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Identifying Worldviews on Corporate Sustainability: A Content Analysis of Corporate Sustainability Reports

Nancy E. Landrum
Loyola University Chicago, nlandrum@luc.edu

Brian M. Ohsowski
Loyola University Chicago, bohsowski@luc.edu

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Abstract

Companies commonly issue sustainability or corporate social responsibility reports (CSR). This study seeks to understand worldviews of corporate sustainability, or the corporate message conveyed regarding what sustainability or CSR is and how to enact it. Content analysis of corporate sustainability reports is used to position each company report within stages of corporate sustainability. Results reveal there are multiple coexisting worldviews of corporate sustainability but the most dominant worldview is focused on the business case for sustainability, a position anchored in the weak sustainability paradigm. We contend that the business case and weak sustainability advanced in corporate sustainability reports and by the Global Reporting Initiative are poor representations of sustainability. Ecological embeddedness, or a locally responsive strategy that is sensitive to local ecosystems, may hold the key to improved ecological sensemaking which, in turn, could lead to more mature levels of corporate sustainability worldviews that support strong sustainability and are rooted in environmental science. This must be supported by government regulation.

Keywords

Sustainability, corporate social responsibility (CSR), content analysis, stages of corporate sustainability, strong sustainability, weak sustainability, sustainability spectrum, sustainability reports

Introduction

Among the world's largest companies, 90-95% produce sustainability or corporate social responsibility (CSR) reports (Ernst & Young, 2014; King et al., 2015). CSR reports are a strategic approach to CSR communication (Bartlett & Devin, 2011) to understand each other's perspective (Crane & Livesey, 2003). Sustainability reporting can also be used for image management (Robinson, 2004). In this study, we turn to sustainability or CSR reports as a tool to understand corporate worldviews regarding the meaning of sustainability or CSR.

In the following sections, we review the context and reasons for company reporting on corporate sustainability and responsibility activities, we introduce strong sustainability as a theoretical lens through which to view the corporate reports, and we introduce stages of corporate sustainability as categories to organize the rhetoric of the reports under study. Using content analysis, we discuss the findings of this study and make recommendations for areas of further inquiry. This study contributes to the knowledge base by utilizing content analysis of corporate sustainability reports to indicate alignment with a stage of corporate sustainability. We demonstrate that corporate sustainability reports as well as GRI standards are grounded in weak sustainability and fail to consider the wider environmental science context necessary to genuinely pursue sustainability.

Corporate Sustainability

Corporate social responsibility (CSR) is related to the terms corporate sustainability and responsibility (also CSR), corporate responsibility, corporate citizenship, environmental

management, sustainable development, corporate sustainability, and the triple bottom line. These terms are often used interchangeably despite the continuing debate to differentiate the terms (e.g. Montiel, 2008). Schwartz and Carroll (2008) suggest that these related concepts refer to simultaneously generating company and societal value, balancing competing interests, and being accountable for corporate activities. This study adopts the term sustainability.

In addition to the debate over defining concepts, there is ample debate over implementation of sustainability concepts. On one hand, some businesses understand implementation as incremental improvements over business-as-usual while other businesses understand implementation as a major paradigm shift in thought and action. The debate over terminology, definition, and implementation has led some to conclude that the field is in a state of continuous emergence and evolution (Carroll, 1979; Christensen & Cheney, 2011; Christensen et al., 2013).

Corporate Sustainability Reporting

History of Reporting

Although companies vary in their definition and implementation of sustainability (or CSR), most can agree that a sustainability report should be issued. In response to several environmental disasters of the 1980s, companies began publishing environmental reports of their activities; in response to ethical scandals of the 1990s, companies began publishing social reports of their activities (Brockett & Rezaee, 2012; Christofi, Christofi, & Sisaye, 2012). Companies perceived communication of environmentally and socially responsible activities would result in improved image and produce economic benefits (Christofi et al., 2012). Voluntary reporting of

environmental and social activities spread globally, thus in the late 1990s, The United Nations Environment Programme and the nonprofit Coalition for Environmentally Responsible Economies collaboratively developed the first standards for sustainability reporting: the Global Reporting Initiative, or GRI (Brockett & Rezaee, 2012; Christofi et al., 2012).

Currently, there are three dominant sustainability reporting frameworks: the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IR) Framework (introduced in 2013), and the Sustainability Accounting Standards Board (SASB) guidelines (began industry-specific introductions in 2013) (Calace, 2016, 2017). Each framework differs on what is material: the GRI focuses on a multi-stakeholder approach, the IR focuses on value creation, and the SASB focuses on investors (Calace, 2016).

Purpose of Reporting

Since the voluntary adoption of sustainability reporting began in the 1980s and 1990s, much research has focused on the purpose of reporting. According to Crane and Glozer (2016), the purposes of sustainability and CSR communication are: (1) stakeholder management to build relationships and influence behavior, (2) image enhancement to present the company in a positive light, (3) legitimacy and accountability to signal appropriate and desirable activities, (4) attitude and behavioral change of consumers, (5) sensemaking to communicate how the company and stakeholders make sense of their world, and (6) identity and meaning creation with stakeholders to build company identity. It has been argued, however, that the overarching purpose for which companies communicate corporate sustainability and responsibility activities is in anticipation of increased financial returns (Du et al., 2010). Indeed, research and industry

reports focus on the economic benefit and value that sustainability reporting can bring to the company (Ernst & Young, 2016).

Global Reporting Initiative

Among the world's largest companies, 90-95% produce sustainability reports (Ernst & Young, 2014; King et al., 2015) although it is noted that not all companies see value in reporting and, thus, choose not to produce a sustainability report (Stubbs, Higgins, & Milne, 2013). In a review of sustainability reports from 2012-2015 in the Datamaran database, Calace (2016) found that over 95% of companies used the GRI framework although usage decreased to 85% by 2015. The IR framework was used by approximately 4% of companies in 2012 and usage increased to 11% by 2015 (Calace, 2016). The SASB framework was not found in the 2012 sample but usage had increased to 4% by 2015 (Calace, 2016). The Global Reporting Initiative (GRI) is decidedly the most commonly used format worldwide for sustainability reporting (Calace, 2016; Ernst & Young, 2016).

The GRI framework provides standardization by requiring participants to report on economic indicators, environmental compliance, labor practices, human rights, society, and product responsibility. Within these categories and subcategories, the GRI framework allows each company the flexibility to report on issues of most salience for the company and its stakeholders. Reports are maintained in a publicly accessible database and, as of October 2016, the database contained over 36,000 GRI and non-GRI reports from over 90 countries.

In sum, the literature has shown that the meaning of sustainability, corporate social responsibility, and related terms are ambiguous (Angus-Leppan et al., 2010; Metcalf & Benn, 2013), thus companies are often uncertain how to define and implement sustainability (Metcalf & Benn, 2013). It has been proven that worldviews (or mindsets) determine activities (Senge, 1990; Senge et al., 2008), therefore, the unique way in which a company defines and implements sustainability must be reflective of its worldview on sustainability. We suggest that a company's worldview of CSR or sustainability can be determined through the rhetoric of the sustainability report. This study analyzes the content of sustainability reports as one approach toward understanding corporations' worldview of corporate sustainability by situating the rhetoric of the reports along the sustainability spectrum.

Sustainability Spectrum & Stages of Corporate Sustainability

Companies have a variety of interpretations of what sustainability means and how it should be implemented (Montiel, 2008; Schwartz & Carroll, 2008). Landrum (2015, 2017) proposed a developmental model of Stages of Corporate Sustainability that reflects the broad array of corporate interpretations of sustainability. This model follows the sustainability spectrum (Pearce, 1993) which ranges from weak sustainability (Hartwick, 1977, 1978; Solow, 1974, 1993) to strong sustainability (Daly, 1973, 1991). "Weak and strong sustainability are differentiated by their approach to integration, the ambition of the vision of change, the complexity of the innovation and the extent of collaboration among social, political, and economic actors" (Roome, 2012, p. 626). Four worldviews are positioned along the sustainability spectrum. On one end of the spectrum, weak and very weak sustainability are

technocentric and require increases in production and consumption, economic growth, valuation and utilization of natural resources, and technocratic solutions to environmental problems; these positions view man's role as one of control over nature (Hartwick, 1977, 1978; Hediger, 1999; Solow, 1974, 1993). On the other end of the spectrum, strong and very strong sustainability are ecocentric and recognize that economic growth is bounded by environmental limits, natural resources need to be preserved to support life, and all activity must remain within ecological limits; man's role is that of one equal species among others in nature (Daly, 1973, 1991; Hediger, 1999).

Using the sustainability spectrum, Landrum (2015, 2017) integrated twenty-two organizational micro- and governmental or societal macro-level stage models of corporate sustainability, corporate social responsibility, environmental management, and sustainable development. This integration of micro- and macro-level model discourse unites the sensemaking of both organizations and governments and places organizational discourse on sustainability within the context of governmental discourse. The resulting Stages of Corporate Sustainability model (Table 1) can be described as:

Stage 1: Compliance (very weak sustainability) – in which firms engage in activities which are externally enforced.

Stage 2: Business-Centered (weak sustainability) – in which firms engage in egocentric internally-focused activities that result in benefit to the firm.

Stage 3: Systemic (intermediate sustainability) – in which firms work with others integrating the full realm of sustainability activities (environmental, economic, and social) to address systemic change.

Stage 4: Regenerative (strong sustainability) – in which firms understand sustainability science and seek to repair damage of an industrial-era consumer society.

