The International Journal of Sustainability Policy and Practice
ISSN: 2325-1166 (Print), ISSN: 2325-1182 (Online)
Volume 19, Issue 2, 2023
https://doi.org/10.18848/2325-1166/CGP/v19i02/35-64

A Case Study on the Blended Reporting Phenomenon: A Comparative Analysis of Voluntary Reporting Frameworks and Standards–GRI, IR, SASB, and CDP

Kuntal Goswami, Australian Centre for Sustainable Development Research & Innovation(ACSDRI), Australia
Mohammed Kazi Saidul Islam, Central Queensland University (CQU), Australia
Winton Evers, EcoProfit, Australia

Received: 08/30/2022; ***Accepted:*** 01/19/2023; ***Published:*** 08/14/2023

Abstract: The article presents a comparative analysis of the sustainability disclosures of four companies, each of adopted different voluntary nonfinancial reporting frameworks and standards, as introduced by the Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC), Sustainability Accounting Standard Board (SASB), and Climate Disclosure Project (CDP). The case study highlights the way in which these frameworks and standards are applied by organizations from different sectors as well as underlining the multiplicity of overlapping voluntary nonfinancial or environmental, social, and governance (ESG) reporting frameworks. Thus, the article provides contextual reasons for alignment (with GRI, IIRC, SASB, and CDP) toward a proposed comprehensive corporate reporting standard as will be drafted by the International Sustainability Standards Board (ISSB). All these frameworks and standards are designed with distinctive characteristics to satisfy the ESG information needs of stakeholders, especially those in the financial sector. Each framework and standard tries to position itself for niche identity within the voluntary ESG reporting domain. As a result, organizations adopt all of the available contemporary nonfinancial sustainability or ESG reporting frameworks and standards, in a blended format. Thus, they present all nonfinancial information as a buffet to gain legitimacy and confidence from all stakeholders. This new trend can be termed as a blended reporting format phenomenon. However, the study finds that reporting based on GRI is the most comprehensive, as it is designed to address the information expectations of all stakeholders. The study also found that the Task Force on Climate-Related Financial Disclosure (TCFD) is an important normative institutional framework that is motivating companies to present sustainability information to cater to the decision-making information need of capital markets and investors, while the Sustainable Development Goals (SDGs) act as the most respected global moral sustainability compass. However, the question remains as to whether sustainability information should only be seen from the financially material perspective of capital markets or if it should be considered as economic, social, and ecological material information for all stakeholders.

Keywords: *Global Reporting Initiative (GRI), Integrated Reporting (IR), Sustainability Accounting Standard Board (SASB), Climate Disclosure Project (CDP), Climate Disclosure Standard Board (CDSB), Task Force on Climate-Related Financial Disclosure (TCFD), Sustainable Development Goals (SDGs), International Sustainability Standards Board (ISSB)*

Introduction

The sustainability agenda has been mainstreamed over time (Threlfall, King, and Shulman 2020; Niemenmaa and Turtiainen 2013; Kuprionis and Styles 2017). With its growing importance, companies are adopting and experimenting with alternative sustainability reporting frameworks, in various permutations and combinations, to understand which combinations will provide better disclosure of their holistic sustainability (environmental,

social, and economic) performance information to targeted stakeholders (Guthrie 2016). At the same time, regulators across the world are increasingly mandating organizations to disclose their nonfinancial performance information (Meech and Bayliss 2021). For example, in France, Grenelle II stipulated organizations should provide externally assured nonfinancial information in annual reports; the Sao Paulo Stock Exchange of Brazil advocated reporting of nonfinancial key performance indicators (KPIs) on a "comply" or "explain" basis; in China, the Shanghai Stock Exchange published Guidelines on Environmental Disclosure for listed companies; the European Union introduced Non-Financial Reporting Directives to companies to publish sustainability reports on a comply or explain basis; in South Africa the Johannesburg Stock Exchange (JSE) mandated listed companies to publish Integrated Reports; and in the UK, the Companies Act 2006 expanded the scope of mandatory nonfinancial disclosures for listed companies (Ernst & Young Global 2014; Meech and Bayliss 2021; World Business Council for Sustainable Development [WBCSD] 2014).

Many voluntary nonfinancial reporting frameworks and standards have evolved over the years, as there are growing regulatory shifts toward nonfinancial disclosures, a change in focus for sustainability accounting from impact assessment to risk identification models, and as the voices for climate-related disclosure have become stronger with mounting evidence of human-induced climate change (O'Dwyer and Unerman 2020; Meech and Bayliss 2021). The five most prominent contemporary sustainability reporting frameworks and standards that have been promulgated are by the Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC) or Integrated Reporting (IR), Sustainability Accounting Standard Board (SASB), Climate Disclosure Project (CDP), and Climate Disclosure Standards Board (CDSB) (Threlfall, King, and Shulman 2020; Impact Management Project [IMP], n.d.; Bose 2020).

With a multiplicity of voluntary reporting frameworks, there has been a "brainstorming effect" of ideas on how to improve the decision-usefulness of Environmental, Social, and Governance (ESG) information. At the same time, there has been confusion in relation to which standard to follow (Davies, Dudek, and Wyatt 2020). The situation has also led to the proposed convergence and alignment of different streams of approaches toward a comprehensive corporate reporting standard called the International Sustainability Standards Board (ISSB) (IMP, n.d.). In this context, it is imperative to analyze the characteristics and applications of each existing framework in the pre-convergence period. This will facilitate mapping and documentation of the situation that has led to alignment of GRI, IIRC, SASB, CDP, and CDSB. Hence, in this article five contemporary reporting frameworks and standards, as introduced by the GRI, IIRC or IR, SASB, CDP, and the CDSB, are compared theoretically to understand the normative characteristic of each framework. The article concentrates on only four out of five frameworks and standards—GRI, IR, SASB, and CDP—to compare applications of each standard and framework. This is because CDSB only prescribes broad guidelines and does not provide any specific measures, indicators, and metrics to quantify sources of environmental impact.

Literature Review

With the proliferation of nonfinancial reporting frameworks and standards, there has been a change in perception of corporate accountability on how to integrate and address sustainability issues with business. Since 2000, GRI appears to have become the de facto common language for sustainability as it provides indicator-based guidelines to produce standalone corporate sustainability reports or information within annual reports for a wide range of stakeholders (McKean-Wood, Gaussem, and Hanks 2016). However, with the release of IR's principles-based framework, the focus has shifted from single capital to multi-capital-based strategic and future orientation rather than historic orientation (Thomson 2015). It proposes a new corporate reporting format to integrate financial, social, environmental, and governance information for financial capital providers (McKean-Wood, Gaussem, and Hanks 2016). IR's inputs and outcomes-based framework also introduces the concept of value creation as the primary purpose of the disclosures . The case study by Sciulli and Adhariani (2021) revealed that there are four common motivations to adopt IR: (1) to project a "first mover" impression to the stakeholders; (2) to portray a strong management ethos for transparency and accountability; (3) to overcome any deficiency of the annual report; and (4) to respond to changing demands from investors and other stakeholders who wish to know about the organization's long-term sustainability strategy and business model.

Value creation is the primary goal for any business organization (Perrini and Tencati 2006). However, the intended value creation proposition of IR is designed for providers of financial capital rather than to offer an enlightened interpretation of stakeholder relationships, as advocated in stakeholder theory (i.e., value to stakeholders), sustainability concepts (i.e., value to present and future generations), and social and environmental accounting (i.e., value to society) (Flower 2015). Supporting this critical argument, Yusof (2018) finds that information presented conforming to the IR framework is less supportive to other stakeholders, society, and the environment. Information based on the IR framework is less grounded in social and environmental disclosure practices than GRI-based sustainability reporting.

Furthermore, both the GRI and IR frameworks have distinctive materiality perspectives. GRI prescribes disclosure of those material topics that have significant economic, environmental, and social impacts, or such information that has the potential to substantively influence assessments and decisions of stakeholders. The IR framework prescribes reporting on matters that substantively affect an organization's ability to create value over the short, medium, and long terms (McKean-Wood, Gaussem, and Hanks 2016). However, a study of 167 listed companies, which all published voluntary Integrated Reports, shows that, except in a regulatory environment where IR is mandatory, there is a lack of evidence to justify the fact that voluntary adoption of IR is positively affecting a company's value or benefiting an analyst to forecast company earnings accurately (Wahl, Charifzadeh, and Diefenbach 2020). Furthermore, given IR's narrow materiality approach and limited stakeholder focus, it can be

seen as a victim of regulatory capture by accounting professionals and multinational enterprises. In this context, Flower (2015) and Thomson (2015) argue that IR "privileges a neo-liberal programmatic and incorporates the elements of sustainability that are aligned with the underlying principles of capitalism."

