively difficult for investors to look for alternatives when other institutions behave similarly. However, more negative signals have arrived as recently as 2018 from investment advisor Morgan Stanley, who forecast a decrease in earnings as a result of declining reputation and trust in the system (Muldowney, 2018). Consequently, there has been a sharp drop in CBD’s relational capital (Gluyas, 2018; Roddan, 2018b).

There has also been a drop in trust because the agent (CBD) has acted against the agency rules dictated by its investors and customers. The CEO of CBD also admitted that they had lost focus on their customers and relied on performance-based incentives that induce employees to accept higher risk, thus leading to misconduct (Bianchi, 2018; Roddan, 2018a). This apology is somewhat accepting that the damage is done, and the only way to start rebuilding reputation is to come clean. However, it also reflects the same sentiment the public heard from CBD after the 2004 scandal (Beck et al., 2017). Are we to believe this admission again, or is it just another way of giving the impression of being sorry while CBD’s culture continues unabated?

As Suchman (1995, p. 597) outlines, a strategy to repair one’s legitimacy and come clean is to offer normalised accounts, restructure by removing the offending employees, and “not panic”. Repairing legitimacy is what CBD is doing on the outside to create the impression
that all is OK on the inside. But what about the inside? We argue that all is not well. Negative information was known then, and more is still being revealed, yet CBD has consistently failed to promptly disclose that information or provide a proper explanation – and that practice continues to this day. By doing so, CBD demonstrates how it is continually concerned about its reputation by not disclosing negative information (Hodge, 2012; Durkin, 2013). Thus, CBD has failed to change for the better over the years despite incorporating < IR > into its Annual Reviews. The bank has seemingly attempted to repair its image as a trusted corporate citizen, but not its culture despite anything written to the contrary in an integrated report.

6.1 IM’s effect on reputation
What happens to reputation when bad news is disclosed? In the case of Australian banks, the investigations and the establishment of a Royal Commission resulted in a decrease of trust and relational capital (Roddan, 2018b), even though the misconduct initially led to an increase in share prices. After the Royal Commission was established, the media reported information about suspected fraudulent activities almost every day.

The above helps further to answer our research question, “Can < IR > impact relational capital by helping repair an organisation’s reputation?” We conclude that < IR > has helped the firm restore an external sense of legitimacy (Beck et al., 2017; Muldowney, 2018). However, the Royal Commission’s findings are eroding trust in the banking system, and the revelations are damaging CBD’s reputation; hence, CBD is losing its licence to operate. While < IR > can help restore reputation, it is clear that the reports need to contain data that is relevant, truthful and complete. This was not the case with CBD.

Only recounting good news only, and in a positive tone, is a strategy to improve reputation. However, the ethical dilemma is whether or not to include bad news along with the good. If it is included, it will undoubtedly have a negative impact on reputation and relational capital. Therefore, there is certainly no motivation for CBD to admit to a scandal before it has become publicly known. As described in Sections 5.1 through 5.7, CBD has often cherry-picked information for release and has disclosed information in a way that limits impact. For instance, in December 2013, CBD disclosed that market manipulation had occurred just before Christmas, at market closing, which limited the amount of time available for investors to decide how to react to the news (Durkin, 2013). Our results also show that there is no evidence to support that < IR > has changed CBD’s corporate culture (Dumay and Dai, 2017; Feng et al., 2017). Thus, we argue that the Annual Reviews are nothing more than an exercise in rhetoric.

This rhetoric is needed because exposing the truth undermines trust. If managers undertake actions that undermine trust, which is a source of social capital (Shapiro, 2005), they can destroy value (Gatzert, 2015). When investors and other stakeholders demand that companies adopt new forms of disclosure, such as < IR >, they want companies to divulge sensitive information which was previously unknown. By doing so, firms should increase the quality of disclosure and consequently the level of trust. However, it is not likely that companies will divulge sensitive information about how they create value over time, especially if the misconduct that disadvantages customers is a source of value creation for the managers and bank (Dumay et al., 2019). Therefore, the use of legitimising strategies will backfire and perpetuate a dishonest corporate culture when managers are encouraged to engage in misconduct to the benefit of both managers and investors.

The 2015 scandal is an example of customers being disadvantaged and managerial misconduct aligning with corporate profit objectives. At the time, CBD did not mention that its incentives policies played a part in the poor financial advice. Rather than focusing on the issues, CBD downplayed its misconduct with terse comments: “We don’t always get it right” (CBD, 2015, p. 10). The real problem is that managers are driven by self-interest as
performance-related bonuses incentivise them. Therefore, the bonuses for profits driven
corporate culture reinforces such misconduct.

As a voluntary instrument, firms do not disclose any negative information unless the need
to in the process of becoming clean again to, and they perceive there is a benefit in doing so.
For example, the CEO of CBD admitted that the financial incentive systems encouraged poor
behaviour only after the results of the Royal Commission investigations (Dunckley, 2018).<IR>
is voluntary disclosure framework and, as such, managers take advantage of their
high degree of discretion by avoiding introducing substantial changes to reporting practices.
Rather than increasing the quality of information disclosed, <IR> presents something that
is already available on the internet and in the media. Hence, there is ample opportunity to
adopt IM practices in CBD’s integrated reports to attempt to repair legitimacy.

6.2 Contribution
A limitation common to most studies is that they do not answer the question “Does IM
matter?” There is no evidence on whether investors are interested in IM strategies or
whether this is a given. Unsurprisingly, even when investors discover a stark rift between
company reports and company behaviour, they tend not to alter their investment decisions
much (Solomon et al., 2013, p. 210). Also there is evidence that firms fall into organised
hypocrisy, characterised by an inconsistency between action, talk and decisions (Cho et al.,
2015). Our analysis confirms this, showing that reality is distant from normalised accounts
depicted in the integrated reports. The CEO of CBD publicly admitted that the bank lost its
objective, namely, the customers (Bianchi, 2018):

Well, I think this has been a drift over time where banks have become so complex, maybe so
hierarchical, so focused on compliance, rather than truly understanding the client and doing the
right thing.

This admission is an example of inconsistency between talk and action, as CBD’s integrated
reports repeat time and again that the bank’s objective is to be Australia’s most respected
bank by engaging customers and improving its relationship with them. Thus, our analysis
reveals a continuous misalignment between talk and action has weakened the credibility of
the system where employee misconduct in pursuit of profits is not only considered
acceptable but the norm, and is ingrained in CBD’s corporate culture.

When considering publicly listed companies, the most representative stakeholders are
shareholders who are mainly interested in financial returns. Therefore, managers normally
act in the interest of the most important stakeholders being shareholders, which means
reinforcing the bonus contracts that led to dishonest behaviour (Dumay et al., 2019). The
misalignment of interests is acknowledged by CBD’s CEO, who confirmed that the
bonus system encouraged poor behaviour and that the bonus systems need rethinking to
prevent future misconduct (Dunckley, 2018).

Prior studies have not analysed what happens to firm reputation when IM collapses due
to scandals. However, bad news can destroy the firm’s reputation and once trust is
compromised, it takes much time, effort and money to rebuild it (Dumay et al., 2019).
However, arguably CBD cannot rebuild trust, reputation and social capital unless it changes
a corporate culture that puts employee rewards before customer outcomes, which is all the
more difficult considering that Royal Commission has uncovered that the profits before
people culture extends to CBD’s competitors.

