CSR reporting communication: Defective reporting models or misapplication?

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Abstract

This paper studies whether the failure of corporate social responsibility (CSR) reporting practices to enable effective CSR communication allowing stakeholders to appreciate firms' CSR is due to the reporting model guiding firms in elaborating sustainability reports, the companies' application of the model, or both. Drawing on the communication theory and using interpretive textual analysis, the paper specifically assesses Global Reporting Initiative Guidelines, the most widespread CSR reporting model worldwide, and its application by a leading sustainability reporter. The findings indicate that GRI Guidelines suffer from significant limitations that hamper the production of reports accounting for CSR impacts. This paper contributes to critical research on CSR reporting practices and calls for redirecting current reporting practice towards a more effective approach. Additionally, it also responds to the need to approach CSR reporting research relying on theories different from the one commonly used.

Keywords: GRI guidelines, communication theory, sustainability report, GRI, reporting guidelines.

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1. Introduction

Corporate social responsibility (CSR) reporting is a communication process between firms and stakeholders. CSR reporting is driven by the growing social demand for transparency on corporate economic, social, and environmental impacts (hereafter, CSR impacts) (Federation of European Accountants [FEE], 2015; Gray, 2006). Despite firms' motivations to disclose CSR information, such as increasing their reputation (Bebbington, Larrinaga & Moneva, 2008) or responding to activist shareholders' demand (Eding & Scholtens, 2017; Michelon & Rodrigue, 2015), effective CSR communication ideally happens when firms disclose information allowing stakeholders to comprehensively appreciate their CSR impacts (Adams, 2004; Michelon, Pilonato, & Ricceri, 2015). Thus, CSR reporting demonstrates firms' willingness to discharge accountability and respond to stakeholders' information demands (Merkl-Davies & Brennan, 2017; Tschopp & Huefner, 2015). However, current CSR reporting practices do not allow effective communication yet (Cho, Laine, Roberts, & Rodrigue, 2018; FEE, 2015; Milne & Gray, 2013) because they tend to lack completeness, neutrality, relevance and credibility (Bouten, Everaert, Van Liedekerke, De Moor, & Christiaens, 2011; Knebel & Seele, 2015), as well as to be long and provide excessive narrative disclosures (Michelon et al., 2015; Solomon & Solomon, 2006). Thus, SRs are considered symbolic instruments to positively manage stakeholders' perceptions (Michelon et al., 2015).

According to Flower (2015), CSR reporting practices require two elements to communicate effectively: (i) an adequate reporting model (hereafter, RM) guiding the production of reports and (ii) a proper application of the model by firms. Both elements are the outcome of firms' decisions: companies can choose the RM and the extent to which they apply it (Chen & Bouvain, 2008; Flower, 2015). Our main motivation is to contribute to the debate

on the tension between the suitability of RMs and the willingness of firms in applying them. For that purpose, we problematize CSR reporting practices by studying them from a broad perspective to identify the problems impeding effective communication and determine whether they are driven by RMs, the firms' application, or both. This approach illuminates our understanding of the communication problem because both elements play an interrelated role in providing stakeholders with appropriate information on CSR impacts. Sustainability reports (SRs) are the most widespread tool used to communicate CSR information (KPMG, 2015), while The Global Reporting Initiative (GRI) Guidelines are the most widely applied RM for their productions (KPMG, 2015; Tschopp & Huefner, 2015; Tschopp & Nastanski, 2014). Therefore, we focus on this RM and its application by firms to address the objective of the paper.

Previous papers suggest applying voluntary RMs, particularly the GRI Guidelines, to improve SRs (Bouten et al., 2011) and blame the firms' application of the models for their deficiencies (Boiral 2013; Knebel & Seele, 2015). In this regard, Tschopp and Nastanski (2014) concluded that GRI Guidelines are the most likely to become model for the harmonisation of CSR reporting because they enable higher levels of comparability, consistency, reliability, and relevance. By contrast, a few authors support an opposing stance and note that the GRI RM has certain limitations. For instance, the absence of specific and concrete guidance on how to apply some GRI principles (Adams, 2004; Calabrese et al., 2016; Moneva et al., 2006). Other papers discuss the mandatory application of the model as a solution to the communication problem. While some authors support leaving flexibility to firms because it prompts an appropriate application of the model (Benham and MacLean, 2011) and fosters their adoption (Tschopp & Nastanski, 2014); others conclude that the freedom that G4 leaves to companies in producing reports hampers comparability, standardisation and stakeholder-empowerment (Wagner and Seele, 2017). The paper aims to add to this discussion by extending the analysis of the GRI

guidelines to disentangle the role of both the RM and its application to offer useful information for the stakeholder decision-making process.

For that purpose, we relied on the communication theory to study reporting practices because they represent a communication process through which firms provide stakeholders with information on their CSR impacts (Merkl-Davies & Brennan, 2017; Morsing & Schultz, 2006). This theory helps researchers to gain more insight into the use of corporate reports to communicate with external constituencies (Merkl-Davies & Brennan, 2017), as well as to understand the reporting process and the elements affecting it (Hussey & Ong, 2005). As Merkl-Davies and Brennan (2017) highlighted, despite not always being explicitly acknowledged, the communication theory has been extensively considered in accounting and reporting research. However, its application in analysing CSR reporting has been limited, without completely exploiting its contribution to understanding the communication process (Gamerschlag, Möller, & Verbeeten, 2011; Williams, 2015). Particularly, we drew on Shannon's communication system (Shannon & Weaver, 1949), a cornerstone within the cybernetic tradition of communication theory (Craig, 1999), to analyse CSR reporting practices. Following Bedford and Baladouni (1962), who were pioneers in applying Shannon's system to financial reporting (Merkl-Davies & Brennan, 2017), we represented CSR reporting as a communication system and identified the two characteristics of reporting practices that determine effective communication: significance (i.e., the capacity of the report to accurately represent the firm's CSR impacts) and fidelity (i.e., the capacity of the report to disclose understandable).

We applied interpretive textual analysis (Laine, 2009; Tregidga & Milne, 2006; Tregidga, Milne, & Kearins, 2014) to critically interpret whether (1) the (theoretical) application of the GRI Guidelines and (2) its (practical) application in elaborating a report enable significance

and fidelity. We analysed G4, the most up-to-date version of the GRI Guidelines when we started our research. Then, we used a critical case study to analyse its application by selecting a report considered "best practice". Overall, our findings indicate that the GRI RM is the main driver hindering CSR communication. The firm's application may further deteriorate communication. However, this is a secondary problem compared to G4's flaws.