A similar comparison between GRI and SASB highlights that GRI has a broader approach toward materiality and addresses wider stakeholder expectations, while SASB's materiality approach is based on financially significant factors and its disclosure model mainly focuses on investors and providers of capital (GRI and SASB 2021). In addition, literature also highlights the phenomenon of blended reporting. Many companies are following the new trend of blended reporting, where the corporate report combines various nonfinancial frameworks (GRI, IIRC, Sustainable Development Goals [SDGs], and SASB) to meet the information expectations of different stakeholders and perspectives (GRI and SASB 2021). Hence, the overall comparison between leading contemporary frameworks also highlights different emphases in terms of scope, stakeholder focus, and materiality definitions (Barckow et al. 2019; Guthrie 2016). An analysis by Guthrie (2016) also acknowledges that there are underlying collective unities, agreements, and synergies across different sustainability reporting frameworks, even though on the surface they look fragmented and confusing. However, the literature both recommends and recognizes a need for further harmonization (SASB, n.d.-a).

The scientific evidence has confirmed that the rise in global temperature is above 1°C and with that the potential for significant physical impact due to climate change is also becoming certain (United Nations Climate Change [UNCC], n.d.). In this context, Kuprionis and Styles (2017) described the gravity of the situation by mentioning that while the concept of sustainability may have mainstreamed, "global warming and climate change" remain the elephants in the room. As a result, there is an urgent need for green finance to decarbonize the economy and companies' exposure to climate-related risk needs to be lowered. Hence, climate change issues top all other sustainability issues. Climate change–related risks can manifest in the form of regulatory, technological, market, reputational, and physical risks. In this context, the Task Force on Climate-Related Financial Disclosure (TCFD) categorized these risks into two broad categories: (1) transitional risks (policy and legal, technology, market, and reputation) and (2) physical risks (acute and chronic) (De Bernardi, Venuti, and Bertello 2019). These risks can impact financially (via income statements, cash flow statements, and balance sheets) and can affect an organization's asset quality and ability to generate revenue and cashflows, alongside its ability to raise capital (De Bernardi, Venuti, and Bertello 2019).

In the context of quality and trust of the present sustainability disclosures, Esty (2020) highlights there is a lack of "investment-grade" sustainability metrics and investors are not able to distinguish between corporate "greenwash" and authentic corporate leadership toward sustainability. Hence, the lack of trust in companies' ESG data among investors is one of the core issues underlying the lack of commitment toward sustainable investment (Esty

2020). Similarly, there are still informational disclosure gaps across companies, relating to the financial impacts of climate-related risks, as highlighted by De Bernardi, Venuti, and Bertello (2019) in their cross-sectoral study of twenty-five Italian companies. Therefore, contextualizing on this rising climate-related risk scenario, the Financial Stability Board's TCFD has recommended companies provide financially material climate-related information around four thematic areas: (1) governance, (2) strategy, (3) risk management, and (4) metrics and targets (TCFD, n.d.).

The TCFD's recommendations, therefore, paved the way for an institutional shift in nonfinancial disclosure from a sustainability impact focus to a climate-related risk focus (O'Dwyer and Unerman 2020). This change also facilitates the flow of global finance toward green investments. However, O'Dwyer and Unerman (2020) also argued that there are challenges to implement TCFD's recommendation in terms of risks and opportunities for climate change. Therefore, companies need to develop new practices of climate-related scenario analysis and reporting. In order to address the concerns raised by critics, SASB and CDSB are ensuring companies can both identify and access climate-related risks and opportunities, integrate climate change factor information into their mainstream financial reports in a cost-effective way, and can fulfill the TCFD's recommendations (SASB, n.d.-a). In the context of the various arguments and conceptual distinctions between nonfinancial reporting frameworks and standards, the study analyzes distinguishable features, alongside the depth and quality of disclosures based on these frameworks.

Table 1: Summary of Literature Review

Authors	Key objectives	Key findings
GRI and SASB (2021)	✓ A survey to understand the experiences of reporting companies which all use both GRI and SASB sustainability reporting frameworks.	✓ The report is based on survey of 132 respondents who all work in the area of CSR/ Sustainability/EHS function, Corporate Communication, and Investor Relationships across top 10 industries (financial, extractive & mineral processing, services, infrastructure, technologies, consumer goods, resource transformation, transportation, health care, and food & beverages). ✓ GRI & SASB are complementary to each other with different perspectives and approaches to materiality and stakeholder engagement focus. Collectively both frameworks provide an holistic picture by providing a company's financial and sustainability information expectations. ✓ Respondents mentioned that GRI is the pioneer and best suited to meet information expectations of broader stakeholders. ✓ Companies are also creating a blended reporting framework (combining GRI, IIRC, SDG, and SASB) to meet information expectations of different stakeholders and perspectives. ✓ Respondent mentioned that over the years GRI, SASB, CDP, IR, UNGC, TCFD and SDGs are becoming harmonised, inter-related, overlapped, and provided common language for sustainability.
Wahl, Charifzadeh, & Diefenbach (2020)	✓ To identify how integrated reporting creates value for investors. ✓ To investigate how integrated reporting information benefits analysts when they try to forecast company earnings accurately and the firm's value.	✓ The findings, based on 167 listed companies who all published Integrated Report voluntarily, show, except in a regulatory environment where Integrated Reporting is mandatory, there is a lack of evidence to justify the fact that voluntary adoption of Integrated Reporting is positively affecting a company's value or benefiting analysts to forecast company earnings accurately.
O'Dwyer & Unerman (2020)	✓ To problematise the Task Force on Climate-related Financial Disclosure reporting.	✓ Challenge to implement TCFD's recommendations on risks and opportunities on climate change. ✓ Need to develop new practices of climate-related scenario analysis and reporting.
Yusof (2018)	✓ Examined the social and environmental disclosures for Sustainability Reporting (SR) and Integrated Reporting (IR) of ten European companies	✓ Integrated reporting is less grounded in social and environmental disclosure practices than sustainability reporting. ✓ Integrated reporting's disclosure practice is investor focused, and more oriented towards sustainability of business. ✓ Information is less supportive to other stakeholders, society, and the environment.

Authors	Key objectives	Key findings
SASB (2017a)	✓ To understand emerging alignments between CDSB, the SASB, and the TCFD.	✓ The reports highlight CDSB and SASB are the two most referenced organisations in the TCFD recommendations. ✓ In collaboration with the National Capital and Climate Change Reporting Framework, SASB and CDSB, these institutions are ensuring companies can identify, access climate-related risks and opportunities, and integrate climate change factors information into their mainstream financial reports in a cost-effective way and can fulfill the recommendations of the TCFD. ✓ However further harmonisation is also required between CDSB and SASB.
Guthrie (2016)	✓ To map the direction of different sustainability reporting frameworks.	✓ The study showed that there are underlying collective unities, agreements, and synergies among different sustainability reporting frameworks, even though on the surface they look fragmented and confusing. ✓ The comparative analysis highlighted that: o GRI expects to advance the sustainable global economy by drafting sustainability reporting standards. o IR desires to bring about financial stability and sustainability through efficient and productive allocation of capital, integrated thinking, and reporting. o SASB aspires to increase long-term value and sustainability outcomes for investors through SASB's sustainability accounting standards. o CDP advocates that long term efficient capital allocation cannot be achieved through short term gains at the expense of the environment. CDP wants to leverage the market through disclosure of an organisation's environmental risk management information, standards, and measurements.

Source: Goswami, Islam & Evers

Conceptual Frameworks and Standards for Voluntary Reporting

In this section, five contemporary frameworks and standards—the GRI, IIRC or IR, SASB, CDP, and CDSB—are compared, based on their purpose, stakeholder focus, materiality focus, and the structure of each framework and standard. In this article, CDSB is only discussed theoretically as it does not present any metric, whereas the other four frameworks are discussed theoretically alongside their respective application(s) by selected companies of this study. Nonetheless, companies do address and align themselves with the fundamental normative perspective of CDSB, hence the article concentrates on CDSB theoretically only.

The comparison will enable understanding of key characteristics and will highlight the relevant distinctions across each framework and standard. Although these frameworks aim to embed a sustainability perspective in economic and business activities, each of these frameworks and standards differs in their respective intent, stakeholder engagement focus, in defining what constitutes material sustainability issues and in information expectations for an enterprise's holistic sustainability performance.

Global Reporting Initiative (GRI)

In 1997, with the backdrop of the Exxon Valdez oil spill, the GRI project was started in Boston as a project department of a US nonprofit organization, the Coalition for Environmentally Responsible Economies (CERES), in association with the Tellus Institute and the United Nations Environment Programme (UNEP) (GRI, n.d.-c). The initial aim was to set up an accountability mechanism to ensure corporate entities follow responsible environmental principles. Subsequently, the scope of the GRI project was extended to include social, economic, and governance-related accountability issues (GRI, n.d.-c).