A company can attempt to improve its reputation, but it is difficult, and perhaps even
impossible, if all players in the industry are tarred with the same brush. The timeline we
present shows that the number of scandals has only increased over the years. Weak
interventions and sanctions by regulators have allowed banks to continue operating
without implementing effective ways to stop the misconduct. More specifically, voluntary or
mandatory <IR> cannot increase trust or change employee behaviour and corporate culture if it is in the employees’ and the bank’s interest to keep information to themselves (Dumay et al., 2019). In the end, even though <IR> may increase or repair legitimacy, if the underlying culture and behaviour do not change, the new-found legitimacy collapses like a house of cards once the misconduct is exposed.

Arguably, it is necessary for CBD to make a shift towards different types of communication channels that provide honest and transparent information in an appropriate and timely manner. However, it is unlikely to happen because as Leung et al. (2015, p. 278) indicate:

Obfuscating discretionary disclosure has the advantage of hiding adverse information through difficult to read or less transparent disclosures, which can be difficult for investors to detect. It is consistent with the incomplete revelation hypothesis [...] that managers have incentives to reveal less information when firm performance is poor.

Thus, when behaviour is bad, managers steer clear of providing stakeholders with transparent disclosures. The evidence shows that <IR> did not change corporate culture at CBD, and while legitimacy and, hence, CBD’s reputation may have temporarily restored (Beck et al., 2017), it comes crashing down because eventually when the talk does not match the action, the misconduct inevitably comes to light (Dumay and Guthrie, 2017).

Will a cultural change in CBD and the banking industry occur? It is possible, but if it does, it will come from an internal revolution in CBD bent on organisational survival, not evolution in the form of new laws, sanctions and penalties. And even that scenario is questionable because the misconduct of CBD is not an isolated event in corporate history, nor are enquiries like the Royal Commission. That there will be a regulatory response is not new in Australia, but when reporting requirements change, the new regulations often have little impact on changing organisational behaviour or culture and business-as-usual prevails (Dumay and Hossain, forthcoming). Hence, new laws, sanctions and penalties do not threaten organisational survival and the IM story in corporate reports will continue to advocate that CBD is a legitimate corporate citizen with the best interest of its customers in mind. Any other storyline would not be acceptable to shareholders.

7. Implications for future research
Understanding the nexus between IC and <IR> is important because IC reporting as a legitimate management practice has already failed (Dumay, 2016). Likewise, <IR> is under the same threat if it does not show that it adds value to companies and other stakeholders, not just managers, Directors and shareholders. If all <IR> does is to reinforce information asymmetry, rather than reduce it, then it too will fall by the wayside as just another management fashion, as did IC reporting.

Future research needs to investigate how applying <IR> in practice has the potential to change organisational culture and behaviour. Similar to the third stage, practice oriented intellectual capital research (Guthrie et al., 2012), more studies examining the reporting journey of companies are needed to understand if <IR> creates value for customers and other stakeholders, as opposed to managers and Directors receiving bonuses for profits and shareholders who reap the rewards.

A further step is to understand the impact of <IR> on society. As can be seen in the CBD case, while customers and employees are losing trust in the bank, this is part of a wider loss of faith in the Australian banking system, and thus society also suffers from <IR> for self-interested purposes. As Dumay et al. (2016) argue when advocating fourth stage <IR> research, if “value is purely financial and leveraging capital allows an organisation to deplete any of the capitals in a primary pursuit of profit by ignoring environmental externalities and its responsibilities to society, then all <IR> has achieved is to further deplete, rather than enhance, capital”. Thus, we need to reach beyond the organisational
boundaries and understand if <IR> adds value for society, or is just a new form of multicapitalism, being an ideology to help the rich become richer? (see Howitt and Thurm, 2018). The answers are important if we ever hope to see misconduct disappear from our corporations and for company reports to become documents bearing truth, and not espouse rhetoric based on organisational hypocrisy.

References


Further reading


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Exploring integrated reporting in the banking industry: the multiple capitals approach

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Abstract

Purpose – The purpose of this paper is to investigate the engagement with integrated reporting (IR) of the Development Bank of Singapore (DBS), as one of the banks that pioneered IR. Banking industry members face critical sector-specific issues regarding the use of capitals, especially the disclosure of relational and natural capital-related information, and reporting of the outcomes of capitals. This study examines an innovative approach to accounting for multiple capitals adopted by DBS during its journey toward IR.

Design/methodology/approach – This empirical research follows the case study method, using semi-structured interviews with DBS’s managers, and analyzing reports and other documentation.

Findings – The authors find that DBS re-conceptualizes, re-categorizes and measures multiple capitals as a form of non-financial value using the balance sheet approach to make visible the interactions and potential tensions (trade-offs) among capitals.

Research limitations/implications – Case studies are best used to understand a specific context, so the findings of this study cannot be generalized statistically. However, the study does provide insights into the banking industry that may be applicable to other organizations.

Practical implications – The categorization and reporting of multiple capitals using the balance sheet approach and the integration of the balanced scorecard are innovative operationalizations of the International IR Framework.

Originality/value – This study provides an innovative approach to the categorization and measurement of multiple capitals. It represents a step toward reducing the gap between research and practice on IR.

Keywords Case studies, Categorization, Multiple capitals, Integrated reporting, Business model, Banking industry

Paper type Case study

JEL Classification — M14, M20, M41

Erratum: It has been brought to the attention of the publisher that the article “Exploring integrated reporting in the banking industry: the multiple capitals approach” Doni, F., Larsen, M., Bianchi, M.S. and Corvino, A. (2019), published in Journal of Intellectual Capital, was excluded from the special issue “Extending intellectual capital through integrated reporting” due to an editorial error.


Emerald sincerely apologises to the authors for any inconvenience caused.
1. Introduction

The integrated reporting (IR) approach to corporate reporting, with its emphasis on going beyond financial results, has increasingly gained prominence and been widely debated among both scholars and practitioners. This growing interest emphasizes the need to assess best practice models (Eccles et al., 2015), and to highlight the most important issues for this innovative form of reporting. In 2013, the International Integrated Reporting Council (IIRC) issued the International < IR > Framework (IIRC, 2013a, b), but it remains unclear how companies can implement its Guiding Principles and Content Elements operationally (de Villiers et al., 2015) and whether this process can lead to innovative changes in corporate reporting. Over recent decades, there have been several attempts to integrate different types of information into reports, with mixed success (Jose and Lee, 2007; Tilt, 2008).

The development of IR is strongly linked to business sustainability (A4S The Prince’s Accounting for Sustainability Project, 2013; Churet and Eccles, 2014; Knauer and Serafeim, 2014; Vesty et al., 2015) because it is a way to show how an organization creates and sustains value (IIRC, 2013b; Eccles and Krzus, 2010; Eccles et al., 2014; Adams, C.A., 2015). IR combines economic, social and environmental considerations, addressing factors that arguably led to the recent global financial crisis (ISSD, UNEP FI, The Blended Group, 2012) and addressing the call for greater transparency in corporate reporting. IR is also likely to change management approaches to business strategy and value creation, and provides an effective way to communicate with stakeholders and the community.

To date, most empirical studies on IR have adopted a supra-national/international or national perspective (Ayoola and Olasanmi, 2013; Stubbs and Higgins, 2014), across general, industry or organizational sub-categories (Dumay et al., 2016). Only a few studies have focused on a single organization (Parrot and Tierney, 2012; Busco et al., 2013; Dumay and Xi Dai, 2014; Lodhia, 2015; Vorster and Marais, 2014; Lueg et al., 2016). Some scholars have suggested that a case study approach (de Villiers et al., 2014, 2015) might help to better understand how organizations adapt IR to their needs.

