

# Enhancing Sustainability Image: Content Analysis of Letters to Shareholders of IT Companies

*Research-in-Progress*

**Dmytro Babik**

*Ph.D. Student*

*ISOM Department*

*Bryan School of Business and Economics*

*The University of North Carolina at*

*Greensboro*

*Greensboro, NC 27402, USA*

*d\_babik@uncg.edu*

**Lakshmi S. Iyer**

*Associate Professor*

*ISOM Department*

*Bryan School of Business and Economics*

*The University of North Carolina at*

*Greensboro*

*Greensboro, NC 27402, USA*

*Lsiyer@uncg.edu*

## **Abstract**

*Sustainable development and corporate environmental responsibility are becoming closely tied with business competitiveness in modern economy. Given the impetus organizations have to enhance their sustainability image, there is a lack of research that examines the relationship between corporations' messages to shareholders and their environmental and social responsibility. The current paper presents a methodology and preliminary findings of the pilot study of 104 IT and non-IT companies in the USA. Content analysis of letters to shareholders was done to check for significant differences in correlations between sustainability-related content and environmental performance in the sample. The paper also outlines methodology and expected results of the proposed research-in-progress. A similar methodology will be used to study a larger panel dataset of North American, European and Asian IT corporations to assess the dynamics of sustainability-related content over time and across companies and geographic regions.*

**Keywords:** Environmental Sustainability, Environmental Responsibility, Content Analysis, Letters to Shareholders, IT corporations

## Introduction

In the 21st century, increasing awareness of the global threats posed by human-induced climate change, diminishing biodiversity, resource overuse, and food crisis constantly increase pressure on corporations to act responsibly. Although for centuries corporate management has been focused on building up the value of shareholders' capital, today the traditions of corporate governance evolved to suggest that executive officers are responsible not only for financial performance of the capital (profit-making), but also charged with stewardship of society at large (Dhillon 2007). Therefore, corporate responsibility has been receiving growing attention in the corporate communication, mass media, and academic research.

On the macroeconomic scale, responsible corporate citizenship drives vital shift from traditional economic model to the economic model of sustainable development. Sustainable development is the potential for long-term maintenance of well-being along economic, social, and environmental dimensions. Sustainability interacts with economy through the social and ecological consequences of economic activity. Thus, sustainable development is attainable only on the premise of corporate environmental and social responsibility.

In research literature and mass-media, sustainability is frequently used as a synonym of "being environmentally and socially responsible" and associated with the jargon of "greenness." While "greenness" is a micro concept that applies to individual daily production and consumption behaviors, sustainability is a macro concept that applies broadly to systems and infrastructures at large, (Poole n.d., Urlaub 2011). Besides numerous other aspects, sustainable development entails national and international regulation and internationally-accepted standards for reporting businesses' sustainability efforts. Some of the world's most prevalent standards for sustainability reporting are produced by the Global Reporting Initiative (GRI). One of them, Triple Bottom Line reporting (abbreviated as TBL or 3BL, and also known as "people, planet, profit") captures an expanded spectrum of values and criteria for measuring the organizational and societal success: economic, ecological and social (Gill 2008). In the private sector, a commitment to corporate social responsibility implies a compliance with some form of TBL reporting.

Over the past two decades, the world has seen not only increasing global attention to environmental sustainability, but also dramatic development of information technology. In the words of James Wilsdon and Paul Miller, "...Two of the most powerful drivers of change within modern economies are the explosion of digital technologies and the shift toward sustainable development" (Wilsdon and Miller 2001). Information Technology (IT) carries a potential to transform modern business into a more dynamic, cyclical, networked, efficient, and sustainability-oriented system that delivers "the Triple Bottom Line" (Girshick, Shah and Wage 2002; Melville 2010). Yet, IT industry also employs practices, such as use of hazardous substances and disposal of e-waste, that present risks to environment and human health. In addition, dot-com-bubble disillusioned general public about priorities in running IT business. Therefore, IT companies are challenged to prove their capability of maintain long-term growth in responsible manner. The keys to long-term growth are competitiveness and social legitimacy. Broadcasting a sustainability-conscious corporate image and adherence to TBL reporting is viewed by many companies today as an important component of differentiating and developing long-term competitiveness (Gill 2008). Defining environmental sustainability strategies and demonstrating environmental ambidexterity enables firms to achieve competitive advantage, legitimacy, and reputation from their corporate ecological responsiveness initiatives (Thambusamy and Salam 2010). While the interaction between sustainability and IT has been increasingly attracting managerial attention, it, nevertheless, lacks theorization, model construction and measurement development (Molla, Cooper and Pittayachawan 2009).