Stage 5: Coevolutionary (very strong sustainability) – in which firms understand the place of humans, corporations, and societies as existing in partnership with the natural world, giving as much as receiving.

In this model, stages 1, 2, and 3 are categorized as business-oriented while stages 4 and 5 are categorized as ecology-oriented.

[insert Table 1 about here]

This model has been used in categorizing reading content of introductory sustainable business courses (Landrum & Ohsowski, 2017) and serves as a framework in the current study for categorizing the rhetoric of corporate sustainability reports. This approach provides insight into the company's understanding of sustainability and points to the company's stage of maturity in corporate sustainability which, in turn, will ultimately define the corporate actions taken.

Methodology

Content Analysis

Content analysis is a type of textual analysis that studies the messages or characteristics of a text to interpret meaning. This conceptual analysis approach identifies the frequency of concepts, such as words or phrases. Content analysis is a methodology that has been used by

others to study corporate sustainability and CSR reports (e.g., Bondy et al., 2008, Campopiano & de Massis, 2015; Dobbs & van Staden, 2016; Lock & Seele, 2016; Manetti & Toccafondi, 2014; Vurro & Perrini, 2011).

Using Landrum's (2015, 2017) five Stages of Corporate Sustainability as content categories (Table 1), this study identified syntactical units (keywords) representative of each stage for analysis and compared the relative keyword frequencies in two groupings of reports: (1) standardized Global Reporting Initiative (GRI) reports and (2) non-standardized Non-GRI reports. It is possible that differences could exist between reports following the GRI standardized reporting content and those following another format. For both groups, statistical analyses compared keyword frequency among the five stages to assess differences in textual language among standardized / non-standardized sustainability reports.

GRI / Non-GRI Report Selection

The GRI is the most commonly used sustainability reporting framework (Calace, 2016; Ernst & Young, 2016) although use of other frameworks is increasing (Calace, 2016). Research shows that the GRI is used by 85% of companies (Calace, 2016). As such, our focus was on reports following the GRI framework. But we also sought to include reports that did not follow the GRI framework to determine if there was a significant difference in the content or rhetoric to convey corporate worldviews regarding the meaning of sustainability or CSR. The GRI database allowed us to access reports that followed the GRI framework (GRI reports) as well as reports following the IR, SASB, or another framework (Non-GRI reports).

The Global Reporting Initiative (GRI) database was queried between March 2016 – April 2016 to identify and download GRI and Non-GRI sustainability reports found at http://database.globalreporting.org/search. GRI and Non-GRI reports must have met three criteria to be included in the study: (1) summary of 2013 sustainability activities for a given enterprise, (2) provided a PDF digital document or accessible website with extractable text, and (3) the enterprise was identified as a North American-based business with a report in English. Non-GRI reports outnumbered GRI reports when assessing the number of reports meeting the selection criteria. To account for the replication imbalance in the dataset, a random subsample of Non-GRI reports were selected to approximate a similar number of the GRI reports meeting the criteria. Meta-data indicating the organization size and industrial sector were also extracted during the data extraction process. In total, 122 Non-GRI reports and 108 GRI reports were included in the final dataset. The complete list of GRI and Non-GRI reports is given in the Appendix.

Keyword Selection

Five Stages of Corporate Sustainability have been identified (Landrum, 2015, 2017); the stages represent five positions along the sustainability spectrum (Pearce, 1993) from very weak sustainability to very strong sustainability. Through careful reading, keywords representative of each stage were identified (Table 2) through a process similar to citation pearl growing (Hawkins & Wagers, 1982; Schlosser et al., 2006). This method draws keywords from the original source (Landrum, 2015, 2017) and expands the search a second level to include the citations of the

original work. Tertiary iterations of the method were not carried out in the analysis. The list of keywords that define each stage were used to quantitatively assess word counts in each sustainability report.

[insert Table 2 about here]

Data Extraction and Analysis

Selected GRI and Non-GRI reports were download from the GRI website as PDF documents when available. If a PDF document was not available on the GRI website, sustainability reports linked to the company's websites were converted to a PDF document via the Google Chrome web browser. In all cases, the complete text given for each report was used in the analysis.

After collection, each PDF was converted to extractable text in Adobe Acrobat X Professional and saved in a database. Keywords (Table 2) in each stage of Landrum's (2015, 2017) Stages of Corporate Sustainability (Table 1) were counted using the Text Mining Package V.0.6-2 (Feinerer et al., 2008; Feinerer & Hornik, 2015) and the statistical computing program, R version 3.3.1 (R Core Team, 2016). This package extracts and processes the text of each document to create individual words, remove punctuation, remove upper case letters, and remove extra whitespace. Keyword counts were standardized by document size (i.e. total word count) to account for biases associated with each publication's length. Thus, the data points in each stage's analysis are presented as keyword percentages calculated by total keyword count divided by the document's total word count.

Data subsets based on industry sector were examined to determine differences in reporting language across three different industries (Forest and Mines, Utilities, Finance). The meta-data from the GRI reporting website included industry sector classifications determined by the GRI organization. Replication was too low across most industry sectors to reliably analyze the data using Type III ANOVA models. To increase the replication of several industry sectors, data was combined based on industry similarity. For this analysis, new industry combinations (replication given in parentheses) based on the GRI website were: [Finance Services (GRI:9, Non-GRI:9) = Finance Services; Forest and Mines (GRI:11, Non-GRI:6) = Mining + Forest and Paper Products; Utilities (GRI:9, Non-GRI:11) = Energy + Energy Utilities + Water Utilities].

Data were statistically analyzed using Type III ANOVA models with the *Anova()* function from the *car* package in R (Fox & Weisberg, 2011). Type III ANOVA models were utilized to account for the unbalanced design due to uneven replication in documents from GRI reports and Non-GRI reports. Categorical factors in each model were statistically significant when p-values ≤ 0.05. When model factors were significant, post-hoc pairwise comparisons were calculated using the *pairwise.t.test()* function in R to determine significance among each factor's levels. For all analysis, data were square-root transformed to approximate normality and meet the assumptions of the Type III ANOVA test.

Results

GRI and Non-GRI Report Classification

In total, 108 GRI and 122 Non-GRI reports were included in the analysis (Appendix). Twenty-eight industry sectors were represented in the GRI report dataset with the top three most frequent industry sectors given as Financial Services (9 reports), Mining (8 reports), Technology Hardware / Energy / Aviation / Public Agency (5 reports each). Thirty-five industry sectors were represented in the Non-GRI dataset with the top three sectors given as Financial Services (9 reports), Healthcare Services (7 reports), and Food and Beverage (7 reports). The distribution of organization size was relatively equal for GRI reports (multinational enterprises [46], large enterprises [54], small-medium sized enterprises [8]) and Non-GRI reports (multinational enterprises [62], large enterprises [52], small-medium sized enterprises [8]). Reporting businesses were mostly located in the United States for both GRI Reports (U.S. [86], Canada [21], Bermuda [1]) and Non-GRI Reports (U.S. [109], Canada [12], Bermuda [1]).

GRI and Non-GRI Report Comparison for All Industry Sectors

In this section, the five Stages of Corporate Sustainability (Landrum, 2015, 2017) were examined to compare GRI and Non-GRI reporting language across all sectors. In this analysis, each stage was significantly different from all other stages indicating no similarity in stage keyword percentage ($p<0.001$) (Figure 1; significance not shown on graph). Mean ± standard error (SE) keyword percentages were highest in Stage 2: Business-Centered (GRI: 1.48% ± 0.15%; Non-GRI: 1.33% ± 0.17%) and lowest in Stage 5: Coevolutionary (GRI: 0.03% ± 0.01%; Non-GRI: 0.04% ± 0.01%) regardless of report classification (Figure 1).

[insert Figure 1 about here]

When comparing keyword percentages within each stage, GRI reports were significantly greater in Stage 1: Compliance and Stage 2: Business-Centered compared to Non-GRI reports across all industry sector classifications ($p \leq 0.05$) (Figure 1). In contrast, Non-GRI reports were significantly greater in Stage 3: Systemic compared to GRI reports ($p \leq 0.05$) (Figure 1). No significant difference was detected between GRI and Non-GRI reports in Stage 4: Regenerative and Stage 5: Coevolutionary ($p > 0.05$).

GRI and Non-GRI Report Comparison by Industry Sector

Compared to the analysis of all industry sectors (Figure 1), the three industry sector subsets exhibited similar keyword percent patterns across the five stages (Figure 2). Stage 2: Business-Centered keyword percentages were statistically different ($p \leq 0.05$) from all other stages in the Utilities, Finance Services, and Forest Products and Mining Subset. Stage 5: Coevolutionary has the lowest mean keyword percent (Figure 2a,2b,2c). GRI reports were significantly greater than Non-GRI reports in Stage 1: Compliance of the Forest and Mines data subset ($p \leq 0.05$). All other stage comparisons across the three sector subsets were not significant ($p > 0.05$).

[insert Figure 2 about here]

Top Ten GRI vs. Top Ten Non-GRI Reports

The top ten highest ranked GRI sustainability reports in each stage were analyzed to determine significant differences when compared to the top ten Non-GRI sustainability reports in each stage (Figure 3). In this analysis, GRI and Non-GRI reports were ranked by their

standardized percent keywords along the five stages of the sustainability spectrum. The Non-GRI sustainability report standardized percent keywords were significantly greater in Stage 3: Systemic and Stage 4: Regenerative ($p \leq 0.05$) (Figure 3). No significant differences were detected in Stages 1: Compliance, 2: Business-Centered, and 5: Coevolutionary when comparing top ten GRI and Non-GRI sustainability reports ($p > 0.05$). Mean ± standard error (SE) for standardized percent keyword were highest in Stage 2: Business-Centered (GRI: 2.90% ± 0.14%; Non-GRI: 3.34% ± 0.33%) and lowest in Stage 5: Coevolutionary (GRI: 0.16% ± 0.02%; Non-GRI: 0.22% ± 0.03%).

