

Shifting perspectives: unveiling the dual nature of sustainability materiality in integrated reports

Unveiling the
dual nature

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Abstract

Purpose – Integrated reporting enhances the meaningfulness of non-financial information, but whether this enhancement is progressive or regressive from a sustainability perspective is unknown. This study aims to examine the influence of the Integrated Reporting (<IR>) Framework on the disclosure of financial- and impact-material sustainability-related information in integrated reports.

Design/methodology/approach – Using a disclosure index constructed from the Global Reporting Initiative's G4 Guidelines and UN Sustainable Development Goals, the authors content analysed integrated reports of 40 companies from the International Integrated Reporting Council's Pilot Programme Business Network published between 2015 and 2017. The content analysis distinguished between financial- and impact-material sustainability-related information.

Findings – The extent of sustainability-related disclosures in integrated reports remained more or less constant over the study period. Impact-material disclosures were more prominent than financial material ones. Impact-material disclosures mainly related to environmental aspects, while labour practices-related disclosures were predominantly financially material. The balance between financially- and impact-material sustainability-related disclosures varied based on factors such as industry environmental sensitivity and country-specific characteristics, such as the country's legal system and development status.

Research limitations/implications – The paper presents a unique disclosure index to distinguish between financially- and impact-material sustainability-related disclosures. Researchers can use this disclosure index to critically examine the nature of sustainability-related disclosure in corporate reports.

Practical implications – This study offers an in-depth understanding of the influence of non-financial reporting frameworks, such as the <IR> Framework that uses a financial materiality perspective, on sustainability reporting. The findings reveal that the practical implementation of the <IR> Framework resulted in sustainability reporting outcomes that deviated from theoretical expectations. Exploring the materiality concept that underscores sustainability-related disclosures by companies using the <IR> Framework is useful for predicting the effects of adopting the Sustainability Disclosure Standards issued by the International Sustainability Standards Board, which also emphasises financial materiality.



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Social implications – Despite an emphasis on financial materiality in the <IR> Framework, companies continue to offer substantial impact-material information, implying the potential for companies to balance both financial and broader societal concerns in their reporting.

Originality/value – While prior research has delved into the practices of regulated integrated reporting, especially in the unique context of South Africa, this study focuses on voluntary adoption, attributing observed practices to intrinsic company motivations. To the best of the authors' knowledge, it is the first study to explicitly explore the nature of materiality in sustainability-related disclosure. The research also introduces a nuanced understanding of contextual factors influencing sustainability reporting.

Keywords Integrated reporting, Financial materiality, Impact materiality, Sustainability disclosure, Global Reporting Initiative, Sustainable Development Goals (SDGs)

Paper type Research paper

1. Introduction

The Integrated Reporting (<IR>) Framework, developed by the International Integrated Reporting Council (IIRC), was created to address the sustainability challenges of the 21st century. This framework aims to integrate sustainability within economic and financial discourse, promoting a new organisational practice called integrated reporting. According to the IIRC (2021, p. 3), the <IR> Framework strives to “align capital allocation and corporate behaviour to the wider goals of financial stability and sustainable development”. To achieve this alignment, the framework adopts a *financial materiality* perspective, thereby explicitly excluding disclosure of entities' social and environmental impacts if they do not have corresponding financial or economic consequences for those entities. It is argued that the deliberate omission of information material from an *impact materiality* perspective (i.e. information about the organisation's impacts on society and environment, which do not have any consequences on the financial position, performance or cashflows of the organisation) from the scope of the <IR> Framework shall engender adverse consequences. From a reporting perspective, the more pertinent is stakeholders becoming increasingly oblivious to organisations' social and environmental impacts and effects on achieving the United Nations Sustainable Development Goals (SDGs).

The empirical evidence highlights an increase in the extent of sustainability-related disclosures in corporate reports of companies adopting integrated reporting (Farneti *et al.*, 2019; Guthrie *et al.*, 2020; Setia *et al.*, 2015; Solomon and Maroun, 2012). As the <IR> Framework promotes investor-centric reporting (Flower, 2015; Tweedie and Martinov-Bennie, 2015), this increase in sustainability-related disclosure in integrated reports may be connected to financially material sustainability-related information rather than impact-material information. Also, the limited evidence linking higher quality integrated reporting to improved disclosures on companies' contribution to the SDGs (e.g. Hamad *et al.*, 2023) may be influenced by self-selection bias, suggesting caution in concluding that integrated reporting encourages disclosure of impact-material information. Indeed, it has been noted that firms with established sustainability practices or higher environmental, social and governance scores tend to adopt the <IR> Framework voluntarily (Lai *et al.*, 2016), indicating reverse causality (Hsiao *et al.*, 2022), thus explaining the impact-material information found in them.

However, research has shown that the <IR> Framework and sustainability reporting frameworks like the Global Reporting Initiative (GRI) standards can successfully co-exist, facilitating enhanced reporting of impact-material sustainability information (Frias-Aceituno *et al.*, 2014; Manes-Rossi *et al.*, 2021). Moreover, scholars advocating for double materiality [1] in sustainability reporting argue that organisations adopting the SDGs can use the <IR> Framework to demonstrate how their value-creation process contributes to sustainable development (Adams, 2017; Busco, 2018; Izzo, 2018). Similarly, Izzo (2018, p. 82)

contends that “[integrated reporting] can be used to embed the SDGs in organisations’ thinking and reporting, enabling, in this way, their focus on sustainable development”. She explains that integrated thinking is the catalyst for this enablement, a view also shared by [Busco and Sofra \(2021\)](#). However, the link between integrated thinking, integrated reporting and engagement with the SDGs needs to be forged through a gradual broadening of corporate accountability to encompass society and the environment ([Abhayawansa, 2022](#); [Busco and Sofra, 2021](#)) and is affected by the institutional setting ([Pizzi *et al.*, 2022](#)). This paper aims to resolve this paradox by revealing how adopting integrated reporting has influenced the balance of disclosure of financially- and impact-material sustainability-related information separately.

The IFRS Sustainability Disclosure Standards (SDSs) of the International Sustainability Standards Board (ISSB) are likely to be prescribed by countries, as they mandate sustainability reporting, starting with climate-related disclosures. The IFRS SDSs adopt a financial materiality perspective, which has been criticised for diluting sustainability reporting ([Abhayawansa, 2022](#)). The impending mandatory adoption of IFRS SDSs underscores the need to discern the differences between the standards and guidelines used for reporting and their actual application in practice. A growing body of evidence reveals discrepancies between sustainability standards’ materiality principles and practical implementation by companies ([Abhayawansa and Adams, 2022](#); [Arian and Sands, 2023](#); [Correa-Mejia *et al.*, 2024](#)). Understanding these discrepancies is also important because interoperability is sought among various standards, each with its own materiality principles, including the IFRS SDSs, the European Sustainability Reporting Standards mandated by the European Sustainability Reporting Directive for adoption in the EU and the GRI Standards. The European Commission has revealed that the ISSB and the European Financial Reporting Advisory Group, the entity tasked with developing the European Sustainability Reporting Standards, are collaborating to enhance the interoperability of their respective standards. They have confirmed a high degree of alignment between the two sets of standards ([European Financial Reporting Advisory Group, 2023](#)). Similarly, the ISSB and GRI have a memorandum of understanding, committing the two standard setters to coordinate and work on achieving interoperability.

Our attempt to examine whether adopting the <IR> Framework, which also promotes a financial materiality perspective, results in companies limiting their reporting of social and environmental disclosures is akin to a quasi-natural experiment of the impact of the IFRS SDSs on sustainability reporting [2]. More specifically, our study is useful for predicting whether adopting the IFRS SDSs would lead companies to reduce impact-material sustainability-related disclosures and shift the focus to financially material sustainability-related disclosure, as suggested by critics of the ISSB’s agenda. Our study also helps us understand whether the notion of materiality advocated by a particular reporting regulation drives reporting consistent with that notion, extending the work of [Pizzi *et al.* \(2022\)](#) and [Correa-Mejia *et al.* \(2024\)](#). Their research found that only a select few companies reporting under Directive 2014/95/EU, which advocates double materiality, disclosed their contributions to the SDGs or provided adequate impact-material information in their sustainability reports.

The motivation for our study also lies in the future expectations surrounding the <IR> Framework. This motivation arises from the May 2022 announcement by the IFRS Foundation, indicating that the International Accounting Standards Board (IASB) and the ISSB are jointly working on developing a corporate reporting framework. This Framework aims to incorporate principles and concepts from the existing <IR> Framework to facilitate connectivity between the reporting requirements of the IASB and the ISSB. It is conceivable that the IASB’s Draft

Practice Statement on Management Commentary is currently being revised, and the <IR> Framework could morph into this new corporate reporting framework. This possibility arises from three facts: the <IR> Framework has already influenced the development of the Draft Practice Statement on Management Commentary and is incorporated in the IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* (IFRS Foundation, 2023); the IFRS Foundation has expressed its commitment to addressing the disparities between the <IR> Framework and the proposals formulated in the Management Commentary project; and the IFRS Foundation has acknowledged the calls for collaboration between the IASB and the ISSB in establishing requirements for a comprehensive corporate reporting framework (IFRS Foundation, 2022a; IFRS Foundation, 2022b). As the principles and concepts from the <IR> Framework are incorporated into the new corporate reporting framework, it will be important to understand the potential impact of the <IR> Framework on sustainability-related disclosure and its ability to reconcile the reporting requirements of the IASB and the ISSB.