GRI's vision is to be a catalyst for a sustainable world(GRI, n.d.-a). The first version of the GRI's guidelines was published in 2000, aiming to provide a global framework on sustainability reporting. In 2002 an updated version of the guidelines, GRI G2, was launched at the World Summit on Sustainable Development (Environment Australia 2003). In 2016, the GRI's Global Sustainability Standards Board (GSSB), an independent standard-setting

body, developed the Sustainability Reporting Standards, which led to a transition from a guidelines-based framework to a standards-based reporting system (Reinhardt, Genovese, and Dunstan 2016; GSSB 2016).

GRI is a multi-stakeholder-focused standard(GRI. n.d.-b). The purpose of the standard is to support the decision-making process of the organization and their stakeholders in relation to the economic, environmental, and social performance of the company (GRI, n.d.-a). The GRI standard is impact-focused, with four key segments: (1) a management approach, (2) economic performances, (3) environmental performance, and (4) social performance (GRI n.d.-b). GRI expects an organization to disclose where the impacts occurred in the value chain, if they were within the organizational boundary, or if the impacts are directly linked to them through its customer or suppliers (GRI, n.d.-c) Within the GRI standard a topic is financially material if, due to the operation of the organization, it has the potential to impact positively (contribution to sustainable development—economically, environmentally, and socially) or negatively in both the short and the long term (GRI, n.d.-b; GSSB, n.d.; Corporate Reporting Dialogue [CRD] 2016).

Under the GRI standard, a topic is material if it substantively influences a stakeholder's ability to assess and make informed decisions. However, material topics should not be deprioritized based on not being recognized as financially material by the organization (GSSB, n.d.; GRI 2021, GRI, n.d.-c). Furthermore, an organization needs to identify each material topic from two perspectives: (1) the organization's positive or negative impact on the advancement of sustainable development (economically, environmentally, and socially); (2) if the information is material enough to significantly or substantively influence stakeholders' assessment and decision-making abilities (GRI 2021, n.d.-c).

Integrated Reporting (IR)

The Prince's Accounting for Sustainability Project (A4S) and the GRI formed the International Integrated Reporting Committee in 2010. Later the committee was renamed the *International Integrated Reporting Council* (Deloitte Touche Tohmatsu, n.d.; IIRC 2010). IR is a principles-based framework founded on the concept of integrated thinking, a subset of systems thinking. It highlights the resource dependency of an organization's business model and how the organization uses or affects five broad-based types of capital (financial, manufactured, intellectual, human, social, and natural) (IIRC 2021, 2022, n.d.). IR is designed to inform financial capital providers about how a business is creating value through efficient utilization of the five broad-based types of capital (IIRC 2021, 2022, n.d.). IR defines material information through the prism of value creation, and for an information seeker, a disclosure is material if it substantively affects an organization's value creation process in the short, medium, and long term (IIRC 2021, 2022, n.d.; CRD 2016). The framework expects an organization to describe its business model and develop strategies to tackle risks and opportunities, resource allocation, performance, and governance (IIRC 2021, 2022, n.d.).

Although reporting based on the IR framework is only mandated by South Africa's JSE, companies across the world, including those in Japan, Sri Lanka, the UK, France, Brazil, Malaysia, India, Sweden, the Netherlands, Norway, and Australia, have adopted IR's principles-based voluntary reporting framework (Threlfall, King, and Shulman 2020; Gibassier, Adams, and Jerome 2019a, 2019b; Meech and Bayliss 2021). In June 2021, IR merged with the SASB and formed a new institution called the Value Reporting Foundation (Guillot 2021; IIRC 2020). This unification is expected to complement IR's input and outcome-based value creation model with SASB's sector-specific, metric-based model (Guillot 2021).

Sustainability Accounting Standard Board (SASB)

In 2011, SASB was established as a not-for-profit organization with an objective to set a requirement to provide financially material sustainability information to investors and businesses in the United States(SASB, n.d.--a). It is a voluntary reporting framework for US public listed companies. The popularity of SASB has grown exponentially. Only three companies reported based on SASB in 2015, while more than nine hundred companies used it in 2021(SASB, n.d.-b). To date, reporting as per the SASB requirements is no longer confined to US companies alone (Schmitz Eulitt 2020). SASB provides eleven sector-specific, metric-based voluntary reporting standards that cover about seventy-seven industries (SASB, n.d.-c). The companies that use SASB must disclose sustainability information under five broad topics: (1) the environment, (2) social capital, (3) human capital, (4) business model and innovation, and (5) leadership and governance (SASB, n.d.-c).

Within the SASB standards, information is reasonably material if it is decision-useful for companies, investors, and corporate users. SASB focuses on sustainable information that is financially material and has the potential to impact an enterprise's value creation process in the short, medium, and long term (SASB, n.d.-a). SASB also provides sector- as well as industry-specific materiality maps to facilitate identification of material sustainability risks and opportunities pertaining to the sector and industry (SASB, n.d.c). The merger of IR and SASB is expected to create synergy and comprehensiveness by combining two perspectives: (1) how an organization's strategies utilize its capital to create value over time, and (2) how an organization seeks to identify those industry-specific financially material sustainability risks and opportunities that are linked with the company's ability to create value for investors over time (Guillot 2021).

Carbon Disclosure Project (CDP)

In 2000, CDP was established as a not-for-profit organization with the aim to build a sustainable economy and provide a global environmental disclosure system for companies, investors, cities, states, and regions (CDP 2021, 2022, n.d.-a). CDP provides an open access online data portal to its members to disclose their actions on climate change, water use, forest-based resources use, and supply chains, alongside their risk exposure and climate change–

related adaptation and mitigation strategies (CDP 2022, n.d.-b, n.d.-c). The platform focuses on measuring the environmental impact of investors, companies, cities, and governments, and how these entities act on their environmental impact (CDP 2022, n.d.-a). CDP follows the same materiality definition and scope as defined by the CDSB. As of 2021, over 14,000 organizations, including 13,000 companies and about 1,100 cities, states, and regions disclosed their environmental performance data through CDP's online platform (CDP 2021, 2022, n.d.-b).

Climate Disclosure Standards Board (CDSB)

This is an international association of business and environmental NGOs. CDSB was formed in 2007 with a mission to standardize environmental information reporting (CDSB 2022b). In 2010, CDSB released its first Climate Change Reporting Framework, and as of 2022, about 374 companies across 32 countries are currently using the framework (CDSB 2022a). Under CDSB, environmental information is material: "if the environmental impacts or results are expected to have a significant positive or negative effect on the organization's current, past, or future financial condition, operation, and its ability to execute strategy, and if omitting, misstating, or misinterpreting of such information could influence decisions of its users" (CRD 2016, 5.). In the CDSB framework, environmental information provides the scope of data where relevant environmental information is the subset of environmental information, and material information is the subset of relevant environmental information (CDSB 2019). Hence, reporting entities need to identify relevant environmental information and, once identified, the material information is reported based on the organization's exposure to environmental risks and opportunities (CDSB 2019).

CDSB's framework expects that an organization reports on its natural capital dependencies, environmental risks and opportunities, environmental policies, outcome, strategies, and targets, and its environmental performance against targets (CDSB 2022b, 2019). These aspects are addressed by answering twelve Reporting Environmental Questions (REQs), which tend to satisfy the recommendations of the TCFD on governance, strategy, risk management, metrics, and targets (CDSB 2018, 2019). The twelve REQs focus on: governance, management's environmental policies, strategy and targets, risks and opportunities, sources of environmental impacts, performance and comparative analyses, outlook, organizational boundaries, reporting policies, reporting periods, restatements, conformance and assurance (CDSB 2018, 2019). However, CDSB does not specify the measures, indicators, and metrics to quantify the extent of an organization's environmental impacts (CDSB 2022b). A comparative summary of five leading contemporary voluntary reporting frameworks is presented in Table 2 (a–e).