Our analysis contributes to critical research questioning the suitability of CSR reporting practices to deliver accountability (Boiral, 2013; Brown, de Jong, & Levy, 2009; Cho et al., 2015, 2018; Michelon et al., 2015). We found that most of the problems attributed to firms' freedom in applying RMs (Bouten et al., 2011; Knebel & Seele, 2015) are actually caused by the model itself. By noting the limitations of current practice, the paper calls for engagement research to develop more appropriate ways to report CSR impacts. Additionally, the paper enriches the debate on CSR reporting and advance research in this field by considering different theoretical lenses from those commonly applied (Unerman & Chapman, 2014). Our findings have also implications for policy-makers, particularly in Europe, where the regulations of some states suggest firms to follow GRI guidelines to produce non-financial reports, as well as for practitioners and other stakeholders engaged in developing the GRI RM .

After this introduction, section 2 develops the communication-based theoretical framework to assess the effectiveness of CSR communication. Section 3 describes the methodology. Section 4 and 5 evaluate the GRI Guidelines and their application. Finally, section 6 discusses our findings and presents the conclusions.

2. CSR reporting through the lens of the communication theory

Shannon's communication system consists of several elements (Figure 1). The *information source*, or sender, initiates the communication process by selecting the *message* to be communicated. The *transmitter* transforms the message into a *signal* through an encoding process. The signal carries the message, which is sent through a particular medium, the *channel*. A *receiver* mechanism decodes the signal into a message that the *destination* interprets.

<<Insert Figure 1 here >>

Shannon and Weaver (1949) identified three types of problems affecting communication. Technical problems focus on the accuracy of the transfer from sender to receiver. These problems relate to the capacity of the channel to deliver the signal. Semantic problems focus on the receiver's misinterpretation of the message. Finally, effectiveness problems focus on the effect of the message on the receiver's behaviour.

We adapted Shannon and Weaver's system to CSR reporting (Figure 2) because this reporting process represents a system in which firms send information to their stakeholders (Merkl-Davies & Brennan, 2017). The *firm* is the information source that decides the *message* to be communicated (i.e., the CSR information). This message is transformed through a transmitter, a *CSR RM* (i.e., GRI Guidelines), into a signal, the *report* (i.e., SR). Firms may not follow a RM and apply their own rules and methodologies as a transmitter. Afterwards, firms distribute the report to their stakeholders through the *channel* (e.g., physical report, downloadable pdf file or interactive webpage). *Stakeholders* play the role of both receiver and destination because they decode the report and interpret its information. Each firms' stakeholders may consider different impacts as relevant. Therefore, companies should use engagement mechanisms to identify the material impacts for each group (Moratis & Brandt, 2017; Tschopp & Huefner, 2015). Through a proper stakeholder engagement, Shannon's

communication system becomes an interactional and bidirectional model of communication (Schramm, 1954).

<<Insert Figure 2 here >>

Companies select the message they want to communicate depending on their motivation for disclosing CSR information (e.g. accountability, green-washing, legitimisation, mandatory requirements). The accuracy with which each message represents CSR impacts may vary. As we focus on effective CSR communication, the message should ideally allow stakeholders to properly appreciate CSR impacts. To study the capacity of CSR reporting practices to communicate the desirable message, we evaluate how communication problems may affect the RM (transmitter) and the report obtained from applying the RM through its encoding process (signal). Both are the key elements that enable effective CSR communication (Flower, 2015).

Technical problems affect the capacity of the channel to adequately transmit the report. We exclude them from our analysis because the channel is neither determined directly by the transmitter (RM) nor by the signal (report). By contrast, semantic and effectiveness problems are paramount in evaluating CSR communication. Bedford and Baladouni (1962) represent financial reporting as a communication system and established that significance and fidelity determine its capacity to communicate economic events. These features directly relate to semantic and effectiveness problems. For Bedford and Baladouni (1962), significance is the extent to which financial statements adequately represent the economic world of the firm. Effectiveness problems focus on the influence of the message on the receiver's behaviour (Shannon and Weaver, 1949). Therefore, the level at which the report provides an adequate representation of the firm affects the destination's decisions. For Bedford and Baladouni (1962), fidelity is the extent to which financial statements can be correctly understood by the audience. Semantic problems focus on the misinterpretation of the message by the receiver

(Shannon and Weaver, 1949). Therefore, the level at which the receiver can easily understand the report affects how they interpret the information.

We adapt Bedford and Baladouni (1962)'s definition of significance and fidelity to CSR reporting. Although they were originally developed for financial statements, insights from research on financial reporting contribute to studying CSR reporting as both have evolved similarly (Tschopp & Hueffner, 2015; Tschopp & Nastanski, 2014). We disaggregate significance and fidelity into sub-characteristics, depending on qualitative factors that determine the usefulness of reports (International Accounting Standards Board [IASB], 2018). This disaggregation allows us to evaluate the level of significance and fidelity that CSR RMs can provide, and how these levels are transferred to the report when applying models. Table 1 schematically provides the definitions of significance and fidelity, as well as of their qualitative sub-characteristics and related factors.

<<Insert Table 1 here >>

As we aim to analyse both the RM and the firm's application , we excluded the IASB enhancing characteristics of verifiability and timeliness from our analysis. These characteristics are determined by the firm's reporting strategy, not by the RM applied. Although the GRI guidelines suggest hiring assurance services and the timeliness of reporting periods, they do not prescribe any of them for their most comprehensive application level. So, including them will not fit our double-edge analysis to disentangle the influence of the reporting model/application on the communication problem.

Based on our theoretical framework, if a report appropriately delivers significance and fidelity through their qualitative sub-characteristics and factors (Table 1), it could provide an adequate representation of CSR impacts and thus, enable effective communication. Previous studies analyse some of the elements that comprise significance and fidelity. Yet, they consider

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these issues in an isolated way, related to other purposes rather than communication. A holistic analysis of all the elements that intervene in the process is key to properly understand the CSR communication process.

3. Methodology and materials

We analysed the significance and fidelity achieved by CSR reporting practices from two perspectives. First, we focused on the GRI Guidelines to evaluate the utmost significance and fidelity that its complete application could enable. Second, we studied its application in a GRI SR as case study to evaluate the significance and fidelity that it provides. To guarantee the best application, we chose a report considered "best practice" in applying G4. This double approach allowed us to determine whether the communication problem of current CSR reporting practices is driven by the GRI RM or by the firm's application.

G4 Guidelines are organised in two parts. The first part, Reporting Principles and Standard Disclosures (G4-P1) (GRI, 2013a), presents the Principles for defining the content and quality of the SR, disclosures on management approach (DMAs) and indicators. The second part, the Implementation Manual (G4-P2) (GRI, 2013b), explains how to apply the Principles and compile the information. GRI differentiates two "in accordance" options for applying G4: the core and the comprehensive options. We draw our interpretations on the comprehensive option because it requires firms to provide more information to extensively communicate impacts than the core option.