The distinction between financial materiality and impact materiality in relation to sustainability-related disclosure is also important from the perspective of users of corporate reports. For instance, Lo and Kwan (2017) found that the market reacts more positively to organisational sustainability initiatives (i.e. what makes organisations sustainable) than social and environmental sustainability initiatives (i.e. what makes societies sustainable). However, Jørgensen *et al.* (2022) showed that investors find it difficult to distinguish between sustainability issues that are considered material from an investor's viewpoint (i.e. financially material information) and those that are regarded as material from a stakeholder's viewpoint (i.e. impact-material information) in corporate reports. Also, prior research that explains investor and market reactions to sustainability-related disclosures does not distinguish between these different types of sustainability-related disclosures. The studies that do not explicate the type of materiality assumption underpinning their disclosure measures mislead readers into believing that companies adopting a financial materiality perspective will accrue the same benefits as those adopting a double materiality perspective. Therefore, a methodology to differentiate between different types of sustainability-related disclosure based on the materiality perspective reflected in them, as provided in this study, benefits users of corporate reports, other stakeholders and policymakers interested in investor reaction to corporate sustainability-related disclosures.

Prior research on the consequences of integrated reporting provides limited evidence of how this practice affects the disclosure of different types of sustainability-related information, such as information about the organisation's impacts on society and environment (aka inside-out perspective/impact materiality) and social and environmental impacts on the organisation (aka outside-in perspective/financial materiality) (Tweedie and Martinov-Bennie, 2015). Evidence on this topic is confined to distinctions made between disclosures relating to selected types of information on human, social and relational and natural capital (Haji and Anifowose, 2017; Setia *et al.*, 2015; Solomon and Maroun, 2012) and qualitative characteristics of sustainability-related information in integrated reports. The differentiation we make between different types of sustainability-related disclosure is more important from a policymaking perspective, as it informs the ongoing policy debate about implementing the building blocks approach suggested by the IFRS Foundation when sustainability standards differ by the materiality principles they adopt. In contrast to previous studies, our analysis of sustainability-related disclosure examines how integrated reporting fosters financial materiality, impact materiality or both (i.e. double materiality).

We developed a disclosure index to analyse sustainability-related disclosures, differentiating between social and environmental information reflecting financial materiality and impact

materiality perspectives. The disclosure index is based on the GRI's G4 Guidelines. We used UN SDGs, which purely concern impacts on the society and environment, to develop coding criteria for distinguishing between the two types of sustainability-related disclosure. Our sample consists of integrated reports published in 2015 and 2017 by a balanced panel of 40 companies participating in the IIRC's Pilot Programme Business Network and voluntarily preparing integrated reports in accordance with the <IR> Framework.

Our investigation revealed that the extent of social and environmental disclosures in integrated reports remained relatively stable for the sampled companies throughout the study period. Despite this, it is noteworthy that impact-material social and environmental disclosures surpassed financially material disclosures in quantity in both 2015 and 2017. The difference in the extent of the two types of disclosures was statistically significant. However, in the labour practice and product responsibility subcategories of social disclosures, the financially material disclosures were significantly higher than impact-material disclosures. Our results indicate that the adoption of the <IR> Framework does not preclude companies from disclosing information that is material from an impact materiality perspective. Furthermore, we find that the balance between financial- and impact-material disclosures varied by the environmental sensitivity of the industry in which companies operate and country-level factors, such as legal system and development status.

The findings of this paper are useful to those setting sustainability standards and regulators mandating them because it highlights that the adoption of a financial materiality perspective in the reporting standards does not necessarily constrain companies from being able to adopt a more holistic view in relation to the nature of disclosure. The paper also makes a methodological contribution by developing a disclosure index that can differentiate between social and environmental disclosures based on the materiality principle underpinning them. This index can be used by stakeholders, policymakers, report preparers and other interested parties to understand the scope of financially- and impact-material information relating to disclosure requirements in the GRI Standards. Future researchers can use the disclosure index to examine the impact of adopting different materiality lenses for reporting sustainability-related information.

2. Relevant literature

The implementation of the <IR> Framework has been linked to several positive outcomes for companies and investors. The adoption of the <IR> Framework is associated with lower agency costs (Obeng *et al.*, 2020), higher investment efficiency (Barth *et al.*, 2017), better decisions resulting in higher sustainable value creation (Esch *et al.*, 2019), reduced cost of capital (Vena *et al.*, 2020; Vitolla *et al.*, 2020) and cost of debt (Muttakin *et al.*, 2020), enhanced value relevance of accounting information (Baboukardos and Rimmel, 2016; Barth *et al.*, 2017), greater stock liquidity (Barth *et al.*, 2017), reduced information asymmetry (Cortesi and Venay, 2019), increased consensus in analysts' forecasts (Rossignoli *et al.*, 2022) and increased analyst forecast accuracy (Rossignoli *et al.*, 2022; Zhou *et al.*, 2017). Bernardi and Stark (2018) showed that integrated reporting increases the association between environmental, social and governance (ESG) disclosure and analyst forecast accuracy. Institutional investors believe that integrated reporting enhances companies' emphasis on ESG issues (Atkins and Maroun, 2015). Nevertheless, stakeholders view IR as prioritising financial value creation over stewardship, preventing it from advancing beyond a limited sustainability paradigm (Stubbs and Higgins, 2018). On the contradictory, evidence also exists on the lack of usefulness of integrated reports to professional investors, such as sell-side analysts and fund managers (Abhayawansa *et al.*, 2018; Slack and Tsalavoutas, 2018). However, research documenting the benefits of adopting integrated reporting for non-

investor stakeholders, such as better social and environmental outcomes, is scarce. This section presents research evidence related to the debate on whether integrated reporting is advancing sustainability.

Early adopters considered integrated reporting an extension of sustainability reporting (Higgins *et al.*, 2014). The upward trend in the extent of ESG disclosures (human, social and relational, natural and intellectual capital information) of companies (Esch *et al.*, 2019; Setia *et al.*, 2015) since the introduction of integrated reporting implies that integrated reporting promotes sustainability (Atkins *et al.*, 2015). Lai *et al.* (2016) showed that the integrated reporting adopters have higher Bloomberg ESG disclosure ratings relative to non-adopters. However, critics argue that the <IR> Framework is not compatible with advancing sustainability for numerous reasons (Dumay, 2020; Dumay *et al.*, 2017; Flower, 2015; La Torre *et al.*, 2020; Milne and Gray, 2013; Thomson, 2015). They argue that, at most, the <IR> Framework will prompt organisations to disclose financially material sustainability-related information (see, e.g. Flower, 2020; Tweedie and Martinov-Bennie, 2015). To address this paradox, it is essential to understand the impact of integrated reporting on the nature and type of sustainability-related disclosures.

The abandonment of the sustainability objective may mean that integrated reporting promotes a business as (almost) usual approach (Gray, 2010). As conceptualised by the IIRC, integrated reporting focuses on managing value/capital to benefit investors (Reuter and Messner, 2015) rather than promoting value for society (Thomson, 2015). Hence, this investor-focused value-creation perspective, which prioritises organisational sustainability over social and environmental sustainability (Biondi *et al.*, 2020), is likely to neglect impacts on social and natural capital (Flower, 2015; Reuter and Messner, 2015; Thomson, 2015). There is empirical evidence suggesting that such a situation is already unfolding. Research has shown that organisations tend to present more selective and less balanced information regarding their sustainability performance under integrated reporting (Melloni *et al.*, 2017), especially when their social and environmental results are unfavourable (Hsiao and Kelly, 2018). Evidence also suggests that integrated reporting is a shield for poor social and environmental performance (Melloni *et al.*, 2017; Zappettini and Unerman, 2016). On the contrary, there is evidence that integrated reporting does not reflect a strategic legitimization strategy (Lai *et al.*, 2016).

There is considerable variation in how the <IR> Framework is interpreted and applied by preparers, and this variation extends to the extent of ESG information disclosed (Setia *et al.*, 2015; Solomon and Maroun, 2012). Variations in what ESG information is considered material by each company might explain these differences. Dimes and de Villiers (2023, p. 11) argue that an integrated reporting approach to materiality “requires a high degree of judgement and numerous strategic considerations”. As Cerbone and Maroun (2020) pointed out, the interplay between different institutional logics further complicates the materiality determination process, ultimately contributing to the observed variations in sustainability disclosures. Pizzi *et al.* (2023) showed that the choice of a voluntary reporting standard, such as the GRI or SASB standards, is influenced by how well a company’s interpretive scheme aligns with the materiality concept foundational to those standards. Techniques and criteria for determining materiality and balancing internal and external stakeholder perspectives also drive information considered material in integrated reports (Dimes and de Villiers, 2023; Lakshan *et al.*, 2022; Wee *et al.*, 2016). Among the techniques and criteria identified by Lakshan *et al.* (2022) are stakeholder analysis, usefulness of information for decision-making, impact on stakeholders, value creation, relationship with strategy/key performance indicators, judgements and benchmarking.

These criteria resonate with similar considerations identified for variations in material topics disclosed in sustainability reports, often arising from a negotiation between

organisational and stakeholder perspectives (Jones *et al.*, 2016a; Jones *et al.*, 2016b; Unerman and Zappettini, 2014; Whitehead, 2017). This alignment suggests a potential underlying tension between stakeholder logic (underpinning impact materiality) and market logic (supporting financial materiality) in materiality judgements in both integrated and sustainability reports. Mio *et al.* (2020) offered further evidence of this tension, finding that an integrated reporting approach leads to the disclosure of topics aligned with financial materiality (reflecting market pressures), while a sustainability reporting approach leads to impact materiality-related disclosure (responding to stakeholder concerns).