The purpose of this paper is to investigate efforts of large IT firms to communicate their sustainability conscientiousness and to build their "green" image through corporate public communications. Communicating sustainability is seen as a way of differentiating from competitors and ultimately building a better corporate reputation. Investigating corporate efforts to communicate sustainability would produce insights and ideas for further research on how IT companies approach building their corporate image and long-term competitiveness. This paper proposes a study that will address the following research questions: *Does attention to sustainability in corporate messages to shareholders of large IT*

*companies systematically change over time? Does it vary across geographic regions? Is it related to their environmental performance, policies and reputation?*

Given that letter to shareholders is one of the most important instruments of building the corporate image by informing stakeholders and general public of company's strategies, policies, attitudes and priorities, in this research we focus on analyzing letters to shareholders to gauge how organizations build their sustainability image. However, before undertaking the larger study, we first conducted a pilot study of 104 large corporations in the USA. The sample included both IT and non-IT companies with high environmental performance ranks based on Newsweek's 2009 Environmental Ranking of the 500 largest USA publicly traded companies. Using content analysis, we examine correlations between sustainability efforts manifested in the letters to shareholders, corporate sustainability policies, reputation, and environmental performance. We wanted to first examine if any significant correlations exist between sustainability-related content and environmental performance, policies, and reputation, as well as if these correlations significantly differ between IT and non-IT companies. We found evidence supporting both of these propositions.

This paper is organized as follows. First, we present the background laying the theoretical foundation for development of our hypotheses. Next, we present methodology and results of our pilot study and methodology to be used to answer our research questions in the further research. Finally, we outline the expected finding from this research.

## **Literature Overview and Hypotheses Development**

This study synthesizes inferences on how IT companies approach enhancing their competitiveness through building their sustainability reputation from "soft" data of textual corporate communication. We refer to literature that applied content analysis to studying corporate communications and investigated the relevance of sustainability to IT business.

Girshick et al. (2002) suggest that ecological and social responsibility issues have been either ignored by the IT sector or were perceived as costs rather than opportunities for profits. However, they also pointed out that some leaders and role-models were occurring within the IT sector. The latter fact suggests that some businesses discovered ways of transforming the challenge of running environmentally and socially responsible business into the opportunity to gain competitive edge. Watson, Boudreau, and Chen (2010) state the importance of building a positive sustainability image as part of corporate strategy.

Over the last several years, many companies began to pay more attention to publicizing their efforts to reduce negative environmental and social impacts and delivering messages of sustainability awareness (Hart, Milstein, and Caggiano, 2003). We can expect this to be reflected in corporate public statements, such as press releases and letters to shareholders. The letter to shareholders is one of the most important instruments of corporate communications and tools of building a corporate image by informing shareholders, other stakeholders, and general public of company's strategies, policies, attitudes and priorities. Consequently, a careful review of a letter to shareholders provides a way of judging the effectiveness of management's decisions and overall performance, as well as gives an insight into a company's priorities.