[insert Figure 3 about here]

Discussion

This study utilized content analysis of corporate sustainability reports to reveal worldviews of corporate sustainability. A company's worldview regarding the meaning of corporate sustainability is revealed through communication of activities, as reported in sustainability reports. Furthermore, using Landrum's (2015, 2017) Stages of Corporate Sustainability, the content analysis of the sustainability reports served as an indicator of the stage of maturity of corporate sustainability. There were several noteworthy observations from our analysis.

First, across all reports (both GRI and non-GRI), this study found the companies used a broad expanse of language that spanned all five Stages of Corporate Sustainability, suggesting different forms of sensemaking regarding corporate sustainability. The reports communicated

the message that they understand sustainability to mean staying within legal and regulatory boundaries (Stage 1: Compliance). The reports communicated the message that they understand sustainability to mean activities with financial/market value to the business (Stage 2: Business-Centered). The reports communicated the message that they understand sustainability to mean engaging in collaborative partnerships to influence systemic change (Stage 3: Systemic). The reports communicated the message that they understand sustainability to mean reparation of the environmental, social, and economic damage of industrial age practices (Stage 4: Regenerative). Finally, the reports communicated the message that they understand sustainability to mean humanity living in balance with nature to create the best conditions for mutual survival and flourishing (Stage 5: Coevolutionary).

This is, perhaps, one of the primary obstacles in achieving corporate sustainability. These different worldviews reflect the lack of agreement and continued ambiguity regarding the understanding of corporate sustainability, as noted by prior researchers (Angus-Leppan et al., 2010; Metcalf & Benn, 2013; Montiel, 2008; Schwartz & Carroll, 2008). In fact, Milne and Gray (2013, p. 17) state that "business reporting reflects both how the organization understands and how the organization *wishes* to understand sustainability."

> When information is distributed among numerous parties, each with a different impression of what is happening, the cost of reconciling these disparate views is high, so discrepancies and ambiguities in outlook persist. Thus, multiple theories develop about what is happening and what needs to be done, people learn to work interdependently

> despite couplings loosened by the pursuit of diverse theories, and inductions may be more clearly associated with effectiveness when they provide equivalent rather than shared meanings (Weick et al., 2005, p. 418).

Second, we found that across all reports (both GRI and non-GRI) and all industry subsets, communicating the business case for sustainability (Stage 2: Business-Centered) received the most emphasis (Figures 1 & 2). Thus, the business case emerged as the most prominent worldview within our sample. The business case for sustainability, which represents a weak sustainability worldview, is firmly entrenched in the technocentric worldview of man's exploitation and control over nature (O'Riordan, 1989). These findings provide empirical data to confirm claims that corporate sustainability is driven by the business benefits it brings to the corporation (Banerjee, 2008; Delmas & Burbano, 2011; Dyllick & Muff, 2016; Hockerts, 2015; Jacobs, 1993; Kallio, 2007; Karnani, 2011; Landrum & Ohsowski, 2017; Milne & Gray, 2013; Roome, 1998; Russo & Minto, 2012; Schnaiberg, Pellow, & Weinberg, 2000; Sexton, Marcus, Easter, & Burkhardt, 1999; Shrivastava, 1995; Stead & Stead, 1995). Furthermore, this study provides empirical data to confirm claims that corporate sustainability is deeply rooted in the weak sustainability paradigm (Davies, 2013; Gladwin et al., 1995; Ihlen & Roper, 2014; Spash, 2013). Sadly, this narrow worldview of sustainability both informs and constrains an organization in its identity and action (Mills, 2003).

Alongside ambiguity in understanding sustainability, the dominant and deep-seated commitment to the weak sustainability worldview is equally ruinous and is the other primary

obstacle to the achievement of sustainability. There are several theories that contribute to our understanding of this quagmire. For example, institutional theory frames sustainability challenges as behavioral and cultural (Hoffman & Jennings, 2015). That is, behavioral and cultural responses have become institutionalized to reinforce the status quo. As such, Hoffman and Jennings (2015) suggest a change in focus is needed that moves from the current behavioral and cultural view that the environment is a consideration within social and economic systems to a more realistic view that social and economic systems are embedded within natural systems. They point out that much research in the sustainability management field conforms to the former view (Hoffman & Jennings, 2015).

Adding to this perspective, paradox theory suggests that corporate sustainability is rife with competing tensions between desirable outcomes at multiple levels and scales (Hahn et al., 2015; Hahn et al., 2017; Jennings & Hoffman, 2017; Van der Byl & Slawinski, 2015). For example, there are competing tensions between present or short-term and future or long-term (Slawinski & Bansal, 2015), between the social, economic, and environmental dimensions of sustainability (Ozanne et al., 2016; Van der Byl & Slawinski, 2015), between company and societal interests (O'Driscoll, 2008), between sustainability and economic development (Bolton & Landells, 2015), and between shareholders and stakeholders (Margolis & Walsh, 2003). Our findings suggest that there are also tensions between expressed intentions communicated in sustainability reports and actual or real performance. There also exist tensions between worldviews that see humans as the dominant force and worldviews that understand the natural environment encompasses all social and economic activity, including humans. Furthermore,

there are substantive and irrefutable tensions between current neoclassical economic models rooted in weak sustainability and alternative economic models rooted in strong sustainability. Failure to acknowledge and balance these tensions allows firms to continue on a path of economic primacy.

Sensemaking theory and critical theory offer yet another perspective for why the dominant corporate sustainability worldview is entrenched in weak sustainability. Humphreys and Brown (2008) note that sensemaking occurs through narrative which is an expression of control and power and through which we can understand organizations' power relations. Large powerful organizations use narrative to control meaning with stakeholders (Crane & Livesey, 2003), including the sensemaking of sustainability for themselves and others (Adams, 2004; Lele, 1991). The business case for sustainability (Stage 2: Business-Centered) is the most prevalent sensemaking process in our sample. "(C)orporate targets appear to be driven by internal considerations – what companies can achieve and afford, what their peers are doing, even what round numbers will fit into a headline or press release" (Gunther, 2014, para. 4). The business case is easy and convenient in that it adopts incremental improvements over business-as-usual without requiring substantial change.

Springett (2003, 2013) notes that the current neoclassical paradigm distributes power unequally. In her interviews with middle and senior corporate managers, she notes that discourse is clustered around weak sustainability and managers have not seriously considered the more radical strong sustainability understanding of corporate sustainability (Springett, 2003). She

concludes that failure to question the growth mandate of neoclassical economics is at the heart of the managers' yoke to weak sustainability which allows them to continue reliance on traditional approaches and language, thus corporate sustainability is being "constrained and controlled" by elites (Springett, 2003, p. 82). This view is echoed by Bolton and Landells (2015, p. 615) as they conclude that "capitalist management has taken over the sustainable development discourse...in its attempts to control business agendas from a top-down power position."

Both the sensemaking and critical theory perspectives rest on power to explain why the business case dictates understanding of corporate sustainability. Our findings lead us to question who are the elites or capitalist managers controlling the narrative of corporate sustainability as the business case focused on incremental improvements to business-as-usual and thus perpetuating the weak sustainability paradigm. Is this narrative controlled by companies or is it controlled by the GRI and other organizations that provide frameworks, standards, and principles which guide companies?

Third, across all reports (both GRI and non-GRI), little mention was made of the environmental or ecological science of sustainability, such as planetary boundaries, natural limits, carrying capacity, or other concepts from the ecology-oriented stages that reflect the environmental reality and urgency of sustainability (Stage 4: Regenerative and Stage 5: Coevolutionary). Consistent with our study, Bjørn et al. (2016) found that only 31 out of approximately 9000 corporate responsibility reports in their study from companies that produced products acknowledged and discussed ecological limits as critical to corporate sustainability

activities. Milne and Gray (2013) also note that corporate sustainability is grounded in corporate interest, not social or ecological reality. In interviews with directors and managers, Carbon Disclosure Project (2009) also found that sustainability was motivated by market forces, not science. Rather than facing the grim reality of environmental destruction, the emphasis of reports in the current study was on the "feel good" message within the business-oriented stages that communicated to stakeholders they were operating within the limits of the law and emphasizing the many benefits realized by the business for their sustainability activities, perhaps an effort to signal sustainability success and to validate their actions to stakeholders.

Fourth, in identifying differences between GRI and non-GRI reports, significant differences were noted in the mention of keywords or concepts relative to the first three stages of corporate sustainability. The GRI reports placed significantly more emphasis on communicating compliance (Stage 1: Compliance) and the business case (Stage 2: Business-Centered) as their understanding of sustainability while non-GRI reports placed significantly more emphasis on communicating systemic change (Stage 3: Systemic) as their understanding of sustainability (Figure 1). Both sets of reports placed little emphasis on reparation of industrial age damage (Stage 4: Regenerative) as their understanding of sustainability and they placed even less emphasis on living in balance and harmony with the natural world (Stage 5: Coevolutionary) as their understanding of sustainability; both of which require an understanding and integration of environmental science. This raises the question of whether non-GRI companies are at a higher stage of sustainability than GRI companies or is this simply a result of the confines of following the GRI format which focuses on weak sustainability.