The existing research has delved into the factors influencing the materiality determination process in integrated and sustainability reporting, highlighting the challenges organisations encounter. In addition, a limited but significant body of work, including that of Beske *et al.* (2020), Fasan and Mio (2017) and Gerwanski *et al.* (2019) has focused on companies' disclosure of information relating to their materiality analysis. These studies expose a critical gap, as companies' lack of transparency in communicating their material topic identification processes (Beske *et al.*, 2020; Pigatto *et al.*, 2023) results in unclear understanding of the extent to which financially- and impact-material sustainability disclosures are incorporated in corporate reports. While Correa-Mejia *et al.* (2024) analysed the effect of adopting double materiality in sustainability reporting on the disclosure of financial- and impact-material topics, their analysis did not delve adequately into the underlying nature of the information disclosed within each topic. Previous research on integrated reporting has not conducted a thorough and focused analysis of sustainability-related disclosures either, particularly differentiating between financially- and impact-material social and environmental information. The differentiations made in prior studies are limited to disclosures of selected types of non-financial capitals (Haji and Anifowose, 2017; Setia *et al.*, 2015), information relating to sustainable value-creation processes (Stacchezzini *et al.*, 2016), sustainability actions versus sustainability performance (Stacchezzini *et al.*, 2016), sustainability-related risks (Guthrie *et al.*, 2020), the financial relevance of the sustainability topics disclosed (Busco *et al.*, 2020) and quantitative versus non-quantitative and forward-looking versus non-forward-looking sustainability-related information (Stacchezzini *et al.*, 2016). Moreover, many of these studies only provide a snapshot of sustainability-related disclosure practices at a particular time. To better understand the impact of integrated reporting, examining longitudinal changes in sustainability-related disclosures is necessary.

Studies examining changes in sustainability-related disclosure as a result of adopting integrated reporting have primarily examined companies listed on the Johannesburg Stock Exchange (JSE), where integrated reporting is mandatory (on an apply or explain basis), and, therefore, corporate disclosure practices have become institutionalised (Haji and Anifowose, 2017). Among these studies, Carels *et al.* (2013) found increased disclosures in social, environmental and ethical aspects and greater recognition of social issues. Setia *et al.* (2015) found increased information regarding social and relational capitals compared to other non-financial capitals. However, the substance of sustainability-related disclosures and disclosures of multiple capitals of JSE-listed companies has not changed much (Haji and Anifowose, 2017; Herbert and Graham, 2019). Where improvements have been noted, it is unclear whether the improvements relate to financially material information, impact-material information or both. Moreover, these findings are not generalisable to other jurisdictions, as none of them have made integrated reporting mandatory.

3. Different concepts of sustainability

Sustainability generally refers to the ability to preserve and maintain something over time. While the origins of the term can be traced back many centuries, it gained significant

recognition in the discourse surrounding humanity's future on Earth, particularly after the United Nations' Brundtland Commission Report "Our Common Future" was published in 1987. The report defines sustainable development as "development that meets the needs of the present generation, without compromising the ability of future generations to meet their own needs" ([World Commission on Environment and Development, 1987](#), p. 54). This definition does not specifically focus on business organisations. In the business context, despite the absence of a commonly agreed definition, sustainability is generally understood as enhancing the societal, environmental and economic systems within which a business operates ([Wales, 2013](#)) or an organisation's capacity to achieve long-term economic, social and environmental objectives. These three goals have gained recognition as the fundamental pillars of sustainability in the accounting literature, incorporating them into the sustainability reporting vernacular through triple-bottom-line reporting ([Elkington and Rowlands, 1997](#)). Different notions of sustainability can be built with reference to each of these three pillars, and the usage of the term sustainability in the literature often ignores these distinctions ([Ajmal et al., 2018](#); [Lee et al., 2021](#)), implying that all organisations practice the same form of sustainability.

The economic dimension of sustainability focuses on the ability of an organisation to generate a profit and remain financially viable. An organisation operating in a way that benefits its employees, customers and the communities in which it operates is generally explained as advancing the social dimension of sustainability. Such an organisation will typically focus on initiatives that improve the working conditions of their employees, provide ethical products and services to their customers and help to raise the standard of living within the communities in which they operate. The environmental dimension of sustainability is pursued when an organisation operates in a manner that minimises its impact on the environment and maximises benefits to the environment. Historically, sustainability has primarily been defined in relation to environmental sustainability. The Oxford English Dictionary still defines it as "the property of being environmentally sustainable; the degree to which a process or enterprise can be maintained or continued while avoiding the long-term depletion of natural resources" [3].

[Tweedie and Martinov-Bennie \(2015\)](#) differentiated between organisational sustainability and social sustainability. According to them, organisational sustainability is concerned with the ability of an organisation to generate a profit and remain financially viable. It includes initiatives for improving efficiency, reducing costs and increasing revenue. This notion of sustainability encompasses the economic dimension of sustainability as well as financially material aspects of the social and environmental dimensions of sustainability explained above. Hence, organisations subscribing to this view are only interested in social and environmental risks and opportunities insofar as they affect the business' financial viability. On the contrary, as explained by [Tweedie and Martinov-Bennie \(2015\)](#), social sustainability aligns with the impact-material social and environmental dimensions of sustainability. It has an inside-out approach, emphasising the broader societal and environmental impacts of business practices. It also encompasses the responsibility of businesses to contribute positively to society and the environment.

[Dyllick and Muff \(2016\)](#) distinguished between micro- and macro-sustainability perspectives. At the micro or organisational level, the focus is on creating value for the organisation, i.e. pursuing a business case for sustainability. This perspective, underpinned by [Friedman's \(1970\)](#) notion of social responsibility, is closely linked to shareholder value management, ensuring the long-term survival and profitability of the organisation. While the proponents of this perspective argue that the sustainable development of a society is inseparable from the sustainability of corporations, they

ignore the harmful effects the sole pursuit of organisational sustainability can have on society and the environment when externalities are not priced. Moreover, this perspective ignores corporate citizenship, where companies' responsibilities extend beyond shareholders to stakeholders, including employees, customers, communities and the environment. Hence, while sustainable development depends on organisational sustainability, it alone is insufficient. [Christ et al. \(2023\)](#) claimed that the extent and manner in which business entities operating at the micro level can actively contribute to the profound transformative changes required to attain these macro-level objectives remain unclear. A large stream of the sustainability literature observes that business organisations focus on organisational sustainability with negligible benefit to or even at the cost to the environment or society (see, e.g. [Banerjee, 2011](#); [Tregidga et al., 2013](#)).

The macro-perspective of sustainability extends beyond immediate or long-term benefits to the business and includes benefits to the economy, society and the planet ([Christ et al., 2023](#); [Dyllick and Muff, 2016](#)). This means businesses must integrate social and environmental issues with economic issues to address bigger economic, social or environmental challenges or add value to society and the environment. When a business genuinely contributes to addressing sustainability problems at the macro level or to sustainable development, its efforts can also advance the social and environmental dimensions of sustainability. The macro-perspective brings us to the realisation that economic, social and environmental sustainability are not mutually exclusive. This interactive relationship between the three pillars of sustainability is enshrined in the definition of corporate sustainability coined by [Dyllick and Hockerts \(2002\)](#), which emphasises “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well” (p. 131). By incorporating sustainable development logic into business strategy and operations, businesses can create long-term shareholder wealth while contributing to the well-being of society and the environment ([Gómez-Bezares et al., 2016](#)).

The concept of sustainability implied in the <IR> Framework aligns with the notion of organisational sustainability, as explained by [Tweedie and Martinov-Bennie \(2015\)](#), or the micro-perspective explicated by [Dyllick and Muff \(2016\)](#), and this view is supported by numerous studies ([Flower, 2015](#); [Rodríguez-Gutiérrez et al., 2019](#); [Zappettini and Unerman, 2016](#)). In contrast, organisations such as the GRI and A4S emphasise the role of organisations in achieving sustainable development, advocating for social sustainability ([Tweedie and Martinov-Bennie, 2015](#)) or the macro-perspective ([Dyllick and Muff, 2016](#)). Hence, the question is whether the <IR> Framework can be used to make a breakthrough in sustainability reporting ([Lai et al., 2016](#)) despite its inherent biases and design failures.

4. Research methodology

4.1 Sample selection

Our research includes a sample of 40 companies that were part of the IIRC’s Pilot Programme Business Network in 2015 and continued to prepare integrated reports based on the <IR> Framework in 2017. At the time of data collection in 2018, the IIRC website listed 524 organisations whose reports were influenced by or referred to the <IR> Framework. Among these organisations, some were participants in the IIRC’s Pilot Programme Business Network, receiving ongoing support and feedback from the IIRC while preparing an integrated report. We selected companies participating in the Pilot Programme to constitute our sample because they likely adhere closely to the <IR> Framework.

We selected the starting year as 2015 as the <IR> Framework had been issued in 2013, and we wanted to allow at least two reporting cycles to increase the likelihood of companies

substantially aligning their reporting with the requirements of the <IR> Framework. As we were interested in examining longitudinal changes in disclosure, our sample was limited to the companies that had prepared integrated reports continuously between 2015 and 2017. We did not extend our sample period beyond 2017 because of two reasons. First, we were interested in observing the impact of new and early adoption of the <IR> Framework by companies. Second, we needed to maintain a balanced panel for longitudinal comparison. Many early adopters of integrated reporting in our sample discontinued the preparation of integrated reports as time passed. Hence, using a longer time horizon would have resulted in a significant drop in the number of companies in our panel.