Table 2a: Comparative Summary of Contemporary Voluntary Reporting Standards and Frameworks (GRI)

Framework	Purpose	Stakeholder focus	Materiality approach	Disclosure structure
Global Reporting Initiatives (GRI)	✓ Catalyst for a sustainable world ✓ Standard for sustainability practice. ✓ To support decision making process of organisations and their stakeholders in relation to the economic, environmental, and social performance of the company.	✓ Multi-stakeholder focus	✓ Information about the most significant impacts of an organisation's business activities in relationship to the economy, environment, and people, i.e., materiality is seen through the lens of environmental, social, and economic impacts. ✓ Varity of users with a wide range of objectives to understand an organisation's positive and negative contributions to sustainable development. ✓ It can have a positive or negative impact on the economy, environment and on society due to the operations of the organisation. ✓ Understanding of short-term and long-term impacts are prerequisite to ascertain financially material issues. ✓ Addressing relevant impacts those are important for sustainable development. ✓ Material information helps to identify financial risks and opportunities. ✓ Material topics should not be deprioritised based on not being recognised as financially material by the organisation. ✓ Material topics can be an organisation's significant economic, environmental, and social impacts; or can substantively influence the stakeholders' ability to assess and make informed decisions.	GRI – Standards are broadly categorised into four segments: ✓ *Management Approach* ✓ *Economic Performance.* o *Six subcategories (market presence, indirect economic impact, procurement practices, anti-corruption, anti-competitive behaviour, and tax).* ✓ *Environmental Performance.* o *Eight subcategories (material, energy, water, effluents, biodiversity, emissions, waste, and environmental assessment).* ✓ *Social Performance* o *Nineteen subcategories (employment, labour relation, OHS, training, diversity & equal opportunity, non-discrimination, freedom of association, child labor, forced labour, security practices, right of indigenous people, human rights, local communities, supplier social assessment, public policy, customer health & safety, marketing & labelling, customer privacy, and socioeconomic compliance.*

Source: Goswami, Islam, and Evers

Table 2b: Comparative Summary of Contemporary Voluntary Reporting Standards and Frameworks (IR)

Framework	Purpose	Stakeholder focus	Materiality approach	Disclosure structure
Integrated Reporting (IR)	✓ For efficient and productive capital allocation. ✓ To enhance accountability for the broad-based capitals (financial, manufactured, intellectual, human, social and natural). ✓ Creation of value over the short, medium, and long term. ✓ IR guided by Integrated Thinking: a thought process designed to think holistically about the quality, availability, and cost of resources (capitals), that an organisation uses or affects. Highlights interaction between business model and various forms of capital ✓ Concept of 'value' is subjective and undefined. ✓ Value is created by assessing a 'business model outcome'. An organisation's resources or broad-based capitals transform into aggregate net positive (value is created), net negative (value is eroded) or a neutral position (value is preserved).	✓ Quality information for providers of financial capital.	✓ Materiality is described through a value creation lens. ✓ Information is material if it substantively affects an organisation's value creation process in the short, medium, or long term. ✓ IR's materiality concept is primarily focused on the provider of the financial capital's value creation perspective. Not necessarily to the organisation or from the stakeholder's perspective. ✓ Organisation need not to list all material issues; however, should disclose the materiality determination process.	✓ IR framework is structured to encompass five broad based capitals with input and output, or is outcome focused. ✓ Capital is the stock of value and input of an organisation's business model, which transforms through business activities into outputs. ✓ IR framework is primarily designed for the profit motive private sector; however, it has universal applicability too. ✓ IR's core disclosure includes the business *model, strategy and resource allocation, performance, and governance.* ✓ IR also expects to identify organisational specific risks and opportunities that affect an organisation's ability to create value in the short, medium, and long term.

Source: Goswami, Islam, and Evers

Table 2c: Comparative Summary of Contemporary Voluntary Reporting Standards and Frameworks (SASB)

Framework	Purpose	Stakeholder focus	Materiality approach	Disclosure structure
Sustainability Accounting Standards Board (SASB)	✓ For voluntary effective disclosure of material sustainability information (in Forms 10-K, 20-F, and 40-F) of US public listed companies.	✓ Reasonably material and decision-useful information for companies, investors, and corporate issuers.	✓ SASB focuses on financially material issues that matter most to the investors. ✓ SASB identifies financially material issues, that are reasonably likely to impact financial conditions or operating performance. ✓ Financially material sustainable information represents those sustainability factors that are material in the short, medium, and long-term for an enterprise's value creation. ✓ SASB provides a sector as well as an industry level materiality map and in the sector level mapping system provides a hierarchy of material issues: o *Likely material issues for more than 50% of industries in a sector.* o *Likely material issues for fewer than 50% of industries in a sector.* o *Likely non-material issues for any of the industries in a sector.* Industry level map: o *Likely material issue or likely non-material issue for companies in the industry.*	✓ SASB's sustainability topics are categorised into five broad dimensions: ✓ *Environment* o *(GHG Emission, Air quality, Energy Management, Water & Wastewater Management, Waste and Hazardous Materials Management, and Ecological Impacts)* ✓ *Social Capital* o *(Human Rights & Community Relations, Customer Privacy, Data Security, Access & Affordability, Product Quality and Safety, Customer Welfare, Selling Practices and Product Labelling)* ✓ *Human Capital* o *(Labour Practices, Employee Health & Safety, Employee Engagement, and Diversity Inclusion)* ✓ *Business Model and Innovation* o *(Product Design & Lifecycle Management, Business Model Resilience, Supply Chain Management, Materials Sourcing & Efficiency, and Physical Impacts of Climate Change)*
			✓ Materiality map helps corporates to strategies sustainability and provides the metrics to underpin disclosure topics. ✓ For investors, the materiality map provides a tool to analyse the industry or the sector issues' specific sustainability risks and opportunities.	✓ *Leadership & Governance* o *(Business Ethics, Competitive Behaviours, Management of the legal & Regulatory Environment, Critical incident Risk Management, and Systemic Risk Management).* ✓ SASB has 77 industries specific sustainability frameworks covering eleven sectors: o *7 segments of the Consumer goods industries.* o *8 segments of the Extractive & Minerals Processing industries.* o *7 segments of Financials industries* o *8 segments of Food & Beverages Industries.* o *6 segments of Health Care industries.* o *8 segments of Infrastructure Industries.* o *6 segments of Renewable Resources & Alternative Energy industries.* o *5 segments of Resource Transformation industries.* o *7 segments of Services industries.* o *6 segments of Technology & Communications industries* o *9 segments of Transportation industries.*

Source: Goswami, Islam & Evers

Table 2d: Comparative Summary of Contemporary Voluntary Reporting Standards and Frameworks (CDP)

Framework	Purpose	Stakeholder focus	Materiality approach	Disclosure structure
Climate Disclosure Project (CDP)	✓ The most comprehensive self-reported global online disclosure system for investors, companies, cities, states, and regions to manage environmental impacts. ✓ Organisation can publish their comprehensive environmental information in the CDP's online open data platform.	✓ Company specific CDP information for investors and its customers only.	✓ CDP follows CDSB's materiality definition and scope.	✓ *Company specific* CDP disclosure platform has three primary disclosure areas: *climate change, forests, and water security.* ✓ *City specific* CDP platform has following disclosure theme: *governance, Climate Hazards, Adaptation, City-wide Emissions, Emissions reduction, Opportunities, Local government Emissions, Energy, Building Transport, Urban Planning, Food waste, and Water security.* ✓ Based on the information disclosed a city gets its score and feedback from CDP. ✓ States and Regions specific disclosure platform has following themes: *governance, region wide-emission, strategy, risks and adaptation, water security and forests.*

Source: Goswami, Islam, and Evers

Table 2e: Comparative Summary of Contemporary Voluntary Reporting Standards and Frameworks (CDSB)

Framework	Purpose	Stakeholder focus	Materiality approach	Disclosure structure
Climate Disclosure Standards Board (CDSB)	✓ CDSB is a framework for reporting environmental and climate change information. ✓ A framework to align, equate, and advance environmental information with the same rigour as financial information. ✓ To equate natural and financial capital information at par to assess corporate performance. ✓ To contribute towards sustainable economic, social, and environmental systems.	✓ To provide investors with decision ready useful environmental information.	✓ CDSB framework is designed to report climate change-related and environmental information in mainstream reports. ✓ Materiality position of CDSB is near equivalent to the mainstream reporting model or similar to IASB. ✓ Environmental information is material if: o the environmental impacts or results are expected to have a significant positive or negative effect on the organisation's current, past, or future financial condition and operation and its ability to execute strategy. o Omitting, misstating, or misinterpreting it could influence decisions that users of mainstream reports make about the organization. ✓ CDSB's environmental information disclosure is guided by the following principles: o Relevance and materiality. o Faithfully represented. o Connected with other information. o Consistent and comparable. o Clear and understandable. o Verifiable. o Forward-looking. ✓ In the CDSB framework, environmental information provides the scope of data where relevant environmental information is the subset of environmental information identified by management, and material information is the subset of relevant environmental information. ✓ Hence, reporting entities need to identify relevant environmental information and once identified, material information is reported based on an organisation's exposure to environmental risks and opportunities.	✓ CDSB do not specify the measures, indicators, and metrics to quantify sources of environmental impact. ✓ CDSB's environmental information includes: o Organisation's natural capital dependencies, o Environmental results, o Environmental risks and opportunities (*Regulatory risk: GHG emission, energy efficiency standards, carbon taxation, process or product standards, participation in GHG trading schemes) and the (Physical effect of climate change: changing weather patterns, sea level rise, shifts in species distribution, changes in water availability, change in temperature, variation in agricultural yield) and (Reputational Risk as well as litigation risks).* o Environmental policies, outcome, strategies, and targets, o Performance against targets.