When evaluating the keywords categorized by business sector, no significant differences were detected when comparing GRI reports and Non-GRI reports ($p>0.05$) except in the Forest and Mining sector where keywords were significantly higher in GRI reporting businesses. Keyword patterns, regardless of sector, exhibited the same general distribution pattern of keywords across stages in Figure 1. A higher incidence of keywords in Stage 4: Regenerative and Stage 5: Coevolutionary may be anticipated due to the nature of the industry. Forest and mining industries have a close relationship with ecological and environmental connections as they extract natural resources and are under strict environmental regulations. As shown by our data (Figure 2a), there is no increase in keywords in this industry. Other industry sectors were not included in this analysis due to low replication needed to confidently assess each stage.

Furthermore, when we focused on only the top ten GRI and non-GRI reports (the top 10 reports containing rhetoric indicative of a stage), we found the differences between reporting on compliance (Stage 1: Compliance) and the business case (Stage 2: Business-Centered) disappeared (Figure 2). However, the non-GRI reports continued to report significantly more information on sustainability as both systemic change (Stage 3: Systemic) and reparations (Stage 4: Regenerative). Among the top reports, there was still little mention of living in balance with nature (Stage 5: Coevolutionary).

In reviewing the mandated GRI reporting categories and subcategories, companies must report on six categories and subcategories: economic indicators, environmental compliance, labor practices, human rights, society, and product responsibility. Within these six categories,

companies must report on 46 aspects. Within the 46 aspects, there is no requirement to report on cooperative efforts to enact systemic change (Stage 3: Systemic) neither is there a requirement to report on actions within the context of environmental science (Stage 4: Regenerative and Stage 5: Coevolutionary). While the GRI does identify a reporting principle that requires organizations to situate "the organization's performance in the wider context of sustainability" (Global Reporting Initiative, 2015, p. 17), the principle is vague, offers little guidance, and is absent any mention of environmental science, such as planetary boundaries (Milne & Gray, 2013), thus contributing to the ambiguity that already surrounds defining and implementing sustainability. In fact, Milne and Gray (2013, p. 19) state that the GRI and others contribute to "an industry of endeavor (that) is successfully constructing – and rewarding – sustainable performances and achievements of sustainability by many of the world's largest corporations in a hyper-reality which is entirely divorced from any planetary or human realities." Indeed, the GRI's focus on internal company performance and absence of emphasis on a company's external performance, particularly in relation to social and environmental performance, has been identified as one of its greatest weaknesses and remains a point of contention for many critics (e.g., Azcárate et al., 2011; Fonseca, 2010; Gray & Bebbington, 2007; Gray & Milne, 2002; McElroy, 2008; Milne & Gray, 2013; Moneva et al., 2006).

Fifth, this study found that the three subsectors represented by our reports (Finance, Utilities, and Forest Products and Mining) followed the same general patterns as the larger data set with an emphasis on the business case for sustainability (Stage 2: Business-Centered), followed by Stage 1: Compliance and Stage 3: Systemic with little mention of the environmental

science of Stage 4: Regenerative or Stage 5: Coevolutionary. The only significant difference between the three subsectors was in the Forest and Mining sustainability reports which placed significantly more emphasis on Stage 1: Compliance than did the non-GRI reports.

Finally, the two most important practical implications of this study are that it reveals (1) the need to more clearly define what corporate sustainability means and (2) the need to move beyond the business case for sustainability. To accomplish this, we identify a need to extend worldviews further along the sustainability spectrum into the environmental-science stages of corporate sustainability. This applies to both corporations as well as organizations that provide guidance, such as the GRI. CSR (and sustainability) is a continuous process of identifying what it means to be socially responsible (Christensen & Cheney, 2011). This content analysis reveals that the reports in this study primarily define CSR and sustainability by the business case yet current environmental crises and destruction demands that this definition is grossly insufficient.

This raises the question of how to prevent businesses from digging deeper into the business case for corporate sustainability. How do we help companies (and the GRI) to engage in more mature stages of corporate sustainability that reflect a realistic understanding of the environmental crises facing humanity and the need for a radical paradigm shift? To begin, research already discussed herein on why the business case is the dominant view suggest that we need a cultural change to understand that society and economy is embedded within the natural environment (Hoffman & Jennings, 2015), companies need to acknowledge and balance competing demands (Bolton & Landells, 2015; Hahn et al., 2015; Hahn et al., 2017; Jennings &

Hoffman, 2017; Margolis & Walsh, 2003; O'Driscoll, 2008; Ozanne et al., 2016; Van der Byl & Slawinski, 2015), and we need to examine who is controlling the narrative that sustainability is defined by the business case (Adams, 2004; Crane & Livesey, 2003; Humphreys & Brown, 2008; Lele, 1991; Springett 2003, 2013).

But the question is how to get businesses more attuned to the ecology-oriented stages of corporate sustainability. Perhaps Whiteman and Cooper's (2000, 2006, 2011) work on ecological embeddedness and ecological sensemaking can provide some clues. Whiteman and Cooper (2000, 2006, 2011) refer to ecological embeddedness as a connection between the natural environment and those who understand the local ecosystem and the interactive effects between humans and nature while ecological disembeddedness refers to those who do not have knowledge or experience with the local ecosystem. Ecological embeddedness has four dimensions: "a personal identification with the land, adherence to ecological beliefs, gathering ecological information, and being physically located in the ecosystem" (Whiteman & Cooper, 2000, p. 1275). An individual's degree of ecological embeddedness determines one's ecological sensemaking, or the process by which an individual notices ecological cues (Whiteman & Cooper, 2011). This view is reiterated in Reade et al.'s (2015) work in which they conclude that local environmental issues, such as biodiversity, are often invisible to corporate actors but engagement of local stakeholders allows a more locally responsive, place-based sustainability strategy that respects local ecosystems. Similarly, DeBoer, Panwar, and Rivera (2017) found that a firm's physical location, particularly its proximity to a green locale, is one indicator of the

degree of engagement in environmental practices. Clearly, a connection to the ecological environment affects a firm's sustainability activities.

Materiality of the natural world can influence how we make sense of the world around us (Whiteman & Cooper, 2011). In ecological materiality,

> We do not conceptualize the material aspects of nature as if nature were an "object" or "thing" (Knorr Cetina, 1997; Suchman, 2005), but rather as the dynamic materiality of a system of living entities, made up organic and inorganic matter (e.g., matter from living entities as well as from minerals) and energy flows (Odum, 1983)" (Whiteman & Cooper, 2011, p. 892).

The degree of ecological embeddedness (connections to the natural world) enables ecological sensemaking (the process of noticing and acting upon ecological cues). This, in turn, will affect outcomes of success within the environment, such as survival and resilience (Whiteman & Cooper, 2011). The more embedded in a local ecosystem, the greater the opportunities for ecological sensemaking (Whiteman & Cooper, 2011). Better sensemaking leads to better (and more innovative) responses to complex problems (Whiteman & Cooper, 2011). That is, the degree of ecological embeddedness affects a manager's commitment to sustainability (Whiteman & Cooper, 2000).

Our highly industrialized society and economy have removed us from the natural world, we are no longer ecologically embedded. If our industrialized society sees nature as a "thing" rather than "a system of living entities" (Whiteman & Cooper, 2011, p. 892) due to ecological

disembeddedness (lack of ecological connection and awareness), this could be a missing link in ecological sensemaking that causes businesses to continue actions and communication rooted in the weak sustainability paradigm. Therefore, this could explain why there is limited activity in the science of ecology-oriented stages 4 (Regenerative) and 5 (Coevolutionary).

We contend that the business case and weak sustainability represent an inadequate understanding of sustainability. By contrast, we propose that worldviews of corporate sustainability be extended into the heretofore unknown environmental-science realms of strong sustainability. This will address the two primary problems identified in this research: lack of understanding of sustainability and bondage to the business case of sustainability.

Finally, in considering how to move business and industry beyond the status quo, Karnani (2011) suggests we have three options: corporate self-regulation, government regulation, and pressure from civil society. While self-regulation and societal pressures may have some limited success, he concludes "the ultimate way to change firm behavior to achieve pubic interest is government regulation…It is primarily the role of government to force companies to change behavior to be congruent with the public interest" (Karnani, 2011, p. 83).

Limitations and Future Research

There are several limitations to the current study. First, the GRI, IR, SASB and other standards define sustainability indicators and thus influence what companies report; they mandate reporting guidelines (which could influence actions taken) and which could also lead a business to report on minimal or even lack of activity. Our reported keyword percentages cannot

discern whether the reports state the company is actively engaged in addressing the concern (i.e., water management) or if they are reporting this is a concern that needs to be addressed. Conversely, the mandated reporting guidelines might place emphasis on a particular sensemaking concept of sustainability, such as the case we have confirmed with the GRI's emphasis on weak sustainability and the mandate for businesses to report the business case. Company reports that follow no guidelines may be a better indicator of what a company views as material in their sensemaking of sustainability.

Second, the GRI database is only one repository for reports. There are numerous other databases for access to sustainability reports, such as the Global Compact, Corporate Register, and Datamaran. By restricting our sample to one database, it is possible that samples drawn from other sources could produce different results.

Third, as we are drawing from only one year of reporting, this analysis will not account for changes in reporting language over time. Analyzing trends across multiple reporting years may yield different patterns in the sensemaking of sustainability within an organization due to global and economic events or even maturity along the stages of corporate sustainability.

