Organizational culture and the success of corporate sustainability initiatives:

An empirical analysis using the Competing Values Framework

Liz Abbett, Anna Coldham, Ryan Whisnant

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Faculty Advisors:
Professor Kim S. Cameron
Professor Andrew J. Hoffman

Abstract

In response to the threats posed by climate change, water scarcity and other emerging environmental issues, corporations have prioritized sustainability as a core business issue. Many companies have learned that sustainability represents a distinct competitive opportunity, but not all companies are successfully addressing these opportunities and challenges. A review of existing literature points to organizational culture as an important driver behind the success of sustainability initiatives, yet little empirical research has been done to describe the relationship between company culture and sustainability. This study uses the Competing Values Framework (CVF) to understand the relationship between company culture and sustainability initiative success across 23 companies. The study finds that culture does indeed matter in corporate sustainability success and points towards additional dimensions for companies to consider when planning and implementing such initiatives.

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Executive Summary

Under the threats of climate change, water scarcity, and other emerging environmental concerns, corporate sustainability has emerged as a core business issue. Moving beyond regulatory compliance, many companies have learned that environmental sustainability offers distinct competitive opportunities, improved efficiency, and access to new markets. While some companies are successfully addressing these challenges and opportunities, others struggle to adopt these changes. A review of existing literature points to company culture as a critical factor for the success of sustainability initiatives, yet little empirical research has been done to describe the relationship between corporate culture and sustainability. The purpose of this study is to understand (1) the relationship between company culture and the success of its sustainability initiatives, and (2) the role that collaboration plays in the success of sustainability initiatives.

The Competing Values Framework (CVF), now widely adopted by both researchers and practitioners, was used to better understand the relationship between company culture and sustainability initiative success. Data was gathered from 23 companies across multiple industries using the Organization Culture Assessment Instrument (OCAI), a diagnostic tool rooted in the CVF, and was supplemented by secondary company research. The study uses hierarchical linear and nonlinear modeling (HLM) to analyze the data across a sample size of 490 employee assessments of company sustainability initiatives.

The study finds that there is an empirical relationship between company culture and the success of its sustainability initiatives: if there is greater similarity between company culture and the sustainability initiative, the initiative will be more successful. This finding points to the fact that culture does indeed matter in corporate sustainability and validates the growing interest in company culture. The study also finds that it is particularly important for the company culture and initiative to match in the level of collaboration that each demands.

Overall, these findings suggest that there are additional dimensions for companies to consider when designing and implementing sustainability initiatives that are not currently a part of the traditional corporate paradigm. It is important for companies to understand their culture and plan sustainability initiatives that are consistent with that culture. Company culture is difficult to change and typically develops over a long period of time; therefore, companies must think critically about how they are designing their initiatives. In the long run, managers can seek to grow culture and sustainability initiatives together.

The study also points to areas for future research relating to culture and the success of sustainability initiatives. For example, the impact of other factors such as internal financial incentives and industry attributes may reduce the effects of culture. Additionally, further research should be done to better understand whether certain types of company cultures lead to more successful sustainability initiatives.

Introduction and Literature Review

In the past decade, corporate sustainability has migrated from a peripheral concern to a core business issue. As the global population grows and demand for goods and services increases, companies are challenged to efficiently use the finite base of natural resources on the planet. Under the threats of climate change, water scarcity and other emerging environmental issues, companies must also prepare to comply with new regulations. Many companies are successfully addressing these challenges and reducing their environmental impact through a variety of on-the-ground initiatives. However, other companies have been struggling to move in a more sustainable direction. Even within a single company, some sustainability initiatives may be successful while others fail to achieve the desired results.
A review of existing literature points to company culture as a critical factor for the success of sustainability initiatives, yet little empirical research has been done to describe the relationship between company culture and sustainability. The purpose of this study is to generate empirically grounded insights on the relationship between company culture and the effectiveness of corporate sustainability initiatives.

Scope of Literature Review

The study of corporate efforts to minimize environmental impact is a relatively new field, and accordingly, the specific terms used to describe these types of initiatives are still developing and vary across the existing literature. In the 1970s, the term *corporate social responsibility* started gaining in use. Two decades later, *environmental management* and *corporate sustainability* emerged as frequently used terms to describe corporate environmental initiatives (Montiel, 2008). In the following literature review, we cite existing research that uses these three terms and assume that all three are relevant for providing background for this study.

Although corporate social responsibility (CSR), sustainability, and environmental management can all refer to attempts to reduce a company's ecological footprint, each term conveys a slightly different meaning. Carroll's often-cited definition of corporate social responsibility "…encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (1979). Sustainability as a concept has been gaining in use since 1987, when the World Commission on Environment and Development defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Accordingly, corporate sustainability may be defined as "the adoption of business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future" (IISD et al., 1992). However, the exact interpretation varies. Sometimes corporate sustainability is used as a way to approach CSR, sometimes it is used to refer to simultaneously meeting economic, social and environmental needs, and sometimes it is used to focus primarily on environmental issues and is synonymous with environmental management (Montiel, 2008). While social issues such as human rights and transparency are critical business issues and are often included in the concept of corporate sustainability, our focus is on corporate environmental sustainability initiatives, defined as any effort made to reduce a company's environmental impact (see Methodology section for further discussion).

Similarly, existing literature discusses the relationship between sustainability and a variety of organizational topics including leadership, citizenship, human resources management, and employee empowerment. These studies, in addition to those that directly address culture, have also been included in our analysis in order to understand the current state of research at the intersection of organizational and environmental issues within corporations.

Environmental Sustainability as a Business Issue

Starting in 1970 with the formation of the Environmental Protection Agency (EPA) and subsequent legislation such as the Clean Air Act and Clean Water Act, U.S. companies have been compelled to focus on prescript, compliance-based standards. In certain cases, this approach has evolved into a more strategic stance towards environmental protection. Carrier Corporation, for example, eliminated its use of toxic solvents to clean parts in the manufacturing of its air conditioners. While this may have satisfied regulatory requirements, by the end of one year it resulted in $1.2 million in reduced manufacturing costs (Hoffman, 2000). Many companies have learned that sustainability represents a distinct competitive opportunity.

Significant drivers of corporate environmental sustainability include potential cost savings from eco-efficiency initiatives, new revenue opportunities, improved reputation, talent attraction and retention, and reduced risks due to emissions regulations addressing climate change (Enkvist, 2007; Hoffman, 1999; Baumgartner, 2009). Environmental Defense Fund, through their intern program that equips MBAs to identify eco-efficiency initiatives, has saved $89 million in net operational costs for dozens of major corporations (Environmental Defense Fund, 2010). As concerns over climate change, supply chain security, and availability of energy and water continue to grow, the threat of regulations mandating changes in corporate accounting systems and resource use are motivating action. The United Kingdom's mandatory Carbon Reduction Commitment emissions trading scheme requires all organizations using more than 6,000 MWh per year of electricity to purchase and submit sufficient allowances to meet their annual emissions needs (Carbon Trust, 2010). According to The Climate Group, climate legislation in the European Union has resulted in, among others things, increased electricity prices caused by the pass-through of carbon costs (Kenber, Haugen and Cobb, 2009). Similar legislation was passed by the U.S. House of Representatives in June 2009, and as of this writing legislation is being considered in the U.S. Senate.

In response to these concerns, there has been a recent proliferation of sustainability indices, reporting standards, and principles to bring legitimacy to corporate sustainability programs. Investors are driving many of these industry-wide initiatives, including greenhouse gas emissions assessment and reporting (*e.g.,* Global Reporting Initiative, Greenhouse Gas Protocol, climatecounts.org), environmental management protocols (*e.g.,* ISO 14001), responsible investment (*e.g.,* Dow Jones Sustainability Indexes, Calvert SRI criteria, FTSE4Good, Ceres), and global social responsibility and corporate governance (*e.g.,* International Chamber of Commerce Corporate Governance, OECD Principles of Corporate Governance, Sullivan Principles).

Clearly, environmental decision making is becoming less a niche peripheral issue and more a core business issue (Orlitzky, Schmidt, and Rynes, 2003; Walsh, Weber and Margolis, 2003; Hoffman, 1999). According to the Interfaith Center on Corporate Responsibility, there were 360 shareholder resolutions filed related to climate risk in 2009 (GreenBiz Executive Network, 2009). As of April 2009, more than 80 percent of companies surveyed identified themselves as advocates or leaders who consider sustainability a core component of their company's value proposition (GreenBiz Executive Network, 2009). As early as 2007, 57 percent of executives surveyed indicated that "improving the environmental footprint of existing products/services" was at minimum a "major" priority (Economist Intelligence Unit, 2010). Hoffman concludes that business managers are at a strategic disadvantage if they treat environmental and business issues as separate, and this is an area where academic research can contribute (2005).

Sustainability Initiatives within Corporations

Due to the external forces noted above, there have been a variety of sustainability initiatives undertaken by companies and an increase in assessment of corporate environmental performance. Common corporate sustainability initiatives include reductions in travel, facilities retrofits, renewable energy generation, waste reduction, water conservation, and development and use of eco-friendly products and business practices (Vault Guide to Green Programs, 2009). Depending on the company, these sustainability-related initiatives can be prompted by a combination of organizational values and traditional business drivers. In addition to stating that they want to be good corporate citizens, companies report that their motivations for undertaking sustainability initiatives include complying with laws and regulations, cutting costs, meeting demands of customers, discovering new markets, and supporting recruitment and retention of employees (Economist Intelligence Unit, 2010). In these cases, selection of a sustainability initiative depends on the same criteria as competing investments within the business. Typical criteria include payback period, return on investment (ROI), and net present value (NPV). The Environmental Defense Fund, for instance, promotes the use of NPV in evaluation of energy efficiency projects with its corporate partners (Harris, Chu Baird, and Crystal, 2008). There is no standard protocol for identifying the appropriate sustainability initiatives within a company; popular sustainability literature cites several frameworks that may be used, such as SWOT (*strength, weakness, opportunity, threat*) analyses and Werbach's recently developed STaR framework, which seeks to exploit changes in *society*, *technology*, *and resources* (2009). Regardless of which framework is used, companies are urged to pursue initiatives that are aligned with their core business strategy (Werbach, 2009). Nike offers an example with its Reuse-A-Shoe recycling program. The program takes used shoes and recycles the materials to make other products including new shoes and athletic surfaces (Nike, Inc., 2010). Companies are also taking advantage of new product development opportunities. Clorox entered the green cleaning market with its GreenWorks line of products. According to Clorox, the new products seek to offer "powerful cleaning done naturally", and the company claims to have the top brand in natural cleaning (The Clorox Company, 2010).

Organizational Culture and Corporate Environmental Sustainability

Existing literature has posited that organizational culture and corporate environmental sustainability are closely related, with weaknesses in business culture being blamed for impeding environmental progress (Klassen, 2000). Numerous studies have also found the current structure of corporations may limit the success of sustainability initiatives by preventing transmission of environmental information, by obstructing stakeholder participation, and by inhibiting change efforts (Sharma and Vredenburg, 1998; Hunt and Auster, 1990; Starik and Rands, 1995; Polonsky, Zeffane and Medley, 1992). Companies with a strong emphasis on command and control often struggle to adopt innovations that are typically required to create and then integrate sustainability initiatives (Hutchinson, 1996; Maxwell et al., 1997). This is not surprising, as managerial resistance to any change is often found throughout organizations. Since the current system enabled the success of these managers, they have a stake in preserving the *status quo*, a phenomenon described by Schön (1971) as the dynamic conservatism of social systems (Griffiths and Petrick, 2001).