Source: Goswami, Islam, and Evers

Research Methodology

The study adopts a comparative case study approach (Yin 2009; Walsham 2002; Rashid et al. 2019) to analyze the quality and depth of sustainability performance disclosure based on four contemporary sustainability reporting frameworks and standards: (1) *GRI*, (2) *IR*, (3) *SASB*, and (4) *CDP*. The article concentrates on only four out of the five frameworks and standards to compare applications of each standard and framework, because CDSB only prescribes broad guidelines and does not provide any specific measures, indicators, and metrics to quantify sources of environmental impact. However, companies follow and align themselves with the fundamental normative perspective of CDSB, hence the article concentrates on the theoretical approaches of CDSB.

The study is based on information prior to alignment of these frameworks and standards into the International Sustainability Standards Board (ISSB). We selected four companies for our case study, BMW Brilliance Automotive Ltd., Kumba Iron Ore Ltd., General Motors (GM) Company, and Nestlé. The justification for selecting these four companies is that they disclosed their sustainability performance based on at least one of the voluntary reporting frameworks or standards. For example, BMW Brilliance Automotive Ltd. publishes its Sustainability Report based on the GRI standards; Kumba Iron Ore Ltd. publishes an Integrated Report; GM produces an SASB Index in their Sustainability Report; Kumba Iron Ore Ltd. produces a mandatory IR; and Nestlé provides its climate risks and opportunities disclosure in the CDP online self-reporting platform. Furthermore, Nestlé mention in the CDP online platform that they also meet the CDSB framework's disclosure expectations. These four companies have been chosen because they apply these frameworks to disclose their internal and external commitment to sustainability.

Each disclosure report is analyzed to understand the depth of information and how sustainability performance information is provided, based on nonfinancial voluntary reporting frameworks and standards. Our comparative analysis also highlights the similarities and differences in disclosure practices based on each framework, and the standards' normative prescriptions to address the information expectations of targeted stakeholders. However, there are inherent limitations to our article as it has adopted the case study model. The article offers in-depth analysis and interpretation based on four selected companies, rather than providing generalizations based on a large dataset.

About the four selected companies:

- *BMW Group* is a 98,990-million-euro company with 120,726 employees operating from thirty-one production locations in fifteen countries (BMW Group, n.d.-b). The company's sustainability commitment is grounded in long-term thinking and responsible action, which is not just about economic success but also addresses ecological and social sustainability (BMW Group, n.d.-a). The company monitors its sustainability across research and development, supply chain, production, logistics

and transport, sales and utilization, and disposal and recycling (BMW Brilliance Automotive 2019).

- *Kumba Iron Ore Ltd*. is a South African–based mining company and a subsidiary of an Anglo-American group of companies. The company produced 42.4 Mt of iron ore and has about 12,217 employees (AngloAmerican, n.d.-b). Kumba Iron Ore, being an extraction-based company, provides raw materials for economic development. The company would like to meet the global demand for high-quality minerals and metals and simultaneously it wants to reduce its environmental footprint and support biodiversity (AngloAmerican, n.d.-a).
- *General Motors Company* is a multinational car manufacturing company, operating in six continents with a revenue of US$122.5 billion and employs over 155,000 people (GM, n.d.-a). The company is committed to sustainability values by making their global production carbon neutral by 2040, sourcing 100 percent renewable energy for all of its US operations by 2025 and globally by 2035, and using at least 50 percent sustainable material content in GM-manufactured vehicles by 2035 (GM, n.d.-b, n.d.-c).
- *Nestlé* is one of the world's largest food and beverage companies, which has more than 2,000 brands and a presence in 187 countries (Nestle, n.d.). The company has six holistic corporate business principles to address: (1) Consumers (nutrition, health and wellness, quality and safety, and communication); (2) People (human rights, diversity and inclusion, safety and health at work); (3) Value chain (responsible sourcing and environmental sustainability); (4) Business integrity (ethics and integrity); (5) Transparency (communication and engagement); and (6) Compliance (Nestlé 2020).

Application of Contemporary Voluntary Reporting Frameworks

The findings of this study unveil the application of contemporary voluntary reporting frameworks and standards: GRI, IR, SASB, and CDP. Our findings show how each of the selected four companies blends the structure and key characteristics of each framework and standard to demonstrate their commitment to report on their holistic sustainability performance and, thereby, the contemporary voluntary ESG reporting domain manifests into the "Blended reporting phenomenon." The companies embrace each framework and standard for their inherent distinctiveness and present their sustainability performance in a blended format as highlighted in the literature (GRI and SASB 2021). For example, companies have adopted GRI standards for comprehensiveness; IR provides companies with a strategic framework to inform how a company creates value over the short, medium, and long term; SASB provides sector-specific metrics; and CDP is adopted by companies to present their steps to mitigate climate change–related risks and opportunities.

The Sustainability Report from BMW has followed the GRI standard as the main standard to disclose its sustainability performance. In addition, the company has also linked

its performance with the SDGs and UN Global Compact (UNGC). The report is presented in four distinct sections: (1) fundamental; (2) products and services; (3) production and value creation; and (4) employees and society. The company highlights its sustainability commitment and performance through its strategy framework, sustainability progress across the value chain, trends of key sustainability performance indicators, defining the company and stakeholders' perspectives of material sustainability issues through the materiality matrix, and finally the company's contribution to the UN SDGs.

BMW's sustainability strategy has two focus areas to attain its sustainability aspirations and goals: (1) focusing on how to improve its product and services, the production process, creating value, employee talent, well-being, and to share the same values with the community; and (2) enabling factors to attain sustainability, *such as new technologies, sustainability mindset, sustainability governance, and beyond compliance factors*.

Aligning with the GRI standard's key features, the report provides a materiality matrix. The company's material sustainability issues encompass BMW's own internal commitment to contributing toward SDGs, as well as the accountability expectations of its wide range of stakeholders, such as its customer club, dealers, employees, government, media, and partners and institutions. The materiality matrix categorizes disclosures into three levels of relevance, based on the extent of their significance to stakeholders and BMW, as presented in Table 3.

Table 3: Material Information Matrix of BMW

Materially relevant information for both BMW and its Stakeholders		
Highly relevant information	Medium level relevant information	Low level relevant information
• Product and service safety • Sustainable product portfolio and R&D • Energy consumption and renewable energy • Access to labour • Compliance • Corruption • Anti-competitive behaviour and business ethics • Automation • Air pollution • Material and resource use • GHG emissions and climate change • Waste and effluents • Responsible HR management • Transparency • Charity and corporate citizenship	• Community and economic development, • Data protection and privacy, • Marketing and communication, Occupational health and safety, • After sales services, • Mobility infrastructure, • Human rights, • Public policy, • Forced and child labour	• Water consumption and land use • Biodiversity

Source: Goswami, Islam, and Evers

These three levels of relevance are linked with BMW's commitment to product responsibility, environment, society and human rights, and workplace impacts and all material sustainability issues are also further categorized under seven broad classifications as presented in Table 4.

Table 4: Classification of Material Sustainability Topics of BMW

Material sustainability issues of BMW
Product & services safety category includes total quality management, customer-health protection, customer satisfaction and dealer performance and addresses its commitment to Products and Services, Production and Value Creation, and Employees and Society.
Sustainable product portfolio and Aftersales service category includes product lifecycles carbon emissions, forging an E-mobility ecosystem, circular use of materials, customer-centric services and addresses its commitment to Products & Services, Production & Value Creation, and Employees & Society.
GHG emissions & energy consumption category includes Sustainability Mindset Fostering, Product Lifecycle Carbon Emissions, Forging an E-mobility Ecosystem, Circular Use of Materials, Fostering Sustainable Lifestyle for BMW Customers, Green Production, Green Logistics and addresses its commitment to Products and Services, Production & Value Creation, and Employees and Society.
Waste & effluents, Materials and resources use, and Water consumption category includes Product Lifecycle Carbon Emissions, Forging an E-mobility Ecosystem, Circular Use of Materials, Customer Satisfaction and Dealer Performance, Green Production, Green Logistics, and developing a Sustainable Supply Chain and addresses its commitment to Products and Services, Production and Value Creation, and Employees and Society.
Automation and digitalisation, Data protection and privacy category include Compliance Governance, New Technologies, Customer-centric Services, Customer Satisfaction and Dealer Performance, Smart Manufacturing, Green Production, and Green Logistics and addresses its commitment to Products and Services, Production and Value Creation, and Employees and Society.
Compliance, corruption, anti-competitive, behaviour & business ethics, Transparency, Human rights. Forced & child labour category include Compliance Governance, Green Production, Sustainable Supply Chain, Responsible Human Resources Management, and Health, Safety and Wellbeing and address commitment to Products & Services, Production and Value Creation, and Employees and Society.
Charity & Corporate Citizenship, Community & Economic Development category includes Production Strategy, Corporate Social Responsibility, Sustainable Supply Chain and Supporting the Communities in which We Work and addresses its commitment to Production and Value Creation, and Employees and Society.
Responsible Human Resource Management, Access to labour, Occupational health & safety category includes Responsible Human Resources Management, Long-term Employee Development and Health, Safety and Wellbeing and addresses its commitment to Employees & Society.