The selected SR to assess the application of the GRI guidelines had to meet four criteria: (1) be prepared following the G4 comprehensive option, (2) be recommended by GRI as a good reporting example (https://www.globalreporting.org/services/Communication/featured-

reports-service/featured-reports/Pages/default.aspx), (3) be issued by a firm located in a country without CSR reporting regulation, and (4) be under significant social scrutiny to report on CSR issues. While the third requirement contributes avoiding the effect of mandatory regulation on our analysis, the last one implies that the firm will be under pressure to provide adequate CSR information. The selected report was the 2016 SR of BHP Billiton (hereafter, BHP, 2016a). BHP is a mining listed Australian company, with a revenue of $30.9 billion and about 65,000 employees in 2016 (BHP, 2016b). The firm has significant environmental impact due to its mining activity, which is one the industries with an earlier and rapid adoption of the GRI RM (Alonso-Almeida, Lach & Marimon, 2014) . During the reporting period, the firm also suffered from a catastrophic accident in one facility of a joint venture of the company that caused catastrophic effects in the area where it was located, including 19 deaths. The accident put the firm under the social spotlight. Finally, the company has a long-standing tradition of CSR reporting. It published its first environmental report 20 years ago (BHP, 2016a).

We used interpretive textual analysis to study the extent to which the RM and its application achieve significance and fidelity. This method involves an iterative process of readings and discussions among the authors to arrive to coherent interpretations and mitigate subjective issues affecting the analysis (Laine, 2009; Tregidga & Milne, 2006; Tregidga et al., 2014). We followed a two-stage process. In the first stage, one of the authors carefully read the G4 guidelines to identify evidences of significance and fidelity. The author made notes on his impressions and prepared a draft, which was discussed with a second author, with expertise in CSR reporting. In the second stage, following Tregidga et al. (2014), the first author made a closer reading of the document and built a database in an Excel worksheet to collect relevant extracts from G4 related to sub-characteristics and factors of significance and fidelity. We coded the passages based on the factors to which they were related, and we accompanied them with comments explaining the relationship. We also included detailed notes referencing whole

sections of the document, because in some cases it may not be worthwhile to draw out specific citations (Laine, 2009). The first author analysed the recordings and prepared a draft about the significance and fidelity that the complete application of G4 could enable. The draft was presented to the other authors. When disagreements appeared, the authors discussed them and analysed the database and the document until consensus was reached. When analysing the database, we observed that the GRI principles directly links with the characteristics, sub-characteristics and factors of effective communication. The connection between the GRI principles and the elements of the communication framework was subject to an in-depth discussion among the authors until the final connections were concluded (Table 2). During the whole process, we kept records of the drafts and discussion among the authors. We also constantly revised our data to guarantee a correct interpretation. We repeated the two-stage process to analyse the application in BHP SR. In this case, we drew conclusions about the significance and fidelity provided by the report and compared them to the extent to which the G4 could provide these characteristics based on our first analysis. Annex 2 provides examples of the database on how the extract from G4 and BHP Billiton report were coded.

We summarised the results of our analysis in a set of tables for each sub-characteristic of significance and fidelity (see Annex 3-6). We studied how its factors are affected by elements of the RM and how these elements are present in the application. If the RM has a positive element, and it is correctly applied in the report, effective communication is enabled. If the RM makes a positive suggestion which is not correctly applied, the problem is driven by the application. If the RM suffers from a negative issue which is present in the report, we attributed this issue to the RM. Finally, if a firm tries to overcome a negative element of the RM, the limitation is driven by the latter as it might appear in other application.

4. GRI reporting model: The G4 Guidelines

G4 emphasises that SRs must cover both positive and negative CSR impacts (G4-P1). GRI defines nine Principles that determine the content and quality of SRs. We link these Principles to the sub-characteristics and factors of significance and fidelity (Table 2). If Principles could be properly applied, they would contribute to achieving both characteristics of effective communication.

<<Insert Table 2 here >>

4.1. Significance: relevance

Materiality relates to the GRI Principles of Materiality and Stakeholder Inclusiveness. Materiality is not only a Principle but a priority highlighted throughout G4. According to GRI, the materiality of an impact to be reported depends on two variables: its significance for the organisation and its influence on stakeholders' decisions (G4-P1, p.7). Therefore, firms should adequately engage with their stakeholders to determine the SR content (G4-P2, p.9)

G4 even suggests companies to manage CSR impacts based on the involvement between stakeholders and the firms' highest governance body (indicators G4-37, G4-45). Companies may identify many material impacts as they could relate to a broad range of stakeholders. Therefore, G4 recommends prioritising material impacts considering their importance for stakeholders and firms. Companies should document the whole process to determine the impacts covered in SRs (G4-P2, p.32). Particularly, G4 proposes describing how material impacts were identified (indicator G4-18) and the stakeholder engagement mechanisms used for that purpose (indicators G4-24 to G4-27). GRI also publishes several Sector Supplements to promote materiality (GRI-P1, p.87). Despite these elements, G4 suffers from several deficiencies to effectively enable materiality. The G4 Implementation Manual provides

examples of engagement mechanisms and proposes two tools for defining SR content: a list of material impacts and a matrix prioritising them (G4-P2, pp.33, 37). Nevertheless, the nine-page section on determining materiality fails to practically explain how to establish those tools (G4-P2, pp.32-40). The lack of guidance make it difficult for firms to identify material aspects.

Although we could not find a link to any GRI Principle related to the other factor of relevance, measurement uncertainty, it can be traced in several G4 sections. The Guidelines stress the importance of "explaining the methods and assumptions used to prepare information" (G4-P2, p.14). The Implementation Manual could be useful for that purpose. Yet it omits specific explanations on elaborate indicators. For example, when some indicators propose to "report the impacts" or "the extent of the impact", the Implementation Manual fails to describe how to compile or assess impacts (e.g., indicators G4-EN24, G4-EN26, G4-SO2).

To sum up, the GRI RM has a proper foundation to provide relevant information (e.g., importance of materiality and stakeholder engagement, sector supplements). Nonetheless, the absence of specificity in explaining how to apply principles, engage stakeholders, and elaborate information hampers the capacity of G4 to produce SRs fulfilling relevance.

4.2. Significance: faithful representation

Completeness is related to the GRI Principles of Sustainability context and Completeness. G4 supports a complete coverage of impacts, including the consequences of corporate activities (G4-P2, p.11). The Principle of Completeness further develops coverage by considering the scope (range of CSR issues), boundaries (inside and outside organisations), and time of impacts (related to the reporting period) (G4-P2, pp.12-13). G4 sections on economic, environmental, and social categories also stresses the need to report on consequences as each dimension "concerns the organization's *impacts on*" the economy, environment and society (G4-P1, pp.48, 52, 64, emphasis added). However, the suggested

disclosures fail to completely account for impacts. DMAs focus on the management and responsibility of impacts within firms, while most indicators report on the inputs causing impacts and their management. Only few indicators cover consequences but the Implementation Manual lacks practical explanations for their compilation. Thus, even if firms completely apply G4, important information to comprehensively appreciate CSR impacts will be absent.