In the banking industry, some critical, sector-specific issues require more attention to be paid to managing non-financial capitals. Traditionally, banks have been more focused on financial and human capital, but increasing challenges, such as digitalization and disintermediation, have increased the importance of other forms (IIRC, 2015a). At present, human, intellectual and social and relational capitals are arguably the most critical forms of capital for banks. Several developments in the banking industry have been combining to create strong incentives for banks to report how they manage these forms of capital:

1. the introduction of consumer companies intensifies the competitive landscape for banks;
2. new technology has led the industry to fundamentally revisit its value proposition to address the challenges of digitalization and disintermediation;
3. reputational damage to the banking industry in the wake of the 2008 financial crisis led to some cases of price/book values being below those of many other sectors[1]; and
4. awareness that, in a competitive arena, talented human capital may become scarce.

Acknowledging these trends and developments in the banking industry, the IIRC (2015a, 2016) recently issued two documents clarifying the application of the IR concepts of capitals (especially social and relational capital) and outcomes. Most forms of non-financial capitals cannot immediately be captured on a traditional balance sheet. For instance, investments in new technology may provide future financial returns but might also create immediate intellectual and human capital. Banks have to manage several causal (linear and non-linear) relationships and potential trade-offs between the different forms of capital. Against this background, it is perhaps surprising that an industry study by the IIRC Banking Industry Group[2] found that little more than half (55 percent) of banks disclosed information on capital
in a structured way, and in line with the International < IR > Framework (IIRC, 2015a). These banks focused on key performance indicators (KPIs) linked to overall outputs and outcomes, but tended to overlook inputs and net contribution. The need for different KPIs to measure capitals was found to result in a range of practices showing different understandings of the six IR capitals. It was also noted that reported KPIs were often poorly defined, making it unclear whether an increase or decrease was beneficial. There was also no information about the connections between performance achieved for each KPI and the bank’s business strategy.

Given this backdrop, the main purpose of this research is to assess the use of IR by one of its pioneers: the Development Bank of Singapore (DBS). A case study approach is adopted (Ryan et al., 2002; Yin, 2009), with semi-structured interviews of DBS managers, including the chief financial officer (CFO) and the team that led on IR implementation at DBS. The study also analyzes DBS reports and other documentation. The primary focus is on the innovative categorization and measurement approach adopted by DBS for managing intellectual and the other five capitals, and its disclosure of the value creation process using the International < IR > Framework (IIRC, 2013b). There is scant academic research on the how the IR capitals are operationalized in practice (Solomon and Maroun, 2012; Setia et al., 2015; McElroy and Thomas, 2015; Rambaud and Richard, 2015). The present study addresses this literature gap.

The paper's Section 2 summarizes previous studies on IR, focusing on how IR is used in practice. Section 3 describes the research methodology; Section 4 sets out the case study findings, which are then discussed in Section 5. Finally, Section 6 sets out the conclusions, practical implications and limitations of the study.

2. Literature review

2.1 Relevant literature

The last decade has seen considerable debate about the role of IR in corporate reporting, but further work is needed to analyze the rationale behind its use and the critical issues involved in its effective implementation in different business contexts. This study emerged from an initiative promoted in 2011 through the IIRC Pilot Program Business Network (http://integratedreporting.org/ir-networks/ir-business-network/). This initiative, which ended in September 2014, aimed to develop the principles and concepts of IR by testing them in a select group of companies. It also allowed the pilot companies to interact with reporting experts and investors to discuss important issues about IR adoption. Stakeholders met several times from 2011 to 2014, attending conferences and meetings with IIRC representatives. One of the major benefits for these pilot companies was the feedback on their reports from investment professionals, as the primary audience of IR (International Integrated Reporting Committee (IIRC), 2011).

The academic and professional literature about IR remains at an early stage. The first comprehensive literature study was by Dumay et al. (2016), although numerous other papers have also provided an overview (Lodhia, 2015). IR was promoted as a revolutionary model to support disclosure of a mixture of financial and non-financial information and reporting on interdependencies, “to enable a more efficient and productive allocation of capital” (IIRC, 2013b, p. 2). This approach focused on investors, but has been criticized by some scholars for ignoring sustainability stakeholders (Adams, M., 2015; Flower, 2015; Thomson, 2015).

Some recent academic studies have examined the integrated reports drawn up by IIRC Pilot Program participants, mining sample companies from the IIRC website (Melloni, 2015; Lai et al., 2016). However, quantitative analysis does not allow researchers to identify operational issues and subsequent difficulties in IR implementation. In-depth qualitative analysis of a few companies involving management engagement is therefore recommended (Parrot and Tierney, 2012; Solomon and Maroun, 2012; King and Roberts, 2013; Busco et al., 2013; IIA, 2013, Vorster and Marais, 2014; Lodhia, 2015; Eccles et al., 2015; Adams et al., 2016; Lueg et al., 2016; Mio et al., 2016; Beck et al., 2017). A non-exhaustive list of studies analyzing companies using the International < IR > Framework is provided in Table 1.
### Table 1.
Overview of case studies on the International < IR > Framework

<table>
<thead>
<tr>
<th>Authors</th>
<th>Title</th>
<th>Companies</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parrot and Tierney (2012)</td>
<td>“Integrated reporting, stakeholder engagement, and balanced investing at American Electric Power”</td>
<td>American Electric Power</td>
<td>AEP’s management is focused on maximizing the company’s long-term value. The company does not provide a practical guide to its decision-making process.</td>
</tr>
<tr>
<td>Solomon and Maroun (2012)</td>
<td>“Integrated reporting: the influence of King III on social, ethical and environmental reporting”</td>
<td>Impala Platinum, Group 5, Exxaro, PPC, Sasol, Barloworld, Goldfields, Sappi, Bidvest, Royal Bafokeng Holdings</td>
<td>Analysis of the annual reports of 10 major South African companies listed on the Johannesburg Stock Exchange to evaluate the impact of introducing mandatory integrated reporting on social, environmental and ethical reporting.</td>
</tr>
<tr>
<td>Busco et al. (2013)</td>
<td>“Integrated reporting: concepts and cases that redefine corporate accountability”</td>
<td>ENEL, ENI, Eskom</td>
<td>Analysis of the integrated reporting model (i.e. business model) adopted by companies operating in different industries.</td>
</tr>
<tr>
<td>Vorster and Mairas (2014)</td>
<td>“Corporate governance, integrated reporting and stakeholder engagement: a case study of Eskom”</td>
<td>Eskom</td>
<td>Qualitative evaluation of Eskom’s response to stakeholder expectations and interests on sustainability issues.</td>
</tr>
<tr>
<td>Knauer and Serafeim (2014)</td>
<td>“Attracting long-term investors through integrated thinking and reporting: a clinical study of a biopharmaceutical company”</td>
<td>Biopharmaceutical company</td>
<td>Examination of the firm’s commitment to integrated thinking and the adoption of integrated reporting that serves to attract medium-long term investors.</td>
</tr>
<tr>
<td>Eccles et al. (2015)</td>
<td>“Models of best practice in integrated reporting 2015”</td>
<td>25 multinational companies that participated in the IIRC Pilot Program Business Network</td>
<td>Analysis of IR practices in several companies identifying three criteria: strategic focus; connectivity of information; and materiality.</td>
</tr>
<tr>
<td>Adams et al. (2016)</td>
<td>“Exploring the implications of integrated reporting for social investment (disclosures)”</td>
<td>GlaxoSmithKline, Heineken, National Australian Bank, Unilever</td>
<td>Analysis of the association between purpose/outcomes of social investments and long-term issues such as progress, risk and strategy.</td>
</tr>
<tr>
<td>Lueg et al. (2016)</td>
<td>“Integrated reporting with CSR practices: a pragmatic constructivist case study in a Danish cultural setting”</td>
<td>EGE (Danish carpet manufacturer)</td>
<td>Analysis of how guidelines and standards on corporate social responsibility (CSR) reporting can help companies to adopt IR.</td>
</tr>
<tr>
<td>Mio et al. (2016)</td>
<td>“Internal application of IR principles: Generali’s internal integrated reporting”</td>
<td>Generali Group</td>
<td>Analysis of the Generali Group’s internal IR practices. By merging management control systems and IR literature, the study shows several</td>
</tr>
</tbody>
</table>
Different perspectives on IR still lack clarity and have considerable heterogeneity, providing opportunities for researchers to investigate idiosyncratic organizational IR practices (Haji and Anifowose, 2016). Existing research highlights that the manner of implementing IR in an organization determines whether it achieves its intended purpose. For instance, in Lueg et al. (2016), using CSR in integrated reports did not result in the effective disclosure of the firm’s value and possibilities, whereas Adams et al. (2016) found that adopting IR resulted in an effective shift in organizations’ reconsideration of social investment practices, which became linked to strategy. Haji and Hossain (2016) provided empirical evidence from South African integrated reporters. They show that the adoption of IR, particularly the multiple capitals framework, did not positively influence the substance of organizational reporting practices. As organizational idiosyncrasies underpin the effectiveness of IR practices, more research is needed to understand how IR can be effectively implemented. The dearth of studies on this topic leaves a gap between academic research and practice, which has also been linked to the poor engagement of practitioners (Churet and Eccles, 2014) and researchers with practical aspects of IR (Dumay et al., 2016).