Source: Goswami, Islam, and Evers

BMW's Sustainability Report addresses GRI based on 109 key indicators with five-year trends under four broad subcategories: "Business activities" has six indicators, "Product and Services" has eleven indicators, "Production and Value Creation" has twenty-seven indicators (which mostly covers ecological footprints), and "Employees and Society" covers sixty-five indicators. In addition, these material issues of BMW collectively contribute to SDGs: 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 16, and 17, and the company's disclosure practice addresses the UNGC's ten principles. Hence, the overall finding shows that in the case of BMW, GRI standards acted as the anchor or core framework for disclosure in addition to the SDGs and the UNGC, thus BMW link their sustainability performance to both organizational and global contexts.

Kumba Iron Ore Ltd. is a South African company, and hence it is mandatory for this company to produce an Integrated Report. In addition, the company also aligned its disclosure with GRI Sustainability Reporting Standards, CDP, TCFD, and the UN's SDGs. In accordance with IR's materiality approach, Kumba's materiality statement discloses it reports all elements of material interest to investors and other stakeholders who wish to make an informed decision of Kumba's ability to generate value over the short, medium, and long term. In the process of value creation, the company draws on six capitals as inputs such as people, manufactured assets, financial capital, natural resources, relationships, and intellectual capital. With these inputs, Kumba strives to create values under seven topic areas, which are described as "pillars of value," and each topic area has its own quantifiable objectives. For example, under the "safety and health" area, the key aim is to "do no harm to our workforce"; under "environment," it aims to "minimize our impact on the environment"; under "sociopolitical," it aims to "partner in the benefits of mining with locals"; under "people," it aims to "create sustainable competitive, advantage through capable people"; under "production," it aims to "sustainably produce valuable products"; under

"cost", it aims to "be competitive by operating as efficiently as possible"; and under "financial," it aims to "deliver sustainable returns to our shareholders."

Aligning with the IR framework, Kumba also subdivides its strategy over three time horizons. The activities that should be accomplished within: one to three years are categorized as short term, three to five years are categorized as medium term, and five to seven years are categorized as long term. In addition, Kumba's Integrated Report also describes the eight focus areas of its strategies: (1) to remain cost competitive, (2) to identify and realize opportunities beyond the existing operations, (3) to produce premium products to maximize price premia, (4) to ensure stable and capable processing to deliver business expectation, (5) to extend life of current assets through technological innovation, (6) to focus on attractive ore site, (7) to maximize export potential over the medium term, (8) and to use technology to maximize value from existing ore sites. To accomplish these targeted goals, the company explains its five enabling factors in its strategic framework. These factors are:

1. Aligned marketing and efficient operational activities to ensure product matches customer needs.
2. Reinforcement of product quality and consistency.
3. Proactive engagement with key stakeholders to reinforce our partnership approach.
4. Leadership and culture, embedding a culture that fosters safety, health, diversity, innovation, and organizational effectiveness.
5. Demonstration of leadership through responsible citizenship, displaying care for safety, health, and the environment.

The central theme of the IR Framework–based disclosure practice is to highlight how a company draws various capitals from society to create value over time. In that respect, Kumba Iron Ore highlights its various capital inputs such as: the number of human resources it employs at different levels of the organizational hierarchy, the level of engagement with its unionized and nonunionized workforce, the amount of natural resources utilized in terms of direct extraction of ore materials, consumption of water, energy, diesel and land use, increases in market capitalization and capital expenditure, increases in operational cash flow, investment to maintain high asset quality, and its investment plan for technology.

The report both qualifies and quantifies the company's level of achievement in the process of value creation, whether it has created or lost value from its multi-capital inputs. It qualifies each outcome in terms of positive, neutral, and negative outcomes. The report also quantifies its outcomes to explain how much the company has created quantifiable value against particular capital inputs. Some of the outcomes on topic areas in Kumba's Integrated Report are: enhancement of employee skill sets, money invested in training and development, money circulated back into the economy as employee salaries and benefits, value creation without accidents and fatalities, levels of compliance, contributions back to the economy in terms of tax payments, community grievances, employee grievances, value creation without major environmental accidents, amount of greenhouse gas emissions,

depletion of ore resources, land loss for mining activities, increases in return on capital employed, dividend paid, acquisition of new mining and capital equipment, breakdown of equipment, investment in skills development, and technical studies.

The report also discloses how the company identifies its stakeholders based on the degree of dependency, influence, significance of the issues, and in terms of the level of risk exposure to stakeholders. The list of stakeholders includes investors, employees, unions, government, host communities, media, NGOs, suppliers, political parties, business peers, and customers. In addition, the report highlights a comprehensive risk analysis section. In this section, Kumba presents its different levels of risk exposure (*catastrophic events, emerging risks, and residual risks*), risk hierarchy, root causes, impact on value creation, risk mitigating actions, risk outlook, strategic ambition to risk levels, and key enablers to reduce a particular risk. The report also explains to Kumba's multi-capital providers the company's range of opportunities that may enhance the value of different capital inputs.

In addition to adopting an Integrated Report, Kumba Iron Ore also discloses information conforming to the *TCFD* recommendations with reference to certain aspects of CDP. It describes how the company is addressing TCFD recommendations relating to governance, management's approach to climate-related risks and opportunities, how the company manages climate change–related risks and opportunities, the company's risk identification, assessment of risk, disclosure in relation to Scope 1, 2, and 3, and mitigation targets. Finally, the report highlights the way the company has contributed to the UN SDGs and explains the ways in which the company has related its activities to different SDGs such as SDG 1, 3, 4, 5, 6, 8, 9, 12, 13, 15, 16, and 17.

The overall findings show Kumba Iron Ore's overall reporting scope is guided by the IR framework, GRI Sustainability Reporting Standards, CDP, TCFD, and the UN's SDGs.

Nestlé's online Climate Disclosure Practice is the most comprehensive voluntary online reporting format on climate change–related risks and opportunities. Nestlé's CDP disclosure was provided on a 226-page long document in a question-and-answer format. Nestlé's CDP online platform comprises information on governance, risks and opportunities over the short, medium, and long term, value chain risk drivers' potential financial impacts, quantifiable risk impacts with an estimated cost in terms of the dollar value, business strategies, budgeted amounts to manage risks, emissions created by each product and services, emissions calculation methodology, breakdown of emissions in scopes: 1, 2, and 3, emissions by region of operation, types, sources and amounts of fuel in use, ability to influence climate change policy in the jurisdictions of operation, climate change mitigation and adaptation steps, and targets and performance. Nestlé's CDP disclosure document follows the TCFD recommendations and highlights their compliance commitment within the CDSB framework.

GM's Sustainability Report incorporates and addresses the disclosure expectations of multiple contemporary sustainability frameworks such as the GRI, SASB Index, TCFD, CDP, UN SDGs, and UNGC. GM's strategic objectives include going Carbon Neutral (*a world with zero emissions*), Safety (*zero crashes and zero workplace injuries*), Customers (*gain customers for*

life), Mobility (*a world with zero congestion*), Materials and Resources (*maximize sustainable content*), Supply Chain (*positive environmental and social impact*), Talent (*realize everyone's potential*), Diversity and Inclusion (*all voices are heard*), and Community (*safe and smart sustainable communities*).

Aligning with the GRI standards, the company's materiality matrix highlights topics that are a priority for both the company and its stakeholders as presented in Table 5. The company's stakeholder list includes customers, investors and analysts, employees, suppliers, dealers, communities, governments, and NGOs.

Table 5: Material Information Matrix of GM

Materially relevant information for GM and its Stakeholders		
Highly relevant information	**Medium level relevant information**	**Low level relevant information**
• Market development for electric and zero emissions vehicle, Vehicles safety, Workplace safety, Technological innovation, Ethics, Quality management, Corporate culture, Financial performance, and Customer trust.		• Biodiversity preservation, Investment tailored to community needs, Community engagement, Supply diversity, STEM education and Congestion solutions.
Materially relevant information for GM		
Highly relevant information	**Medium level relevant information**	**Low level relevant information**
• Responsible employment practices, Cybersecurity and customer privacy, Process and business innovation, employee health and well-being, Employee engagement, Job stability and security, Human capital management, Talent recruitment and retention, Employee development and autonomous technology		
Materially relevant information for GM's Stakeholders		
Highly relevant information	**Medium level relevant information**	**Low level relevant information**
• Responsible raw material sourcing, Energy reduction, Renewable energy, Supply chain environmental impacts, Responsible sourcing and supply chain management, Waste reduction and waste management, and the Supply chain.		