Much as weaknesses in culture can inhibit sustainability initiatives from taking root, strengths in culture can support these initiatives. For example, organizations that support employee involvement in environmental efforts have demonstrated greater success in reducing the company's environmental impact (Ramus and Steger, 2000). Kleine and von Hauff draw a parallel between Total Quality Management (TQM) and CSR, stating that both of these organizational innovations must be integrated throughout a company at all management levels (2009).

The reasons behind this close relationship between environmental management and company culture have much to do with the nature of environmental issues. Such issues span an entire company, making it difficult to isolate them under the purview of a single department or division (Hoffman, 1999; Hart, 1995; Starik and Rands, 1995). An example of such an issue is energy efficiency, which is becoming increasingly attractive as energy prices increase and pressure to mitigate climate change mounts. To identify the most promising opportunities for energy efficiency, a cross-functional team is needed: Facilities managers can upgrade corporate office buildings. Operations managers can identify wasted energy in manufacturing and the supply chain. IT managers can implement data center best practices. Once these opportunities are identified across the firm, financial managers can prioritize them based on ROI or other measures.

In addition to their cross-functional nature, environmental issues are complex and often require informal and preventative actions by many individuals (Boiral, 2005; Florida, 1996; Hanna, Newman, and Johnson, 2000). To continue the energy efficiency example, a source of tremendous savings is often found in seemingly small behavioral changes, such as turning off computers and monitors at the end of the day. These types of voluntary actions, sometimes called *organizational citizenship behaviors*, are not included in formal job descriptions or incentive structures. To drive voluntary environmental actions, implicit cultural factors can play a substantial role (Boiral, 2009).

By considering and developing organizational culture as part of corporate sustainability efforts, companies are able to better integrate these sustainability-related initiatives into daily business activities (Baumgartner, 2009). Fitting sustainability strategies and activities to the organizational culture also reduces the risk of the company misrepresenting its environmental performance and being perceived as inauthentic; that is, the risk of "greenwashing" is reduced (Baumgartner, 2009).

Impact of Organizational Culture on Effectiveness

The importance of organizational culture to the success of sustainability initiatives is not surprising, since organizational culture has previously been linked to the long-term financial success and improved effectiveness of organizations (Cameron and Ettingson, 1988; Denison, 1990). A strong, distinctive organizational culture has been identified as one of the key components of a successful company (Trice and Beyer, 1993). When all leaders, managers and staff within an organization have a clear sense of their shared culture, it creates social order, continuity, collective identity, commitment, and common vision while reducing organizational uncertainties—all of which all lead to improved organizational performance (Cameron and Quinn, 2006).

Organizational culture has been defined in many ways, but Wilson (2001) offers a synthesis of four common characteristics: First, organizational culture consists of shared assumptions, values and behaviors. Second, only some aspects of culture can be observed or accurately articulated by group members. Third, new members to an organization adopt its culture as the proper way to think, feel and behave. Fourth, since new members are assimilated into the existing culture, the culture is very slow to change and will persist over time.

Due to its persistence, culture has been shown to play a particularly strong role in organizational change initiatives. In a study investigating organizational change initiatives ranging from strategic planning to downsizing to quality improvements, the most commonly identified driver of failure was ignoring

cultural issues—a compelling case, given that up to three-quarters of organizational change initiatives fail (Cameron, 1997).

The importance of understanding organizational culture is also demonstrated through the congruence hypothesis, which states that individuals are more effective when their personal competencies align with the cultures of the organizations in which they work. Many researchers have hypothesized that having leaders with individual competencies that align with their organizational cultures increases productivity while reducing conflict (Fiedler, 1977; Hersey, Blanchard and Johnson, 1977).

Research on organizational culture is often conducted through in-depth case studies of single organizations, using methods such as behavioral observations and interviews (Schein, 1985; Wilkins, 1983). In addition to this abundance of qualitative case studies, tools have been developed to quantitatively link organizational culture to conventional business metrics. Denison and Mishra (1995) found that four cultural traits, similar to those used in the Competing Values Framework described below, are predictive of organizational effectiveness as measured through return on assets and sales growth. Their research also specifically states that both qualitative case studies as well as quantitative comparisons provide useful insight in the field of organizational culture research.

Gaps in Existing Research

Although many academics and practitioners have postulated that there is a relationship between corporate culture and sustainability, little research has simultaneously investigated corporate organizational issues and environmental issues. Often, models found in sustainability literature focus on developing sound strategies but pay scant attention to the human capital factors, such as culture, that are needed to deploy such strategies. Similarly, the organizational literature does not tie human capital to specific recommendations for creating organizations that can effectively address the cross-cutting, complex nature of environmental issues (Dunphy and Griffiths, 2000; Hoffman, 2000; Bhat, 1996).

Despite general consensus that company culture and sustainability success have a strong relationship, there is a lack of studies using empirical evidence to describe the nature of this relationship. Many scholars have developed theoretical frameworks and models to describe this relationship, but it is important to substantiate these frameworks with empirical evidence (Ramus and Steger, 2000; Gladwin, 1993). In a study examining the relationship between organizational citizenship behaviors and corporate sustainability, Boiral (2008) notes that case studies form the bulk of existing research on employee mobilization. Meanwhile, quantitative studies that focus on environmental sustainability often measure the environmental impact of specific behaviors and actions rather than the organizational dimensions of corporate environmental sustainability (Boiral, 2008). Ultimately, to understand the relationship between organizational culture and corporate environmental initiatives, studies that apply both quantitative and qualitative methods are needed (Fernandez, Junquera, and Ordiz, 2003). We seek to address this research gap by using quantitative methods to expand upon existing theories and qualitative research.

In summary, current thought leadership points to organizational culture as an important factor in the success of efforts to reduce the company's environmental impact but has been under-researched to date. What little research on organizational studies and sustainability exists has been largely based on case studies or theoretical frameworks rather than on empirical evidence. Applying a practical, quantitative framework to the issue of corporate sustainability would contribute valuable insight to complement this existing body of knowledge.

Research Questions

Hypothesis 1: Cultural Differences between Company and Initiative

Greater similarity between company culture and a sustainability initiative leads to greater success of the initiative.

Existing evidence

- Organizational culture is a predictor of organizational effectiveness.
- Organizational culture is as an important consideration for successful implementation of corporate sustainability initiatives.
- Leadership competencies that are similar to the culture of the organizations are more effective than leadership competencies that are dissimilar to the culture of the organization.

Therefore, we hypothesize that sustainability initiatives with cultural characteristics similar to the organization's culture will be more easily adopted and consequently more successful than sustainability initiatives that are dissimilar to the organization's culture.

Hypothesis 2: Role of Collaboration in Sustainability Initiatives

Greater similarity between the company's emphasis on collaboration and the initiative's emphasis on collaboration leads to greater success of the initiative.

Existing evidence

- Organizational culture sets expectations and norms.
- Individuals are most effective when they behave in a way that is consistent with culture.
- Collaboration is particularly important because most sustainability initiatives are cross-functional and rely on voluntary actions that cannot be enforced through traditional corporate structures.

Therefore, we hypothesize that sustainability initiatives that closely match the organization's level of emphasis on collaboration will be more successful than sustainability initiatives that do not match the organization's tendency to collaborate.

The Competing Values Framework

As outlined in the research questions above, this study seeks to use empirical metrics to better understand the relationship between company culture and the efficacy of environmental sustainability initiatives. Although organizational culture is often perceived as subjective, academics have developed methods to measure culture so that they can be compared across organizations and correlated with organizational performance (Denison and Mishra, 1995). To investigate this question, we sought to apply a vetted framework that has been widely adopted by both researchers and practitioners. The Competing Values Framework (CVF) provides a means of quantifying culture and has a strong and well-established empirical basis for cultural diagnosis.

The CVF serves as a sense-making device to help leaders, managers, and employees understand and navigate the inherent cultural tension, or "competing values", within their organization. The framework is based on the notion that all human activity has an underlying structure. Organizations, by definition, exhibit patterns and predictability in relationships and the CVF serves to identify dimensions to these relationships. Study of organizational effectiveness has revealed two primary dimensions used in the CVF: *flexibility vs. stability* and *efficient internal process vs. competitive external positioning* (Cameron, Quinn, DeGraff, and Thakor, 2006). Orienting these two dimensions on horizontal and vertical axes reveals a two-by-two matrix with four quadrants, known in the CVF as *Control, Compete, Create,* and *Collaborate*[1]. Each quadrant represents a distinct cluster of criteria relating to the way people process information, learn about their environment, organize and lead others, create value for customers, and how they see what is right, good, or appropriate.

Figure 1: Schematic of the Competing Values Framework

Specifically, the lower-left quadrant (*Control*) relates to value-enhancing activities including improvements in efficiency by implementing better processes. The lower-right quadrant (*Compete*) relates to value-enhancing activities including being aggressive and forceful in the pursuit of competitiveness. The upper-right quadrant (*Create*) relates to value-enhancing activities that deal with

[1]These terms are often used to describe the CVF quadrants to practitioners. In academic literature and elsewhere, these cultural quadrants are also known as *Hierarchy, Market, Adhocracy,* and *Clan,* respectively. These sets of terms are equivalent, but to maintain consistency, we use *Control, Compete, Create,* and *Collaborate* in this paper.

innovation in the products and services an organization produces. The upper-left quadrant (*Collaborate*) relates to value-enhancing activities that deal with building human competencies, developing people, and solidifying an organizational culture. Activities in each of these quadrants create value in different ways, and this can sometimes be a source of tension. Understanding the degree of emphasis in each quadrant within an organization or function can be achieved by mapping the percentage of human and financial resources dedicated to each area on the two-by-two matrix, creating a resource map. These maps can then be used to understand attributes such as the dominant culture of an organization, the level of opposing tension or balance between values, or the congruence between the organization and its leadership or initiatives. Understanding these attributes and relationships can help guide organizations to make more effective choices in their activities.

Figure 2: Description of CVF Culture Types (Cameron and Quinn, 2006)

The Collaborate (Clan) Culture:	"A very friendly place to work where people share a lot of themselves. It is like an extended family. The leaders, or head of the organization, are considered to be mentors and, maybe even, parent figures. The organization is held together by loyalty or tradition. Commitment is high. The organization emphasizes the long-term benefit of human resource development and attaches great importance to cohesion and morale. Success is defined in terms of sensitivity to customers and concern for people. The organization places a premium on teamwork, participation, and consensus."
The Create (Adhocracy) Culture:	"A dynamic, entrepreneurial, and creative place to work. People stick their necks out and take risks. The leaders are considered to be innovators and risk takers. The glue that holds the organization together is commitment to experimentation and innovation. The emphasis is on being on the leading edge. The organization's long-term emphasis is on growth and acquiring new resources. Success means gaining unique and new products to services. Being a product or service leader is important. The organization encourages individual initiative and freedom."
The Compete (Market) Culture:	"A results-oriented organization. The major concern is getting the job done. People are competitive and goal-oriented. The leaders are hard drivers, producers, and competitors. They are tough and demanding. The glue that holds the organization together is an emphasis on winning. Reputation and success are common concerns. The long-term focus is on competitive actions and achievement of measurable goals and targets. Success is defined in terms of market share and penetration. Competitive pricing and market leadership are important. The organizational style is hard-driving competitiveness."
The Control (Hierarchy) Culture:	"A very formalized and structured place to work. Procedures govern what people do. The leaders pride themselves on being good coordinators and organizers, who are efficiency-minded. Maintaining a smooth-running organization is most critical. Formal rules and policies hold the organization is most critical. Formal rules and policies hold the organization together. The long-term concern is on stability and performance with efficient, smooth operations. Success is defined in terms of dependable delivery, smooth scheduling, and low cost. The management of employees is concerned with secure employment and predictability."