2.2 The multiple capitals model

The main basis of the IR agenda is a shift[3] “from ‘a financial capital market system’ to an ‘inclusive capital market system’ (IIRC, 2015b) through recognition of multiple forms of capital and integrated reporting and thinking” (Coulson et al., 2015, p. 290). Traditional financial reporting discloses capital in the balance sheet, as one of the three fundamental financial statements. This report shows the company’s total assets and how these are financed through either equity or debt[4]. The balance sheet approach can also be applied to the other six forms of capital defined by IR, namely, all:

- Stocks of value on which all organizations depend for their success as inputs to their business model, and which are increased, decreased or transformed through the organization’s business activities and outputs. In this framework, the capitals are categorized, such as 1) financial, 2) manufactured, 3) intellectual, 4) human, 5) social and relationship, and 6) natural. (IIRC, 2013b, p. 33)

The multiple capitals categorization is not new. The first identification of five forms of capital (natural, social, human, manufactured and financial) was in the SIGMA Guidelines (The SIGMA Project, 2003), introduced to overcome some of the weaknesses of the triple bottom line concept. Another initiative, named Forum for the Future (2009), also suggested five types of capital (natural, human, social, manufactured and financial) as a framework for sustainability; it proposed a different conceptual relationship between capitals. The IIRC model of six capitals highlighted the need for human and social/relational capital to be categorized as distinct from intellectual capital (IC), advocating a radical change from the literature’s definition of IC (Adams et al., 2013). The IIRC’s “Capitals Background Paper for < IR >” proposed multiple ways to
value capital, and provided examples of metrics used by the IIRC pilot companies. It recommended that companies develop a metric database to measure the relationship between forms of capital. The concept of capital is strongly associated with the business model, where it is represented as “inputs” expected to be converted, through the company’s business activities and outputs (products, services, by-products and waste), into outcomes, namely, the effects of capital. IR aims to demonstrate how multiple capitals are used by companies in their value creation processes and the activities that may determine preservation or diminution of these capitals (Blacksun, 2012; IIRC, 2013b). They also emphasize the company’s broader effects on society and the community.

The IIRC’s multiple capitals framework, with its six forms of capital, is an innovation in corporate financial and non-financial reporting. The IIRC suggests a revised view of the concept of IC, restricting it to only one of its traditional components (i.e. structural/organizational capital) to emphasize the role exerted by the other two components, i.e. human and social/relational capital. Human and social capital have been research topics since the 1960s (Putnam, 1995; Coleman, 1988; Nahapiet and Ghoshal, 1998; Lepak and Snell, 1999, 2002; OECD Organization for Economic co-operation and Development, 2001; Stiles and Kulviwasachana, 2003; Offstein et al., 2005; Dumay and Garanina, 2013), while the research on natural capital began in the late 1980s. Natural capital has been defined as any stock of natural resources and environmental assets that provides a flow of useful goods and services in the short- and medium-to-long term (Costanza and Daly, 1992; Holland, 1994; Ekins et al., 2003; De Groot et al., 2003; Brand, 2009; OECD Organization for Economic co-operation and Development, 2016).

The IIRC emphasizes the difficulties of recognizing and valuing several forms of capital in financial statements, except financial and manufactured capital. Financial frameworks use different recognition and measurement criteria (e.g. historical cost, fair value, amortized cost, realizable value and present value), but the presence of other capitals in financial statements increases the difficulty of measurement, especially if they involve intangibles or externalities with a financial impact on the organization, such as carbon taxes or emissions trading schemes (IIRC, 2013a). Social/relational, human and natural capitals are often disclosed in a stand-alone sustainability report, whose aim is to disclose the economic, environmental and social impacts caused by the company’s everyday activities. It also presents the organization’s values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable global economy (Global Reporting Initiative, 2014).

The IIRC (2015c) conducted a survey of the pilot companies’ capital reporting practices. It found the disclosures of the six capitals to be at a mature stage, but identified a lack of information about the interrelationships between the capitals or their components, which may affect value creation over time (Adams et al., 2013). It was also found that these interdependencies and trade-offs tended to be generic, rather than company-specific (IIRC, 2015a).

Although the application of IR guidelines is growing, some empirical studies have highlighted issues with the reporting of some forms of capital. For instance, Wild and van Staden (2013) found that most companies worldwide included in the IIRC Pilot Program only disclosed information on four forms of capital (financial, human, natural and social). Similar results were obtained in a study by the IRC (2015), which found very limited disclosure of multiple capitals. The majority of the South African companies focused only on financial capital, without any reference to the other forms. Another empirical study (Setia et al., 2015) found growing disclosure of four forms of capital (human, social/relational, natural and intellectual) in the top 25 South African companies after the introduction of mandatory IR.

2.3 Frameworks for reporting on capitals
The six capitals can be addressed within more complex frameworks able to aggregate capitals at the organizational or inter-organizational levels and provide standardized definitions of the various capital types, with a set of indicators and methods of measurement. In this regard,
Adams, M. (2015) described the following three frameworks: the intangible (IC) framework, the sustainability framework and the integrated framework. Since the 1990s in particular, the need to identify and measure the gap between companies’ book and market value has fostered the intellectual (or intangible) capital movement. The three different types of capital (e.g. structural capital, relational capital and human capital) that form IC have been widely studied by scholars and consultants, signaling the growing importance of intangibles and knowledge in different business areas, such as accounting, knowledge management, innovation and strategy. The IC movement has been associated with a shift from the “capitalism era,” and the associated traditional financial model, to the “knowledge era,” focused on alternative accounting measures (Guthrie et al., 2012; Dumay, 2009, 2016). In the post-industrial period, organizations’ sustainability performance has also been a growing area of interest for academics, practitioners and investors (Larrinaga, 2007). Multiple stakeholder groups, including investors, media and the wider community, increasingly expect organizations to report their sustainability performance with respect to environmental, social and governance factors (Cohen et al., 2011; Eccles and Serafeim, 2013). These two movements, which are developing and changing along distinct but parallel paths, are together pushing companies to enhance corporate reporting and adopt integrated frameworks connecting intangibles and sustainability.