Source: Goswami, Islam, and Evers

GM also explains that the reason for adopting multiple reporting frameworks was to address the information expectations of a wider range of stakeholders. For example, the company's stakeholder engagement strategy specifically mentioned that responding to SASB's industry-specific metric and to TCFD's recommendations facilitates communication with investors and analysts. SASB's transport industry standard–based metrics include information relating to *Activity Metrics, Product Safety, Labor Practices, Fuel Economy & Use-Phase Emissions, Materials Sourcing, and Material Efficiency & Recycling*. TCFD recommendation-based disclosures include the company's governance oversight on climate-related risks and opportunities, the company's risks and opportunities over the short-, medium-, and long-term time horizon, the company's various transitional and physical risks, the company's potential quantifiable costs and financial impacts, management's approach to mitigate, identifiable climate-related opportunities, scenario analysis of 2°C". and adopted metrics and targets.

GM is also a signatory of UNGC and addresses responses relating to the company's commitment to human rights, labor standards, and gives the company's precautionary approach relating to environmental challenges and anti-corruption issues. Finally, GM also mapped how it is addressing its most material topics to fulfill its commitment toward SDGs and how those steps are satisfying different SDGs such as SDGs 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 16, and 17. However, the most comprehensive information is disclosed through the GRI framework. GM's GRI content index includes information about 205 indicators under 36 material topic areas as presented in Table 6. Furthermore, the company provides a detailed disclosure under the ESG data center section in the report.

Table 6: Classification of Material Sustainability Topics of GM

Material sustainability issues of GM
Organisation profile, Strategy, Ethics and integrity, Governance, Stakeholder engagement, Reporting practices, Economic performance, Indirect economic impacts, Procurement practices, Anti-corruption, Material, Energy, Water & effluents, Emissions, Waste, Environmental compliance, Supplier environmental assessments, Employment, Labour & management relations, Occupational health and safety, Training and education, Diversity and equal opportunity, Freedom of association and collective bargaining, Child labour, Forced or compulsory labour, Security practices, Human right assessments, Local communities, Supplier social assessments, Public policy, Customer health and safety, Customer privacy, and Socioeconomic compliance.

Source: Goswami, Islam, and Evers

Hence, the overall finding provides evidence of the blended reporting phenomenon, as mentioned in the literature (GRI and SASB 2021), and highlights materiality information perspectives of different contemporary sustainability reporting frameworks and standards (Barckow et al. 2019; Guthrie 2016). A comparative summary of the disclosures from BMW, Kumba Iron Ore, Nestlé, and GM based on the GRI, Integrated Report, CDP, and SASB standards and frameworks is presented in Table 7(a and b).

Table 7a: A Comparative Summary of Disclosures

BMW's Sustainability Report	Kumba Iron Ore's Integrated Report	Nestle's Climate Change Disclosure Practices	General Motor's Sustainability Accounting Standards Board (SASB) Index
Key Disclosure Highlights: ➢ *Trend of Sustainability progress under various performance indicators* ○ *Business activities* ○ *Products and Services* ○ *Production and Value Creation* ○ *Employee and Society* ➢ *Materiality matrix.* ➢ *The company provided disclosures addressing 109 indicators of GRI standards.* ○ *Organisational profile (including ownership, market served, scale and size of organisation)* ○ *Strategy (statement of senior, impact, risks, and opportunities)* ○ *Ethics and Integrity (Values, principles, standards, & behaviour)* ○ *Governance* ○ *Stakeholder engagement* *(List of stakeholder groups, collective bargaining agreements, identifying and selecting stakeholders, approach to stakeholder engagement, key topics and concerns raised)* ○ *Reporting practice* ○ *Product and services safety* *Information relating to management approach, customer health and safety (including incident of non-compliance)*	**Key Disclosure Highlights:** ➢ *Multi-Capital inputs for value creation* ○ *People, Manufactured assets, Financial Capital, Natural Resources, Relationships, and Intellectual Capital* ➢ *Value creation topics or pillars of value creation (in term of safety & health, environment, socio-political, people, production, cost, and financials)* ➢ *Strategy in short-, medium- and long-term time horizon.* ➢ *Outcome of Multi-capital inputs with performance trend* ○ ***Safety and Health**: Fatal injury frequency rate, cases of occupational disease* ○ ***Environment:** Energy consumption, GHG emissions, water withdrawals, category of environmental incident,*	**Key Disclosure Highlights:** ➢ *Online reporting platform.* ➢ *Relevant emission from agriculture or forestry, Processing or Manufacturing, Distribution, and Consumption* ➢ *Members of the Board responsible for climate-related issues* ➢ *Integration of climate-related issues into governance mechanism* ➢ *Defining short, medium, and long-term time horizon.* ➢ *Frequency and time horizon for identifying and assessing relevant climate-related risks.* ➢ *Identifying magnitude of risk and potential financial impact.* ➢ *Where and how identified risks and opportunities impacted business financially.* ➢ *The way climate-related issues are integrated into*	**Key Disclosure Highlights:** ➢ *Transport industry specific metrics.* ➢ *Activity metrics* ○ *Number of vehicles manufactured,* ○ *Number of vehicles sold.* ➢ *Product Safety* ○ *Percentage of vehicle models rated by NCAP programs with an overall 5-star safety rating, by region.* ○ *Number of safety-related defect complaints, percentage investigated.* ○ *Number of vehicles recalled* ➢ *Labor Practices* ○ *Percentage of active workforce covered under collective bargaining agreements* ○ *Number of (1) work stoppages and (2) total days idle* ➢ *Fuel Economy and Use-phase Emissions*

	○ ***Socio-political compliance.*** ○ ***People:*** *labour turnover, woman in workforce, historically disadvantaged South Africans in management* ○ ***Production growth.*** ○ ***Cost per unit.*** ○ ***Financial:*** *Return on capital employed, EPS.*	*business strategies and objectives* ➢ *Described emission targets and performance against targets.* ➢ *Factors driving investment in emissions reduction activities.* ➢ *Breakdown of emissions Scope 1,2 &3* ➢ *Breakdown of energy consumption* ➢ *Engagement with value chain on climate-related issues* ➢ *Engagement with policy makers* ➢ *Membership and funding to trade association.* ➢ *Application other reporting framework.* ➢ *Allocation of emission customer wise based on the market value of products purchased.* ➢ *Emission reduction plan product wise*	○ *Sales-weighted average passenger fleet fuel economy, by region* ○ *Number of (1) zero emission vehicles (ZEV) sold, (2) hybrid vehicles sold, and (3) plug-in hybrid vehicles sold.* ○ *Discussion of strategy for* ○ *managing fleet fuel economies and emissions risks and opportunities* ➢ *Materials Sourcing* ○ *Description of the management of risks associated with the use of critical materials.* ➢ *Material Efficiency & Recycling* ○ *Total amount of waste from manufacturing, and percentage recycled* ○ *Weight of end of-life material recovered, and percentage recycled* ○ *Average recyclability of vehicles sold, by weight*

Source: Goswami, Islam, and Evers

Table 7b: A Comparative Summary of Disclosures

BMW's – Sustainability Report	Kumba Iron Ore's Integrated Report	Nestle's Climate Change Disclosure Practices	General Motor's Accounting Standards Sustainability Index Board (SASB)
○ *Sustainable product portfolio and research and development (including reduction in GHG)* ○ *Automation and digitalisation* ○ *Compliance, corruption, anti-competition behaviour and business ethics (including anti-trust, monopoly practice, negative social impacts in the supply chain and action taken)* ○ *Transparency* ○ *Energy consumption and renewable energy (including energy consumption, negative environmental impacts in the supply chain and actions taken)* ○ *Air pollution* ○ *Greenhouse gas emissions and Climate change (including Scope 1,2 and 3, GHG emissions)* ○ *Waste and effluents (including Water discharge by quality and destination, waste by type and disposal method)* ○ *Access to labour (including new employee hires and employee turnover)* ○ *Responsible human resources management (Average hours of training per year per employee, upgrading employee skills)*	➢ *Identifying risks (catastrophic risks, emerging risks, residual risks) and opportunities* ➢ *Risk management (root cause, impact, mitigation action and outlook) of seven value creation pillars: Safety and health, environment, socio-political issues, people, production, costs, and financials.*		

Source: Goswami, Islam, and Evers

Insight into the "Blended Reporting Phenomenon"

The comparative analysis of disclosure patterns highlights the common underlying aim across contemporary voluntary reporting frameworks. However, approaches and contents differ based on the information expectations of targeted stakeholders. Companies are embracing a blended reporting format because each contemporary standard and framework has complementary inherently distinctive characteristics. In the blended reporting format, companies have embraced one framework or standard as the main or anchor reporting structure, whereas disclosure based on other frameworks acts as complementary information. For example, GRI standards provide options for comprehensiveness, IR provides strategic

information on how a company is creating value over the short, medium, and long term, SASB provides sector-specific metrics, CDP provides an online platform to companies to present their preparedness information on climate change–related risks and opportunities, while TCFD provides recommendations on how to disclose climate-related financial risk information. In addition to these frameworks and standards, companies map their material issues with the SDGs and UNGC principles to showcase how they are contributing to the global sustainable development commitment.