South African companies were not included in the sample because of the mandatory requirement of preparing integrated reports on an “apply or explain” basis. This requirement could have introduced coercive elements and institutional pressure to adopt integrated reporting and align disclosure with the guidance of the Integrated Reporting Council of South Africa (IRCSA, 2011). By applying these specific inclusion and exclusion criteria, we arrived at a final sample size of 40 companies. The sample companies were located in 12 countries [4] and represented ten Global Industry Classification Standard sectors. Companies from the industrial (17) and materials (7) sectors and Japan (24) were overrepresented in the sample. The integrated reports for 2015 and 2017 were obtained from the company websites.

4.2 Development of the coding index

The focus of this study is social and environmental information disclosed by companies. We are only interested in understanding the extent to which organisations report on their performance and impacts relating to the environment and society, which are important not only for investors but also for other stakeholders, as they directly impact the well-being of people and the planet. We do not investigate disclosures related to economic sustainability because such information is exclusively financially material. Our objective is to distinguish between social and environmental information that is financially material and those that are impact material. The preceding section emphasised the dual categorisation of social and environmental information within organisational sustainability (micro-perspective) and social sustainability (macro-perspective). We developed a coding index and criteria capable of making this distinction.

The coding index was developed by mapping the GRI's G4 Guidelines (Figure 1) with the UN SDGs. The GRI Guidelines are the oldest and most widely used reporting standards for sustainability reporting (KPMG, 2020). The G4 Guidelines were issued in May 2013 and were operational during the full period of this study. In their study, Liu *et al.* (2019) used the G4 Guidelines to assess the quality of integrated reporting. They suggested that certain disclosure items and measures in GRI 4 could be easily aligned with the subcategories related to capitals, content elements and guiding principles. The G4 Guidelines were considered the most suitable for constructing the disclosure index for this study because, in addition to the above reasons, the indicators they provide for measuring performance against social and environmental aspects are flexible enough to be operationalised in a way that emphasises financial materiality or impact materiality. The GRI Standards, which are more recent than the G4 Guidelines, primarily focus on enhancing the framework's structure, clarity and accessibility. Despite being the current set of standards promoted by the GRI, they maintain the same substantive disclosure requirements as the G4 Guidelines [5].

The G4 Guidelines are presented in two parts: Reporting Principles and Standard Disclosures and Implementation Manual. The first part is organised into three groups: Reporting Principles, which sets out the principles for defining report content and quality; Standard Disclosures, which lists the information relating to economic, environmental and

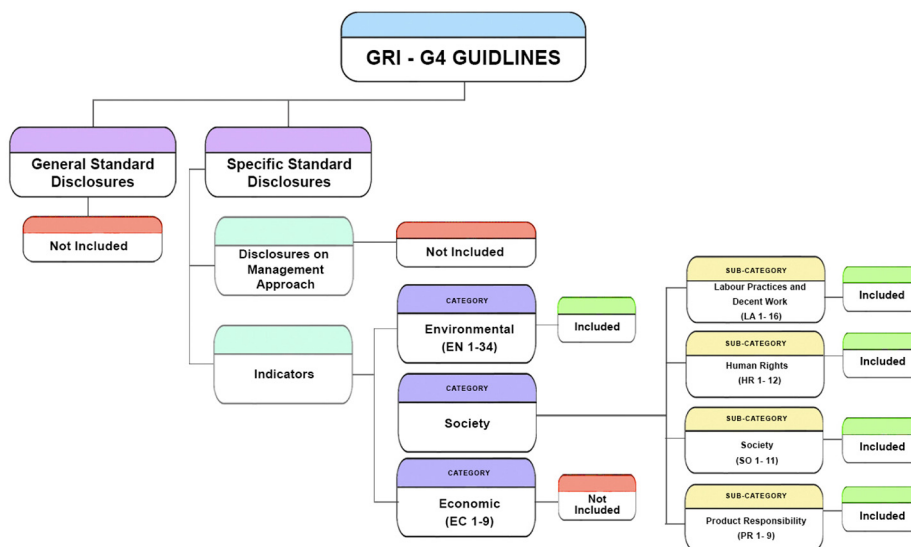


Figure 1.
Organisation of the
GRI G4 guidelines

Source: Figure by authors

social topics that organisations should disclose in their sustainability reports; and Application Criteria, guiding how to identify material topics, how to collect and present data and how to report on performance. The second part, the Implementation Manual, explains how to use the guidelines and provides guidance on preparing information to be disclosed and interpreting various concepts in the guidelines.

The information to be disclosed by companies is explained in the Standard Disclosures section of the G4 Guidelines. They are categorised into two groups: General Standard Disclosures and Specific Standard Disclosures. General Standard Disclosures entail information relating to organisations' mission, values and strategy for achieving sustainability goals; identification and prioritisation of sustainability issues; organisational profile (e.g. size, structure, ownership, products and services, markets and supply chain); material sustainability issues and the boundaries of sustainability reporting; how the organisation engages with their stakeholders on sustainability issues; scope, boundary and frequency of sustainability reporting; governance structure, policies and commitments related to sustainability; and organisation's values, principles, standards and norms. Topic-specific information is prescribed in Specific Standard Disclosures. We consulted these Specific Standard Disclosures to develop our disclosure index.

The Specific Standard Disclosures include disclosures on management approach and disclosure of indicators for various reporting "aspects" within economic, environmental and social categories. The social category is further subdivided into four subcategories: labour practices and decent work, human rights, society and product responsibility. The environmental category does not have subcategories. For the above reasons, we model our disclosure index on the environmental category and four subcategories within the social category. The indicators within the disclosure subcategories represent various social and environmental "aspects". For instance, the indicators within the product responsibility subcategory represent the aspects of customer health and safety, product and service labelling, marketing communications, customer privacy and compliance.

Table 1 presents the distribution of the 82 indicators prescribed in the G4 Guidelines representing the environmental category and the four social subcategories. The economic indicators are about the economic performance and impacts, market presence and procurement practices, none of which are associated with social and environmental information. Figure 1 shows the structure of the G4 Guidelines. The green colour shapes highlight the parts of the G4 Guidelines upon which our coding index was based.

The United Nations 2030 Agenda for Sustainable Development expects businesses to incorporate the UN SDGs into their operations and strategic management, set ambitious goals and communicate transparently about the results (Vigneau *et al.*, 2015). The global SDGs proposed by the UN General Assembly comprise 17 goals and 169 targets. The SDGs provide a “framework for articulating organisational social responsibilities and incorporating them into strategic planning” (Russell *et al.*, 2018, p. 3). The 169 SDG targets, while primarily intended as a guide for governments, can be used to measure businesses’ impacts on society and the environment (Global Reporting Initiative and UN Global Compact, 2017). Therefore, we used the 169 SDG targets to develop the coding criteria for classifying the GRI social and environmental indicators into financial- and impact-material disclosures.

We linked the 82 environmental and social indicators from the G4 Guidelines to the 17 SDGs by referencing the targets associated with each SDG. Figure 2 and Table 2 offer comprehensive information on this mapping process. It is worth noting that certain SDGs, such as SDGs 16, 12 and 8, corresponded to GRI indicators falling into multiple categories/subcategories. However, mapping all SDGs to a GRI indicator was impossible. The GRI indicators successfully aligned with the SDGs are regarded as impact-material information, whereas the indicators that could not be mapped are classified as financially material information.

4.3 Coding criteria and examples

When coding social and environmental information pertaining to GRI indicators classified as financially material, an additional level of scrutiny was used. This step accounted for the possibility that certain companies might exceed the indicator-level disclosure requirements and provide disclosure that could be categorised as impact material. The scrutiny process involved assessing the disclosed information to determine its relevance to stakeholders based on the level of detail provided. For instance, reporting on fines and penalties (as per EN 29) alone does not necessarily indicate that the company promotes the rule of law and, therefore, such disclosures were considered financially material. Conversely, suppose a company discloses either the absence of non-compliance with laws and regulations or provides specific information on their measures for ensuring compliance. In that case, it is

Table 1.
Social and
environmental
disclosure indicators
in the G4 guidelines

G4 category/subcategory	No. of indicators
Environmental (EN)	34
Social – labour practices and decent work (LA)	16
Social – human rights (HR)	12
Social – society (SO)	11
Social – product responsibility (PR)	9
Total	82

Source: Table by authors

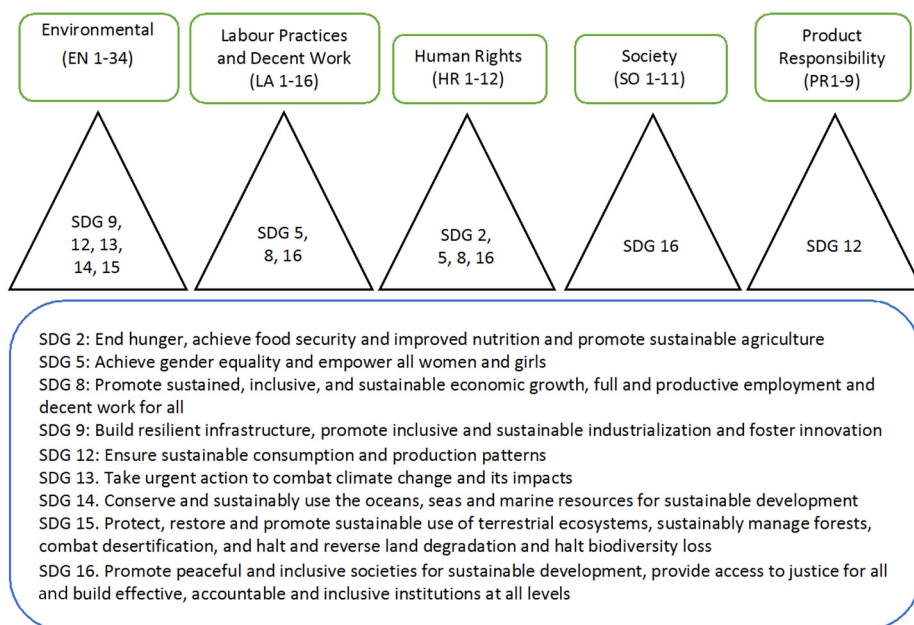


Figure 2.
Map of GRI
indicators and SDGs

Source: Figure by authors

classified as impact material. Similarly, for disclosures related to LA6 (Occupational Health and Safety) [6], information on injuries and work-related fatalities is classified as financially material, but if the company explains the steps taken to reduce such injuries, then it is classified as impact material. Hence, an item of disclosure that might typically be classified as financially material can be categorised as impact material if it is significant to non-investor stakeholders.