We link neutrality to the Principle of Balance, which establishes that "[t]he overall presentation of the report's content should provide an *unbiased* picture of the organization's performance" (G4-P1, p.17, emphasis added). G4 emphasises the need to account for both positive and negative impacts. Nonetheless, some G4 indicators provide a positively or negatively biased image. Certain environmental indicators focus on the reduction of inputs causing impacts (e.g., G4-EN6, G-EN7, G4-EN19). Highlighting reductions positively influences stakeholder perceptions. Other suggested disclosures could lead to a negatively biased representation. For instance, some indicators cover the negative environmental and social impacts in the supply chain (e.g., G4-EN33, G4-LA15, G4-HR11, G4-SO11), without acknowledging that firms could generate positive impacts by promoting good practices among suppliers. The disclosure of qualitative information, which G4 suggests, may also reduce neutrality. Firms could use qualitative disclosures to include narratives to magnify their positive impacts. Finally, G4 recommends aggregating information, but cautions that this could mask negative impacts (G4-P2, p.256).

The last factor of faithful representation, freedom from error, is related to the Principles of Accuracy and Reliability. The latter suggests providing "reliable *evidence* to support assumptions or complex calculations" and "attesting to its [information] accuracy within *acceptable margins of error*" (G4-P2, p.16, emphasis added). G4 warns that the accuracy and

reliability of disclosures partly depends on the type of information provided, and it highlights that "[t]he report should clearly distinguish between *factual* presentation and the organization's *interpretation* of information" (G4-P2, p.17, emphasis added). G4 also remarks the importance of indicating and explaining omissions (G4-P1, p.13). Additionally, they should identify the boundaries of information, as well as possible restatements. GRI also suggests hiring external assurance to increase the credibility of SRs and notes that stakeholder engagement should be part of the assurance process (G4-P2, p.2). Yet it fails to explain how to integrate stakeholder engagement in this process.

In sum, G4 could provide reasonable levels of freedom from error. However, excluding information on the consequences of activities, as well as suggesting disclosures biasing the representation of impacts, hinder the achievement of neutrality and completeness. Consequently, the GRI RM fails to facilitate producing SRs that achieves faithful representation.

4.3. Fidelity: comparability

The Principle of Comparability focuses on this sub-characteristic of fidelity. For GRI, comparability should allow stakeholders to assess differences among firms and over time (G4-P2, 2013b, 14). Comparability is also related to the Principle of Timeliness, which highlights that "[c]*onsistency in the frequency* of reporting and the length of reporting periods is also *necessary* to *ensure comparability* of information *over time* […]" (G4-P2, p.15, emphasis added). To facilitate comparability among a firm's subsequent reports, G4 suggests disclosing information for the current and two last reporting periods (G4-P2, p.256) as well as explaining changes in reporting policies and boundaries (G4-P2, p.14). G4 also asks companies to indicate the period to which impacts are referred (G4-P2, p.15). These indications also promote comparability among firms to check the impact coverage across them.

However, G4 suffers from a severe problem hindering comparability: it offers no structure to organise the SR content. Although G4 classifies indicators in categories and sub-categories, it does not propose this classification for structuring content. The lack of a predetermined structure could be partially mitigated by providing a GRI content index, which lists the reported information and specifies where it is provided (G4-P1, p.13). Additionally, the absence of clear explanations to compile information might cause two firms to measure the same impact differently. Qualitative disclosures are also troublesome because their interpretation might differ among stakeholders and affect their comparisons. The possibility of using references to other documents (G4-P1, p.13) also impedes comparability given that, to find information on the same impact, stakeholders may need to go to a specific report in one firm and to a different document in another.

Our analysis shows that G4 makes important suggestions to enable comparisons among firms and over time. Nonetheless, not proposing a structure to organise content is an acute shortcoming. This issue, along with other concerns presented above, impedes comparability.

4.4. Fidelity: understandability

We link clearness to the Principle of Clarity, which proposes that "[i]nformation should be presented in a manner that is *comprehensible* to stakeholders who have a reasonable understanding of the organization and its activities" (G4-P1, p.12, emphasis added). To facilitate clearness, G4 suggests disclosing graphics and consolidated data, as well as avoiding jargon or unfamiliar concepts (G4-P2, p.16). Yet the failure to provide practical explanations for implementing G4 obstructs clearness. In addition to reducing comparability, the lack of a predetermined structure and the possibility of using references also inhibit clearness because information might be difficult to find. Finally, DMAs and some indicators require the

disclosure of huge amounts of information, both quantitative and qualitative, which could overwhelm readers.

Conciseness is also related to the Principle of Clarity. Firms should consider whether "the report contains the level of information required by stakeholders, but *avoids excessive and unnecessary detail*" (G4-P2, p.16, emphasis added). For that purpose, G4 emphasises prioritising impacts to report only on the most material ones (G4-P2, p.33). Additionally, references to other documents and aggregating information (G4-P2, p.256), as well as providing graphics and tables could improve conciseness. The GRI content index could also be helpful. If properly compiled, it indicates and summarises the disclosed. Despite these suggestions, G4 presents some limitations. For instance, DMAs are narrative and could be quite long when following the requirements of the Implementation Manual. Hence, G4 allows reporting DMAs only once if they are common to several CSR topics. Regarding indicators, some require disclosing large amounts of information. There are overwhelming indicators in the general (e.g., G4-1, G4-2), economic (e.g., G4-EC2, G4-EC3), environmental (e.g., G4-EN11, G4-EN30), and social categories (e.g., G4-LA10, G4-HR4). These indicators are the ones that do not cover the consequences of impacts. So they obstruct both conciseness and completeness.

To summarise, the GRI RM promotes understandability by means of both clearness and conciseness. Nonetheless, managing understandability is problematic because conciseness positively depends on some elements (references, aggregation) that negatively affect clearness. Additionally, the requirements of some indicators and DMAs, as well as the way in which information is presented, could reduce understandability.

Overall, the GRI RM has important problems in facilitating effective CSR communication. Although G4 makes suggestions that foster all the sub-characteristics of significance and fidelity, it suffers from serious limitations. The lack of clear explanations to practically implement GRI Principles and compile information impedes significance. Therefore, the use of the GRI model as a transmitter to produce a SR might cause that the report (i.e., the signal in the communication process) provides a message that offers an inaccurate representation of the CSR impacts of the firm (i.e., the information source). If this happens, stakeholders will not be provided with relevant and useful information to evaluate the CSR behaviour of a company.

Regarding fidelity, some problems also overshadow G4's effort to promote comparability and understandability. The most constraining elements are the lack of a predetermined structure to organise SRs and the type of suggested disclosures. Both elements (structure and type of disclosures) are paramount to elaborate a report that can be correctly and easily interpret by the stakeholders (i.e., receiver and destination). So, our analysis of G4 shows that, overall, it may inhibit an effective communication process between firms and stakeholders.

5. Application of the GRI reporting model: BHP Billiton Sustainability Report 2016

BHP SR 2016 has 68 pages and contains sections about the firm's identified material issues (BHP, 2016a, pp.12-13). The SR covers the firm's fiscal year 2016, the same period as BHP Annual Report 2016.