One of the techniques that can be utilized to measure the information content of corporate communications is content analysis (Krippendorff 2004). Strategic management researchers, along with other social science scholars, use content analysis to extract data from textual documents on a wide range of research subjects (Short and Palmer 2008). A number of studies used content analysis to scrutinize letters to shareholders for association between messages conveyed through this type of corporate communications and "hard" accounting or market performance data (Abrahamson and Amir 1996) that could be used by investors to make decisions. Geppert and Lawrence (2008) employed the content analysis and logistic regression to measure the narrative content of letters to shareholders as a possible proxy for corporate reputation. They find a significant association between the narrative content and the corporate reputation suggesting that management uses the letters as a tool of reputation management. Content analysis of letters to shareholders can also be applied to study cultural differences that affect corporate communications (Hooghiemstra 2010).

Little attention was given in the research literature to analyzing messages to stakeholders as a way to build sustainability image. Mueller et al. (2011) applied qualitative content analysis to letters to shareholders of the US and German companies to explore country and industry differences in motivations and attitudes towards the corporate environmentalism. They found remarkable differences between Germany and the USA, as well as between “dirty” and “clean” industries. Other studies have been conducted exploring the content of other corporate media, such as websites. Taylor (1999) conducted a content analysis of 390 websites of randomly selected higher education institutions in the United States to determine whether there has been wide acceptance of the principles of sustainability. The study showed that higher education, overall, has not accepted the basic principles of sustainability. Gill et al. (2008) used the automated content analysis to investigate sustainability efforts through TBL reporting on the World Wide Web of 30 oil and gas companies in the Global Fortune 500 2006 list. Although they found significant differences in quantity and quality of reported TBL information among North American, European and Asian companies, their study only involved comparison of descriptive statistics of content analysis variables and was limited to one industry.

The language which a company used to frame its public statements may be affected by the cultural environment in which it operates, as well as national traditions of corporate governance. In addition, it may be affected by a phase of economic cycle, which in turn impacts business returns. The fact that a company declares its attention to a specific matter does not necessarily imply that it makes some positive progress. On the one hand, overly optimistic, promotional language that characterizes many shareholder letters even in difficult times, such as the recent recession, highlights achievements to inspire confidence. On the other hand, some corporate messages may use vague language as a way of avoiding the specific nature of setbacks or serious problems (Heyman 2010). Modeling relationships between measures of content and external variables, such as environmental performance, policies, reputation, and cultural setting can be expected to reveal insights in how IT companies approach building their sustainability reputation. Further analysis of the relationship of sustainability reputation and long-term financial performance will permit to test the hypotheses of the impact of sustainability reputation on competitiveness.

This study will contribute to the existing body of research by investigating the evolution of attention to sustainability in corporate messages to shareholders of large IT companies over the past decade, as well as variability across companies and geographic regions. In addition, it will examine possible association between the extent to which an IT firm conveys its sustainability message and its environmental reputation and environmental performance. Specifically, we intend to find evidence in support of the following hypotheses:

H1: Focus on environmental responsibility among IT companies has increased over the last decade, indicating growing awareness of the importance of building the image of environmental responsibility for long-term business development.

H2: Variation in the focus on environmental responsibility exists across IT companies, indicating the existence of leaders and followers.

H3: Variation in the IT companies' focus on environmental responsibility exists across geographic regions, indicating the existence of cultural differences in approaching sustainability image building.

To answer our research questions, we plan to use a panel data on IT companies in North America, Europe and Asia. However, as stated earlier, we present here the methodology for the pilot study and then elaborate on our plans for the full study.

## **Methodology and Pilot Study**

As a preliminary assessment, we conducted a correlational pilot study to compare two groups of companies in the USA – 44 large IT corporations with high environmental performance (Group 1) and 60 large corporations with high environmental performance, excluding IT companies (Group 2). Environmental performance was measured according to the Newsweek's 2009 Environmental Ranking of the 500 largest USA publicly traded companies (measured by revenue, market capitalization, and number of employees) by their overall Green Score, derived from three component scores: the Environmental

Impact Score (EIS), the Green Policies Score (GPS), and the Reputation Survey Score (RSS), weighted at 45 percent, 45 percent, and 10 percent, respectively (Green Rankings: U.S. Companies 2009). As we focus to analyze the corporate message to shareholders, content analysis of communication messages (Berelson 1952; Krippendorff 2004; Geppert and Lawrence 2008) is an appropriate methodology. Texts of letters to shareholders from 2009 corporate annual reports were collected for the sample of 104 companies, as well as the scores of Newsweek's environmental ranking in 2010. Note that 2009 annual reports were published in 2010 and reflect performance in 2009, just as the 2010 ranking is based on the data for 2009. Sustainability content of letters to shareholders was measured by relative frequencies of words from the custom dictionary of sustainability terms, compiled from articles on sustainability from three different online encyclopedias. To automate quantitative content analysis DICTION 5.0 application was used.