Figure 1 shows the forms of capital included in most frameworks. Progress on independently reporting IC and sustainability may be realized without showing the interactions between capitals, but it is also possible to use an integrated framework to link and harmonize these two concepts. The three components of IC and the triple bottom line of sustainability both incorporate human and social/relational capital.

The integrated frameworks propose a categorization of capitals that takes a holistic approach to measuring and managing the value creation processes (Adams, M., 2015) (Figure 2).

The International <IR> Framework is the first attempt to identify, evaluate and disclose intangible and sustainability issues alongside tangible and financial resources. However, it does not fully clarify the relationships between intangible and sustainable resources and more traditional financial measures, such as profits, revenues and valuation.

**Figure 1.** IR value creation process diagram

Source: IIRC (2013b, p. 13)
The key foundation of this approach is to frame capitals in a strategic context, as required by investors (Adams et al., 2013). Many investors would like quantitative disclosures on capitals to be supplemented by qualitative information, both to explain their material relevance to the company's valuation and to show the company's strategy and action plan for improving performance over time (Adams et al., 2013).

### 3. Research design and methodology

This research adopts a case study approach. Case studies (Ryan et al., 2002; Stake, 1995; Yin, 2009) allow researchers to build theories and generalizations by studying practical scenarios (Yin, 1981; Bourgeois and Eisenhardt, 1988; Eisenhardt, 1989). This method supports understanding of a specific context with a focus on analytical, rather than statistical, generalizations. The first step in this methodological approach is to identify the focus (Eisenhardt, 1989). This study focuses on developing models for categorizing and measuring multiple capitals within banks adopting IR. For any qualitative analysis, the research question should be broadly designed to give interesting answers to “why” and “how” questions. Therefore, this research was designed to examine why, despite increasing interest in the International <IR> Framework in the banking industry, a company might decide not to adopt the framework's proposed categorization and measurement of capitals. Moreover, given that the top management team implements organizational change, this study's qualitative analysis also focuses on the adoption of specific management accounting tools, such as the balanced scorecard.

DBS was selected as the case company because, in 2015, it was the only banking industry pilot company to have launched an innovative approach to managing and reporting multiple capitals. From a methodological standpoint, it might, therefore, represent a "critical case" (Yin, 2003) to verify this qualitative study's research question. In other words, it could be considered a holistic single case study (Yin, 2003) allowing analysis of a unique situation (Baxter and Jack, 2008). Despite its own innovations, DBS was actively involved in the IIRC Pilot Program, and therefore manifested a clear commitment to using IR. It remains an active member of IR networks. Data were collected from January to July 2016, and focused on the fiscal year 2015, when DBS first adopted the IR approach of categorizing and measuring multiple capitals. Several data sources were used, including external documents, internal documents and interviews (see Table II).

Interviews were conducted with key contributors to DBS's IR project. Each interview took between 1 and 2 h, and involved at least two researchers. They were semi-structured, giving freedom to interviewees to go over the list of questions and give their views about

### Figure 2. Theoretical model

Source: Adapted from Adams, M. (2015, p. 87)
the topics (Bryman and Bell, 2003). The list of questions covered interviewees’ career experience; their personal and the overall perception within the firm of the IR project; key stakeholders and the competitive context; the strengths and weaknesses of the International < IR > Framework; corporate reporting procedures; the system used for internal and external assurance of information; the company’s ability to improve corporate reporting; and future challenges. The outputs of each interview were recorded and filed to enable sharing of information among the research team.

Yin (2003) suggested that qualitative studies should outline relationships between questions, the data collected and conclusions. The researchers performed ongoing triangulation of data sources to check the reliability of findings. Since one of the authors was an employee of DBS and was actively involved in the company’s IR project, this methodological step was crucial for avoiding bias. Matching data collected from key people in the IR team with that obtained from internal and external data sources provided reasonable objectivity and different points of view.

4. DBS and capital management
4.1 Background: DBS and the banking industry
In the wake of the financial crisis, banks came under scrutiny for being exclusively profit-driven and not providing any wider benefits to society. The banking industry is also under intense pressure to increase earnings, adopt new financial technologies and compete with new market entrants. This has given banks a natural desire to better articulate their sustainability and value to stakeholders. An increasing number of banks have started to use the International < IR > Framework as part of their strategy, aiming to articulate the value of their transformed banking platform[5].

DBS was founded in 1968 (DBS Newsroom, 2003) to help build Singapore’s industries and financial services sector (Hamilton-Hart, 2002). Today, DBS is a leading financial services group in Asia, with over 280 branches across 18 markets. It is headquartered and listed in Singapore, and has been growing its presence in three key areas: Greater China, Southeast Asia and South Asia. Its corporate strategy is predicated on Asia’s megatrends, including the rising middle class, growing intra-regional trade, urbanization and the rapid adoption of technology to fuel new innovations. DBS operates across several business areas, including corporate and investment banking, small and medium enterprises banking, capital markets, wealth management and personal banking. In 2015, DBS had an operating income of around US$7.6bn (SGD10.80bn)[6], with total assets of US$325bn (SGD458bn).

4.2 DBS’s journey to integrated thinking and reporting
In 2012, DBS became the first listed company in Southeast Asia to adopt IR as a basis for its annual report[7]. Its decision to adopt IR was based on the desire to better articulate the long-term sustainable value created for its stakeholders. DBS was becoming an international bank,
and top management felt a growing need to be able to compare the group with international, rather than local, peers. The company’s CFO (“M1”) and Managing Director and Head of Group Tax and Accounting Policy (“M2”) felt that the annual report’s existing format did not provide the tools to effectively articulate this new value; it also did not fully reflect the firm’s integrated thinking or its relevance to various stakeholders. As M1 explained:

While the financial numbers go some way in explaining DBS’s success, we also accept the limitations of the accounting framework, in terms of capturing in the short term the value we generate through our franchise. For example, traditional reporting does not capture the way we do business, the value of our brand and franchise, our strong employee engagement, our relationship with clients, and how we serve the broader community.

At this stage, IR was still very new in Asia, but DBS’s managers felt it was worth attempting to use IR as a more effective communication tool. As M2 explained:

We truly felt that we operated in a way that was integrated across our different business and support units and that this was a unique differentiator. We just never called it “Integrated Thinking”. The concepts in the IIRC Framework were therefore intuitive to us. To us “integrated thinking” – the alignment of values, priorities, and objectives throughout the organization towards the execution of a common strategy – is critical to the value creation.

We wanted to explain how DBS’s unique approach to strategy, governance, performance measurement, and use of resources creates sustainable value. As a regional bank, DBS faces the same macroeconomic factors as our peers. We broadly have access to similar resources. How we differentiate ourselves and create value is in the choices we made, in terms of the business areas we choose to operate in, the resources we choose to develop and deploy, and the values with evidence of how we do business. Execution of a consistent strategy is critical.

M1 added:

We joined the [IIRC’s] Pilot Programme because the concept of integrated reporting fits well with how we drive our strategic thinking. Integrated reporting enables us to better communicate how we are executing against strategy and creating value for our key stakeholder groups. The 2012 Annual Report marks the start of this journey, which we are committed to continuing.

M2 became the champion for IR initiatives in DBS and has subsequently led this journey. DBS’s internal management system focuses on strategies and priorities revolving around its balanced scorecard, which outlines the KPIs used to measure firm success in creating value. It was, therefore, decided that the balanced scorecard would become the pivotal point of DBS’s IR, and it remains so today. The scorecard drives incentives and remuneration across the organization (Table III).