Similarly, disclosures corresponding with GRI indicators identified as impact material were not automatically coded as impact material in this study. Specifically, if disclosures associated with GRI indicators classified as impact material were found to be boilerplate in nature, superficial, incomplete or lacking in information relevant to non-investor stakeholders, these were classified as financially material information instead of impact material. An illustrative example can be found in the treatment of information related to energy sources. This data are encompassed within the GRI indicator G4-EN3 and linked with sustainable consumption and production as outlined in SDG 12. Within our classification system, information concerning energy sources is only designated as impact material if the focal company segregates its energy sources into distinct categories: renewable and non-renewable. Another example relates to information provided by organisations relating to G4-EN6, the reduction of energy consumption. This indicator requires organisations to report the decrease in energy usage achieved through conservation and efficiency measures. Its aim is to showcase organisational efforts in enhancing energy efficiency, contributing to environmental sustainability. Consequently, it aligns with SDGs 12 and 13 and company disclosures relating to G4-EN6 is deemed impact-material information. However, if a company's disclosure under this indicator lacks a clear

Table 2.
List of SDGs mapped
to GRI indicators

SDG no.	SDG description	Mapped GRI indicators
SDG 1	End poverty in all its forms everywhere	Not mapped
SDG 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	HR8
SDG 3	Ensure healthy lives and promote well-being for all at all ages	EN24
SDG 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Not mapped
SDG 5	Achieve gender equality and empower all women and girls	LA1, LA3, LA9–13
SDG 6	Ensure availability and sustainable management of water and sanitation for all	EN8, EN10
SDG 7	Ensure access to affordable, reliable, sustainable and modern energy for all	Not mapped
SDG 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	LA1–5, LA8, EN7, HR6
SDG 9	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	EN31
SDG 10	Reduce inequality within and among countries	Not mapped
SDG 11	Make cities and human settlements inclusive, safe, resilient and sustainable	SO1
SDG 12	Ensure sustainable consumption and production patterns	EN1–10, EN15–18, EN20, EN25, EN27–28, EN32–33, PR3
SDG 13	Take urgent action to combat climate change and its impacts	EN6, EN30–31
SDG 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	EN11–14, EN19, EN21–24, EN26
SDG 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	EN11–14, EN26
SDG 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	EN34, HR1–5, HR7, HR9, HR10–11, SO1–SO5, SO9–10, LA14–15, PR4–8
SDG 17	Strengthen the means of implementation and revitalise the global partnership for sustainable development	Not mapped

Source: Table by authors

explanation of commitment to energy reduction, it is categorised as financially material. For instance, the following disclosure by a sample company indicates that it focuses on energy conservation for regulatory compliance and pollution risk reduction. As this disclosure is of the outside-in nature, it is classified as financially material, deviating from its intended impact-material nature.

We seek to lower the environmental burden at our offices and factories through energy conservation, resource conservation, and the 3Rs (reduce, reuse, recycle), by complying with regulations, and by taking steps to reduce environmental pollution risk. (Anritsu Corporation, 2017, p. 38)

An example relating to the social disclosure category can be found in the treatment of information related to risk management and anti-corruption actions. This information is naturally captured within G4-SO3 and G4-SO5 and linked with peaceful and inclusive societies for sustainable development as outlined in SDG 16. Within our classification system, information concerning risks related to corruption is only designated as impact material if the focal company reports about the actions taken to reduce corruption. Mere identification of corruption risk and the number of confirmed corruption cases without further information on actions taken are not considered impact material.

4.4 Content analysis

We content analysed the integrated reports of the sampled companies in 2015 and 2017 using the disclosure index and coding criteria explained above. Hence, 80 reports were content analysed. Content analysis is widely used in corporate reporting studies (Abhayawansa, 2011; Krippendorff, 2004; Unerman, 2000), particularly for evaluating sustainability and other disclosures in integrated reports (see, e.g. Farneti *et al.*, 2019; Guthrie *et al.*, 2020; Liu *et al.*, 2019). The content analysis was performed manually, and the results were recorded in a spreadsheet. The content analysis was performed in three steps. In Step 1, information items related to any of the 82 indicators in the integrated report were identified. Following Beattie and Thomson (2007, p. 142), an information item was defined as a “single piece of information that [is] meaningful in its own right”. The use of information items can overcome coding dilemmas when references to multiple sustainability topics are present in a given sentence (Abhayawansa, 2011). In Step 2, the information items were classified as impact material or financially material based on the GRI indicators to which they correspond. The final step used the coding criteria to reclassify information items from their original classification. The coding and decision process is illustrated in Figure 3.

5. Findings

5.1 Main categories of disclosure

Table 3 presents the descriptive statistics for financially- and impact-material disclosures for 2015 and 2017 and the results of *t*-tests of differences. The findings show that in both years, the sampled companies demonstrated a consistent level of sustainability-related disclosures, with a slight increase in the mean total disclosures from 16.90 in 2015 to 17.30 in 2017. Impact-material disclosures were slightly higher than financially material disclosures in both years. Moreover, the data unveil a notable decrease in the maximum number of GRI indicators disclosed by companies in both disclosure categories, particularly in the financially material category. However, the mean score of the two types of disclosure categories or total disclosure did not differ significantly between 2015 and 2017.

Table 4 presents the results of *t*-tests of differences for financially- and impact-material disclosures relating to each disclosure category/subcategory in 2015 and 2017. Neither

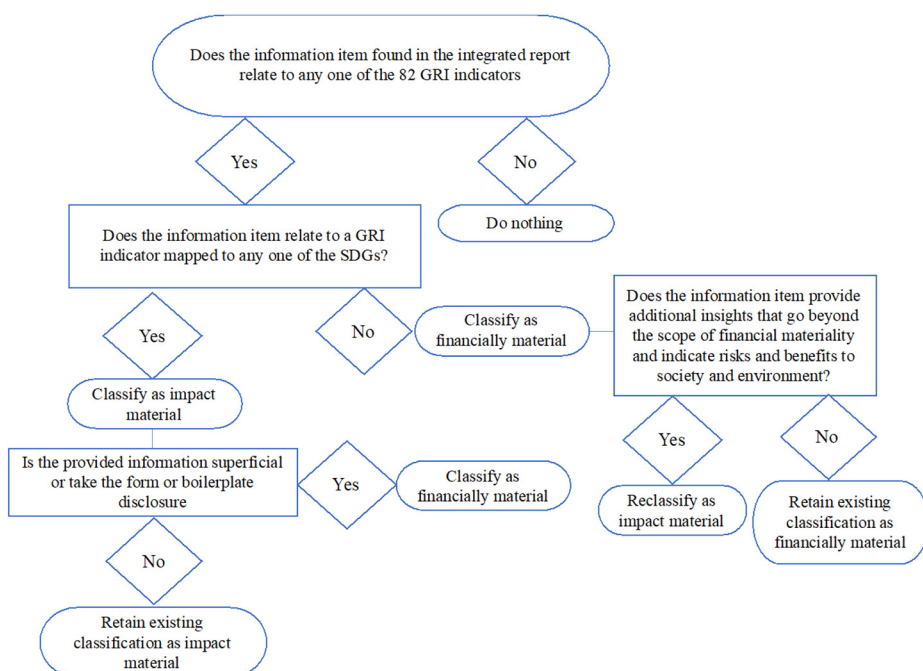


Figure 3.
Coding process

Source: Figure by authors

Table 3.
Changes in
sustainability
disclosures from
2015 to 2017

Disclosure category	Year	N	Min	Max	SD	Mean	t-value	Sig. (two-tailed)
Financially material	2017	40	2.00	14.00	7.62	7.6250	-0.11	0.911
	2015	40	1.00	28.00	7.52	7.5250		
Impact material	2017	40	2.00	25.00	9.67	9.6750	-0.25	0.799
	2015	40	1.00	26.00	9.37	9.3750		
Total disclosures	2017	40	4.00	33.00	7.76	17.3000	-0.21	0.826
	2015	40	5.00	54.00	8.50	16.9000		

Source: Table by authors

financially- nor impact-material disclosures relating to any of the five social and environmental information types changed statistically significantly between 2015 and 2017. Thus, the results presented in Table 4 further confirm that the maturity of companies in preparing integrated reports did not result in increased disclosure of social and environmental information.