For each company in the sample, the content analysis produced values of five DICTION master variables (certainty, optimism, activity, realism, and commonality) that measure vocabulary and word choice (See detailed description of these variables in Appendix 1). These variables are calculated as average frequencies of occurrences of words from the corresponding standardized dictionaries in 500 words text fragments. In the DICTION analysis settings, Business – Corporate public relations norm was selected. In addition to frequencies of words from the standardized dictionaries, frequencies of words in the custom dictionary of sustainability terms were calculated for each company. This custom dictionary includes words that are assumed to communicate the message of sustainability and was constructed using the following approach. First, lists of most frequent words (using NoteTap Light 6.2 application) were compiled from articles on sustainability (Environmental law 2011; Sustainability, 2011; Mitchell 2003).

Second, the most frequent nouns occurring in all three articles were selected and manually checked for the relevance to sustainability topic. Finally, the list of these nouns was formatted and uploaded to DICTION 5.0. The master variables and custom dictionary frequency data for each company in the sample produced by DICTION 5.0 was merged with the data of the Newsweek's Environmental Ranking.

The pilot study revealed significant differences between Group 1 and Group 2 in sustainability content of letters to shareholders and its correlation with environmental performance measures. A series of univariate and multivariate tests indicated that while no significant differences were found in general vocabulary and word choice in the letters of shareholders between the two groups, the mean frequencies of used sustainability-related words were found to be significantly different from zero and significantly different between the two groups. On average, IT companies use 17 sustainability-related words per 500 words of text (standard deviation 13), whereas non-IT companies use 30 sustainability-related words per 500 words of text (standard deviation 24).

More interestingly, while the two groups were compiled so that mean EIS, GPS, and RSS were approximately equal, correlations between sustainability-related words frequencies (custom dictionary frequencies) and environmental performance demonstrate noticeable differences among the two groups (Table 1 and Table 2). For the IT companies (Group 1), the correlation between efforts to communicate sustainability and environmental impact score is not significantly different from zero. However, the efforts significantly correlate with green policies (0.33) and reputation (0.46). We can conclude that companies with more articulated environmental policies do reflect this in their letters to shareholders, regardless of their actual impact on the environment. Even more clearly, the more a company tries to convey sustainability image, the more it is reflected in the company's reputation. Thus, we can conclude that regardless of the actual environmental impact they make, IT companies succeed in building "green" image by developing environmental policies and indicating them in their letters to shareholders (this is also reflected in a positive significant correlation (0.36) between custom dictionary frequency and overall Green Score). Also note that environmental policies positively correlate with the environmental impact score (better policies imply less harmful environmental effect) and reputation (better policies help build stronger reputation).

For Group 2 (non-IT companies with high environmental performance), however, this story is different: no significant correlation was found between efforts to communicate sustainability and either environmental impact or green policies or reputation. Also, there is no significant correlation between green policies and environmental impact, as well as between green policies and reputation. Moreover, there is a weak negative correlation between environmental impact score and reputation. This appears puzzling, given the similarity between Groups 2 and 1 in that they both demonstrate high environmental

performance. These results indicate that the way IT companies approach to communicate their sustainability efforts differs significantly from how more traditional companies approach this problem.