The CVF has been used as a tool to assess the existing and desired culture within organizations and evaluate whether culture change has actually been achieved. Hooijberg and Petrock (1993) found that the CVF was one of the best organizational models available to help organizations plan and manage major change. Kalliath, Bluedorn, and Gillespie (1999) reported that the CVF has been applied in a wide range of organizational research and found that it is “a valuable tool for making sense of the often confusing organizational effectiveness topic." Their application of structural equations modeling to test the CVF found that the CVF criteria yielded excellent validity and reliability estimates.

The CVF has been used for more than twenty years in a variety of geographies and industries. In a search of literature from 2000 to present, the CVF was applied 44 times in journals across applications as diverse as hospitals, performance review, TQM/Six Sigma, construction, virtual work, livestock production, engineering, real estate, nursing homes, higher education, orchestras, and hospitality.

Shepstone and Currie (2006), for example, use the CVF to demonstrate that culture plays a critical role in the effectiveness of library staff and conclude that the CVF resulted in a complex, multidimensional understanding of organizational effectiveness. Further description of specific applications of the CVF can be found in Cameron, Quinn, DeGraff, and Thakor (2006) and Cameron and Quinn (2006).

The CVF is one of many frameworks that have been developed to help organizations understand their culture and its impact on their success. Specific to culture and environmental sustainability, Blum-Kusterer and Hussain (2001) point out that several frameworks have been developed that attempt to explain how organizations react to environmental pressures. However, these frameworks are insufficient in providing a robust empirical treatment of organizational culture as it relates to sustainability. Likewise, the existing frameworks do not draw a direct relationship between an organization's culture and the success of its sustainability initiatives. For instance, Maon, Lindgreen, and Swaen (2008) introduced an integrative framework for CSR focused on design and implementation models, but the framework does not provide an explicit connection between culture and the efficacy of implementing initiatives. The CVF, however, provides a well-vetted tool for understanding the relationship between organizational culture and the success of environmental sustainability initiatives.

Data Collection Methodology

Our methodology is based on an established tool, the Organization Culture Assessment Instrument (OCAI), which is rooted in the CVF (Cameron and Quinn, 2006). Data was collected through an online survey and supplemented with secondary research and interviews with participating companies. The following section defines key terms used in the analysis and describes the methodology applied to design the online surveys and engage study participants.

Key Terms

As demonstrated by existing research, the terms used to describe our areas of interest vary widely. Below, we define key terms as they are used in this study.

Sustainability initiative: We define *sustainability initiative* as a past or present program or project within a company to reduce environmental impact (*e.g.,* less energy needed, less waste produced, inputs are environmentally preferable). Specifically, a sustainability initiative

- is an ongoing action (versus a one-time investment);
- is specific, with defined, measurable goals and deliverables;
- involves multiple constituencies within the organization (*e.g.,* company divisions, participants, other stakeholders);
- can fail or be terminated;
- notably reduces pollution or consumption of energy or materials by the company or its employees;
- is tactical (*e.g.,* improves energy efficiency of buildings) rather than strategic (*e.g.,* integrates sustainability into business planning); and
- focuses on internal operational commitments and impact rather than public- or consumer-facing messages or partnerships.

The purpose of this narrow definition is to focus on the actual implementation of a company's approach to sustainability, regardless of what drives it or promotes it (such as an overarching sustainability strategy, desire for public recognition, or *ad hoc* grassroots effort).[2]

Success (of an initiative): Success was determined by the opinions of those familiar with the initiative at a given study company. See section below on developing perceived measure of success.

Company culture: We define company culture as the extent to which employees within a company experience each of the four CVF culture types: Control, Compete, Create, and Collaborate.

In this project, culture was rated by those familiar with the company's sustainability initiatives. The company culture identified by these respondents may be more or less representative of the culture of the business unit or company as a whole. However, it is reasonable to assume that (1) the survey respondents are usually involved in designing and/or implementing sustainability initiatives, and (2) the

[2] Many participant companies as well as researchers include social issues such as human rights in their definition of sustainability. We acknowledge the importance of social issues for ethical, long-term business practices, and often these social issues are intertwined with environmental issues. However, in order to maintain a manageable scope for this study, we are only concerned with environmental sustainability initiatives. We strongly encourage similar research into issues of social and socio-environmental sustainability.

culture as experienced by those who are implementing an initiative is likely to impact the success of the initiatives.

Business unit: Smallest entity that contains all of the survey respondents for a given company.

Green team: We define the set of individuals that are actively involved in the planning and implementation of sustainability initiatives as a company's green team. This was a commonly used term among study companies, although this may not be a formal group and may be called by another name, depending on the company. For our participant companies, we refer to the Team Survey respondents (described below) as the green team.

Survey Design: Lead Survey

The online survey tool was administered in two parts: the *Lead Survey*, sent to a company's sustainability officer or a member of a company's green team, and the *Team Survey* (addressed below). The purposes of the Lead Survey were (1) to quickly identify sustainability initiatives attempted to date at a study company, and (2) to select two of those sustainability initiatives to investigate in detail using the Team Survey.

The survey first provided a list of sustainability initiatives commonly found in companies today. Respondents selected those initiatives that applied to their company. Respondents were also asked to name additional past or present sustainability initiatives occurring at the company. From this comprehensive list of sustainability initiatives, respondents then identified two initiatives that were more successful and two that were less successful, providing the goals, start date, and a brief description for each initiative. This survey took respondents approximately 10 minutes to complete. When the responses to survey questions required clarification, we followed up with the survey respondent via email or telephone. See Appendix A for sample Lead Survey.

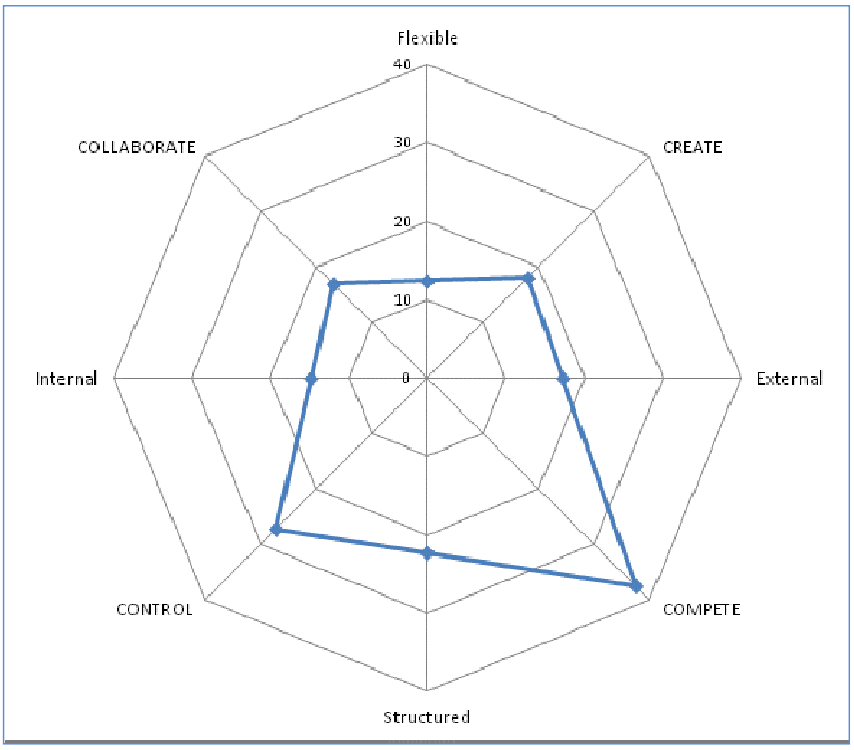
Survey Design: Team Survey

The purpose of the Team Survey was threefold: (1) to determine the CVF profile for a company's culture, (2) to determine the CVF profile of two sustainability initiatives at the company, and (3) to assess the success of each sustainability initiative in question.

Assessing Company Culture

The questions on the Team Survey were based on the OCAI. Visually, the company's cultural profile is illustrated using a radar chart. Figure 3: Sample Company Culture Profile depicts the culture of a sample company, which has a highly competitive company culture.

Figure 3: Sample Company Culture Profile



There are many factors that contribute to a company's culture. In order to create a cultural profile like the one above, this study asked respondents about four dimensions of culture: the company's dominant characteristics, its leadership, the nature of the bonds (or "glue") that hold the organization together, and the criteria used for determining success. For each of these cultural dimensions, respondents were asked to divide 100 points among the four statements describing that dimension. Respondents divided points based on how similar the statement was to their company (100 is very similar and 0 is not at all similar to their company). See Figure 4 for a sample question from the OCAI, which was used in this research (Cameron and Quinn, 2006).

Figure 4: Sample Company Culture Question on the Team Survey

Dominant Characteristics	
The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.	0
The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.	0
The organization is very results-oriented. A major concern is with getting the job done. People are very competitive and achievement-oriented.	0
The organization is a very controlled and structured place. Formal procedures generally govern what people do.	0
Total	0

Each of the four descriptive statements is associated with one of the four CVF quadrants. By reviewing point allocation across the four statements, we were able to understand the relative dominance of each culture type for a given company.

See Appendix B for a full Team Survey.

Assessing Sustainability Initiatives

The approach used to characterize a company's culture was then modified to describe its sustainability initiatives. As with culture, there are many aspects to a company initiative. In order to create a profile like the one created for the company culture, this study asked respondents about four dimensions of an initiative: how the initiative began, how employees engaged in the initiative, the leadership of initiative, and the criteria for success used for the initiative.

For each of these dimensions, respondents were asked to divide 100 points between the four descriptive statements, depending on how similar the statement was to the initiative (100 is very similar and 0 is not at all similar to the initiative). See Figure 5 for a sample question.

Figure 5: Sample Sustainability Initiative Question on the Team Survey

[Insert Name of Initiative 1]: How Initiative Began	
The initiative began as a grassroots movement or through employee feedback on how to improve the sustainability of business and employee practices.	0
The initiative was started by a person or small group that developed an innovative approach to a sustainability issue.	0
The initiative began as a mandate from management stemming from a desire to outperform competitors on sustainability metrics and claims.	0
The initiative began in order to improve processes, as a response to environmental regulation, or to manage risk.	0
Total	0

Again, the four descriptive statements represent each quadrant in the CVF. We used an iterative internal process to develop the text for each statement. The statements were then reviewed with one of the authors of the CVF to ensure they appropriately captured the intent of each quadrant.

In order to limit the time required to complete the Team Survey, we chose one initiative characterized as "more successful" and one initiative characterized as "less successful" from the Lead Survey. We used the above definition of sustainability initiative to select which initiatives to use for each Team Survey. By selecting initiatives that were considered more or less successful, we were able to observe differences between the success levels of sustainability initiatives. The order in which the more and less successful initiatives were presented on the Team Survey alternated for each participating company to mitigate order bias. For the remainder of the paper, these initiatives will be referred to as "Initiative 1" and "Initiative 2," indicating the order a given initiative was presented on the Team Survey.