Fourth, the annual sustainability report is only one form of sustainability communication. Sustainability reports represent one-way communication and are static historical documents. This study did not consider other forms of communication or bidirectional communication.

Fifth, sustainability reporting is voluntary, thus companies that are actively engaged in sustainability initiatives may not have participated in the GRI and would not have been included

in the GRI database. One example is Patagonia, a company many consider to be a leader in sustainability but which does not publish a GRI report.

Sixth, the sample for this study included 108 multinational enterprises (MNE), 106 large enterprises, and 16 small-medium sized enterprises (SME). Therefore, it is possible that our results are influenced by a predominance of multinational and large firms and that an analysis of reports drawn solely from SMEs could produce a different result.

Seventh, the sample for this study was restricted to North American firms, dominated by United States firms. Studies have found differences in reporting between countries (e.g., Golob & Bartlett, 2007) and it is possible that sustainability reports outside the U.S. or North America may produce different results, particularly among the non-GRI reports which offer more flexibility regarding content.

Eighth, Milne and Gray (2013, p. 17) note that "the one thing you cannot learn from a sustainability report is the contribution to/detraction from sustainability that the organization has made." Our research seeks to identify the worldview or mindset of organizations on sustainability rather than actual behavior or performance on sustainability. Meckenstock et al. (2016, p. 450) note that while "these reports might represent to some level wishful thinking (Adams and Frost, 2008; Roca and Searcy, 2012), they do mirror corporate thinking. They are the most readily available evidence of how the translation process between sustainability ideals and operations…work."

Finally, both the GRI and the non-GRI reports were a mix of integrated reports and sustainability reports. Integrated reports combine the standard annual (financial) report with

reports on social and environmental performance whereas a sustainability report is often focused exclusively on social and environmental performance. The presence of integrated reports may have influenced the results, particularly among the GRI sample which mandates reporting on indicators related to the business case for sustainability.

We identify two critical points for future inquiry. First is defining sustainability by expanding the frame of understanding of both companies and the organizations that are providing guidance to companies (such as the GRI) to reposition the context of corporate sustainability as grounded in environmental science rather than the business case. This could help clarify the definition or meaning of sustainability. Second is engaging in the ecology-oriented stages of corporate sustainability (in both communication and action) by understanding how companies can become more ecologically embedded (Whiteman & Cooper, 2011).

Conclusion

This study's purpose was to understand worldviews of corporate sustainability, or the corporate message being conveyed regarding the meaning of sustainability or corporate social responsibility. Content analysis of corporate sustainability reports allowed us to place each company report within Stages of Corporate Sustainability (Landrum, 2015, 2017).

The results of this study found that there are multiple coexisting worldviews of corporate sustainability but they are predominately rooted in weak sustainability, or the business case for sustainability. Across Landrum's (2015, 2017) five Stages of Corporate Sustainability, the reports discussed concepts from all stages. The emphasis of all the reports aligned with the Business-Centered stage of corporate sustainability to reveal that the business case emerges as

the most prominent worldview within our sample. These findings support prior claims that (1) corporate sustainability is driven by corporate interests (Banerjee, 2008; Delmas & Burbano, 2011; Dyllick & Muff, 2016; Jacobs, 1993; Kallio, 2007; Landrum & Ohsowski, 2017; Roome, 1998; Russo & Minto, 2012; Schnaiberg, Pellow, & Weinberg, 2000; Sexton, Marcus, Easter, & Burkhardt, 1999; Shrivastava, 1995; Stead & Stead, 1995), (2) corporate sustainability is rooted in weak sustainability (Davies, 2013; Gladwin et al., 1995; Ihlen & Roper, 2014; Spash, 2013), and (3) the GRI fails to meaningfully consider environmental and social impacts (e.g., Azcárate et al., 2011; Fonseca, 2010; Gray & Bebbington, 2007; Gray & Milne, 2002; McElroy, 2008; Moneva et al., 2006). As shown across all sector and sub-sectors, an eco-centric emphasis (Stages 4: Regenerative and 5: Coevolutionary) that highlights environmental awareness is near absent in both GRI guidelines and all (GRI and non-GRI) corporate sustainability reports. Supportive of other research, few reports in our study referenced environmental science as a guide in determining sustainability actions. This leads us to question who controls the narrative that tells us sustainability is about the business case rather than the scientific case.

We contend that weak sustainability and the business case are poor representations of sustainability. We challenge the inadequacies of current approaches and seek to move companies and supporting organizations into the realm of strong sustainability that focuses on the environmental science case for sustainability. Understanding the ecology-oriented stages of corporate sustainability (Landrum, 2015, 2017) and developing ecological embeddedness (Whiteman & Cooper, 2011), or a locally responsive strategy that is sensitive to local ecosystems (DeBoer et al., 2017; Reade et al., 2015), may hold the key to improved ecological sensemaking.

This, in turn, could lead to more advanced levels of corporate sustainability worldviews and ecologically sensible business practices, particularly when supported by government regulation to achieve a tipping point.

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Table 1. *Stages of Corporate Sustainability*

	Compliance	Business-Centered	Systemic	Regenerative	Coevolutionary
Sustainability spectrum position	Very Weak	Weak	Intermediate	Strong	Very strong
Orientation	Economic science-oriented Business-oriented	Economic science-oriented Business-oriented	Economic science-oriented Business-oriented	Ecological science-oriented Ecology-oriented	Ecological science-oriented Ecology-oriented
Understanding of sustainability	Meet compliance requirements Internal firm-centric view	"Do less bad" Internal firm-centric view	"Do more good" Begins to look externally in defining sustainability Business is part of a larger industry and community working together toward systemic change	Repair damage to systems	Humans and all earth's beings are in a mutually enhancing and beneficial relationship
Relationship to natural world	To be managed and controlled Anthropocentric Resource exploitation	To be managed and controlled; anthropocentric Resource exploitation Eco-efficiency	To be managed and controlled; anthropocentric Resource exploitation Eco-efficiency	Part of the natural world Operate within planetary boundaries Manage and repair	Self-management as part of the natural world Participate in cooperative symbiotic relationship with the natural world
Economic growth	Pursuit of production, consumption, and growth	Pursuit of production, consumption, and growth	Pursuit of production, consumption, and growth	Qualitative development without production, consumption, and growth Steady-state growth	No growth in production or consumption Qualitative improvements
Sustainability concerns	Externally enforced or regulated activities Defensive actions with regard to economic, environmental, or social concerns	"Business case" is the motivation and measure of success Adoption and internal enforcement of activities Incremental improvements to business-as-usual May focus on one or more realms of sustainability (economic, environmental, social)	Integrates three realms of sustainability (economic, environmental, social) Work with other human systems	Integrates three realms of sustainability (economic, environmental, social) Work with human and non-human systems	Work in balance with other systems Contribute to flourishing of other systems

Table 2. *Keywords*

	Root Word	Keywords
Stage 1 -- Compliance		
	complian*	compliance, compliant
	legal*	legal, legalized, legally, legality
	regulat*	regulate, regulated, regulates, regulation, regulatory
	risk*	risk, risks
Stage 2 - Business--Centered		
	biotechnolog*	biotechnology, biotechnologies
	business as usual	business as usual
	business model	business model
	competitive advantag*	competitive advantage, competitive advantages
	cost*	cost, costs, costly, costing, costed
	cost-benefit*	cost-benefit, cost-benefits
	customer*	customer, customers
	demand*	demand, demands, demanding
	efficienc*	efficiency, efficiencies
	expens*	expense, expenses
	growth	growth
	market*	market, markets, marketing
	market share*	market share, market shares
	market value*	market value, market values
	money	money
	profit*	profit, profits, profited, profiting, profitable, profitability
	public relations	public relations
	retention	retention
	return on investment	return on investment, ROI
	sales	sales
	strateg*	strategy, strategies, strategic, strategical, strategically
	technolog*	technology, technologies
	value chain*	value chain, value chains
Stage 3 -- Systemic		
	collaborat*	collaborate, collaborates, collaborated, collaborating, collaborative, collaboratively
	cooperat*	cooperate, cooperated, cooperating, cooperation, cooperative, cooperatives
	ecoefficienc*	ecoefficiency, ecoefficiencies
	game chang*	game changer, game changing

global citizen*	global citizen, global citizens, global citizenship
humanity	humanity
industry	industry
integrat*	integrate, integrates, integrating, integration, integrative
partnership*	partnership, partnerships
system*	system, systems, systemic
transform*	transform, transforms, transformed, transforming, transformation, transformations, transformative

Stage 4 -- Regenerative

carrying capacity	carrying capacity
consumption	consumption
degrowth	degrowth
holistic	holistic
interdependen*	interdependent, interdependence, interdependencies
natural system*	natural system, natural systems
planetary boundar*	planetary boundary, planetary boundaries
preservation	preservation
redistribution	redistribution
repair*	repair, repairs, repairing, repaired
restor*	restore, restored, restores, restoring, restoration, restorative
science*	science, sciences
scientific	scientific
steady state*	steady state, steady states
zero growth	zero growth

Stage 5 - Coevolutionary

circular	circular
coevol*	coevolve, coevolving, coevolution
ecocentri*	ecocentric, ecocentrics, ecocentrism
ecoethic*	ecoethic, ecoethics
ecolog*	ecological, ecology
ecosystem*	ecosystem, ecosystems
flourish*	flourish, flourished, flourishes, flourishing
no growth	no growth
regenerat*	regenerate, regenerated, regenerating, regeneration, regenerative
resilien*	resilience, resilient

Table 2: Keywords used to classify each of the five stages of corporate sustainability. The Root Word column (root words are denoted with an asterisk) indicates the base keyword. The Keywords column indicates the words or phrases used to determine word frequency in GRI and Non-GRI reports.