<b>Table 1. Correlation analysis, Group 1</b>					
	Custom Dictionary	Green Score	Environmental Impact	Green Policies	Reputation Survey
Custom Dictionary	1.00				
Green Score	0.36 *	1.00			
Environmental Impact	-0.02	0.54 *	1.00		
Green Policies	0.33 *	0.99	0.51 *	1.00	
Reputation Survey	0.46 *	0.77 *	0.30	0.68 *	1.00

\* Significant at 5% level

<b>Table 2. Correlation analysis, Group 2</b>					
	Custom Dictionary	Green Score	Environmental Impact	Green Policies	Reputation Survey
Custom Dictionary	1.00				
Green Score	0.23	1.00			
Environmental Impact	0.00	0.57	1.00		
Green Policies	0.14	0.79 *	-0.21	1.00	
Reputation Survey	0.16	0.32 *	-0.26 *	-0.12	1.00

\* Significant at 5% level

### ***Future Research to Complete Research-in-Progress***

For the broader research plan, we intend to use panel data, spanning 5 to 10 years from 2000–2010, for IT companies from the Fortune Global 500 list. The intent is to have companies from North America, Europe and Asia represented in the set. First, we will conduct an extensive review of literature and data sources (e.g., Newsweek Green Rankings or other sources) to identify the firm-level measures of financial and environmental performance, policies and reputation, and compile the dataset of these measures.

Then, corporate letters to shareholders will be collected and standard and custom variables will be calculated using the DICTION 5.0 content analysis software for each company in each year. The custom dictionary will be created to measure frequency of sustainability terms. These content analysis variables will constitute the second panel dataset.

Finally, the two datasets will be combined into one. To quantify the evolution of the focus on sustainability, as well as variability across companies and geographic regions, and to test the hypotheses, the hierarchical linear regression models (HLM) will be used. Specifically, we intend to measure whether any variability existed cross companies and geographic regions in 2000-2001, and whether any differences existed cross companies and geographic regions in the rate of increasing focus on sustainability during 2000 – 2010.

### ***Expected Conclusions***

We expect to find evidence of increasing intensity of discussion of environmental and social issues in corporate messages to shareholders of IT companies in the past 10 years. This will affirm that the

companies realize the growing importance of building the image of sustainability for long-term business development (Hypothesis 1).

In addition, we expect to find evidence of variation in the focus on environmental responsibility across IT companies, indicating the existence of leaders and followers (Hypothesis 2). Finally, we expect to shed light on geographic or cultural differences in approaching sustainability image building by IT companies (Hypothesis 3).

## Appendix 1

### ***DICTION Master Variables*** (Short and Palmer 2008)

Certainty involves language that indicates resoluteness, inflexibility, completeness, and a tendency to speak with authority.

Optimism involves language endorsing some person, group, concept, or event; may be useful to strategy scholars who have noted that optimism is associated with overconfidence and hubris for CEOs.

Activity examines language featuring movement, change, implementation of ideas, and the avoidance of inertia. Elements of activity and inertia have been germane to a host of strategy concepts related to strategic behavior.

Realism examines language describing tangible, immediate, recognizable matters; may be useful to analyze aspects of pragmatism that have been argued to be an important element of open systems thinking in certain strategic contexts.

Commonality examines language that highlights agreed-on values of a group and rejects idiosyncratic modes of engagement; may be useful to validate the assertions of strategy scholars who have suggested that communitarian characterizations will become increasingly popular in the strategic discourses of organizations such as joint ventures.