Assessing Success of Sustainability Initiatives

We considered three potential types of measures for determining the success of an initiative:

- Objective measure: Objective measures are quantifiable results of an initiative, such as dollars saved, emissions reduced, or change in employee turnover. However, in the case of sustainability initiatives, environmental accounting at most companies (or even between divisions) is tenuous at best. While various rankings and measurements exist, the methodology used to develop these scorecards and indicators is often subject to debate. For example, if a company decreases its per-unit carbon intensity but increases its absolute emissions, how does it compare to another company that reduced its absolute emissions by simply decreasing production? In addition, it is difficult to prove causal association between investment in an initiative and a specific objective measure that is influenced simultaneously by many dynamic forces.

- Recipient Measure: For this measure, recipients of initiatives rate the success of initiatives (*e.g.,* hotel patrons, healthcare recipients). However, it is difficult to define and identify recipients that benefit from a company's sustainability-related initiatives, as environmental benefits are broad reaching and may benefit multiple dispersed stakeholders.

- Subjective or Perceived Measure: This measure is based on the opinion of knowledgeable people in the company rating the success of a given initiative. This measure does not provide specific results (*e.g.,* pounds of waste avoided), but instead provides a general characterization of level of success for an initiative.

Perceived measures were selected, as they provided the most reliable and available source of assessment across industries. This type of measure has been used in similar studies as well (Yazici, 2009).

Four dimensions of success were used in order to gain an understanding of the initiative's impact on multiple aspects of the company. A seven-point Likert scale allowed respondents to indicate the degree to which they agreed with four statements about the initiative's level of success:

- "I think this initiative was worth doing."
- "This initiative significantly reduced the company's environmental impact (*e.g.,* reduced energy, inputs, waste)."
- "This initiative significantly improved the company's bottom line."
- "This initiative significantly improved employee awareness and/or morale."

The scale also included an option to indicate if the respondent did not know about the initiative so that only those people familiar with an initiative's impact would complete the assessment. As people tend to favor responses on the left side of a Likert scale (*i.e.,* the order effect) while at the same time favoring positive responses (*i.e.,* acquiescence), the scale was constructed such that "Strongly Disagree" was on the left side of the scale, with "Strongly Agree" on the right (Brace, 2008).

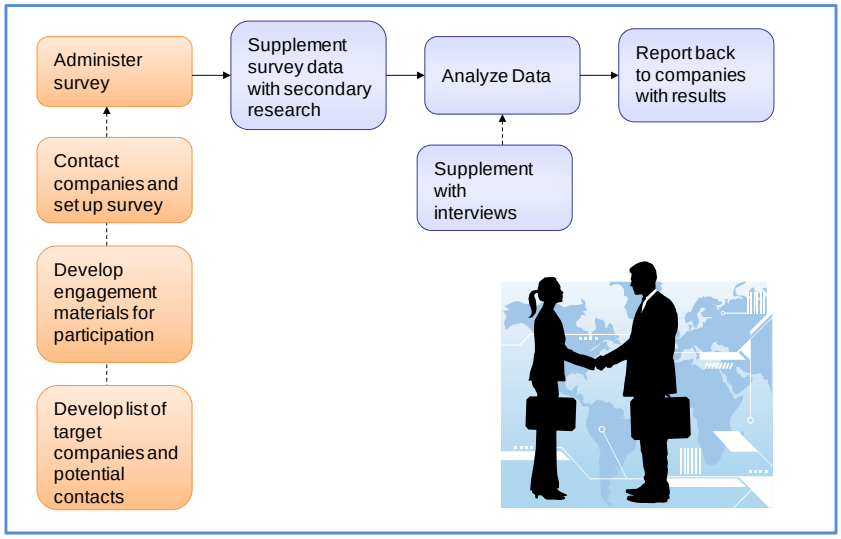
Selecting and Engaging Study Companies

Critical to the research was developing a large sample of company participants, ideally across several industries. In approaching company engagement, we developed the following criteria:

- The company has tried to implement at least four sustainability initiatives in the past 10 years.
- The company has at least 6 employees willing to participate in the survey that are both knowledgeable about the sustainability initiatives and represent as many departments involved in the design and implementation of sustainability initiatives as possible.

To engage with companies, we utilized several networks including University of Michigan faculty, Ross School of Business alumni, and Erb Institute for Global Sustainable Enterprise advisory board members, alumni and students. Learning from prior School of Natural Resources and Environment master's research projects, we pre-tested the survey with a company to verify its structure and legibility. The final response rate was 18 percent. Of those companies who were contacted but did not participate (102), 64 were not interested in the research (did not respond or replied that they were not interested), 23 were interested in the research (but did not follow through on the survey, already had similar efforts, or did not have the bandwidth), 9 had no suitable contacts to complete the Lead Survey, and 6 declined for various other reasons (*e.g.,* going through bankruptcy or merger). In responding, companies were assured that proprietary information about initiatives would not be published and data would be used in aggregate for analysis unless otherwise authorized. In addition to this aggregate report, each participating company received company-specific results of the study in a separate report. See Appendix C for sample company engagement materials.

Figure 6: Company Engagement Process



The 23 companies that participated in the study represented diverse industries, from industrial chemicals to organic food and beverages, and ranged in size from 80 to 150,000-plus employees. Of those that responded to the survey, 58 percent were publicly held and 42 percent were privately held. On average, participating companies were large, with the majority over 10,000 employees and 83 percent with annual sales greater than US$1 billion (the largest with sales of over US$61 billion). For an overview of participating companies, see Appendix D.

Selecting Team Survey Respondents

As noted above, the Team Survey captured a sample of the individuals in the company that were involved in designing and implementing sustainability efforts. Our contact at each study company (*i.e.,* the person that completed the Lead Survey) identified coworkers familiar with the sustainability initiatives to complete the team survey (*e.g.,* those on the green team or that helped to plan, approve, implement, or manage these sustainability initiatives). Through this screening process, we selected respondents that (1) are a part of company sustainability efforts and therefore can represent the culture of those working on sustainability-related topics, and (2) can provide insight on the success of the two sustainability initiatives detailed in the Team Survey.

Secondary Research

In order to supplement the primary data gathering, we conducted secondary research on the 23 participant companies. The goals of the secondary research were (1) to investigate whether there were any relationships between company characteristics and the results of the survey; (2) to identify any patterns in the types of companies that responded to the survey; and (3) to ensure that the final sample of companies represented a variety of industries, sizes, ownership structures, and geographic locations. After investigating various business databases, we used OneSource Global Business Browser to collect secondary data for each final participant company.

Analysis

The following outlines the steps used to structure, prepare, and analyze the study dataset.

Data Preparation

Data for each participating company were downloaded from Qualtrics, the online survey tool used to collect primary data, into Excel. Records were aggregated across companies and formatted. Records were then reviewed and removed if (1) respondents indicated they did not know about the initiative in question, or (2) respondent did not finish the company culture assessment.

Each respondent to the Team Survey had the opportunity to review two initiatives, for a total 532 person-initiative records. Forty-two person-initiative records were discarded using the review criteria above, for a total of 490 person-initiative records remaining. We independently reviewed the 42 discarded records to ensure valid records were not accidentally removed.

After uploading the data to SPSS, we calculated additional fields based on the data collected. First, the difference between the average company culture and the individual's assessment of the initiative were computed for each CVF quadrant. As these fields could be negative (if the initiative average for the individual exceeded that for the company), the absolute value for each of the four difference fields was calculated, where closest to zero represents greater congruence between the profile of the sustainability initiative and the profile of the company's culture. Initial analysis suggested that the direction of the difference did not matter as much as overall magnitude.

Dataset and Statistical Design

A test for correlation between an individual's assessment of Initiative 1, Initiative 2, and the company culture was used to identify whether the average individual assessments of the initiatives and the assessment of company culture tended to be correlated within each quadrant. This test identified a significant correlation between the three variables, indicating that analysis should address random effects in the data. Random effects occur when variation is observed at multiple levels in the data due to randomly sampled units (*e.g.,* study companies, or people within those companies). In this study, dependencies in the data occurred because multiple people from the same company assessed the same two sustainability initiatives.

In order to address the potential random effects, the study dataset was structured to reflect the nested design of the study:

- Company (Level 2) – One record per company. Includes, company averages and standard deviations of person level responses.
- Person-Initiative (Level 1) – Two records for every person describing a given sustainability initiative at a company (2 initiatives per person, 1 initiative per person per record). Includes, assessment of sustainability initiatives and dependent variables (measures of success) noted below.

The goal of this analysis is to predict measures of initiative success using differences in variables at the initiative-person and company level. The above structure enabled the use of Hierarchical Linear and Nonlinear Modeling (HLM) to perform the analysis and address random effects of companies, given the nested study design. See Appendix E for a diagram of the study dataset.

Study Variables

The dependent variables for this analysis are four measures of perceived initiative success as assessed by survey respondents: the overall worth, the environmental impact, the financial impact, and the impact on employees at the company. These dependent variables were highly correlated with one another. As a result of this high correlation, the remainder of the study will consider only the overall worth of the initiative as the dependent variable used in analysis. This variable was selected as it had the most individual responses.

Figure 7: Correlations between Dependent Variables

		p_worth2	p_env2	p_fin2	p_emp2
p_worth2	Pearson Correlation	1	.495**	.318**	.314**
	Sig. (2-tailed)		.000	.000	.000
	N	479	464	445	466
p_env2	Pearson Correlation	.495**	1	.548**	.365**
	Sig. (2-tailed)	.000		.000	.000
	N	464	468	442	459
p_fin2	Pearson Correlation	.318**	.548**	1	.276**
	Sig. (2-tailed)	.000	.000		.000
	N	445	442	448	445
p_emp2	Pearson Correlation	.314**	.365**	.276**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	466	459	445	468

**. Correlation is significant at the 0.01 level (2-tailed).

As noted in the methodology section, these measures used a 7-point Likert scale. As most of the assessments clustered between 5 and 7 on a 7-point scale, the scale was collapsed to a 4-point scale, grouping initial categories 1-4 into one category for “less worthwhile.”

The independent variables for this analysis are as follows:

- [Level 1] The sum of the magnitude of the difference between the initiative and company profiles in each CVF quadrant (Collaborate, Create, Compete, Control)
- [Level 1] The magnitude of the difference between the initiative and company culture profiles for each CVF quadrant (Collaborate, Create, Compete, Control)
- [Level 2] Dummy variables indicating the quadrant with the highest average score
- [Level 2] Company demographic variables (level of internal cooperation, type, size, role ROI plays in developing and evaluating initiatives at the company)

See Appendix F for key variable names and associated descriptions.

Study Sample Size

The online survey tool was open for 3.5 months (November 2009–February 2010). During that time, 29 companies completed the Lead Survey and 23 companies had 6 or more employees complete the Team Survey. In some instances, we found that there may have only been six people at a company who knew enough about the selected sustainability initiatives and were available to take the Team Survey. In other cases, companies were able to find more than ten people qualified to take the Team Survey. Using six or more people to form generalizations has been used in prior case studies about organizational culture (K. Cameron, personal communication, December 15, 2009). Therefore, we included these companies in this analysis.