5.1. Significance: relevance

Despite G4's lack of clear and practical explanations, BHP's process of determining materiality is well-developed. BHP lists the material impacts covered in the report, which were identified, prioritised, and determined through stakeholder engagement (BHP, 2016a, pp.12-13). It also indicates the key stakeholders who were engaged and describes the mechanisms used for that purpose (BHP, 2016a, p.57). Additionally, the firm discloses the GRI Mining and Metals Sector Supplement indicators (BHP, 2016c, p.2).

Regarding measurement uncertainty, most tables have explanations about the calculation and compilation of data. However, in some cases the explanations are convoluted (e.g. Table on greenhouse emissions, BHP, 2016a, p.21).

Overall, BHP SR provides, at least, the relevance that the G4 Guidelines could enable. In this case, the application overcomes the limitations of the RM. The company adequately determines materiality in spite of GRI model deficiencies. Concerning measurement uncertainty, the problem of understanding the calculation of some data could be driven by the vague explanations of G4 on how to compile information. Annex 3 summarises our findings about the relevance of the GRI RM and its application.

5.2. Significance: faithful representation

Two issues question the BHP SR completeness. First, it provides little information on the actual impact of corporate activities. Most information covers inputs causing impacts, how the firm manages them, and who is responsible for their management. For instance, the report provides information on investments for managing impacts as a measure of "performance", yet the amount of investments fails to account for the extent of the firm's CSR impacts. In this regard, the firm even reports a US$178.1 million investment on voluntary social programmes

to assess its impact on both the community quality of life (BHP, 2016a, p.39) and human rights (BHP, 2016a, p.49). The second constraint is the limited boundaries of the SR. BHP recognises that: "our *non-operated joint ventures are not included* within the scope of this Sustainability Report" (BHP, 2016a, p.57, emphasis added). In this case, the firm misapplied G4 indications.

Concerning neutrality, BHP SR offers a positively biased representation of impacts. While the firm highlight positive impacts throughout the report, only one negative impact is disclosed: the failure of a dam in one of the joint ventures of the company. It would be inevitable not to report on this catastrophe given its terrible economic, environmental, and social impacts involving 19 deaths. BHP claims that it may have some negative impacts but provides no further information. Statements such as "[w]hile *no significant* community incidents occurred at our operated sites, […]" (BHP, 2016a, p.37) are common throughout the SR (e.g. BHP, 2016a, pp.12, 13, 31, 49). Furthermore, the firm uses the information about the accident to positively manage stakeholders' perceptions. The SR devotes its first section to this accident in which it highlights its immediate and committed response, but only half of the four pages describes its negative outcomes (BHP, 2016a, pp.2-5). The CEO also emphasises the response of the company in his review:

> Our *response* to this tragedy is a *priority* for BHP Billiton. We will work *tirelessly* with the mine operator, Samarco Mineração S.A., our joint venture partner Vale, the community and the Brazilian authorities in the response effort. We are *committed* to doing the *right thing* both *now* and in the *long term*. (BHP, 2016a, p.1, emphasis added).

There are other examples of using words within narrative disclosures to generate a positive perception, such as "we have set ourselves a *challenging* goal" (BHP, 2016a, p.22) or "[w]e are *wholly committed* to ethical business practices and the *highest* standards of governance" (BHP, 2016a, p.28). BHP also discloses most positively-biased G4 indicators

(BHP, 2016c). Moreover, most data is aggregated at company level, particularly in the appendix (BHP, 2016a, pp.59-63), which could hide negative impacts.

BHP SR also shows problems of freedom from error. Most sections report case studies about specific actions or programmes as evidence of its performance. These cases are no proof of BHP's overall impacts because they focus on concrete activities and lacks factual figures supporting the firm's claims (e.g. cases in BHP, 2016a, pp.23, 32). Although some impact figures are disclosed in the appendix (BHP, 2016a, pp.59-63), the SR fails to use them as evidence of the information in other sections were related issues are mentioned. The firm externally assured the SR (BHP, 2016a, p.64), but the assurance statement makes no reference to stakeholder engagement in the assurance process. Regarding omissions, the SR describes the elements that it covers and those that it excludes (BHP, 2016a, p.57).

Our analysis indicates that BHP SR achieves lower faithful representation than the expected from the GRI correct application. As shown in Annex 4, the limitations of G4 and, to a lesser extent, the misapplication of some G4's suggestions, explain the low completeness, neutrality, and freedom from error of the SR.

5.3. Fidelity: comparability

BHP SR follows some G4 proposals to improve comparability over time, such as specifying the period and boundaries (BHP, 2016a, p.57), as well as providing notes about calculation changes from prior years. Despite these drivers, the SR suffers from some problems impeding comparability among firms and over time. The most important one is structure. The SR is organised in sections on the firm's material topics (BHP, 2016a, pp.12-13). This structure differs from the G4 classification of material aspects. Other companies might organise their

SRs differently, and stakeholders might find it difficult to compare information to other firms. Furthermore, BHP's previous SR is organised in a different way (BHP, 2015). Other limitations are the inclusion of many narrative disclosures and the use of references to other documents. All these problems are driven by GRI guidelines. However, the SR fails to meet some G4 requirements. The GRI Content Index is difficult to retrieve. The SR does not disclose or make reference to it. We had to do a google search to obtain it as it was published in a different document (BHP, 2016c). Another constraint is the lack of information on the two reporting periods in most tables, including the appendix (BHP, 2016a, pp.59-63). Finally, we were unable to evaluate whether the calculation of indicators differs from other companies.

It is evident that BHP SR fails to enable comparability both among firms and over time. Annex 5 summarises our analysis, indicating that the problem is driven by both G4's deficiencies and BHP's misapplication.

5.4. Fidelity: understandability

Regarding clearness, the SR uses clear language and avoids technical jargon. Also in line with G4's suggestions, it provides graphs and tables with consolidated data (BHP, 2016a, pp.38, 42, 56). Some of them, however, are difficult to interpret, such as the table on greenhouse emissions (BHP, 2016a, p.21) or the economic value distribution graph (BHP, 2016a, p.17). The latter example is noteworthy because it presents the money allocated to social investment in millions $ ($178.7m), whereas the other figures are in billions (ranging from $3.6b to $26.7b). The font is bigger for numbers than for the letters. Thus, the reader could get the impression that the firm dedicates a significant amount of money to social investments, which is untrue. The SR structure is also constraining understandability, as it differs from BHP SR 2015 and could vary compared to other firms. Consequently, it might be difficult to

stakeholders to find information. Furthermore, the SR includes many references to sections and other documents, and it provides many narrative disclosures.

Long narrative information also reduces conciseness. The SR includes many truisms that increase the length without delivering useful information (e.g., case studies on particular projects and actions). The SR contains many long statements emphasising the firm's positive attitudes. Leaving these issues aside, the SR presents several elements improving conciseness. BHP prioritised important topics to report only on those that are material (BHP, 2016a, pp.12-13), following the methodology suggested by GRI. Additionally, the SR refers to sections of the report and to other documents to avoid duplicities, and it aggregates information at company level. Finally, it provides the GRI Content Index, which concisely presents the most important information. Yet the difficulty to access this document could inhibit its potential benefits.