## References

- Abrahamson, E., and Amir, E. 1996. "The Information Content of the President's Letter to Shareholders," *Journal of Business Finance & Accounting* (23:8), 0306-686X.
- Berelson, B. 1952. Content analysis in communication research. New York, NY, US: Free Press.
- Dhillon, G. 2007. *Principles of Information Systems Security: Text and Cases*. John Wiley & Sons, Inc.
- Environmental law 2011. In Encyclopædia Britannica. Retrieved from <http://www.britannica.com/EBchecked/topic/765435/environmental-law> on February 11, 2011.
- Geppert, J., and Lawrence, J. 2008. "Predicting Firm Reputation through Content Analysis of Shareholders' Letter," *Corporate Reputation Review* (11), pp. 285-307.
- Gill, R. 2008. "Reputation and Employer of Choice for Australian Business," *Monash Business Review*, 4(1).
- Gill, D., Dickinson, S., and Scharl, A. 2008. "Communicating Sustainability. A Web Content Analysis of North American, Asian and European Firms," *Journal of Communication Management* (12:3), pp. 243-262.
- Girshick, S., Shah, R. and Waage, S. 2002. *Information Technology and Sustainability: Enabling the Future*. The Natural Step, San Francisco, California, p. 1.
- Green Rankings: U.S. Companies 2009. Retrieved from <http://www.newsweek.com/2010/10/18/green-rankings-us-companies.html> and <http://www.newsweek.com/2010/10/18/green-rankings-2010-full-methodology.html> on February 11, 2011.
- Hart, S. L., Milstein, M. B., and Caggiano, J. 2003. "Creating Sustainable Value [and Executive Commentary]," *The Academy of Management Executive*, May 2003, (17: 2), pp. 56-69.
- Heyman, E. 2010. "What You Can Learn from Shareholder Letters," *AACSB Journal* (32:10), pp. 26-29.

- Hooghiemstra, R. 2010. "Reply to Discussion of Letters to the Shareholders: A Content Analysis Comparison of Letters Written by CEOs in the U.S. and Japan," *International Journal of Accounting* (45:3), pp. 303-305.
- Krippendorff, K. 2004. *Content analysis: An introduction to its methodology*. Sage Publications, Inc. Melville, N. 2010. "Information Systems Innovation for Environmental Sustainability," *MIS Quarterly* (34: 1), pp. 1-21.
- Mitchell, B. 2003. Sustainable Development. Water: Science and Issues. Retrieved from Encyclopedia.com: <http://www.encyclopedia.com/doc/1G2-3409400322.html> on April 05, 2011.
- Molla, A., Cooper, V. A., and Pittayachawan, S. 2009. "IT and Eco-sustainability: Developing and Validating a Green IT Readiness Model." *ICIS 2009 Proceedings*. Paper 141.
- Mueller, J., Abfalter, D., Hautz, J., Hutter, K., Matzler, K., and Raich, M. 2011. "Differences in Corporate Environmentalism – a Comparative Analysis of Leading U.S. and German Companies," *European Journal of International Management* (5:2), pp. 122 – 148.
- Poole, T. J. n.d. "Sustainable Development: It's More Than Just Being 'Green.'" Retrieved from <http://landuseimpacts.com/pdf/Sustainable%20Development%20-%20More%20Than%20Just%20Being%20Green.pdf> on August 26, 2011.
- Short, J., and Palmer, T. 2008. "The Application of DICTION to Content Analysis Research in Strategic Management," *Organizational Research Methods* (11:4), pp. 727-752.
- Sustainability. 2011. In Wikipedia, the free encyclopedia. Retrieved from <http://en.wikipedia.org/wiki/Sustainability> on February 11, 2011.
- Taylor, R. W. 1999. "Environmental Sustainability and Higher Education: A Survey Analysis." *The Declaration* (3:2), p. 1.
- Thambusamy, R. and Salam, A. F. 2010. "Corporate Ecological Responsiveness, Environmental Ambidexterity and IT-Enabled Environmental Sustainability Strategy." *ICIS 2010 Proceedings*. Paper 191.
- Urlaub, J. 2011. "What's the Difference Between Green and Sustainability?" Retrieved from <http://blog.taigacompany.com/blog/sustainability-business-life-environment/whats-the-difference-between-green-and-sustainability-> on January 12, 2011.
- Watson, R. T., Boudreau, M. C., and Chen, A. 2010. "Information Systems and Environmentally Sustainable Development: Energy Informatics and New Directions for the IS Community," *MIS Quarterly* (34:1), pp. 23-38.
- Wilsdon, J. and Miller, P. 2001. "Digital Futures: An Agenda for a Sustainable Digital Economy," in *Digital Futures*, Wilsdon, James (ed.), London, England: Earthscan: p. 2.