DBS’s approach to IR is shown in Figure 3[8].

4.3 DBS’s approach to managing and reporting capital

In 2015, DBS increased its focus on “Making Banking Joyful,” involving further growth in its innovation and use of financial technology, and the development of an entrepreneurial

| Table III.  
<table>
<thead>
<tr>
<th>DBS’ balanced scorecard</th>
</tr>
</thead>
</table>

Source: DBS Annual Report 2015
mindset amongst its employees, together with awareness that the firm’s core values were changing. Creating a technology-enabled and innovative bank was a viable and successful route for survival, and this strategy distinguished DBS from its competitors.

Multiple initiatives were endorsed [9], but the value generated thereby was clearly not directly captured in the annual report. Therefore, M2 considered how this value could be better articulated using the International Framework and decided to opt for a better articulation of DBS’s philosophy in managing its various forms of capital, which DBS termed “resources” [10]. M2 explained his feelings, thus:

[…] how the management capitals had been reflected by most companies did not reflect DBS’s approach to its management of capital and thus a new approach was needed to reflect two key principles:

1. the capitals were a store of value that would eventually, at least in part, be converted into profit, and increase equity; and

2. the capitals had an intrinsic value beyond any future financial value they might help to create.

The first principle was important because it explained DBS’s financial value to anyone considering investing. M2 stated that DBS was building significant intangible assets that were not captured in a traditional balance sheet. In addition, such assets required a different approach in terms of classification and measurement. The second principle was more conceptual and harder to articulate. In essence, by creating an innovative bank with a future-ready workforce, and by fulfilling its vision of “Making Banking Joyful,” intrinsic value could be created directly for DBS’s stakeholders, including employees, customers.
and society. There were only a few possible options to measure or even articulate this intrinsic value:

1. capturing the financial value of capitals – a more traditional accounting way to measure the present value of future profit from the capitals, which would conceptually form part of value creation;

2. articulating the “value distribution” (explained in DBS’s annual report since 2013[11]), taking into account the distribution of its financial capital; and

3. using relevant KPIs to show how DBS was tracking the intrinsic value it created.

M2 was clear that the choice would be determined by a consideration between data availability and accuracy and the desire to be precise and unbiased in articulating value. Though DBS recognized desirable features of financial measure of intangible capital and the good work of their peers in this regard[12], this approach was deemed inconsistent with DBS’s existing internal management of resources. There were also insufficient data to measure the financial value of intangibles.

The concept of a store of value led M2 to the balance sheet approach, since changes in the value of DBS’s material capitals are captured annually in the same way on a conventional balance sheet. This aspect has been addressed at the beginning of DBS’s balance sheet by disclosing the overall alignment between financial asset values reported in the traditional financial documents and the matching values disclosed in the business model. Specifically, DBS “classifies and measures financial assets based on their nature and the purpose for which they are acquired. This generally corresponds to the business models in which they are applied and how management monitors performance” (DBS, 2015, p. 122). Instead of – or as a proxy for – the financial value of intangible capitals, DBS reports the most important KPIs used for managing each intangible capital. The balance sheet also shows the key initiatives undertaken by DBS to deplete or grow its capitals (see Figure 4 for an extract from the 2015 Annual Report)[13], and, compared with the International < IR > Framework, highlights the value stemming from the interconnectivity among them.

4.4 DBS’s further work with capitals

DBS’s balance sheet approach was well received by various stakeholders. M2 described it as a basis on which to build and enhance reporting on capitals: by providing insight into both current and future periods, the balance sheet was able to better depict DBS’s initiatives for increasing or utilizing resources. However, this aspect of the balance sheet can take considerable time to fully develop. M2 described the following five components that would need addressing in the future:

1. Data enhancement: more work is needed to show both correlations and causality between investment in capital and the financial results. This is a challenging area, given the interconnectivity of capital types, time lags and the lack of data. It is not clear whether such causal relationships can ever be established with a reasonable level of confidence.

2. Organization of a broader value concept: thanks to its balance sheet approach, DBS has tackled the first of M2’s two key principles. More work is needed to explain how value is created for stakeholders. The improvement of value distribution reporting might refine the depiction of value created. For instance, giving a better customer experience, easing access to banking for more people, or creating a strong workforce may ensure that DBS generates value to society and also enhances its own social and relational capital[14].
How we use our resources

A sustainable business model requires us to manage our resources in a way that maximises value creation in the long term.

We have various resources(1) available that we can use to create value for stakeholders. We seek to strike a balance between using them in the current period on the one hand, and enhancing and retaining them for future periods on the other.

We recognise the difficulty in measuring the exact value of many of these resources. Hence, we provide proxies of the values at discrete points and explain the initiatives undertaken during the year that enhanced or made use of the resources.

<table>
<thead>
<tr>
<th>Resources</th>
<th>2014(2)</th>
<th>How we manage our resources</th>
<th>2015(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td></td>
<td>Our brand value in 2015 reached a record high of USD 4.4 billion.</td>
<td>USD 4.4 bn</td>
</tr>
<tr>
<td>Our well-recognised name that embodies our values and differentiates us</td>
<td>Brand value(3)</td>
<td>The increase was driven by impactful branding and marketing activities, improvements in customer satisfaction, strong business results and positive analyst's outlook.</td>
<td>USD 4.4 bn</td>
</tr>
<tr>
<td>Capital</td>
<td></td>
<td>Another year of record earnings created distributable financial value of SGD 6.03 billion. We retained SGD 3.03 billion and in doing so strengthened our financial soundness, resulting in an increase in our Based II fully phased-in CET1 CAR from 11.9% to 12.4%. Refer to “Capital management and planning” on page 109.</td>
<td>SGD 40 bn</td>
</tr>
<tr>
<td>Our strong capital base</td>
<td>Shareholders’ funds SGD 38 bn</td>
<td>Refer to “Capital management and planning” on page 109.</td>
<td>SGD 40 bn</td>
</tr>
<tr>
<td></td>
<td>Shared equity funds SGD 32 bn</td>
<td>Refer to “Capital management and planning” on page 109.</td>
<td>SGD 38 bn</td>
</tr>
<tr>
<td></td>
<td>Based II fully phased-in CET1 CAR 11.9%</td>
<td>Refer to “Capital management and planning” on page 109.</td>
<td>12.4%</td>
</tr>
<tr>
<td>Funding</td>
<td></td>
<td>The Group’s funding strategy is anchored on strengthening our core deposit franchise. Despite intense competition, we grew our customer deposits and achieved a significant improvement in the quality of deposit mix. Refer to “Liquidity management and funding strategy” on page 96.</td>
<td>USD 320 bn</td>
</tr>
<tr>
<td>Our diversified funding base</td>
<td>Customer deposits SGD 317 bn</td>
<td>DBS became the inaugural issuer of covered bonds in Singapore in 2015. This enabled us to raise cost-efficient term funding from a new class of institutional investors. Refer to “Liquidity management and funding strategy” on page 96.</td>
<td>SGD 320 bn</td>
</tr>
<tr>
<td></td>
<td>Wholesale funding SGD 32 bn</td>
<td>Refer to “Liquidity management and funding strategy” on page 96.</td>
<td>SGD 38 bn</td>
</tr>
<tr>
<td>Employees</td>
<td></td>
<td>We grew our workforce by approximately 1,000, primarily in Institutional Banking (IBG) and Consumer Banking (CBG), to support strategic initiatives and meet business needs. Refer to “Employees” on page 40.</td>
<td>&gt;22,000</td>
</tr>
<tr>
<td>The skills, knowledge, engagement and effectiveness of our people</td>
<td>Number of employees &gt;21,000</td>
<td>We enhanced our human resources through training and development initiatives, which included establishing the DBS Academy and cultivating a digital mindset in our people. 129,000 training days were delivered. Our internal mobility programme also broadens employee skills and exposure. Refer to “Employees” on page 40.</td>
<td>&gt;22,000</td>
</tr>
<tr>
<td></td>
<td>Employee engagement score(4) 4.36</td>
<td>Refer to “Employees” on page 40.</td>
<td>4.39</td>
</tr>
<tr>
<td></td>
<td>Voluntary attrition rate 13.6%</td>
<td>Refer to “Employees” on page 40.</td>
<td>13.3%</td>
</tr>
</tbody>
</table>

Note: This figure sets out the use of DBS’s resources by comparing the value for the current year (2015) and previous year (2014), using the Balance Sheet approach.