To sum up, BHP SR fails to facilitate clearness. Regarding conciseness, the SR follows some of the G4 suggestions, but the large amount of narrative disclosures makes it long, without providing a complete representation of CSR impacts. Therefore, although the firm misapplied some positive G4 suggestions, the RM drives most problems (see Annex 6 for more details).

Our analysis of BHP SR 2016 to study the application of the GRI RM demonstrates that the report fails to allow effective CSR communication. Significance is achieved to some extent through relevance, because the firm appropriately engaged with its stakeholders to identify material impacts. However, problems related to measurement uncertainty and faithful representation through its three factors (completeness, neutrality and freedom from error) hamper the SR's overall significance. Therefore, the SR (i.e., the signal) provides a message

that informs on themes that are relevant to the stakeholders (i.e., the receiver), but it fails to do so in a comprehensive, neutral and complete way. So, stakeholders receive information on the most significant CSR impacts of the firm, but the message fails to provide an accurate representation of them.

Concerning fidelity, the SR is neither comparable to the firm's prior SR nor to other companies' reports. Clearness and conciseness are provided to some level, but this is less than expected of the correct application of G4. Most problems reducing the communication capacity of the SR are driven by the GRI reporting. However, a few deficiencies are due to the misapplication of some G4 proposals to improve communication. Overall, the message communicated through BHP report might be difficult to decode and interpret by the stakeholders (i.e., receiver and destination); thereby disrupting the connection between the message conveyed in the report and how stakeholders perceive it.

6. Discussion and conclusions

The paper explores why current CSR reporting practices are ineffective in communicating information allowing stakeholders to properly appreciate CSR impacts. Addressing this question facilitates the promotion of corporate ethics through CSR reporting by promoting accountability and helping society to evaluate firms. We assess whether the communication problem results from RMs or their application by firms. Particularly, we study the extent to which the GRI RM for SRs, specifically G4, and its application in a SR considered "best practice" provide the theoretical characteristics determining effective CSR communication.

Our analysis shows that the RM, rather than its application, is the main reason for the CSR reporting failure. The GRI RM drives most problems related to the communication of relevant and comprehensive (captured by significance), and adequately interpretable

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information by the audience (captured by fidelity). This RM suffers from acute limitations that are transferred to reports. G4 makes proposals promoting the key characteristics of communication, but they are overcome by its limitations. In addition, the analysed "best practice" firm does not apply some of G4 positive suggestions. This issue has a negative influence on the capacity of the report to effectively communicate, but it is minor compared to the ineffectiveness caused by the model.

This paper makes several contributions. First, it adds to the debate in CSR reporting research concerning the suitability of current practices to deliver accountability and allow stakeholders to appreciate CSR impacts (Brown et al., 2009; Michelon et al., 2015Wagner & Seele 2017). Particularly, we contribute to the academic debate on the tension between the suitability of RMs and the willingness of firms in applying them. In contrast to previous studies attributing some of the problems that we identified to the freedom of firms in applying RMs (Boiral, 2013; Bouten et al., 2011; Knebel & Seele, 2015), our results indicate that they are actually consequent to the GRI RM itself. Therefore, firms cannot be solely blamed for the low transparency characterising current CSR reporting practices.

Second, the paper approaches CSR reporting research relying on theories different from the ones commonly used (Unerman & Chapman, 2014). We applied the communication theory to analyse the GRI RM and its application, allowing us to achieve an in-depth understanding of CSR reporting and to identify the elements determining effective communication. Other papers have studied some limitations of reports and RMs in isolation. Yet the characteristics of communication are collectively delivered in the CSR reporting process. By holistically analysing these characteristics combined, the paper performs a comprehensive analysis on how CSR impacts are communicated through SRs.

Third, our findings have implications regarding the mandatory application of RMs for policy-makers. Knebel and Seele (2015) argue that RMs generate the application problem as they allow firms to do so inappropriately. In this regard, Bouten et al. (2011) suggest that compulsory application of models could foster the production of better reports. However, if RMs have significant problems, their application is of little relevance in determining the outcome, as we found. By contrast, mandating the application could have an adverse effect and inhibit firms to use models (Tschopp & Nastanski, 2014). By highlighting the need to provide more specific guidelines and explanations on how to apply RMs, we are not suggesting that RMs should be mandated, not even that the freedom of firms should be reduced. Rather than that, and in line with Benham and MacLean (2011), we argue that the freedom of firms may be advantageous as it increases flexibility to appropriately compile information, as well as to develop and enhance reporting practices. As a matter of fact, we found that in some cases the selected company overcame the limitations of the GRI model.

Finally, the paper has implications for practitioners and organizations producing RMs. Our results show that the GRI RM needs to improve and evolve to facilitate the production of reports that enable stakeholders to appreciate CSR impacts. For that to be possible, the RM should effectively balance suppleness and concretion. On the one hand, firms require more concrete and practical explanations about the implementation of Principles and compilation of information. In this regard, we show that the lack of real guidance by the guidelines is one of the key shortcomings that should be improved to properly support firms. In this regard, Chauvey, Giordano-Spring, Cho, & Patten (2015) assert that the absence of definitions and methodologies to calculate the indicators thwarts the clarity and comprehensibility of the information. Thus, if companies were to be provided with more adequate and concrete guidance on how to produce reports, the level of CSR information could improve as they could benefit from more concrete explanations to follow. On the other, the RMs must enable some level of

flexibility to be applicable to any organisation and foster further improvements. Further suggestions that could improve the capacity of the GRI RM are the specification of a clear structure to organise SR content and increase to their standardization among firms, as well as providing example of best reporters on how to disclose indicators. However, we seriously doubt those improvements will take place. The GRI has been captured by companies and accounting firms (Brown et al., 2009). Both lobbies have joined sustainability or CSR organisations, as a means to appropriate those concepts and influence their evolution, by trying to reduce the gap between the way these concepts are understood and company behaviour (Malsch, 2013; Tregidga et al. 2014). Thus, we are pessimistic about whether the GRI RM would ever achieve the purpose of properly representing CSR impacts.

To conclude, we can affirm that the current path of CSR reporting practices is towards unsustainability. Thus, the question is then: what are we (companies, academics, and society at large) to do to redirect this path? Following Brown and Dillard (2014, 1136), "a fundamental rethink of accounting theory, policy and practice is required if accounting is to take sustainability issues relating to human well-being, social justice and ecological integrity seriously". In so doing, we need to integrate multiple disciplines and perspectives, not only accounting, to develop adequate methods that account for CSR impacts (Bebbington & Larrinaga, 2014). Additionally, academics needs to undertake more practical and engaging research methodologies to broaden the future agenda of social and environmental accounting. Engagement research, as suggested by Adams and Larrinaga-González (2007) could be a very fruitful avenue to develop new accounting techniques. This approach advocates that knowledge is gained through practical application and calls for greater engagement between academics and social actors, particularly firms, which are the ones that actually practice CSR reporting.