Table 5 shows the results of *t*-tests conducted to compare the extent of financially material disclosure with the extent of impact-material information for each of the five disclosure categories for the two years 2015 and 2017. In both 2015 and 2017, the mean value of the impact-material disclosure measure was statistically significantly higher than the mean value of the financially material disclosure measure for the *environmental* disclosure

Table 4.
Mean differences
between years by
disclosure categories
and subcategories

Disclosure category	Materiality category	Financial			Impact		
		Mean	t-value	Sig. (two-tailed)	Mean	t-value	Sig. (two-tailed)
Environmental	2015	2.55	0.38	0.701	6.07	-0.06	-0.947
	2017	2.70			6.02		
Labour practices and decent work	2015	3.35	-0.67	-0.504	1.70	0.06	0.945
	2017	3.10			1.72		
Human rights	2015	0.35	0.53	0.595	0.27	0.97	0.330
	2017	0.42			0.45		
Society	2015	0.42	0.31	0.752	1.20	0.70	0.483
	2017	0.50			1.32		
Product responsibility	2015	0.85	0.20	0.841	0.12	0.26	0.788
	2017	0.90			0.15		
Total	2015	7.52	0.11	0.911	9.37	0.25	0.799

Source: Table by authors

Disclosure category	Materiality category	2015			2017		
		Mean	t-value	Sig. (two-tailed)	Mean	t-value	Sig. (two-tailed)
Environmental	Financial	2.550	-6.25	0.000	2.700	-5.25	0.000
	Impact	6.000			6.025		
Labour practices and decent work	Financial	3.350	4.28	0.000	3.100	3.94	0.000
	Impact	1.650			1.725		
Human rights	Financial	0.350	0.56	0.570	0.425	-0.134	0.893
	Impact	0.275			0.450		
Society	Financial	0.475	-3.29	0.001	0.500	-4.57	0.000
	Impact	1.200			1.325		
Product responsibility	Financial	0.850	3.99	0.000	0.900	3.86	0.000
	Impact	0.125			0.150		
Total	Financial	7.525	-1.74	0.08	7.625	-1.98	0.051
	Impact	9.375			9.675		

Table 5.
Mean differences
between disclosure
types by categories
and subcategories

Source: Table by authors

category and the “society” subcategory, which forms part of the social category. The opposite result was found for the “labour practices and decent work” subcategory and “product responsibility” subcategory. The extent of disclosures relating to the human rights category does not statistically significantly differ between financially- and impact- material categories.

Figure 4 presents a bar chart depicting the composition of financially- and impact-material disclosure in 2015 and 2017. The relative proportions of the five disclosure categories do not substantially vary between 2015 and 2017 for either financially- or impact-material disclosures. The majority of the impact-material disclosures are accounted for by “environmental” disclosures, while “labour practices and decent work” accounts for the majority of financially material disclosure. The “labour practices and decent work” disclosures in the financially material category are more than twice that of the impact-material category. Product responsibility-related disclosure only accounts for about 1% in

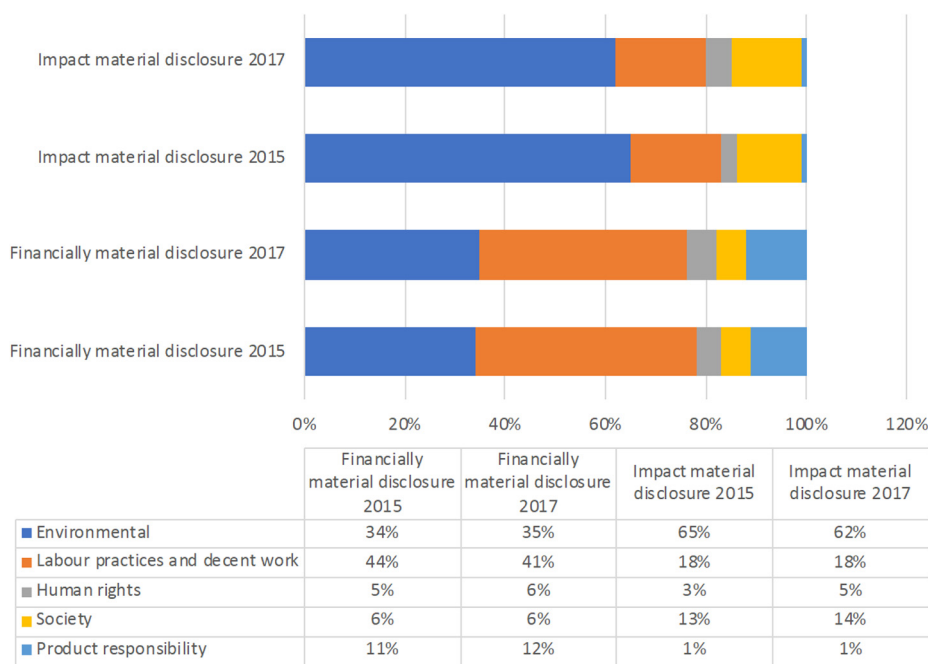


Figure 4.
Composition of
financially material
and impact material
disclosure in 2015
and 2017

Source: Figure by authors

the impact-material category, while 11%–12% in the financially material category. The relatively low level of impact-material disclosures on labour practices and product responsibility indicates a potential gap in reporting practices where some crucial social and environmental impacts relating to these aspects are not being adequately communicated to stakeholders.

5.2 Subsample analysis

Next, we analysed whether the disclosure of financially- and impact-material information differs by the level of environmental sensitivity of the industry- and country-level attributes. Table 6 shows the results of these analyses. The table shows that companies in environmentally sensitive industries make statistically significantly more impact-material information than financially material information. However, statistically significant differences between the two types of disclosures are not found in low-environmentally sensitive industries. Also, the extent of impact-material disclosures differs significantly between high- and low-environmentally sensitive industries. The positive association between a company's environmental sensitivity level and its extent of impact-material disclosure might be attributable to the relative reputational benefits accruing to highly environmentally sensitive companies through building trust with stakeholders.

In the country-level analysis, impact-material disclosures are greater than financially material disclosures in companies from common-law countries and developed countries, and the differences are statistically significant. Furthermore, financially material disclosures are greater in developing countries than in developed countries. The results indicate that a

Table 6.

Differences between disclosure types by industry and country attributes

Test category	Financial score – mean	Impact score – mean	Two sample <i>t</i> -test Mean difference
High* environmentally sensitive (<i>n</i> = 54)	7.77	10.24	2.46** (2.52)
Low* environmentally sensitive (<i>n</i> = 26)	7.15	8.03	0.88 (0.93)
One sample <i>t</i> -test of difference high vs low ENV sensitive (mean difference)	0.62 (0.65)	2.21* (1.79)	
Common law countries (<i>n</i> = 16)	8.43	9.50	1.06 (0.66)
Code law countries (<i>n</i> = 64)	7.35	9.53	2.17** (2.60)
One sample <i>t</i> -test of difference common law vs code law (mean difference)	1.07 (0.96)	−0.03 (−0.02)	
Developed countries (<i>n</i> = 62)	7.04	9.01	1.96*** (2.79)
Developing countries (<i>n</i> = 18)	9.38	11.27	1.88 (0.88)
One sample <i>t</i> -test of difference developed vs developing countries (mean difference)	−2.34** (−2.23)	−2.26 (−1.63)	

Note: *According to the Carbon Disclosure Project definition, companies belonging to the GICS industry sectors of materials, industrials, energy and utilities are considered high environmentally sensitive industries, while companies from the remaining GICS sectors are classified as low environmentally sensitive industries

Source: Table by authors

country's level of economic development has a significant bearing on the extent to which companies in that country address the needs of non-investor stakeholders through impact-material disclosures. These findings reinforce previous research findings, highlighting the positive influence of a stringent regulatory environment, institutional support, maturity of the capital market and high stakeholder expectations on the extent to which organisations prioritise and address the societal and environmental impacts of their operations.

5.3 Disclosure variability within companies

Table 7 presents the results of one-sample *t*-tests comparing the five social and environmental disclosure categories in 2015 and 2017. The results highlight that companies

Category	Year	Statistics	Environmental	Labour practices	Human rights	Society	Product responsibility
Financially material	2015	Mean	2.55	3.35	0.35	0.475	1.05
		<i>t</i> -value	8.64	11.736	3.557	2.346	3.667
		Sig.	0.000	0.000	0.001	0.024	0.001
	2017	Mean	2.7	3.1	0.425	0.55	1
		<i>t</i> -value	10.643	12.935	4.226	4.113	4.591
		Sig.	0.000	0.000	0.000	0.000	0.000
Impact material	2015	Mean	6	1.65	0.275	1.2	0.3
		<i>t</i> -value	12.254	6.297	3.139	9.595	1.669
		Sig.	0.000	0.000	0.003	0.000	0.000
	2017	Mean	6.025	1.725	0.45	1.325	0.15
		<i>t</i> -value	10.386	6.814	2.887	10.514	1.964
		Sig.	0.000	0.000	0.006	0.000	0.057

Table 7.

Intra-firm differences in the extent of disclosure

Note: Statistical significance provided is for a two-tailed test

Source: Table by authors

differed in the categories of disclosures they emphasised, with some companies focusing more on the environment, some on labour practices, human rights, society and/or product responsibility. Moreover, in untabulated results, we find that 66% of the sample companies disclosed more impact-material information than financially material information. These results imply that integrated reporting provides ample flexibility for companies to engage in sustainability reporting according to their specific organisational needs and contexts.