Findings

Description of Study Companies and Initiatives

Of the 23 companies in the study sample, 17 (74 percent) have a dominant culture (where *dominant culture* is defined by the quadrant allocated the most points and those points are greater than 1 standard deviation above the mean of the four quadrants). As illustrated in Figure 8, the Compete quadrant was strongly present in just under half the study companies. In comparison, the other three quadrants were less dominant.

Figure 8: Distribution of Dominant CVF Quadrant across Study Companies

Dominant Quadrant	Number of Companies with Dominant Quadrant (> 1 Standard Deviation above the Mean)
Collaborate	3
Compete	9
Control	4
Create	1
Total	**17**

It can also be helpful to examine the general shape of a company's cultural profile. Consistent with the distribution of dominant cultures above, the majority of study companies are strongly rooted in Compete and Control tendencies (present-focused, process and metrics oriented, command and control).

Figure 9: Distribution of CVF Profile Shape across Study Companies

Top Two Strongest Company Culture Quadrants	# of Companies
Bottom (Control - Compete)	15
Top (Collaborate - Create)	2
Diagonal (Compete - Collaborate)	3
Right (Create - Compete)	3

The same type of analysis can be done for the initiatives assessed in this study. Of the 46 initiatives profiled, 38 (83 percent) have a dominant culture. Unlike the company culture distribution, all quadrants are dominant in the sample, with Compete being the dominant quadrant least represented.

Figure 10: Distribution of Dominant CVF Quadrant across Study Initiatives

Dominant Quadrant	Number of Initiatives with Dominant Quadrant (> 1 Standard Deviation above the Mean)
Collaborate	11
Compete	7
Control	12
Create	8
Total	**38**

Comparing the dominant quadrants of company culture and initiative profiles, we find that the majority of dominant quadrants do not align across company culture and initiative. Of the 17 companies with a dominant culture, 7 initiatives shared the same dominant quadrant as the company culture while 27 initiatives did not.

Figure 11: Comparison of Dominant Quadrants between Company Culture and Initiative

Initiative Profile and Company Culture Profile	# of Initiatives
Dominant Quadrant for Initiative **same** as Dominant Quadrant for Company	7
Dominant Quadrant for Initiative **different** than Dominant Quadrant for Company	27

As stated in the methodology section, two initiatives were evaluated at each of the 23 study companies. Thus, there are 23 initiatives that were considered relatively more successful than the other initiative at the same company. Across the 23 more successful initiatives there was an even distribution of dominant quadrants, with four initiatives without a dominant quadrant.

Figure 12: Distribution of Dominant Quadrants across More and Less Successful Initiatives

Type of Initiative	Type of Dominant Quadrant					
	None	Collaborate	Compete	Control	Create	Total
Less Successful	4	7	2	7	3	23
More Successful	4	4	5	5	5	23

Comparing the dominant quadrants of company culture and initiative profiles, we find that a greater percentage (5 of 17) of the more successful initiatives align with company culture profile than do the less successful initiatives (2 of 17).

Figure 13: Comparison of Dominant Quadrants between Company Culture and Initiative for More and Less Successful Initiatives

Initiative Profile and Company Culture Profile	More Successful Initiatives	Less Successful Initiatives
Dominant Quadrant for Initiative **same** as Dominant Quadrant for Company	5	2
Dominant Quadrant for Initiative **different** than Dominant Quadrant for Company	12	15

Hypothesis 1: Cultural Differences between Company Culture and Initiative

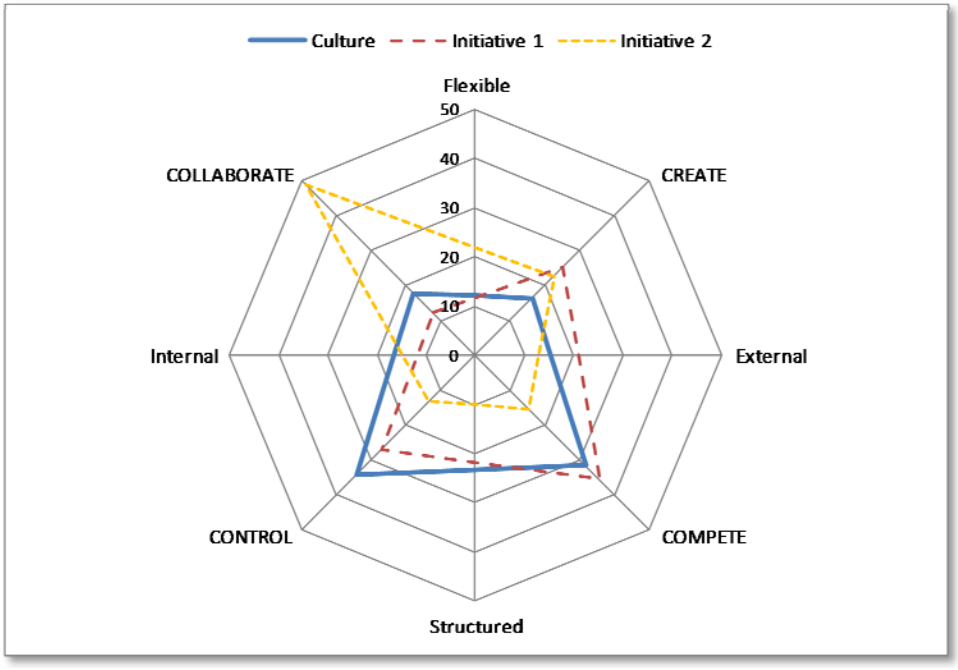
Greater similarity between company culture and a sustainability initiative leads to greater success of the initiative.

Observational Approach

For each company, we constructed a radar chart depicting the average company culture profile and the average profiles for Initiatives 1 and 2 (using the aggregated responses from individuals at a given company) as described in the methodology section.

We then calculated the congruence between the company culture and initiative profiles. Congruence is defined as the sum of the absolute difference between the company's culture and an initiative profile in each of the four quadrants. In other words, how similar is the initiative profile to the company culture profile?

Figure 14: Sample Company Profile 1 (Initiative 1 More Successful)



Out of 23 companies observed, 16 companies (or 70 percent) rated the more congruent initiative as more successful than the initiative that was less congruent. In the above case example, Initiative 1 (red dashed line) is more congruent with the company culture (blue solid line) than Initiative 2 (orange short dashed line). Employees surveyed at this company also rated Initiative 1 as more worthwhile overall than Initiative 2.

Additionally, when congruence for only the strongest two quadrants of the culture profile were considered, 74 percent of companies (17 of 23) rated the more congruent initiative as more successful than the less congruent initiative.

Statistical Approach

First, we ran a simple correlation analysis of the total absolute difference between the culture and the initiative profile across all quadrants (diff_total) and the measure of perceived initiative success (p_worth2). As illustrated in Figure 15, a significant relationship between these two variables was found. The negative correlation suggests that as the total difference between the company culture and initiative decreases, perceived success increases.

Figure 15: Correlation Matrix for Perceived Initiative Success vs. Congruence

		p_worth2	diff_total
p_worth2	Pearson Correlation	1	-.104*
	Sig. (2-tailed)		.023
	N	479	479
diff_total	Pearson Correlation	-.104*	1
	Sig. (2-tailed)	.023	
	N	479	490

*. Correlation is significant at the 0.05 level (2-tailed).

We then examined the data using an ordinal model, with our dependent variable (DV) as the measure of perceived initiative success (p_worth2). As noted in the methodology section, the DV is a categorical variable ranging from 1 (less successful) to 4 (very successful). Our independent variables were the measure of overall congruence (diff_tot) and the company-level variables controlling for the strongest CVF quadrant, size of company, level of perceived cooperation at the company, and the degree to which ROI factored into decisions to adopt sustainability initiative. While modeling a continuous DV is good for understanding coefficient direction, an ordinal model is more appropriate for this analysis as the dependent variable is categorical.

Figure 16: Model Parameters for Hypothesis 1

LEVEL 1 MODEL (bold: group-mean centering; bold italic: grand-mean centering)

$Prob[R <= 1|\beta] = P'(1) = P(1)$

$Prob[R <= 2|\beta] = P'(2) = P(1) + P(2)$

$Prob[R <= 3|\beta] = P'(3) = P(1) + P(2) + P(3)$

$Prob[R <= 4|\beta] = 1.0$

$P(1) = Prob[P\_WORTH2(1)=1|\beta]$

$P(2) = Prob[P\_WORTH2(2)=1|\beta]$

$P(3) = Prob[P\_WORTH2(3)=1|\beta]$

$Log[P'(1)/(1 - P'(1)] = \beta_0 + \beta_1(DIFF\_TOT)$

$Log[P'(2)/(1 - P'(2)] = \beta_0 + \beta_1(DIFF\_TOT) + \delta_{(2)}$

$Log[P'(3)/(1 - P'(3)] = \beta_0 + \beta_1(DIFF\_TOT) + \delta_{(3)}$

LEVEL 2 MODEL (bold italic: grand-mean centering)

$$\beta_0 = \gamma_{00} + \gamma_{01}(CP\_COOP) + \gamma_{02}(CP\_G\_MAX) + \gamma_{03}(CP\_B\_MAX) + \gamma_{04}(CP\_R\_MAX) + \gamma_{05}(ROI) + \gamma_{06}(SIZE\_EMP) + \gamma_{07}(PUBLIC) + u_0$$

$$\beta_1 = \gamma_{10} + u_1$$

$\delta_{(2)}$

$\delta_{(3)}$

As illustrated by Figure 17, the overall measure of congruence (diff_tot) was found to be significant at the .05 level (r= 0.538), with a positive coefficient. In the ordinal model, every unit increase in the predictive variable (diff_tot) corresponds to an increase in the odds of a lower value for the dependent variable. Therefore, we expect to see a positive fixed effect (*i.e.,* coefficient) for the congruence measure (diff_tot) as an increase in the difference implies an increase in the odds of seeing a lower value for the DV (*i.e.,* less perceived success of the initiative).

Figure 17: Estimated Fixed Effects and Standard Errors for Hypothesis 1

Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1 slope, B0					
INTRCPT2, G00	-2.902152	2.104964	-1.379	15	0.188
CP_COOP, G01	-0.455711	0.664406	-0.686	15	0.503
CP_Y_MAX, G02	0.817482	0.511457	1.598	15	0.130
CP_G_MAX, G03	-0.149561	0.824262	-0.181	15	0.859
CP_B_MAX, G04	-0.059369	0.525863	-0.113	15	0.912
ROI, G05	0.095637	0.264940	0.361	15	0.723
SIZE_EMP, G06	-0.000006	0.000004	-1.482	15	0.159
PUBLIC, G07	0.506213	0.595270	0.850	15	0.409
For DIFF_TOT slope, B1					
INTRCPT2, G10	0.006372	0.003082	2.067	468	0.039
For THOLD2,					
d(2)	1.004883	0.176819	5.683	468	0.000
For THOLD3,					
d(3)	2.603210	0.217690	11.958	468	0.000

The magnitude of increase in the odds of seeing a lower value for the DV is specified by the Odds Ratio. As depicted in Figure 18 below, every one unit increase in the difference between the company culture and initiative profile corresponds to a 1 percent increase in the odds of seeing a lower value for the DV (perceived success of the initiative).