We recognise that our findings are subject to some limitations. First, interpretive textual analysis is subjective in nature and could be biased by the authors' position. As in previous papers (Laine, 2009; Tregidga & Milne, 2006), we performed several rounds of readings and discussions in order to increase the objectivity of our research. Second, this study focuses on the SR of one company, which limits the generalisation of our conclusions. We selected a firm considered a "good reporter" to analyse the best application of the RM. The company was also under significant pressure to report on its CSR impacts. If issues appeared in this case, then problems in the application are more likely to emerge in other "not-so-good" reports. Our analysis is also limited to the SR of the selected firm. Companies may publish information related to CSR issues in other documents, but we focus only on that type of report because it is the main corporate tool t to communicate CSR information. Third, future studies could perform a multi-period case study to analyse how the communication problem evolves through time. In our case, although we have studied only one SR, the firm has a long-standing tradition of publishing CSR information to identify and solve potential limitations based on their significant experience. Finally, we note that we could not assess some elements in the application. However, these issues are minor and have no significant effect on our overall analysis.

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Tables

Table 1. Characteristics of the process determining an effective CSR communication

Communication problem	Characteristic	Sub-characteristic	Factors
Technical problems	Not considered		
Effectiveness problems	Significance: capacity of the CSR report to disclose relevant information and provide a faithful representation of CSR impacts.	Relevance: information is useful for the stakeholders' decision-making process.	- Materiality: information focuses on significant impacts for stakeholders. - Measurement uncertainty: compilation of reported figures can be traced.
		Faithful representation: information depicts an accurate picture of CSR impacts.	- Completeness: all necessary information to comprehensively evaluate impacts is provided. - Neutrality: information covers both positive and negative impacts. - Freedom from error: information has no significant mistakes or omissions.
Semantic problems	Fidelity: capacity of the CSR report to disclose comparable and understandable information to avoid misinterpretations.	Comparability: information can be compared.	- Among firms: information could be compared among firms within the same industry. - Over time: information of a firm could be compared through time.
		Understandability: information can be easily interpreted.	- Clearness: information is free from doubt and easily perceived by stakeholders. - Conciseness: only the required information is provided.

Table 2. GRI Reporting Principles and characteristics of effective CSR communication

GRI Principles	Related to		
	Characteristic	**Sub-characteristic**	**Factor**
Materiality	Significance	Relevance	Materiality
Stakeholder inclusiveness	Significance	Relevance	Materiality
Sustainability context	Significance	Faithful representation	Completeness
Completeness	Significance	Faithful representation	Completeness
Balance	Significance	Faithful representation	Neutrality
Accuracy	Significance	Faithful representation	Freedom from error
Reliability	Significance	Faithful representation	Freedom from error
Comparability	Fidelity	Comparability	Among firms Over time
Timeliness	Fidelity	Comparability	Among firms Over time
Clarity	Fidelity	Understandability	Clearness Conciseness

See Annex 1 for further information

Annex 1. GRI Reporting Principles and characteristics of effective CSR communication

GRI Reporting Principles			Related to		
Principles	**Definition**		**Characteristic**	**Sub-characteristic**	**Factor**
Materiality	The report should cover Aspects that: - Reflect the organization's significant economic, environmental and social impacts; or - Substantively influence the assessments and decisions of stakeholders		Significance	Relevance	Materiality
Stakeholder inclusiveness	The organization should identify its stakeholders, and explain how it has responded to their reasonable expectations and interests.		Significance	Relevance	Materiality
Sustainability context	The report should present the organization's performance in the wider context of sustainability.		Significance	Faithful representation	Completeness
Completeness	The report should include coverage of material Aspects and their Boundaries, sufficient to reflect significant economic, environmental and social impacts, and to enable stakeholders to assess the organization's performance in the reporting period.		Significance	Faithful representation	Completeness
Balance	The report should reflect positive and negative aspects of the organization's performance to enable a reasoned assessment of overall performance.		Significance	Faithful representation	Neutrality
Accuracy	The reported information should be sufficiently accurate and detailed for stakeholders to assess the organization's performance.		Significance	Faithful representation	Freedom from error
Reliability	The organization should gather, record, compile, analyse and disclose information and processes used in the preparation of a report in a way that they can be subject to examination and that establishes the quality and materiality of the information.		Significance	Faithful representation	Freedom from error
Comparability	The organization should select, compile and report information consistently. The reported information should be presented in a manner that enables stakeholders to analyse changes in the organization's performance over time, and that could support analysis relative to other organizations.		Fidelity	Comparability	Among firms Over time
Timeliness	The organization should report on a regular schedule so that information is available in time for stakeholders to make informed decisions.		Fidelity	Comparability	Among firms Over time
Clarity	The organization should make information available in a manner that is understandable and accessible to stakeholders using the report.		Fidelity	Understandability	Clearness Conciseness

Annex. 2. Examples of extracts coded in the database

Document	Extract	Page	Characteristic	Sub-characteristic	Factor	Effect on communication
G4-P2	The report should clearly distinguish between factual presentation and the organization's interpretation of information.	17	Significance	Faithful Representation	Freedom from error	+
G4-P2	Organizations will need to determine the level of aggregation at which to present information. This requires balancing the effort required against the added meaningfulness of information reported on a disaggregated basis (such as country or site). Aggregation of information can result in the loss of a significant amount of meaning, and can also fail to highlight particularly strong or poor performance in specific areas. On the other hand, unnecessary disaggregation of data can affect the ease of understanding the information. Organizations should disaggregate information to an appropriate level using the Principles and the Guidance in the Implementation Manual. Disaggregation may vary by Indicator, but will generally provide more insight than a single, aggregated figure.	256	Significance	Faithful Representation	Completeness/ neutrality	-
BHP SR 2016	This Sustainability Report covers BHP Billiton's assets (including those under exploration, projects in development or execution phases and closed operations) that have been wholly owned and operated by BHP Billiton and assets that have been owned as a joint operation and operated by BHP Billiton (referred to in this Report as 'assets', 'operated assets' or 'operations') during the period from 1 July 2015 to 30 June 2016. Our Marketing and functions are also included. BHP Billiton's assets also include those that are owned as a joint venture but not operated by BHP Billiton (non-operated joint ventures). While our non-operated joint ventures are not included within the scope of this Sustainability Report, we have included a section on Samarco – our non-operated joint venture between BHP Billiton Brasil Ltda and Vale S.A. In addition, this Sustainability Report includes a limited number of references to key issues at our other non-operated joint ventures. Data for non-operated joint ventures is not presented in this Sustainability Report, unless otherwise stated. Comparative information includes divested assets unless otherwise stated.	57	Significance	Faithful representation	Completeness	Dec.