5.4 Indicator-wise analysis

Of the 82 GRI indicators, the most frequently disclosed indicators relate to the aspect [7] of “emissions”. These indicators concern scopes 1, 2 and 3 greenhouse gas (GHG) emissions and emissions of ozone-depleting substances, including NO_x and SO_x, GHG emissions intensity and reduction of GHG emissions. The next most disclosed GRI indicators were in relation to the “energy” aspect (i.e. energy consumption within and outside the organisation, energy intensity, reduction of energy consumption and reduction in energy requirements of products and services). GRI indicators comprising the aspect of “local communities” were the third most disclosed. This aspect includes information about the percentage of operations with implemented local community engagement, impact assessments and development programmes and operations with significant actual and potential negative impacts on local communities. All these indicators were classified as impact material as per our disclosure index. On the contrary, only a few of the sampled companies included disclosures relating to the GRI indicators comprising the aspects “marketing communications”, “customer privacy” and “compliance”, which are included in the “product responsibility” subcategory. According to our disclosure index, the first two aspects are impact-material disclosures, while the last is financially material.

Table 8 presents the top ten GRI indicators disclosed by the sampled companies, categorised by the type of materiality underpinning those disclosures. Of the financially material GRI indicator disclosures, training and education (LA10), labour practices and grievance mechanisms (LA16), energy consumption within the organisation (EN3) and total water withdrawal by source (EN8) were disclosed by more than half the sampled companies in both years. Almost all of the other GRI indicators in the top ten list for financially material

Financially material disclosure				Impact material disclosure			
2015		2017		2015		2017	
Items	<i>n</i>	Items	<i>n</i>	Items	<i>n</i>	Items	<i>n</i>
LA10	27	LA10	28	SO1	32	SO1	36
LA16	24	EN3	25	EN19	29	EN15	30
EN3 and 8	21	LA16	24	EN17	23	LA1	23
LA6	17	EN8	22	EN6 and 27	21	EN17	22
EN23	14	PR5	13	EN15 and 16 and LA1	20	EN16	21
LA1	13	EN23 and LA6	12	LA12	18	EN27	20
PR5	12	LA9	11	EN21 and 23	10	EN6	18
LA9	11	EN1, LA1 and 12	10	EN7 and 13 and SO4	9	LA12	12
EN1	10	EN 29 and LA11	8	EN18	8	EN7	9
LA12	9	LA3 and EN34	7	EN 5 and 29	6	LA6	8

Table 8.
Top 10 GRI
indicators disclosed

Notes: *n* indicates the number of sample companies disclosing the given GRI indicator. The mnemonics represent the codes assigned by the GRI for each of the indicators (see <https://respect.international/g4-sustainability-reporting-guidelines-implementation-manual/>)
Source: Table by authors

disclosures in 2015 were also found in the 2017 top ten list. Compared to the number of financially material GRI indicators, the number of impact-material GRI indicators disclosed by more than 50% of the sampled companies was much greater. They included: percentage of operations with implemented local community engagement, impact assessments and development programmes (SO1); direct GHG emissions (EN15); energy indirect GHG emissions (EN16); other indirect GHG emissions (EN17); reduction of energy consumption (EN6); extent of impact mitigation of environmental impacts of products and services (EN 27); and total number and rate of new employee hires and employee turnover by age group, gender and region (LA1). The results indicate more variation in the impact-material GRI indicators disclosed by sampled companies between the two years than financially material GRI indicators. For example, the reduction in GHG emissions (EN19), disclosed by almost two-thirds of the sampled companies in 2015, does not appear on the top ten indicators in 2017 for impact-material disclosures. Similarly, EN21, EN23, EN13, SO4, EN18, EN5 and EN29, which made the top ten list of impact-material GRI indicators in 2015, have not made the list in 2017.

The top ten items reported from an impact-material perspective were dominated by environment-related GRI indicators regardless of year, which primarily relate to emissions, energy consumption and the environmental impacts of products and services. Comparatively, more diversity was found in the most commonly disclosed GRI indicators relating to financially material information in both years.

In summary, [Table 8](#) reveals a higher level of consistency in the types of financially-material information disclosed while highlighting significant variability in the types of impact-material information disclosed. However, there is a predominant focus on environmental indicators.

6. Discussion

We find that integrated reporters disclose significantly more impact material than financially material sustainability-related information in 2015 and 2017. The types of impact-material sustainability-related information reported are also much greater than those of financially material sustainability-related information. These findings align with prior literature showing enhanced disclosure of non-financially information, including sustainability-related information, following integrated reporting adoption ([Atkins and Maroun, 2015](#); [Haji and Anifowose, 2017](#); [Setia et al., 2015](#)). Unlike prior studies focused on South Africa, where integrated and sustainability reporting is regulated, our findings extend the literature, demonstrating that even in voluntary settings, companies adopting integrated reporting do not forsake sustainability, contrary to what critics had argued. Moreover, our findings bring clarity to the literature as they confirm that impact-material sustainability-related disclosures are more prevalent. Thus, we reject the contention that any growth in sustainability reporting pursuant to integrated reporting adoption is attributed to the increase in financially material sustainability-related disclosures. Our findings, therefore, help to reinforce the idea that integrated reporting does not impede companies in their accountability for and stewardship of human, social and natural capitals. In addition, they support the proposal by [Abhayawansa and Adams \(2022\)](#) that integrated reporting can serve as the foundation for an extended reporting framework. Moreover, the findings indicate that the <IR> Framework can be used for reporting on the SDGs, as suggested by [Adams \(2017\)](#), and can be adopted concurrently with reporting standards like the GRI, as evidenced in prior studies (see [Frias-Aceituno et al., 2014](#); [Manes-Rossi et al., 2021](#)).

The prevalence of impact-material sustainability-related disclosures indicates that companies adopting integrated reporting are not always seeking legitimacy, managing reputation and attempting to enhance credibility through symbolic action. They are engaging in a more holistic and long-term approach to building trust, as [Biondi et al. \(2020\)](#) suggested. Thus, our results

differ from studies such as [Haji and Hossain \(2016\)](#), which find that companies primarily seek to gain organisational legitimacy by adopting integrated reporting, as evidenced by the lack of substantive sustainability-related disclosures in the companies they analysed. Hence, our findings challenge existing literature, including works like [Stacchezzini et al. \(2016, p. 109\)](#), which criticise the <IR> Framework for prioritising organisational sustainability over planetary sustainability. Specifically, these authors have warned that adopters of integrated reporting may demonstrate an inadequate “actual commitment to managing sustainability”. Our results concur with [Camilleri’s \(2018\)](#) view that both stewardship and legitimacy motives could be driving sustainability initiatives.

Our results also differ from early research using the South African context, positing that organisational communications are primarily motivated by compliance obligations rather than a genuine commitment to contributing to sustainable development ([Atkins et al., 2015](#); [Solomon and Maroun, 2012](#); [Solomon et al., 2000](#)). For example, [Carels et al. \(2013\)](#) identified minor enhancements in the social disclosure of integrated reporters in contrast to a more substantial improvement in environmental disclosure. The authors linked this relative difference in disclosure types to the specific reporting requirements delineated by the sustainability reporting frameworks mandated by the JSE. In contrast to prior studies that examined regulated practices, our analysis of companies voluntarily engaging in integrated reporting allows us to attribute the observed disclosure practices to the companies’ own motivations. Therefore, our findings’ heightened emphasis on impact-material information can be interpreted as evidence of these companies’ commitment to contributing to sustainable development.

Our study, comparing total sustainability-related disclosures between 2015 and 2017, reveals only marginal and statistically insignificant improvements in financially and impact-material sustainability-related disclosures. These results are consistent with those of [Haji and Anifowose \(2017\)](#) and [Herbert and Graham \(2019\)](#), who reported only marginal changes in overall sustainability-related disclosures in integrated reports in South Africa from 2012 to 2013 and from 2011 and 2015, respectively. These findings support [Atkins and Maroun’s \(2015\)](#) view that it takes time for integrated reporting to engender comprehensive and cohesive sustainability-related disclosure to a broad group of stakeholders beyond shareholders. A few years of experience preparing integrated reporting seems insufficient for companies to develop integrated thinking and integrate sustainability within strategy and management approaches.

The findings of this study reveal that the <IR> Framework offers companies the flexibility to report on various dimensions of their sustainability performance and impacts. This adaptability is evidenced by the cross-sectional differences in the types of sustainability-related information companies in the sample disclosed and the fluctuating emphasis on certain types of information over time. The current findings align with previous research by [Arora et al. \(2022\)](#), which also emphasised the flexibility of the <IR> Framework in portraying an organisation’s value-creation narrative. Interestingly, this research contrasts with earlier findings that found companies generally reported on only a limited set of specific sustainability issues ([Visser, Wayne Africa Merlin-Tao, 2002](#); [Igwe et al., 2023](#)). Instead, the present study indicates that the <IR> Framework enables companies to cover a broader spectrum of sustainability issues, perhaps more attuned to their particular context. This highlights the necessity of considering context-specific factors that influence sustainability reporting practices. It underscores the importance of a nuanced interpretation of findings in studies that examine the effect of integrated reporting on sustainability-related disclosures, recognising that organisational context can greatly shape the nature and focus of reporting.

Our findings also indicate that industry-level factors can shape the nature and focus of sustainability reporting. Prior research has shown that companies in environmentally sensitive industries provide more environmental disclosure compared to companies in not-so-environmentally sensitive industries (see, e.g. [Peters and Romi, 2013](#)). However, these studies failed to clarify whether the environmental disclosures more proactively provided are of a financially- or impact-material nature. Our findings suggest that possibly the former group of companies outperform the latter in terms of the impact-material social and environmental disclosures they provide compared to financially material disclosure. This implies that impact materiality is an important criterion for environmentally sensitive companies probably because they consider the long-term boomerang effects ([Giner and Luque-Vilchez, 2022](#)) of their social and environmental impacts. In addition, companies operating in environmentally sensitive industries inherently face greater scrutiny and attention to their environmental activities, and stakeholders tend to have higher expectations for environmental disclosures from these companies, which can incentivise voluntary disclosure.