Figure 18: Odds Ratio and Confidence Interval for Hypothesis 1

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1 slope, B0			
INTRCPT2, G00	-2.902152	0.054905	(0.001,4.852)
CP_COOP, G01	-0.455711	0.633997	(0.154,2.609)
CP_Y_MAX, G02	0.817482	2.264789	(0.762,6.729)
CP_G_MAX, G03	-0.149561	0.861086	(0.149,4.979)
CP_B_MAX, G04	-0.059369	0.942359	(0.308,2.887)
ROI, G05	0.095637	1.100359	(0.626,1.934)
SIZE_EMP, G06	-0.000006	0.999994	(1.000,1.000)
PUBLIC, G07	0.506213	1.658996	(0.467,5.892)
For DIFF_TOT slope, B1			
INTRCPT2, G10	0.006372	1.006392	(1.000,1.012)
For THOLD2,			
d(2)	1.004883	2.731587	(1.931,3.864)
For THOLD3,			
d(3)	2.603210	13.507025	(8.812,20.704)

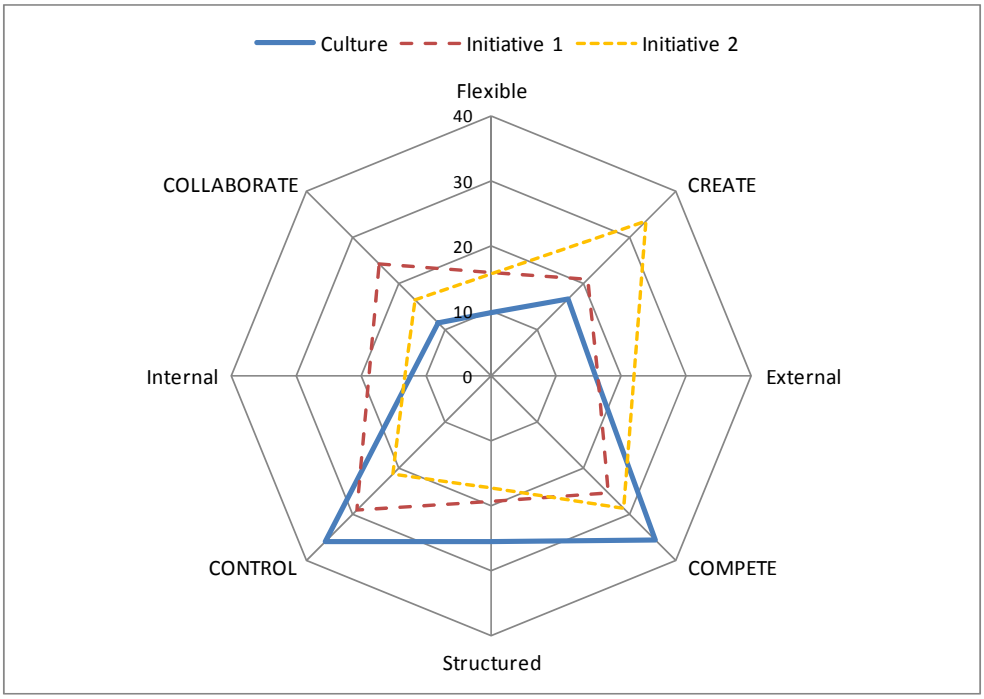
Hypothesis 2: Role of Collaboration in Sustainability Initiatives

Greater similarity between the company's emphasis on collaboration and the initiative's emphasis on collaboration leads to greater success of the initiative.

Observational Approach

Of the study companies observed, 74 percent (17 of 23) identified the initiative with the smaller difference between the company culture and initiative profiles in the Collaborate quadrant as more successful than the initiative with the larger difference between the company culture and initiative profiles in the Collaborate quadrant. That is, the closer the initiative profile is to the company culture profile in the Collaborate quadrant, the more successful that initiative is likely to be.

Figure 19: Sample Company Profile 2 (Initiative 2 More Successful)



In the above example, Initiative 1 (red dashed line) is less congruent than (*i.e.,* more different from) the company culture (blue solid line) than Initiative 2 (orange short dashed line) in the Collaborate quadrant. Employees surveyed at this company also thought Initiative 2 was overall more worthwhile than Initiative 1.

Statistical Approach:

First, we ran a simple correlation between the magnitude of the difference between the company culture and initiative profile in the Collaborate quadrant (diff_y_a) and the measure of perceived initiative success (p_worth2). As illustrated in Figure 20, the degree of difference between the company culture and the initiative profile in the Collaborate quadrant has a significant relationship with the overall success of the initiative. As expected, these variables are negatively correlated, suggesting that as the difference decreases, the measure of success increases.

Figure 20: Correlation between Perceived Success and Congruence in the Collaborate Quadrant

		p_worth2	diff_y_ab
p_worth2	Pearson Correlation	1	-.156**
	Sig. (2-tailed)		.001
	N	479	479
diff_y_ab	Pearson Correlation	-.156**	1
	Sig. (2-tailed)	.001	
	N	479	490

**. Correlation is significant at the 0.01 level (2-tailed).

We then ran an ordinal model to evaluate the impact of the predictive power of the Level 1 difference variable for the Collaborate quadrant (diff_y_a) and Level 2 company variables. Company-level variables include the level of cooperation, number of employees, whether the company is public or private, and the degree to which ROI influences the adoption of sustainability initiatives at the company.

Figure 21: Model Parameters for Hypothesis 2

LEVEL 1 MODEL (bold: group-mean centering; bold italic: grand-mean centering)

Prob[R <= 1|β] = P'(1) = P(1)

Prob[R <= 2|β] = P'(2) = P(1) + P(2)

Prob[R <= 3|β] = P'(3) = P(1) + P(2) + P(3)

Prob[R <= 4|β] = 1.0

P(1) = Prob[P_WORTH2(1)=1|β]

P(2) = Prob[P_WORTH2(2)=1|β]

P(3) = Prob[P_WORTH2(3)=1|β]

$\text{Log}[P'(1)/(1 - P'(1)] = \beta_0 + \beta_1(\text{DIFF\_Y\_A})$

$\text{Log}[P'(2)/(1 - P'(2)] = \beta_0 + \beta_1(\text{DIFF\_Y\_A}) + \delta_{(2)}$

$\text{Log}[P'(3)/(1 - P'(3)] = \beta_0 + \beta_1(\text{DIFF\_Y\_A}) + \delta_{(3)}$

LEVEL 2 MODEL (bold italic: grand-mean centering)

$\beta_0 = \gamma_{00} + \gamma_{01}(\text{CP\_COOP}) + \gamma_{02}(\text{CP\_G\_MAX}) + \gamma_{03}(\text{CP\_B\_MAX}) + \gamma_{04}(\text{CP\_R\_MAX}) + \gamma_{05}(\text{ROI}) + \gamma_{06}(\text{SIZE\_EMP}) + \gamma_{07}(\text{PUBLIC}) + u_0$

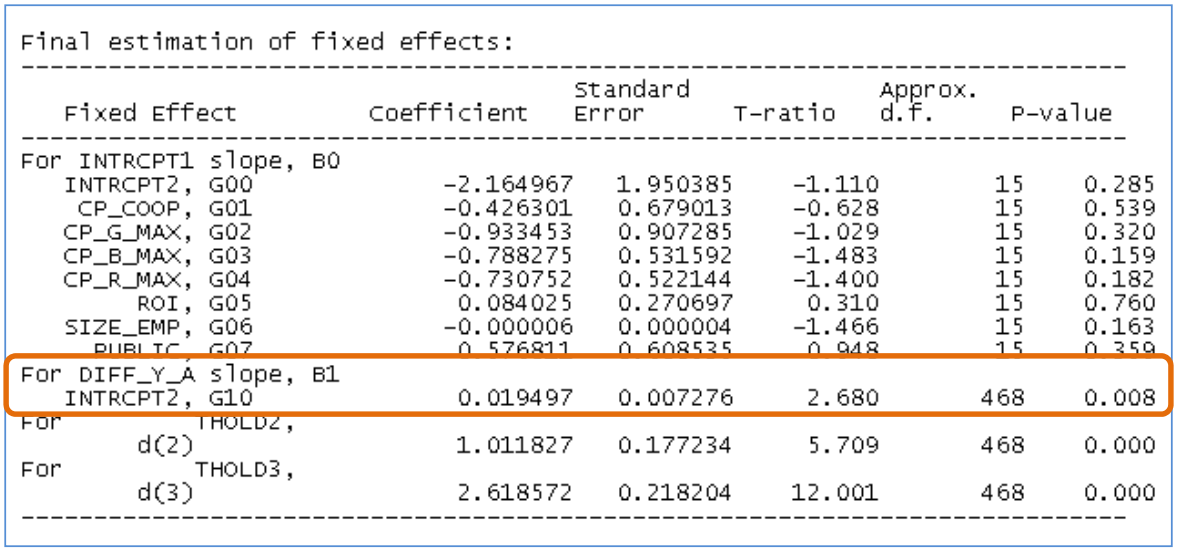
$\beta_1 = \gamma_{10} + u_1$

$\delta_{(2)}$

$\delta_{(3)}$

As illustrated in Figure 22, we found a significant relationship at the .01 level (r = 0.604) between the perceived overall success of an initiative and the difference between the company culture and initiative profile in the Collaborate quadrant. The coefficient for the significant variable (diff_y_a) is positive, as expected. This means, as the difference in the Collaborate quadrant (regardless of direction) between the company culture and the initiative gets bigger, the likelihood of perceived initiative success decreases. None of the company-level variables are significant at the .05 level.

Figure 22: Estimated Fixed Effects and Standard Errors for Hypothesis 2

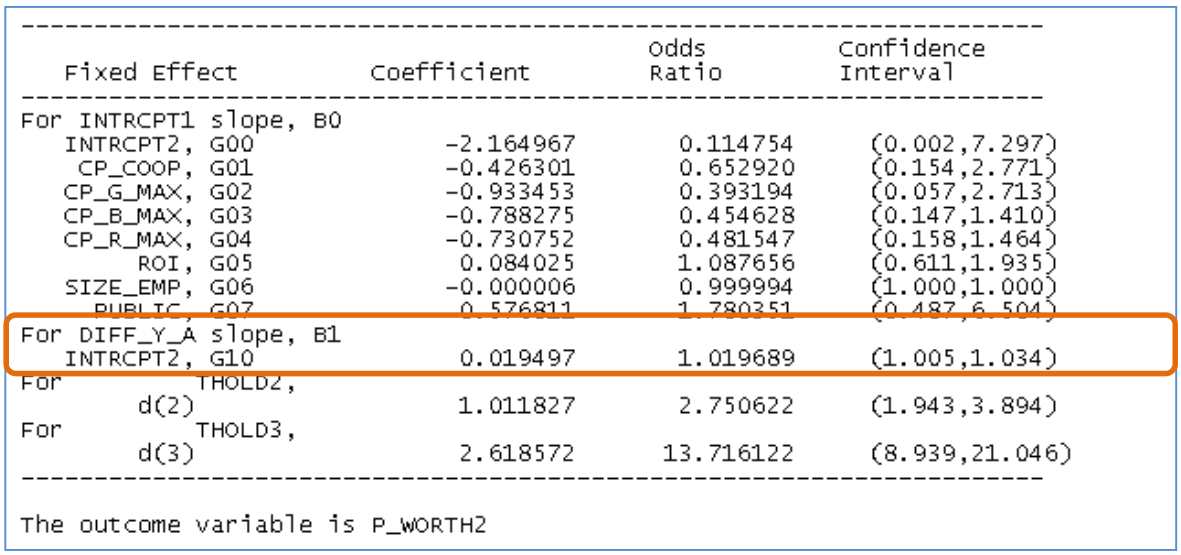


Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1 slope, B0					
INTRCPT2, G00	-2.164967	1.950385	-1.110	15	0.285
CP_COOP, G01	-0.426301	0.679013	-0.628	15	0.539
CP_G_MAX, G02	-0.933453	0.907285	-1.029	15	0.320
CP_B_MAX, G03	-0.788275	0.531592	-1.483	15	0.159
CP_R_MAX, G04	-0.730752	0.522144	-1.400	15	0.182
ROI, G05	0.084025	0.270697	0.310	15	0.760
SIZE_EMP, G06	-0.000006	0.000004	-1.466	15	0.163
PUBLIC, G07	0.576811	0.608535	0.948	15	0.359
For DIFF_Y_A slope, B1					
INTRCPT2, G10	0.019497	0.007276	2.680	468	0.008
For THOLD2,					
d(2)	1.011827	0.177234	5.709	468	0.000
For THOLD3,					
d(3)	2.618572	0.218204	12.001	468	0.000

As depicted in Figure 23 below, every one unit increase in the difference between the company culture and initiative profile in the Collaborate quadrant corresponds to a 1.02 percent increase in the odds of seeing a lower value for the DV (perceived success of the initiative).