Document		Extract	Page	Characteristic	Sub-characteristic	Factor	Effect on communication
BHP 2016	SR	Our material sustainability issues We identify and respond to material sustainability issues to successfully deliver on our Company strategy and to create value. Having regular, open and honest engagement with our stakeholders helps us to identify, understand and prioritise the sustainability issues and opportunities that matter most to our stakeholders and to our business. The content of this Sustainability Report is shaped by our annual materiality assessment, which satisfies the Global Reporting Initiative (GRI) principles for defining report content, sustainability context, materiality, completeness and stakeholder inclusiveness through a cycle of identification, prioritisation, validation and review. Report materiality is based on a review of sustainability risks identified by analysing inputs, including our risk register, and by engagement with internal and external stakeholders, such as socially responsible investors and members of the Forum on Corporate Responsibility. Investment reports and media coverage also informed the materiality determination. Through these activities we developed the list of material topics outlined below, which were reviewed by the Sustainability Committee and reassessed throughout the preparation of this Sustainability Report	12-13	Significance	Relevenace	Materiality	Inc.

Annex 3. Relevance of the GRI reporting model and its application

Factor	GRI reporting model			BHP Billiton SR 2016		
	Element	Effect on communiction		Element	Effect on communiction	Negative effect driven by
Materiality	G4 suggest using stakeholder engagement to identify material impacts.	Positive		Material topics were defined through stakeholder engagement.	Positive	
	G4 provides sector supplements.	Positive		The SR follows the Mining and Metals G4 Sector Disclosures.	Positive	
	G4 lacks practical explanations on how to develop stakeholder engagement mechanisms and the process of defining materiality.	Negative		The firm explains how it has engaged with its stakeholders to define content.	Positive	Reporting model
Measurement Uncertainty	G4 suggests describing methods to elaborate information.	Positive		Footnotes provide explanations on figure calculation.	Positive	
	G4 is vague in explaining how to gather and compile information.	Negative		Some figures are difficult to interpret, despite footnotes.	Negative	Reporting model

Annex 4. Faithful representation of the GRI reporting model and its application

Factor	GRI Reporting model		BHP Billiton SR 2016		
	Element	**Effect on communiction**	**Element**	**Effect on communiction**	**Negative effect driven by**
Completeness	G4 asks firms to completely consider the scope, boundaries, and time of impacts.	Positive	The SR excludes impacts generated by non-operated joint ventures	Negative	Application
	G4 fails to suggest disclosures that account for the whole extent of impacts. It is unclear how to compile the few indicators about consequences of corporate activities.	Negative	Most information covers inputs and management. Investments are used to measure impacts.	Negative	Reporting model
Neutrality	G4 highlights accounting for both positive and negative impacts.	Positive	The SR discloses mostly positive information. The firm uses a negative event to generate a positive perception.	Negative	Application
	G4 proposes indicators that bias the representation of impacts.	Negative	The SR discloses most of these indicators	Negative	Reporting model
	G4 suggest qualitative disclosures, which could be used to influence the representation of impacts.	Negative	Words are used to generate a positive perception.	Negative	Reporting model
	G4 suggests aggregating data, which could hide negative impacts.	Negative	Data is aggregated at the company level.	Negative	Reporting model
Freedom from error	G4 suggests providing evidence of impacts.	Positive	The SR discloses case studies on positive and concrete actions as evidence. Figures in the appendix are not connected to their sections.	Negative	Application
	G4 suggests explaining omissions and boundaries.	Positive	Omissions and boundaries are clear.	Positive	
	G4 suggests externally assuring SRs.	Positive	The SR was externally assured.	Positive	
	G4 suggests engaging stakeholders in assuring information but fails to explain how to do so.	Negative	The assurance statement makes no reference about involving stakeholders.	Negative	Reporting model

Annex 5. Comparability of the GRI reporting model and its application

Factor	GRI Reporting model		BHP Billiton SR 2016		
	Element	Effect on communiction	Element	Effect on communiction	Negative effect driven by
Among firms	G4 suggests indicating the period and boundaries of information.	Positive	The period and boundaries of information are indicated.	Positive	
	G4 requires disclosing a GRI Content Index.	Positive	GRI Content Index is difficult to obtain.	Negative	Application
	G4 fails to propose a structure to organise SRs.	Negative	Structure is based on the firm's material topics, which could be different from other companies.	Negative	Reporting model
	Firms might measure the same impact in a different way.	Negative	Not possible to assess		Reporting model
	G4 suggests disclosing qualitative information.	Negative	Most information is qualitative and narrative.	Negative	Reporting model
	G4 allows the use of references to other documents.	Negative	References to other documents are common.	Negative	Reporting model
Over time	G4 suggests disclosing information about the two prior reporting periods.	Positive	Tables do not disclose information about the two prior reporting periods.	Negative	Application
	G4 suggests explaining changes in reporting policies and boundaries.	Positive	Footnotes explain changes from prior years.	Positive	
	G4 suggests indicating the period and boundaries of information.	Positive	The period and boundaries of information are indicated.	Positive	
	G4 requires disclosing a GRI Content Index.	Positive	GRI Content Index is difficult to obtain.	Negative	Application
	G4 fails to propose a structure to organise SRs.	Negative	Structure is based on the firm's material topics. Prior report followed a different structure.	Negative	Reporting model
	G4 suggests disclosing qualitative information.	Negative	Large amount of qualitative and narrative information.	Negative	Reporting model

Annex 6. Understandability of the GRI reporting model and its application

Factor	GRI Reporting model		BHP Billiton SR 2016		
	Element	Effect on communiction	Element	Effect on communiction	Negative effect driven by
Clearness	G4 suggests disclosing graphic and consolidated data.	Positive	The SR discloses graphics and tables. Yet some of them are not clear.	Negative	Application
	G4 suggests avoiding jargon and unfamiliar terms.	Positive	The SR uses simple language and avoids jargon.	Positive	
	G4 fails to propose a structure to organise SRs.	Negative	Structure is based on the firm's material topics, which could be different from other companies.	Negative	Reporting model
	G4 allows using references to other documents.	Negative	References within the SR and to other documents are common.	Negative	Reporting model
	G4 requires disclosing large amounts of information.	Negative	The SR discloses large amounts of information, mostly narrative and qualitative.	Negative	Reporting model
Conciseness	G4 suggests prioritising impacts.	Positive	Material topics were prioritised.	Positive	
	G4 allows using references to other documents.	Positive	References within the SR and to other documents are common.	Positive	
	G4 suggests aggregating data.	Positive	The SR aggregates information at the firm level.	Positive	
	G4 suggests disclosing graphic and consolidated data.	Positive	The SR discloses graphics and tables.	Positive	
	G4 requires disclosing a GRI Content Index.	Positive	GRI Content Index is difficult to obtain.	Negative	Application
	G4 requires disclosing large amounts of information.	Negative	The SR discloses many narrative and qualitative disclosures (mostly truisms and case studies).	Negative	Reporting model