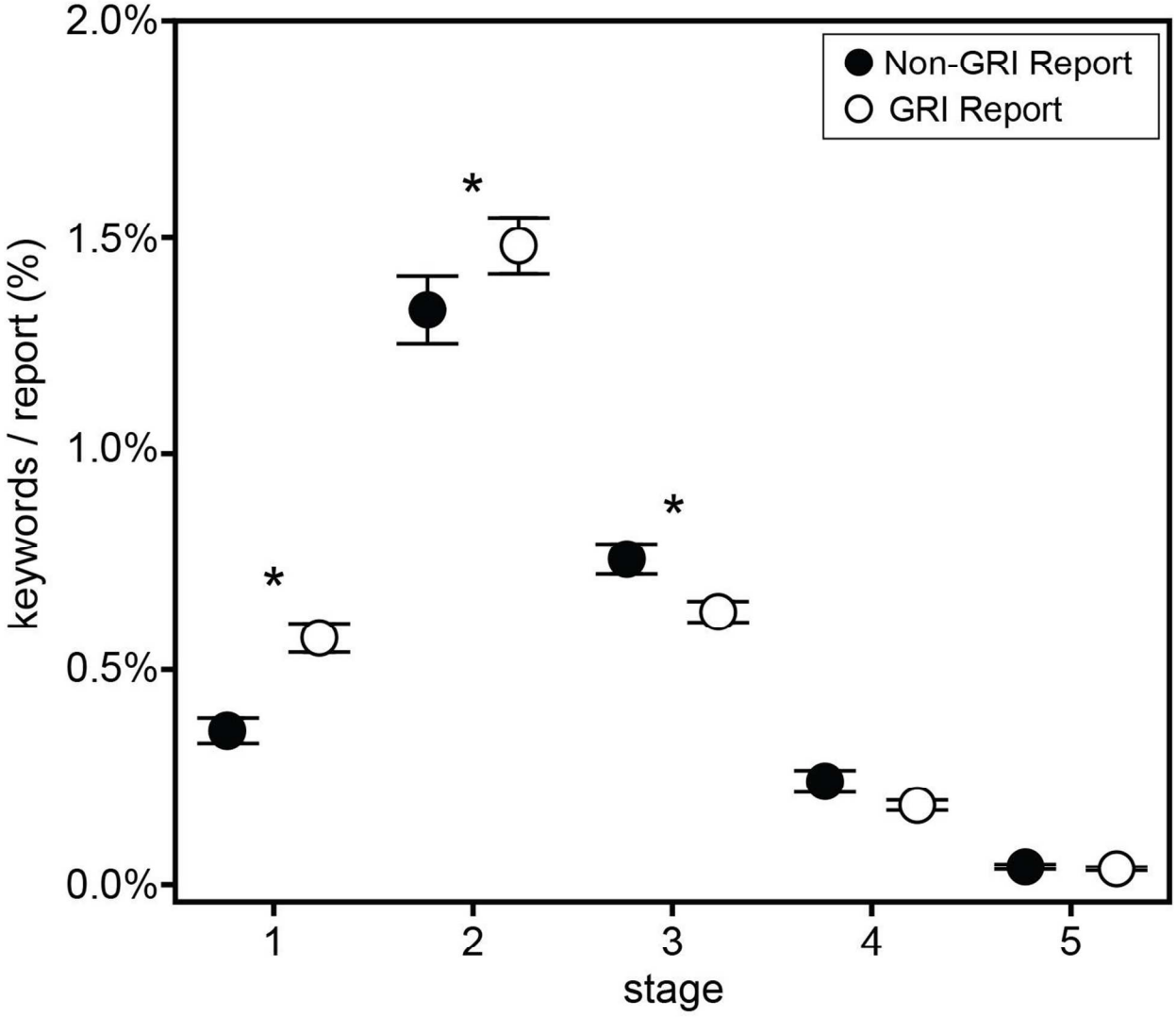

Figure 1: Analysis of all keyword percentages given by sustainability stage across all industry sectors for GRI reports (open circles) and Non-GRI reports (closed circles). All data points are given as mean data ± standard error. Significance in the main effects of the model was determined by Type III ANOVAs. Using post-hoc pairwise comparisons, all stages were significantly different from each other ($p<0.001$, data not shown). Each asterisks (*) represents a significant difference in GRI reports compared to Non-GRI reports at each stage based on post-hoc pairwise comparisons (p-value < 0.05).

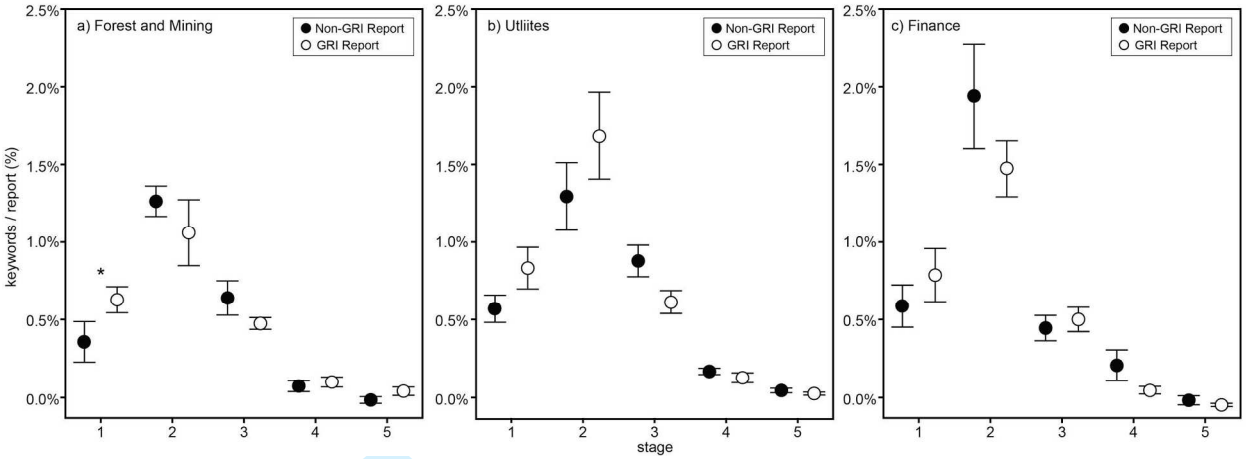

Figure 2: Analysis of keyword percentages given by sustainability stage across three industry sector subsets: Forest and Mines(a), Utilities(b), and Financial Services (c). GRI Reports (open circles) and Non-GRI reports (closed circles) are given as mean data ± standard error. Statistical significance of the main effects of the model was determined by Type III ANOVAs in each subset. Using post-hoc pairwise comparisons, all stages were significantly different from each other ($p \leq 0.05$, data not shown). Each asterisks (*) represents a significant difference in GRI reports compared to Non-GRI reports at each stage based on post-hoc pairwise comparisons (p-value ≤ 0.05).

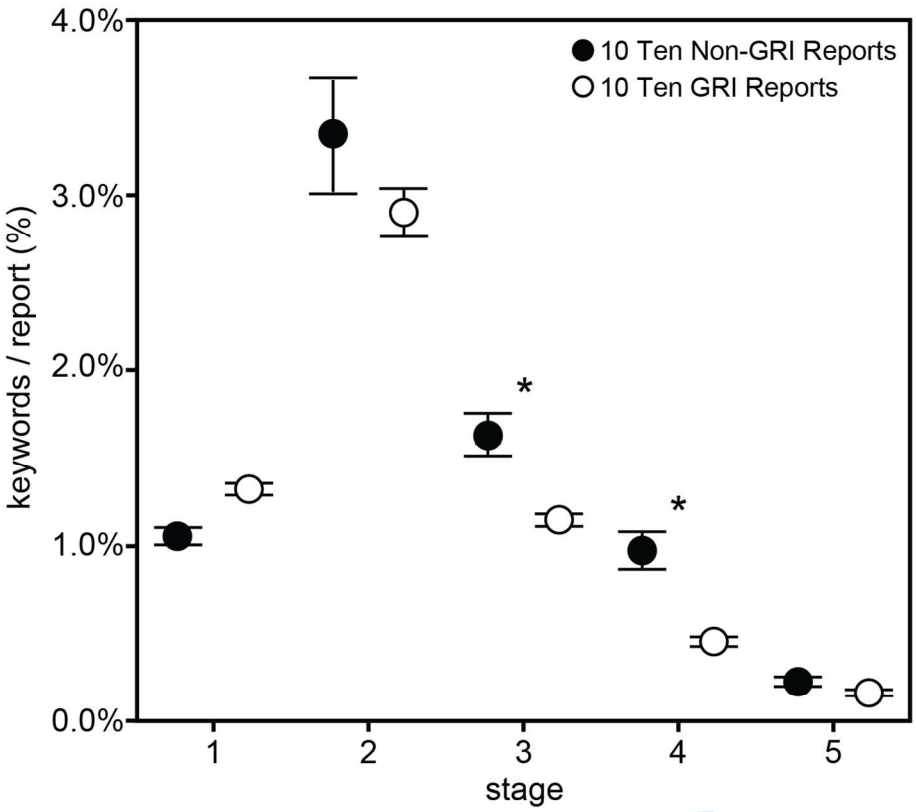

Figure 3: Graph of total keywords / total word count comparing top 10 highest ranked GRI sustainability reports compared to Non-GRI sustainability reports. Asterisks (*) indicate a significant difference between the GRI and Non-GRI reports for each stage along the sustainability continuum ($p<0.05$). Significance was determined by Type I ANOVA. Error bars represent ± 1 standard error. Raw data is presented. Statistical significance was determined with square-root transformed to approximate residual normality to meet the assumptions of the ANOVA.