Figure 23: Odds Ratio and Confidence Interval for Hypothesis 2



Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1 slope, B0			
INTRCPT2, G00	-2.164967	0.114754	(0.002,7.297)
CP_COOP, G01	-0.426301	0.652920	(0.154,2.771)
CP_G_MAX, G02	-0.933453	0.393194	(0.057,2.713)
CP_B_MAX, G03	-0.788275	0.454628	(0.147,1.410)
CP_R_MAX, G04	-0.730752	0.481547	(0.158,1.464)
ROI, G05	0.084025	1.087656	(0.611,1.935)
SIZE_EMP, G06	-0.000006	0.999994	(1.000,1.000)
PUBLIC, G07	0.576811	1.780351	(0.487,6.504)
For DIFF_Y_A slope, B1			
INTRCPT2, G10	0.019497	1.019689	(1.005,1.034)
For THOLD2,			
d(2)	1.011827	2.750622	(1.943,3.894)
For THOLD3,			
d(3)	2.618572	13.716122	(8.939,21.046)

The outcome variable is P_WORTH2

Although the difference between the company culture and initiative in the Collaborate quadrant is significant, given the level of variance remaining we surmise that there are other company-level variables that could explain variance in the means (*e.g.,* incentives, industry, or history of sustainability at company). And, as the majority of the variance occurs at the person-initiative level, we recognize that the difference in the Collaborate quadrant is not the only important Level 1 factor in determining sustainability initiative success.

Discussion

Our findings have implications for both researchers and practitioners trying to plan and implement sustainability initiatives. We have also identified numerous areas for future research that build on our findings.

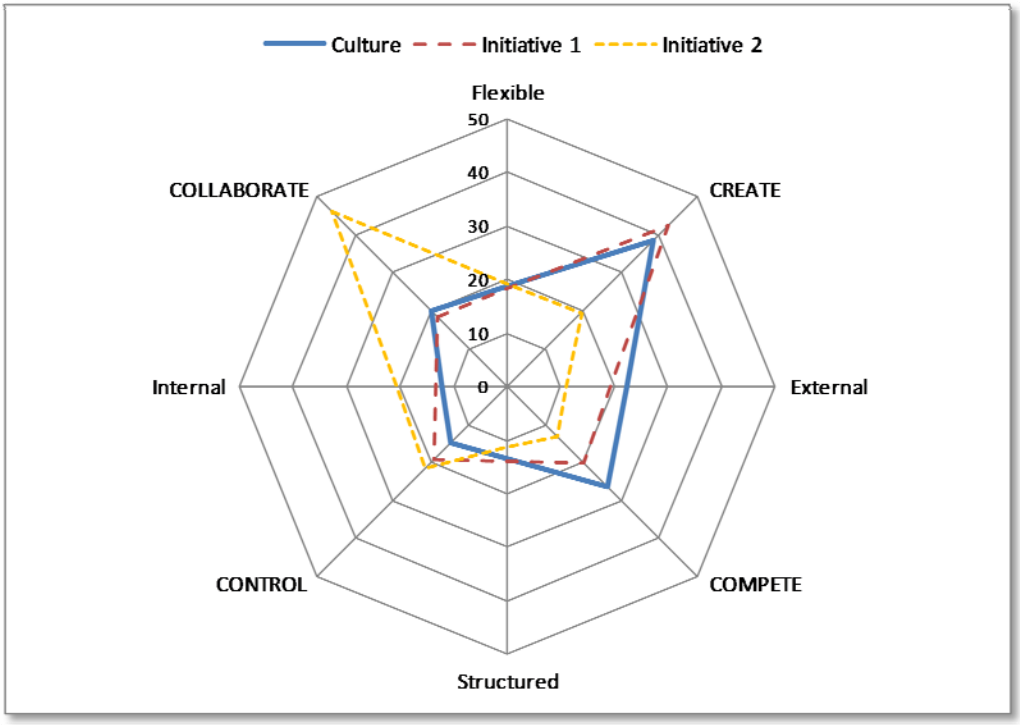
Interpretation of Findings

1. Hypothesis 1 states that greater similarity between company culture and a sustainability initiative will lead to higher success of the initiative. The findings of this study indicate the following:

    a. **There is a relationship between congruence and initiative success**.
    The first question this study sought to answer was whether a relationship exists between cultural congruence and the success of sustainability initiatives within a company. As the findings indicate, there is such a relationship, based on both observational and statistical methods. In other words, this study finds that when it comes to implementing corporate sustainability initiatives, culture does indeed matter. This finding is consistent with the growing interest in organizational behavior and employee engagement in the sustainability field. From Walmart's implementation of Personal Sustainability Projects to professional development presentations with titles such as "The Holy Grail of Sustainable Culture Change: Employee Engagement" and "The Secret Benefit of Sustainability Strategies: Employee Engagement", companies and sustainability professionals are demonstrating a growing interest in this area (Net Impact, 2010). This study offers some empirical validation of the importance of these considerations within companies. The next logical question is, "What is the exact nature of this relationship?"

    b. Greater congruence is associated with greater initiative success.
    Trends observed in the data suggest that a company's sustainability initiatives are more likely to be successful if the initiatives are developed and implemented in a way that is consistent with the company's culture. This finding points to the importance of companies first understanding their culture, and then thinking critically about how to design and implement their sustainability initiatives. This interpretation is consistent with the work of Epstein and Roy (2001) who note, "The alignment of strategy, structure, and management systems are essential for companies to both coordinate activities and motivate employees toward implementing a sustainability strategy." Figure 24 below captures an example of congruence between company culture and an initiative. At this company, employees considered Initiative 1 more successful than Initiative 2.

Figure 24: Sample Company Profile 3 (Initiative 1 More Successful)

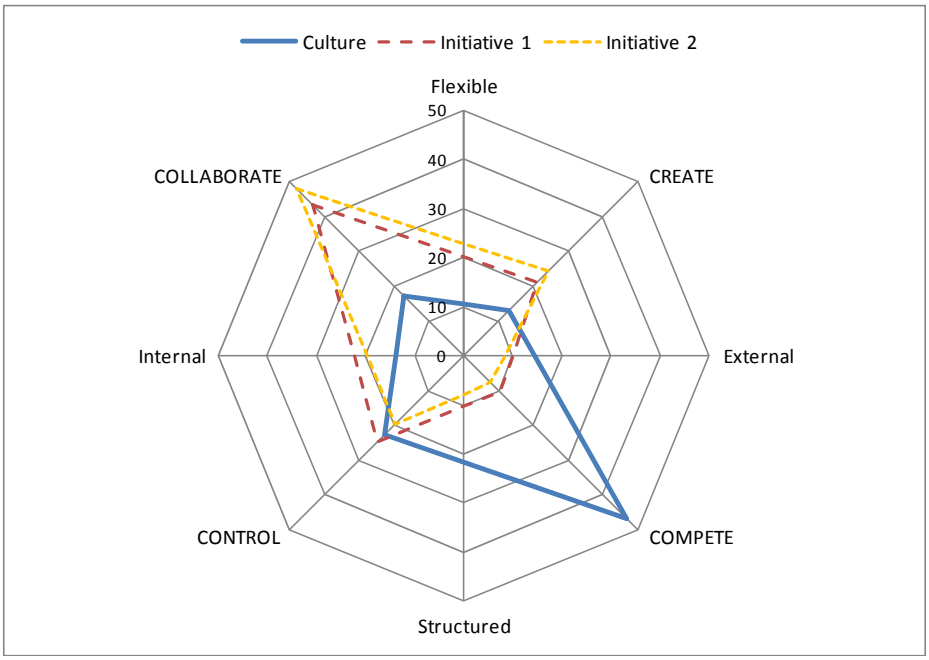


c. Lessons learned from those cases that do not support Hypothesis 1

Although 70 percent of cases were consistent with our hypothesis, there were seven cases in which a smaller difference between company culture and initiative profiles was not associated with the more successful initiative. While these exceptions suggest further research is required, we believe the lack of relationship between congruence and success can be explained in most of these cases.

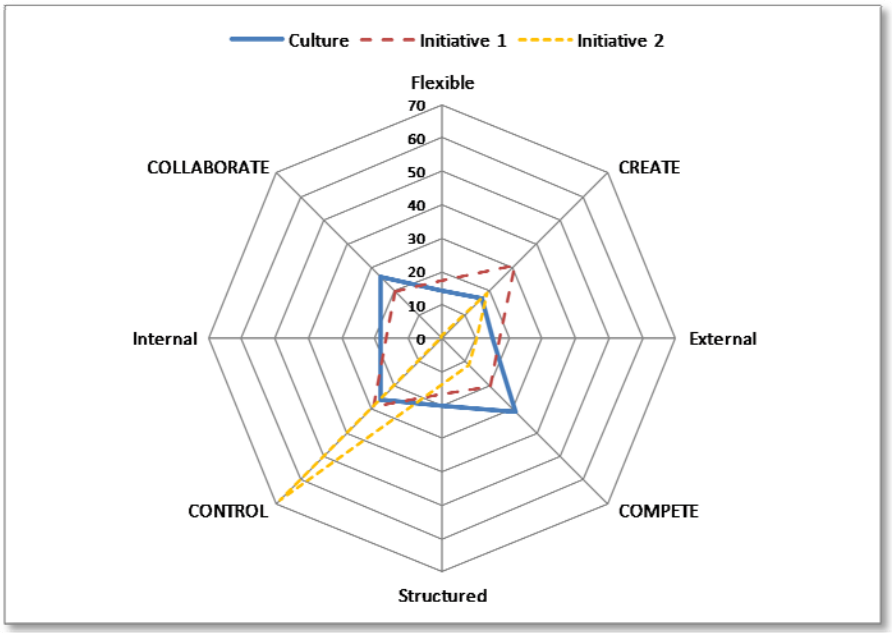
The first exceptional case involves a professional services firm. This firm is the only study company that is entirely service-based, and its culture is representative of its highly competitive industry. During an interview with the company's corporate responsibility director, we discovered that the firm's sustainability efforts are largely driven by employees and are intended to improve recruitment, retention and engagement. At other companies, however, sustainability initiatives are often driven by cost savings, regulatory pressure, competitive pressure, and other factors that are typically represented in other quadrants.