(3) Use of “free” capital: the balance sheet approach is conceptually based on the idea of a finite and costly asset pool that can be depleted or grown. However, this is not true for strategic or natural capital (Adams and Oleksak, 2010). It is not possible to take stock of the natural capital (e.g. water and infrastructure) at distinct balance sheet dates. DBS’s consumption of these kinds of capital and the risks to future availability may provide relevant information. Therefore, the reporting of these capitals needs to be addressed, inside or outside, the scope of the sustainability report.

(4) Unbiased reporting: it remains important for reporting on capitals and IR itself to be unbiased. There is a natural tendency (which may be conscious or unconscious) to disclose initiatives that aim to enhance capital rather than thinking about its depletion. Concepts such as amortization may not be sufficient to capture the depletion of some capitals.
5. Discussion

The case study analysis of the managing and reporting of six forms of capital yields several implications for understanding banks’ IR adoption. It also provides suggestions for innovative practices that might lead to significant improvements for both managers and other users. The processes implemented by DBS to measure and manage capitals (resources) have both theoretical and practical implications. The basis of this approach is to frame capitals in a strategic context, as required by investors (Adams et al., 2013). Since traditional reporting tools cannot capture a business’s full value creation, comprehensive disclosure of the six capitals is needed. Traditional corporate reporting overlooks an organization’s intangible competencies, systems, processes, data, networks, relationships and external impact on society and the physical environment (Adams, M., 2015). This is not because data on intangibles or sustainability issues are unavailable, rather these aspects are inadequately measured and disclosed through traditional indicators. Companies must consider how to organize and combine the different types of measures (financial, quantitative and qualitative) with the aim to satisfy investors’ multifaceted needs for information on capitals, corporate strategy and action plan and improve performance over time (Adams et al., 2013).

To satisfy investors’ multifaceted demands for information on capitals, companies must consider how to organize and combine the different types of measures (financial, quantitative and qualitative).

The approach used by DBS elucidates the main operational issues affecting the categorization and measurement of multiple capitals in the banking industry. DBS identified and distinguished a wider range of nine types of resources: brand, capital, funding, employees, customer relationship, technology, society and other relationships, physical infrastructure and natural resources. As a member of the banking industry, the transformation of financial capital requires disclosures about its two main activities, i.e. institutional banking and consumer banking businesses offering a large range of banking products and services. In DBS’s business model, financial capital has been categorized into two forms of resource: capital and funding. The first is measured by shareholders’ funds and by the Common Equity Tier 1 Capital Adequacy Ratio (CET1 CAR). In this case, there is a cross-reference to another part of the annual report, i.e. capital management and planning (see DBS, 2015 Annual Report, p. 109) that shows only financial data about capital requirements stipulated by the Basel Committee. The second form of financial capital is measured by customer deposits and wholesale funding. Similarly, there is a cross-reference to a specific part of the annual report, i.e. liquidity management and funding strategy. DBS usually provides KPIs for “outputs and outcomes” only, rather than for “inputs” (resource use) or net contribution, as confirmed by the IIRC’s (2015a) Banking Network survey. DBS’s IR is not limited to disclosing financial capital: it also addresses the IIRC’s main recommendation to disclose the interaction between financial capital and other capitals. In doing this, DBS also re-conceptualizes capitals as a form of non-financial value, and explicitly reveals the interactions and potential tensions (trade-offs) among them. Such reporting of multiple capitals is, however, in line with the IIRC’s (2015a) recommendations.
Since the quality and interconnections of capitals can differ among banks, the IIRC suggested that trade-offs, net contributions, balancing and disclosure are key issues to be shared with stakeholders.

The qualitative analysis of DBS’s approach to reporting capitals highlights the following operational issues and practical tools:

1. Use of terminology: DBS decided not to use the IIRC terminology of six capitals and to even avoid using the word “capitals.” The International < IR > Framework does not require the use of this specific terminology, which is intended “to serve: as part of the theoretical underpinning for the concept of value creation; and as a guideline for ensuring organizations consider all the forms of capital they use or affect” (p. 12). Though DBS uses the term “resources” instead of “capitals,” it still discusses the full range of capitals (resources) within a single report. For instance, the DBS (2015) Annual Report (p. 17) notes that “Resources are referred to as ‘Capitals’ in the International < IR > Framework. We have classified our resources differently from the framework to better reflect how we manage our resources.”

2. Connectivity between capitals: the IIRC (2013a) suggested the importance of being careful about connectivity between capitals, referring to “interdependencies and trade-offs between the capitals, and how changes in their availability, quality and affordability affect the ability of the organization to create value” (p. 17). All transformations of capitals may involve some form(s) of trade-off. Few organizations fully and thoughtfully disclose the influence of trade-offs on the value creation process or the trade-offs between capitals and components of capitals (e.g. reporting on creating employment vs negative effects on the environment). DBS prioritizes measuring and managing various resources through indicators, rather than disclosing the interconnections and trade-offs between resources (see DBS, 2015 Annual Report, p. 23).

3. Link between capitals and performance measures and strategy: DBS has developed a balanced scorecard to align resources, KPIs and strategy. This has two parts. The first focuses on three KPIs: shareholders, customers and employees, and strategic objectives for the year. The second sets out the initiatives DBS intends to complete that year as part of its long-term journey to achieving strategic objectives (see DBS, 2015 Annual Report, p. 27). This confirms the importance of management accounting information and the crucial role of the connection between internal and external reporting systems (Gibassier and Schaltegger, 2015; McElroy and Thomas, 2015; Mio et al., 2016) in improving the disclosure of multiple capitals.

4. Impact of triple bottom line on multiple capitals: there are several different initiatives that promote a multiple capitals framework, including The SIGMA Project’s (2003) framework of five sustainable capitals and work by Forum for the Future (2009). The International < IR > Framework draws on these two approaches, adding IC and amplifying the concept of social and relational capital. The concept of sustainability is also associated with the multiple capitals. The different degrees of sustainable development can be measured by the organization’s effect on the overall stock of man-made and natural capital (Coulson et al., 2015). This approach emphasizes the concept of complementarity, but not necessarily interchangeability, of capitals (De Groot et al., 2003; Ekins et al., 2003; Figge, 2005; Brand, 2009). DBS discloses its commitment to sustainability in different parts of its annual report. In 2015, it developed the DBS Sustainable Sourcing Principles, which outline DBS’s values and expectations in four key areas: human rights, health and safety, environmental sustainability, and business integrity and ethics (see DBS, 2015...
(5) Multi-capital scorecards: multiple capitals may be described using different practical tools, such as worksheets and scorecards/snapshots, to create a customized value creation model and gather data on all capitals (Adams, M., 2015; McElroy and Thomas, 2015). DBS has developed different KPIs for different capitals, such as the Employment Engagement Score (human capital) and the Customer Engagement Score (social and relational capital).