Appendix. *GRI and Non-GRI Reports*

Company Name	Report Title	GRI Report	Sector
A&E	2013-2014 Sustainability Report	NO	Textiles and Apparel
AbbVie	2014 Corporate Responsibility	NO	Other
AEG	AEG's 2014 Sustainability Report	NO	Other
Aetna Inc.	2014 Aetna Environmental Report	NO	Healthcare Services
AGCO Corp	2013 Sustainability Report	NO	Agriculture
AIG (American International Group)	2013 Corporate Citizenship Report	NO	Financial Services
Akamai	Environmental Sustainability Report	NO	Technology Hardware
Alliant Energy	2014 Environmental Report	NO	Energy Utilities
American Airlines	2013 Corporate Responsibility Report	NO	Aviation
American Eagle Outfitters	Corporate Sustainability Report 2014	NO	Retailers
American Hotel & Lodging Association	2013 Sustainability Report	NO	Other
American Tower	2014 Corporate Responsibility	NO	Telecommunications
Ameriprise Financial	2014 Annual Report	NO	Financial Services
AmerisourceBergen	2014 Summary Annual Report	NO	Healthcare Services
Amway	2013 Global Corporate Responsibility Report	NO	Other
Anadarko Petroleum Company	Anadarko Corporate Responsibility 2014	NO	Energy Utilities
Appleton Coated	2013 Corporate Sustainability Report	NO	Forest and Paper Products
AptarGroup	2013 Corporate Sustainability Overview	NO	Household and Personal Products
Arapahoe Basin	2013 Sustainability Report	NO	Tourism/Leisure
Armstrong World Industries	Armstrong Sustainability Report	NO	Construction Materials
Aspen Snowmass	2014 Sustainability Report	NO	Tourism/Leisure
Assurant	2013 Community Giving Report	NO	Other
AT&T	2014 Progress Report	NO	Telecommunications
ATCO Group	2013 Sustainability Performance Update	NO	Conglomerates
Baker Hughes Company	2014 HSE Annual Report	NO	Equipment

Bed Bath & Beyond	2013 Corporate Responsibility Report	NO	Household and Personal Products
Bemis Company	2014 Corporate Responsibility Report	NO	Forest and Paper Products
Black & Decker	Sustainability: 2013 Year in Review	NO	Equipment
BlackRock	2013 Corporate Governance & Responsible Investment Report	NO	Financial Services
Blue Cross Blue Shield of Massachusetts	2013 Corporate Citizenship Report	NO	Healthcare Services
Boardwalk Real Estate	Annual Report 2013	NO	Real Estate
Boeing	The Boeing Company 2014 Environment Report	NO	Aviation
Boston Scientific Corp.	2013 Global Sustainability Report	NO	Health Care Products
Bristol-Myers Squibb Company	Sustainability 2015 Goals: Mid-term Progress Report	NO	Health Care Products
Broadcom Corp.	2013 Corporate Social Responsibility Scorecard	NO	Other
C.H. Robinson Worldwide, Inc.	C.H. Robinson and Sustainability	NO	Other
Cabot Corporation	Advancing: Sustainability Report Update 2013/2014	NO	Chemicals
Canadian Electricity Association (CAE)	2014 Sustainable Electricity Annual Report: Engaged for a Sustainable Future	NO	Energy Utilities
Cardinal Health, Inc.	Environmental Sustainability 2013	NO	Healthcare Services
CareFusion	Diversity and Inclusion Annual Report 2013	NO	Healthcare Services
Cargill	2014 Corporate Responsibility Report	NO	Agriculture
Catlin Group	Corporate Responsibility Report 2013	NO	Other
CBS	2014 Social Responsibility Report	NO	Media
Celanese	2014 Interim Stewardship Report	NO	Chemicals
CF Industries	Corporate Sustainability Report 2013	NO	Agriculture
Chevron Corporation	2013 Corporate Responsibility Report	NO	Energy
Cinicinnati Financial	2013 Environmental Stewardship Report	NO	Financial Services
City of Lawrence	Sustainability 2014 Annual Report	NO	Public Agency
Clover Technologies	2013 Sustainability Report	NO	Computers
Commerce Bank	Corporate Social Responsibility Report 2013-2014	NO	Financial Services
ConocoPhillips	2013 Sustainable Development Report	NO	Energy
Constellation Brands	Corporate Social Responsibilit Overview 2014	NO	Other
Conwed Plastics	Global Sustainability Report 2014	NO	Construction Materials

DaVita	Global Citizenship Report 2013	NO	Healthcare Services
eBay	Social Innovation: 2013 Annual Update	NO	Commercial Services
Eli Lilly	Corporate Responsibility Highlights: 2013-2014	NO	Health Care Products
Farmer Brothers	2013 Sustainability Report	NO	Food and Beverage
GOJO	GOJO 2013 Sustainability Report	NO	Health Care Products
Granite	2014 Sustainability Update	NO	Construction Materials
Greif	2013 Report: Our People, Our Planet, Our Profits	NO	Logistics
Hogan Lovells	Citizenship Report 2013	NO	Other
Honeywell International	2014 Corporate Citizenship Report	NO	Conglomerates
Houghton Mifflin Harcourt	Corporate Social Responsibility 2013 Year in Review	NO	Other
Husky Energy	Community Report 2013	NO	Energy
Illinois Tool Works Inc	2013 Corporate Responsibility Report	NO	Equipment
Innospec	2013 Sustainable Development Report	NO	Chemicals
Intact	2013 Public Accountability Statement	NO	Financial Services
Interpublic Group Cos	Corporate Citizenship at Interpublic 2014	NO	Media
JCPenny	2013 Sustainability Report	NO	Retailers
JLL	2013 Sustainability Report	NO	Real Estate
Kellogg	2013 Corporate Responsibility Report	NO	Food and Beverage
Kohl's Corporation	2013 Corporate Social Responsibility Report	NO	Retailers
Kruger Inc.	Kruger Sustainability Report 2013	NO	Forest and Paper Products
Loblaw	2013 Corporate Social Responsibility Report	NO	Retailers
Macy's	2013 Sustainability Report	NO	Consumer Durables
Macy's	Report on Social Responsibility 2014	NO	Consumer Durables
Marathon Petroleum Corporation	2013 Citizenship Report	NO	Energy
Mars	Principles in Action Summary 2013	NO	Food and Beverage
Massachusetts Mutual Financial Group	2013 Annual and Corporate Responsibility Report	NO	Financial Services
MGM Resorts	2013 CSR Report	NO	Tourism/Leisure
Momentive Performance Materials Holdings	Sustainability 2013	NO	Chemicals
Nature Sweet	2013 Sustainability Report	NO	Food and Beverage

NC State Univeristy	2012-2013 Annual Sustainability Report	NO	Universities
NewPage Corporation	NewPage Sustainable Development- Facts and Figures 2013	NO	Forest and Paper Products
NovaGold Resources Inc.	2013 Annual Report	NO	Mining
Organically Grown	2013 Annual Sustainability Report	NO	Food and Beverage
Perrigo	Corporate Responsibility Report 2013	NO	Health Care Products
PPL Corporation	Stakeholder Report 2013	NO	Energy Utilities
Quest Diagnostics Inc	Corporate Social Responsibility Report 2013	NO	Healthcare Services
Ranchos Water Co.	2014 Sustainability Report	NO	Water Utilities
Republic Services Inc	2014 Sustainability Report	NO	Waste Management
RTKL Associates	2013 RTKL Sustainability Report	NO	Other
SAIC INC	2014 Corporate Responsibility Report	NO	Other
Santa Clara Valley Transporation Authority	2013 Sustainability Report	NO	Other
SCANA Corp.	2013 Environmental Sustainability Report	NO	Energy Utilities
SEPTA	2013 Annual Report	NO	Railroad
Skyworks	Sustainability Report 2013	NO	Other
Smuckers	2014 Corporate Responsibility Report	NO	Food and Beverage
Sobeys	2013 Sustainability Scorecard	NO	Household and Personal Products
Starbucks Coffee Company	Starbucks Global Responsibility Report 2013	NO	Food and Beverage
Stryker Corporate	2013 Corporate Responsibility Overview	NO	Health Care Products
TC Transcontinental	2013 Corporate Social Responsibility Report	NO	Media
Temple Univerisity	Annual Report on Sustainability 2012-2013	NO	Universities
The Carlyle Group	Corporate Citizenship Report 2014	NO	Financial Services
Thornton Tomasetti	Thornton Tomasetti Sustainability Report	NO	Construction
Thoro Packaging	Sustainability Report 2015	NO	Forest and Paper Products
Total System Services, Inc.	TSYS Global Citizenship	NO	Financial Services
Toyota Motor Corporation-North America	Toyota's Environmental Initiatives 2014	NO	Automotive
Transcanada Corp.	2013 Corporate Social Responsibility Report	NO	Energy Utilities
TRW	2013 TRW Automotive Annual Report for Health, Safety, Environment, and Sustainabi	NO	Automotive