Another interesting finding of our study is the influence of country-level factors on the balance between impact and financially material sustainability-related disclosures. [Ali et al. \(2017\)](#), based on a review of the literature, explained that companies in developed and developing countries face different incentives for making social and environmental disclosures. They highlight that in developing countries, sustainability reporting is more heavily influenced by external forces/powerful stakeholders such as international buyers, foreign investors, international media and international regulatory bodies (e.g. the World Bank) who would directly control the capitals that companies depend on. In contrast, soft pressure from various stakeholder groups tends to influence developed countries. We believe that our findings explain the distinction in the nature of the forces influential in driving companies to disclose sustainability-related information. The information needs of influential stakeholders in companies in developing countries are more likely to be served by financially material sustainability-related disclosures than impact-material information. The absence of direct pressure on reporting on companies' social and environmental impacts results in companies in those countries not prioritising such information because of the nature of their institutional settings.

Our finding that companies in common-law countries disclose more impact-material information than financially material information can be attributed to the heightened focus on public information and the strict legal liability for failing to disclose relevant information in the common-law system ([Ball, 2002](#)). Conversely, code law countries tend to prioritise private information over the public. The corporate disclosures in these jurisdictions are primarily tailored to comply with specific legal mandates and regulations, often resulting in a more restrictive approach. The driving force behind disclosure in these countries is not an underlying accountability motive but rather the mitigation of agency costs ([Oliveira et al., 2013](#)). Disclosure related to an organisation's social and environmental impacts typically arises from a motivation of accountability, whereas agency considerations more commonly prompt financially material disclosures.

Caution is warranted when comparing our findings on the relationship between integrated reporting and sustainability-related disclosures with previous studies primarily focusing on South Africa. South Africa's unique situation is marked by its regulatory approach to integrated reporting and complex, multifaceted social development challenges. These challenges stem from the country's distinctive historical, political and socio-economic context, giving rise to issues such as the AIDS epidemic, racial, gender and income inequality, land redistribution, unequal access to

education, employment and health care and natural resource shortages. These are further exacerbated by the lingering effects of apartheid, leading to social problems that are more profound than those in most other nations (Carels *et al.*, 2013; Haji and Anifowose, 2017; Montecalvo *et al.*, 2018). South African companies, mirroring a trend seen in many other developing countries, often place less emphasis on environmental impacts and provide comparatively limited environmental disclosure (De Villiers and Van Staden, 2006; Igwe *et al.*, 2023). South Africa's sustainability reporting practices are heavily influenced by its socio-economic challenges (Visser, Wayne Africa Merlin-Tao, 2002), rendering previous research on this subject less applicable to understanding sustainability reporting in more developed countries. Support for this assertion can be found in the data from our sample, where companies disclosed more environment-related GRI indicators in impact-material disclosure, in contrast to social information as found in prior South African studies (De Villiers, 2000).

7. Conclusion

This study explains the link between integrated reporting and the provision of sustainability-related disclosures, focusing on the balance between impact- and financially-material disclosures. Contrary to criticisms that integrated reporting may neglect sustainability, we find that integrated reporters disclose significantly more impact-material information. Unlike some earlier research that indicated symbolic action and compliance as primary motivations for integrated reporting, our results suggest companies adopting integrated reporting engage in a more holistic, substantive, long-term and accountability-driven approach. Hence, our findings challenge the claim that integrated reporting will lead organisations to favour organisational sustainability over planetary sustainability without fostering a true commitment to sustainable development. While the <IR> Framework does not advocate for the provision of impact-material sustainability-related disclosures, evidence from corporate disclosure practices suggests that the principles-based approach embodied in the <IR> Framework affords companies the necessary flexibility. This enables them to undertake context-specific reporting on diverse sustainability dimensions, accommodating financially and impact-material considerations.

We also discern the influence of industry-level factors on sustainability reporting, with environmentally sensitive industries providing more impact-material disclosures. Country-level factors further contribute to variations in disclosure patterns, with companies in common-law countries and developing countries providing more impact-material disclosures. Therefore, our study reinforces the idea that integrated reporting serves as a foundation for an extended reporting framework and provides valuable insights into the nuanced interactions of contextual factors. This understanding contributes to the literature by elucidating the complexity of integrated reporting and sustainability-related disclosure practices, challenging pre-existing notions and encouraging a more intricate interpretation tailored to organisational and regional specificities.

The findings of this study have several implications. First, because the <IR> Framework allows for flexibility in reporting various sustainability dimensions, preparers must recognise this ability and tailor their reports according to their specific context and industry. Our findings imply that preparers can use the <IR> Framework in tandem with other sustainability reporting standards and frameworks that promote double materiality, such as the GRI Standards, European Sustainability Reporting Standards and for reporting on the SDGs. Furthermore, preparers can use our specialised coding instrument to enhance sustainability-related disclosures, directing generic information towards a more detailed explanation of the impacts on society and the environment. Second, users of integrated

reports should be aware that even the sustainability-related disclosures relating to GRI indicators should not be accepted at face value to be impact material. They should apply further scrutiny, questioning whether the information can make a difference to the decision made by non-investor stakeholders.

Third, policymakers should acknowledge the differential impacts of voluntary adoption of integrated reporting on sustainability-related disclosure practices of companies in various contexts. This insight may guide them in crafting tailored policies considering the unique characteristics and pressures of different sectors and regions. In addition, policymakers can use the findings to promote policies that emphasise both financially- and impact-material disclosures, supporting broader sustainable development and societal goals. Fourth, the findings relating to the extent of various types of sustainability-related information disclosed by companies could benefit the ISSB, which currently owns the <IR> Framework and is developing a connected reporting framework. In particular, future revisions to the <IR> Framework or a new connected reporting framework should focus on providing clear guidance or illustrative examples relating to types of information that are least disclosed by companies (e.g. decent work and product responsibility). Finally, researchers can use our coding instrument and the approach we adopted to develop it to differentiate between impact- and financially-material sustainability-related disclosures when analysing corporate reporting practices. Delineating between these two types of disclosure will become more important as sustainability reporting becomes mandatory and with the application of sustainability reporting standards with differential materiality underpinnings.

This study is not without limitations. First, there is a potential sample selection bias, given that the selected organisations were frontrunners in adopting integrated reporting and voluntarily participated in the IIRC pilot programme. If this bias exists, the difference between impact- and financially-material disclosure may be smaller among less experienced and less mature integrated reporters. Second, the study's small sample size, consisting of data collected from 12 countries at only two time points without analysing the intervening years, constrains the ability to generalise the results broadly. This limitation underscores the need for caution in extending the findings to diverse settings. Third, our analytical approach was circumscribed in that we did not consider the visuals and information provided in other reports that were hyperlinked in the integrated reports. This exclusion may affect the overall balance of financially- and impact-material sustainability-related disclosures. Fourth, we omitted an examination of potential trade-offs in disclosures by category. Such trade-offs could manifest as an increase in one type of sustainability-related disclosure being offset by a decline in others, thus complicating the interpretation of disclosure trends. Fifth and finally, although our coding criteria were detailed and rigorous, the possibility of inherent subjectivity in interpretive content analysis and categorisation cannot be dismissed. This subjectivity may introduce nuances that affect the findings' accuracy and should be considered when assessing the study's contributions.

This paper is an initial attempt to provide novel insights by distinguishing sustainability-related disclosures from the perspective of "value to whom". We invite future researchers to refine the coding index further and subject it to empirical testing across diverse contexts and various disclosure mediums. Future research can use interviews and case studies to probe the underlying reasons for low/high levels of sustainability-related disclosure within specific categories. Such qualitative methods could help validate or

contrast our findings and deepen the understanding of these phenomena in different and unique contexts.

Notes

1. Double materiality combines financially materiality, which focuses on information affecting an organisation's economic decisions, with impact materiality, which concerns the organisation's effects on society and the environment. [Perera-Aldama \(2023\)](#), [Abhayawansa \(2022\)](#) and [Baumüller and Sopp \(2022\)](#) offered comprehensive reviews of materiality principles, including double materiality, in sustainability reporting guidelines and standards. [Jørgensen et al. \(2022\)](#) highlighted the potential for confusion caused by the parallel use of financially materiality (SASB approach) and double materiality (GRI approach) in sustainability reporting and propose solutions for resolving it.
2. The recent shifts in the sustainability reporting landscape, especially the merger of the IIRC with SASB to create the VRF and its subsequent integration into the IFRS Foundation, highlight how the <IR> Framework may perceive to be further entrenched in a financially materiality discourse.
3. www.oed.com/viewdictionaryentry/Entry/299890?print
4. The countries are Brazil, Columbia, Hong Kong, India, Japan, Malaysia, New Zealand, Saudi Arabia, Spain, Sri Lanka, Sweden and The Netherlands.
5. The GRI Standards restructured the G4 content into a modular system, comprising universal standards (relevant to all organizations), sector standards (industry-specific) and topic-specific standards (addressing particular economic, environmental or social issues). As we adopt a sector-agnostic approach, this reorganisation does not alter our analysis.
6. Types of injury and rates of injury, occupational diseases, lost days, absenteeism and total number of work-related fatalities by region and by gender.
7. Aspect is the term GRI G4 guidelines uses to refer to a group of indicators belonging to a similar theme. For instance, GRI indicators EN3–EN7 relates to the aspect of energy.

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