Nonetheless, within the blended reporting phenomenon, GRI and IR act as the main anchor reporting structures, while other voluntary reporting frameworks are supplementing this information to address the gaps in approach or to specifically address certain aspects of sustainability issues. The study found GRI is an impact-focused multi-stakeholder reporting standard, and as a result, GRI-based disclosures are the most extensive and holistic. GRI-based disclosures also provide a materiality matrix as presented by BMW and GM. In addition, GRI focuses on the "present" economic, environmental, and social performance of an organization and its materiality information is not restricted to material financial issues alone.

IR is investor focused, hence IR-based Kumba Iron Ore's report is quantifiable, and input and outcome driven. Furthermore, Kumba's disclosure provides a future perspective and highlights risk and opportunity exposure over the time horizon. CDP-based Nestlé's online reporting platform is the most extensive disclosure practice on climate-related detailed information on governance, strategy, risks and opportunities, impact, and potential costs of impacts. SASB-based GM's disclosures are the most simplistic; however, the company highlights transport industry–specific sustainability information. It covers the most fundamental information on products, labor practices, emissions, efficiency, and risk exposure to material sourcing.

Overall observation suggests that each framework and standard has complementary normative prescriptions and provides a range of rich alternative ideas on how to improve decision-usefulness of ESG information, also reflected in the argument by Bose (2020). However, the multiplicity of frameworks and standards has also led to confusion in relation to which disclosure model or standards to follow, as mentioned in the findings by Davies, Dudek, and Wyatt (2020). As a result, companies have used multiple frameworks to address a wide range of stakeholders. GM is a good example of the blended reporting phenomenon. The company's Sustainability Report is based on multiple reporting frameworks such as the GRI, SASB, TCFD, UN SDGs, and UNGC. Meanwhile, reporting based on GRI, IR, CDP, and SASB acts as a framework to present the company's internal or micro-level sustainability commitment, while reporting based on SDGs provides moral legitimacy to show a company's macro-level contribution to global sustainable development commitment.

The study also found a certain level of homogeneity in reporting patterns between BMW and GM. Both are from the automobile sector and have adopted GRI and the UNGC rather than SDGs. In addition, both companies produced a materiality matrix and, as a result, provide some degree of clarity to readers on issues that are relatively more relevant or a

priority for both the company and stakeholders. For example, in the case of GM, product-related issues are a priority for both the company and stakeholders. Environmental issues are a relatively stakeholder-focused area, whereas people and workplace safety issues are a relatively company-focused area. At the same time, issues related to biodiversity preservation, community engagement, investment tailored to community need, and supplier diversity are of relatively low importance to both stakeholders. Although the company mentioned in the report that it is moving toward a shared-value concept, in that respect, topics relating to community engagement and investment tailored to community needs are in the low-priority segment of the matrix, which is contrary to the concept of shared values.

In the case of BMW, topics related to the sustainable product portfolio, energy consumption, renewable energy, access to labor, air pollution, compliance, corruption, anticompetitive behavior and business ethics, and automation and digitalization are of high relevance to both the company and stakeholders. The issues relating to charity and corporate citizenship, transparency, data protection and privacy, and after-sales service are focus areas for stakeholders with varying degrees of importance. Most importantly, water consumption, and land use and biodiversity are of low relevance for both the company and its stakeholders. Interestingly the biodiversity issue showed as a low-priority material issue for both GM and BMW. The study also found that GM and BMW provide limited levels of assurance for sustainability reports. Again, disclosure analysis of GM and Kumba Iron Ore showed transparency on certain topics, such as those relating to political contributions and lobbying expenditure, and stakeholder-level engagement with political parties, and presented information on inclusiveness and equal opportunities among historically disadvantaged South Africans in the management rank.

Finally, the GRI framework prescribes that the organization should report on a wide range of economic, social, and environmental indicator–based information. As a result, those companies that have adopted the GRI framework have provided more holistic multi-stakeholder-specific disclosures. In contrast, IR prescribes a principles-based framework focusing on value creation with no prescribed indicators or metrics. As a result, IR-based company disclosures inform readers about what a company wants to present rather than necessarily addressing the information expectations of stakeholders. However, IR-based reporting provides comprehensive disclosure on a reporting entity's risk and opportunities status.

Conclusion

The study highlights a proliferation of multiple and overlapping voluntary reporting frameworks and standards in the sustainability or ESG reporting domain. As a result of this multiplicity of ESG reporting frameworks and standards, organizations are adopting (and, therefore, the application is manifested) the blended reporting phenomenon (GRI and SASB 2021). On the one hand, this situation provides rich alternatives of ideas and approaches and, on the other hand, the phenomenon has also led to fragmentation and confusion. Hence, the

proliferation of multiple and overlapping voluntary reporting frameworks and standards creates a necessary and logical argument for alignment of GRI, IIRC, SASB, CDP, and CDSB toward a proposed comprehensive corporate reporting standard called the *ISSB*, so that international investors can obtain the necessary high quality, transparency, reliability, and comparable investment-grade information on climate and other ESG matters (IMP, n.d.). The recent alignment of the IR and SASB into the Value Reporting Foundation is evidence of that convergence process. IR was a principles-based multi-capital input- and output-based framework, whereas SASB is a sector-specific indicator-based framework, hence convergence has supplemented each framework's gaps and strengthened the attractiveness for adoption by companies (SASB 2017). In addition, creation of the standards-focused SASB from the guidelines-based GRI disclosures is also evidence of the convergence process.

Although there is a multiplicity of frameworks, these frameworks can be organized into two distinct groups: (1) a multi-stakeholder focus, as in the case of GRI; and (2) an investor and capital provider focus, as in the cases of IR, SASB, CDP, and CDSB. At the same time, institutional factors, such as the creation of the TCFD and the Taskforce on Nature-Related Financial Disclosures (TNFD), will further initiate the process of convergence toward a financial market focus and help to quantify sustainability risks and opportunities in terms of financial value. Furthermore, a clear distinction can also be drawn based on the materiality perspective(SASB 2019). GRI's materiality definition is not limited to financially material information; rather it considers material topics should not be deprioritized based on not being recognized as financially material by the organization. In contrast, IR, SASB, CDP, CDSB, and TCFD prescribe incorporation of financially material information alone.

While this transition seems rational, it will also make nonfinancial sustainability data quantifiable and will improve its usefulness as investment-grade information. For this reason, it will facilitate the flow of capital toward the green economy and will advance the emerging sustainable finance domain. However, focusing only on financially material sustainability disclosures will lead to a suboptimal outcome in the long term and will defeat the merits of early normative arguments for sustainability accounting over traditional financial accounting. The study also argues that the inherently nonfinancial nature of ESG data should be embraced by the financial markets and organizations. The pressure to incorporate calculability into ESG data will make many ESG issues invisible, as argued by Arjaliès and Bansal (2018). Sustainability should not be limited to the corporate or financial sectors' understanding of material ESG information. Hence, arguments will continue as to whether sustainability information should be considered narrowly and include only those sustainability issues that are financially material for the capital market, or if we should look beyond financially material information and define the materiality of sustainability issues based on ecologically sustainable development perspectives and inclusive of all stakeholders.

Acknowledgment

The authors would like to convey their thanks and acknowledgments to Dr. Alison-Jane Hunter for her editorial services.

Informed Consent

The authors have obtained informed consent from all participants.

Conflict of Interest

The authors declare that there is no conflict of interest.

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ABOUT THE AUTHORS

Dr. Kuntal Goswami: Founder, Australian Centre for Sustainable Development Research & Innovation (ACSDRI), Adelaide, South Australia, Australia; Associate Researcher, Charles Darwin University (CDU), Northern Institute, Alice Springs, Northern Territory, Australia; Lecturer, School of Business and Law, Central Queensland University (CQU), Melbourne, Victoria, Australia
Corresponding Author's Email:kuntal@acsdri.com & k.goswami@cqu.edu.au

Dr. Mohammed Kazi Saidul Islam: Lecturer, School of Business and Law, Central Queensland University (CQU), Rockhampton, Victoria, Australia
Email: k.islam@cqu.edu.au

Winton Evers: Managing Director, EcoProfit, Wentworth Falls, New South Wales, Australia; President, Sunshine Project, Blue Mountains, New South Wales, Australia
Email: winton@ecoprofit.com.au