Tyco International	2013 Environment, Health, Safety, and Sustainability Report	NO	Equipment
United Technologies Corp. (UTC)	2014 Annual Financial and Corporate Responsibility Performance	NO	Conglomerates
University of California, Berkeley	Campus Sustainability Report 2014	NO	Universities
University of Georgia	Campus Sustainability Report 2013	NO	Universities
Valero Energy Corp.	2014 Social Responsibility Report	NO	Other
Villanova University	Villanova Annual Sustainability Report	NO	Universities
Walker Industries	2014 Sustainability Report	NO	Waste Management
Walmart Canada	2014 Global Responsibility Report-Canadian Supplement	NO	Retailers
William-Sonoma, Inc.	2013 Corporate Responsibility Report	NO	Household and Personal Products
Wynn Resorts	Committed to Community	NO	Tourism/Leisure
Xilinx Inc	Corporate Responsibility Report 2014	NO	Technology Hardware
Yum Brands	Corporate Social Responsibility Report 2013	NO	Food and Beverage Products
Adobe Systems	Adobe Corporate Responsibility: Year in Review 2013	YES	Technology Hardware
AECOM	2013 Sustainability Report	YES	Other
Air Canada	Corporate Sustainability Report 2013	YES	Aviation
Alaska Air Group	Innovating for our Future 2013 Sustainability Report	YES	Aviation
Alcoa	2013 Sustainability Highlights Report	YES	Metals Products
Aleris	Aleris Sustainability Report	YES	Metals Products
Algonquin	Corporate Responsibililty Report 2013	YES	Energy Utilities
Allstate	2013 Corporate Responsibility Report	YES	Financial Services
AMN Healthcare	2013 Corporate Social Responsibility Report	YES	Healthcare Services
Aquarius Platinum Limited	2014 Sustainable Development Report	YES	Mining
AT&T	AT&T (2013) Annual Sustainability Update	YES	Telecommunications
Avalon Bay Communites Inc	2013 Corporate Social Responsibility Report	YES	Real Estate
Avalon Rare Metals Inc.	2014 Sustainability Report: Lead. Collaborate. Diversify.	YES	Mining
Axalta Coating Systems	2013 Sustainability Report	YES	Other
Ball Corporation	2014 Sustainability Report	YES	Conglomerates
Ball State University	2013 GRI Sustainability Report for Ball State University	YES	Universities
Bell Canada	2013 Corporate Responsibility Report	YES	Telecommunications

Biogen Idec	2013 Corporate Citizenship Report	YES	Health Care Products
BNSF Railway	2013 GRI Report	YES	Railroad
CA Technologies	2013 Sustainability Report	YES	Computers
Caesar's Entertainment	Corporate Citizenship Report 2013-2014	YES	Tourism/Leisure
Calgon Carbon	2013 Sustainability Report	YES	Energy Utilities
Canfor Corp.	2013 Sustainability Report	YES	Forest and Paper Products
Carnival Corporation & plc	Sustainability Report FY2013	YES	Tourism/Leisure
Catalyst Paper	2013 Sustainability Report	YES	Forest and Paper Products
CH2M HILL	Sustainability Report 2014	YES	Other
City of Atlanta	City of Atlanta GRI 4 2013	YES	Public Agency
City of Beaverton	Sustainable Beaverton Strategy 2014	YES	Public Agency
Cliffs Natural Resources	Focused. Aligned. Disciplined.: 2013 Sustainability Report	YES	Mining
Colgate-Palmolive	Sustainability Report 2013	YES	Health Care Products
Contour Global	2013 Corporate Sustainability Report	YES	Energy Utilities
CSC (Computer Sciences Corporation)	2014 10 20 CSC GRIG4 response Materiality Matters checked	YES	Commercial Services
CSX Corporation	2013 Corporate Social Responsibility Report	YES	Railroad
CVS Health	2013 Corporate Social Responsibility Report	YES	Health Care Products
Dartmouth, MA	Town of Dartmouth, MA 2013 Sustainability Report	YES	Public Agency
Dell	FY14 Corporate Responsibility Report	YES	Computers
Denbury	2014 Corporate Responsibility Report	YES	Energy
Desjardins	2013 Desjardins Group Annual Report	YES	Financial Services
DIRECTV	2013 Corporate Social Responsibility Report	YES	Media
Dow Chemical	2013 Sustainability Report	YES	Chemicals
DTE Energy Company	2013 Corporate Citizenship Report	YES	Energy
Dundee Precious Metals	Sustainability Report 2013	YES	Mining
Endeavour Silver Corp.	2013 Annual Review and Sustainability Report	YES	Mining
Estee Lauder	Corporate Responsibililty Report 2013	YES	Household and Personal Products
Exelon Corp	2013 Exelon Corporation Sustainability Report	YES	Energy Utilities
Export Development Canada	2013 Sustainability Report	YES	Financial Services

(EDC)			
Flextronics International	Flextronics Sustainability Report 2012/2013	YES	Technology Hardware
Fluor	2013 Sustainability Report	YES	Other
General Motors Company	2013 Sustainability Report	YES	Automotive
GTAA	GTAA's 2013 Annual Report	YES	Aviation
Halyard Health	2014 Corporate Citizenship Report	YES	Healthcare Products
HDR	Sustainability+Corporate Responsibility (2014)	YES	Other
Healthcare REIT	2013 Corporate Social Responsibility Report	YES	Healthcare Services
Hershey's	2013 Corporate Social Responsibility Report	YES	Food and Beverage Products
Hill+Knowlton Strategies US	2014 Sustainability Report	YES	Other
Hines	Sustainability Report 3.0	YES	Real Estate
HP-Hewlett-Packard	HP 2013 Living Progress Report	YES	Computers
HudBay Minerals	2013 Corporate Social Responsibility Report	YES	Mining
IGM Financial	IGM Financial 2013 Corporate Responsibility Report	YES	Financial Services
Indianapolis Airport Authority (IAA)	2013 Sustainability Report	YES	Aviation
Inova Health System	2013 Sustainability Report Inova Health System	YES	Healthcare Services
Inscape Office Furniture Corporation	Sustainability Report 2014	YES	Metals Products
Intel Corporation	2013 Corporate Responsibility Report	YES	Technology Hardware
Johnson Controls	2014 GRI Report	YES	Energy
Kimco Realty	Corporate Responsibility Report 2013	YES	Real Estate
Kruger Products	2012-2013 Sustainability Report	YES	Household and Personal Products
Lockheed Martin Corporation	2013 Sustainability	YES	Other
Lundin Mining	2013 Sustainability Report	YES	Mining
ManpowerGroup	2013 Corporate Sustainability Report	YES	Other
Marathon Oil Corporation	2013 Living Our Values: Corporate Social Responsibility Report	YES	Energy
Menasha Corporation	Corporate Social Responsibility Report 2013-2014	YES	Other
MetLife		YES	Financial Services
Microsoft Corporation	2014 Citizenship Report	YES	Computers

MillerCoors	Great Beer Great Responsibility: 2014 Sustainability Report	YES	Food and Beverage Products
Morgan Stanley	2013 Sustainability Report	YES	Financial Services
Murphy	Corporate Sustainability Report for 2013	YES	Logistics
Nevsun Resources	2013 Corporate Social Responsibility Report	YES	Mining
Newfield Exploration Company	Energy By People For People	YES	Energy
Novelis	Sustainability Report 2014	YES	Metals Products
NS Corp	2014 sustainability report	YES	Railroad
Oshkosh	Fiscal 2013 Sustainability Report	YES	Automotive
PepsiCo	Sustainability Report 2013	YES	Food and Beverage Products
PricewaterhouseCoopers LLP	FY14 Corporate Responsibility Report Update	YES	Financial Services
Prologis	2013 Corporate Responsibility Report	YES	Real Estate
salesforce	FY13 & FY14 Sustainability Report	YES	Technology Hardware
SAS USA	Corporate Responsibility Report 2013	YES	Other
Saskatchewan Research Council	2014 Sustainability Report	YES	Public Agency
Seagate Technology	FY13 Global Citizenship Annual Report	YES	Technology Hardware
Seventh Generation	2013 Corporate Conciousness Report	YES	Household and Personal Products
Sigma-Aldrich	2013 Global Citizenship Report	YES	Chemicals
Simple Green	Simple Green 2014 Sustainability Report	YES	Household and Personal Products
Sprint	Corporate Responsibility Report 2013	YES	Telecommunications
Stantec Consulting Ltd	2013 Sustainability Report	YES	Commercial Services
Starwood Hotels and Resorts	Global Citizenship at Starwood 2013	YES	Tourism/Leisure
Symantec	Corporate Responsibility Report 2014	YES	Other
The Coca-Cola Company	2013.2014 Sustainability Report	YES	Food and Beverage Products
Tiffany & Co.	2013 Corporate Responsibility	YES	Retailers
Toronto Pearson	Upward, Onward.	YES	Aviation
TRC	2014 Sustainability Report	YES	Commercial Services
TRCA	Sustainability Report 2012-2013	YES	Public Agency

UniGroup	UniGroup Sustainability Report 2013	YES	Logistics
Union Bank	2013 CSR Report	YES	Financial Services
University Hospitals	Greening UH for a Healthy Community: 2013 Progress Report Summary	YES	Healthcare Services
UPS	2013 Sustainability Report	YES	Logistics
Vancity	2013 Annual Report	YES	Financial Services
Weber Shandwick	2013 Corporate Citizenship Report	YES	Other
Weyerhaeuser	2013 Sustainability Report	YES	Forest and Paper Products
Wyndham Worldwide	Sustainability Report 2013-2014	YES	Tourism/Leisure