(6) Value-added statement: reporting on resources requires a description of their use, measurement of the value created, and discussion of the process of distributing value to shareholders and stakeholders, distinguishing financial from non-financial value (see DBS, 2015 Annual Report, p. 18). According to Haller et al. (2018), the concept of value added and its representation through the value-added statement could be an important IR tool. Value added is a broader performance concept, and represents a company’s wealth creation through business activities and the value distributed to major stakeholders. It, therefore, covers most of the six capitals, and managers are expected to consider them as part of the corporate strategy and decision-making process, alongside the International < IR > Framework.

6. Conclusion
This empirical study seeks to answer the call for more in-depth insights into the firm-level implementation of the International < IR > Framework (Kolk, 2010; de Villiers et al., 2015). The case study reported in this paper investigated the reporting of multiple capitals in a multinational bank adopting IR. The banking industry was chosen due to recent challenges that have made it necessary to re-examine “the scale, scope, governance, performance and the safety and soundness of financial institutions” (Wilson et al., 2010, p. 154). Over recent decades, phenomena such as deregulation, technological development and globalization have dramatically altered banks’ competitive environment (Chen et al., 2014). Enhanced competition has forced banks to explore resources that could generate competitive success. Banking industry players provide similar financial intermediation and payment services. Bank’s product portfolio is relatively easy to copy and lack adequate patent protection (Watkins, 2000). Therefore, different forms of capital, such as intangible and natural capital, tend to be fundamental to creating competitive advantage (Holland, 2010). There was also an active call for clear use of a model for categorizing capital forms in the policy speech by Andy Haldane (2015), the Bank of England’s Chief Economist and Executive Director for Monetary Analysis and Statistics.

One of the most crucial evidences is the identification and appraisal of non-traditional forms of capital, particularly non-financial, used in banks and financial institutions. Assessment of capitals in banks is a complex process influenced by many regulations and practices. IR, as an innovative form of corporate reporting, offers organizations an opportunity to reflect on their non-traditional forms of capital. The model of capitals in the International < IR > Framework provides a benchmark for companies in considering performance with respect to all forms of capitals they use and affect. The six capitals framework theoretically underpins explaining the concept of value in terms of increases and decreases in capitals (Adams et al., 2013). Companies create value for themselves and for stakeholders, and this value depends on both the stock of the six capitals and on the interrelations among them.

In DBS, reporting on financial and manufactured capitals is mainly quantitative, and is recognized in financial statements. Qualitative reporting on financial and
manufactured capitals has also increased over time, with additional disclosures and the introduction of a management commentary. Information on the other capitals, particularly intellectual and social/relational, can mainly be found in other reports, rather than in financial statements.

The analysis presented in this paper highlights several operational issues affecting the implementation of the IIRC’s Guiding Principles and Content Elements. Based on observations of DBS, the categorization and measurement of resources through the balance sheet approach and the integration of the balanced scorecard into IR are found to provide better insights into corporate value creation.

Some recommended elements of the International < IR > Framework did not fully reflect DBS’s organizational context, and so the management had to find innovative approaches to ensure DBS’s corporate reports fully described the value creation process.

Notably, DBS’s approach to financial risk disclosure and, more generally, to financial risk management do not seem to align with DBS’s two key principles: the appreciation that capitals are stores of value that will generate future profits, and the appreciation that capitals have intrinsic value. Admittedly, much of DBS’s IR[15] has been focused on financial risk management, given the importance of preserving financial capital and strengthening the resilience of banking business activities. In this regard, DBS notes that “a challenge remains for the banking and other industries to effectively link disclosures around strategy, risk and financial results” (see DBS, 2015 Annual Report, pp. 57–58).

This case study demonstrates an interesting adoption of managerial tools, such as the Balanced Scorecard, and some KPIs focused on measuring the firm’s success in creating value. This represents a potentially effective way to embed IR into business practices through an integrated performance measurement system, aligned with internal organizational structures (Lodhia, 2015).

6.1 Implications
With reference to managerial implications, this study’s findings provide incentives for managers in the banking industry to develop other innovative approaches to measure increases and/or decreases in different capitals.

DBS’s attempts to incorporate sustainability within the multiple capitals model highlight the need for international organizations to identify better ways of disclosing sustainability with the multiple capitals model. Policy makers and the IIRC may find DBS’s approach useful when refining the International < IR > Framework, especially on reporting the impacts of multiple capitals and integrated thinking on organizational practices. A more general managerial implication is the need to develop a new comprehensive model for reporting not only the value of a company’s own capitals but also the trade-offs between them and those capitals not owned by the organization.

6.2 Limitations and future research
This empirical analysis explored an innovative way of managing and reporting on multiple capitals in a large bank, and provides useful insights for academics, managers, and practitioners. It does, however, have some limitations. First, we used data from just one company, although it can be considered a holistic single case study (Yin, 2003) with a unique approach to the framing of capitals. Second, the investigated company may be unrepresentative of the banking industry, as DBS is a leading, large financial services group in Asia. Third, the findings may have been influenced by the fact that one of the authors was a DBS employee. However, as outsiders, the other authors provided a more objective view (Lueg et al., 2016).

Further research may overcome these limitations. In particular, a multiple case-study analysis might compare different framings of capitals in various reporting practices.
(Ansari et al., 2010; Carroll and Shabana, 2010). It could also be interesting to investigate the extent to which IR might drive change in the management and reporting model of multiple capitals in different settings where IR is mandatory (e.g. South Africa) or voluntary (e.g. Europe or the USA). Future studies should accurately assess how business models can help companies to report on multiple capitals, and how the IR model could improve the evaluation of particular issues and enhance the framing of capitals within organizational value creation. Finally, given the scarce assessment of financial resources and their related risks in corporate reporting, a further development of this research might focus either on the crucial role of financial capital and risk management or on their interactions with other capitals.

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Notes
3. There are other shifts: from short termism to sustainable capital markets with incentives that stimulate long-term decision making, and from “silo” reporting to a more integrated approach.
4. Myer (1946, p. 8) noted that: “During the past quarter of a century the approach used in the teaching of accountancy that has become almost universally accepted is that commencing with the balance sheet. The balance sheet is not only the first topic discussed in the usual accountancy course but is also made the end and aim of all accounting, and almost every step in the development of the accounting technique is taught with reference to its effects on the balance sheet.” The balance sheet approach (Nelson, 1935) continues to be useful to this day (Larson et al., 2017).
5. Members of the IIRC Banking Industry Group that use the International <IR> Framework in preparing annual reports or integrated reports include HSBC, Deutsche Bank, Bank Itau, DBS and NAB.
6. Using an exchange rate of US$1 = SGD1.41, as at December 31, 2015.
7. DBS only claimed full compliance with the International <IR> Framework in its 2015 Annual Report.
8. Figure 3 shows the use of resources (capital) during DBS’s value creation process and the distribution of the value created by identification of stakeholders.
10. For further details, see the DBS (2015) Annual Report, particularly, p. 16.
14. For specific consideration of this topic in the banking industry, see IIRC (2016).
15. For instance, see the CFO’s statement (p. 22) and the Risk Management section (p. 81). DBS’s approach to risk disclosure is explained in the following statements: “We have implemented most of the Enhanced Disclosure Task Force (EDTF) recommendations for improved bank risk disclosures (1) in 2015. We have also implemented the temporary and permanent disclosure recommendations (2) of the EDTF’s November 2015 report ‘Impact of expected credit loss (ECL) approaches on bank risk disclosures’ insofar as they are applicable to DBS.”

References


Further reading

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