Figure 25: Company Profile for a Professional Services Firm



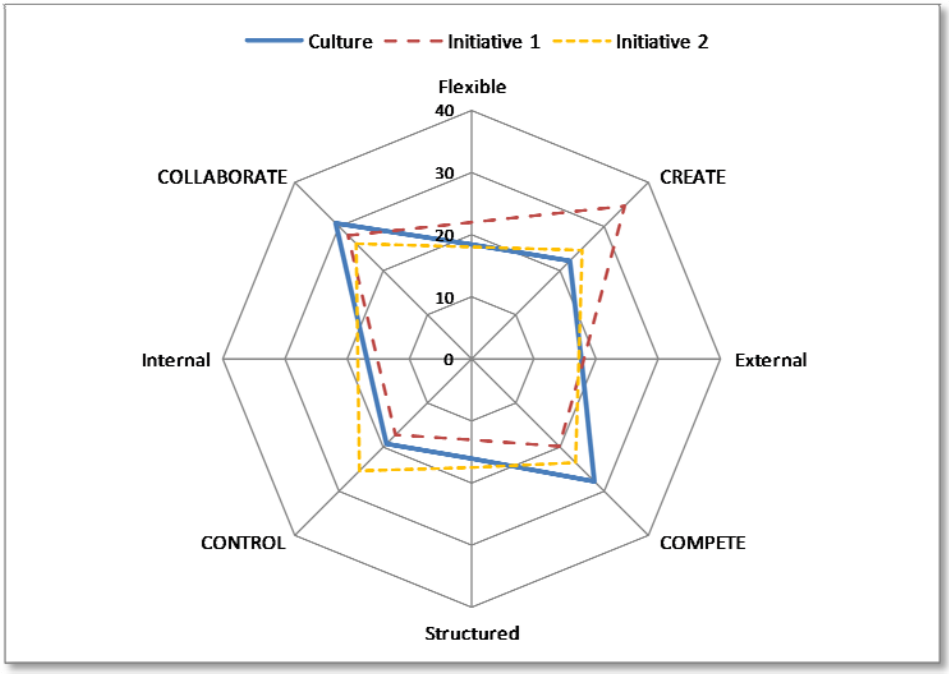
The second exceptional case suggests that a strong external motivation can supersede culture as a determining factor. In research on cooperation, superordinate goals are used to bridge differences across parties in conflict (Wondolleck and Yaffee, 2000). We see a potential superordinate goal in this case since there was a strong regulatory mandate influencing the implementation of the more successful sustainability initiative (Initiative 2). The resulting initiative profile is distinct from the other initiatives in that it is heavily skewed towards one quadrant (Control) while ignoring another quadrant altogether. See Figure 26.

Figure 26: Profile of Initiative Responding to Regulatory Mandate (Initiative 2 More Successful)



Finally, in three of the five remaining cases in which a *larger* difference between the company culture and initiative profiles was associated with the more successful initiative, we observed that the majority of this difference was due to the initiative's strong Create quadrant (Figure 27). This is consistent with the conclusion of numerous researchers that companies will need to innovate new, more efficient and less resource-intensive ways of delivering goods and services in order to become more sustainable (Schaltegger, 1997; Steger, 1998; Ytterhus, 1997). This intuitively makes sense as corporate sustainability is a relatively new field with a lot of room for innovation, which requires forward-thinking characteristic of this quadrant.

Figure 27: Profile of a Company with More Successful Initiative in Create Quadrant



2. Hypothesis 2 states that greater similarity between the company's emphasis on collaboration and the initiative's emphasis on collaboration leads to greater success of the initiative. The findings of this study indicate the following:

    a. **There is a strong relationship in the Collaborate quadrant between congruence and success of sustainability initiatives.**
    While the degree of total difference across the CVF quadrants is important, its predictive nature is driven largely by the difference in the Collaborate quadrant. The Collaborate quadrant measures the level of factors such as teamwork, mentoring, support, communication, empowerment, and listening at a company or in an initiative. As existing research indicates, collaboration is particularly critical to the implementation of sustainability initiatives due to their cross-functional, complex, and voluntary nature.

b. Greater congruence in the Collaborate quadrant is strongly associated with greater success of sustainability initiatives

As the difference between the initiative and company culture profiles in the Collaborate quadrant decreases, the likelihood of initiative success increases. This implies that successful sustainability initiatives do not necessarily require a high degree of collaboration in the company nor a high degree of collaboration in the initiative, but rather the degrees of collaboration in the company and the initiative need to match. Both observational and statistical analyses of the data support this conclusion.

This finding could point to the role that psychological contracts play in organizational effectiveness. Psychological contracts are a set of perceived obligations and are founded on trust (Robinson, 1996). The characteristics of the Collaborate quadrant speak to critical components of building trust between employees and managers. Thus, a larger difference between the initiative and company culture in the Collaborate quadrant could challenge the psychological contract that employees have with their company. Trust is very important for engagement in activities, such as many sustainability initiatives, that are not required as part of the primary job function (Macey and Schneider, 2008). Studies have found that challenging the psychological contract is correlated with declining employee engagement (Turnley and Feldman, 2000; Kickul and Lester, 2001). Decreased engagement negatively impacts employee performance and outlook.

The above theory is particularly relevant to sustainability initiatives, which often require employees to participate in tasks that are not included in their primary job description. For example, if a company has a less collaborative culture and tries to implement an initiative that is largely collaborative, it may struggle to generate the voluntary, flexible, and informal participation that such initiatives require.

Prescriptive Guidance for Practitioners

When placed in the larger context of corporate sustainability, the above interpretations suggest there are dimensions to consider when designing and implementing initiatives that are not currently a part of the traditional corporate management paradigm.

Traditional Approach to Initiative Planning and Implementation

In a 2009 review of leading project management journals, factors identified as critical to project success include elements of organizational culture (*e.g.,* characteristics of the project team leader, power, and politics) but do not address organizational culture directly (Ika, 2009). In a separate study, Yazici found that "there is very little research conducted on the role of organizational culture in project management. Despite the extensive research in project management processes and techniques, as well as in project leadership, organizational culture is largely under examined in project management research" (Yazici, 2009).

This finding is consistent with many project implementation frameworks in use today. For example, the revised Logical Framework Approach-Millennium references culture in the project design process but only in the context of “today’s corporate culture.” The authors do not suggest catering initiative design to a specific type of company culture. Additionally, while acknowledging the importance of understanding an initiative’s context, the authors suggest exploring that context through traditional

means such as SWOT analysis (Jean Couillard et al., 2009). Epstein and Roy (2001) propose a framework for developing and implementing sustainability initiatives, but while organizational culture is noted, the authors primarily view culture as a lever through which to improve an organization's overall environmental performance rather than a means of guiding initiative planning and implementation.

Through interviews with our study companies, we found that a wide range of processes and tools are used to vet, plan, and implement sustainability initiatives, such as

- materiality matrices,
- financial (ROI) analysis,
- decentralized decision-making to meet corporate targets,
- approval by council, and
- unilateral decision-making.

Furthermore, many participants said that the processes used to vet, plan, and implement sustainability initiatives depend on the type, scope, and capital requirements of the initiative.

Participants generally recognized that it was important to implement initiatives in a way that is compatible with their company's culture, often stating that they ask themselves, "Would this work here?" as part of the planning process. Similarly, many participants said that company leadership sets corporate goals and then allows business units and local facilities to decide how to reach those goals. Both of these approaches suggest that culture is implicitly considered in the development of sustainability initiatives. However, none of the companies interviewed systematically considered company culture as part of the initiative development and implementation process.

Making the change: Laying the groundwork for success

Planning and implementing successful sustainability initiatives requires the same considerations as any change management process. Prior to exploring the cultural issues that can help or hinder the success of an initiative, practitioners should think about the specific context for their change management efforts:

- Follow best practices for change management to ready the organization for change.
- Identify key internal stakeholders and determine whether they understand the value of a change process that explicitly considers culture.
- To generate buy-in, refer to evidence linking culture and organizational effectiveness (p. 5) and any examples in your company when a mismatch between the initiative and organizational culture led to challenges.

Considering Company Culture in Initiative Design and Implementation

As noted in the literature review, company culture requires a long time to change. Therefore, this section focuses on guidance for near-term initiative planning and implementation rather than culture change.

While traditional means of vetting initiatives should not be ignored, the process below suggests additional considerations to further the likelihood that a sustainability initiative will succeed. The questions in Figure 28 are intended to help practitioners start thinking about cultural issues that can help or hinder the success of sustainability initiatives. It is worth noting that the process we suggest supplements the existing body of knowledge on organizational change (see sidebar).

Figure 28: Incorporating Culture into Initiative Planning and Implementation

- ✓ **Assess your company culture**
  - Use a culture assessment tool such as the Competing Values Framework that considers multiple dimensions of an organizations culture (*e.g.,* leadership, dominant characteristics, and criteria for success).
- ✓ **Plan initiative with company culture in mind**
  - How are ideas for new initiatives generated and developed?
  - What are the expectations for how employees will participate in the initiative?
  - How will initiative success be measured and recognized?
- ✓ **Implement and communicate initiative with company culture in mind**
  - What type of leader should drive this project or program?
  - Who should monitor and evaluate the initiative?
  - How should project objectives and outcomes be articulated internally?

For practitioners interested in aligning initiatives and culture, Figure 29 provides examples of specific planning and implementation tactics organized according to the Competing Values Framework. For example, if a company has assessed its culture and knows that it is strong in the Compete quadrant, it might consider a competitive means of idea generation (*e.g.,* a contest between individuals or business units). This increases the likelihood of congruence between the initiative and pervading company culture, and accordingly increases the likelihood of initiative success.

The sample tactics below are based on our professional experience and suggestions found in Cameron and Quinn's research on implementing change within organizations (2006). We recognize that these tactics are not appropriate for all situations as each company is unique. Instead, they are meant to prompt discussion around incorporating culture into initiative planning and implementation.

Figure 29: Matching Your Initiative to Your Organizational Culture

Collaborate Tactics

How Initiative Begins	• Facilitate group brainstorming sessions • Establish or improve employee suggestion and feedback system • Develop an online internal collaboration platform
Expectations for Participants	• Create a cross-functional working group to facilitate idea-sharing and relationship building between employees • Involve multiple levels of the company in strategic planning process
Leadership of Initiative	• Emphasize teamwork and mentoring • Ensure follow up on employee suggestions and input
Criteria for Success	• Assess the success of the team process in planning and implementation of the initiatives • Create metrics focused on employee development

continued

Create Tactics

How Initiative Begins	• Utilize web 2.0 and crowd sourcing to generate new ideas faster • Create a training program to cultivate creative thinking
Expectations for Participants	• Set expectations that employees view themselves as novel problem-solvers • Develop systems to encourage innovation (*e.g.,* designated time for personal projects)
Leadership of Initiative	• Encourage a focus on managing for the future vs. short-term planning • Emphasize organizational agility and innovation • Incorporate iterative learning into program evaluation
Criteria for Success	• Assess how transformational rather than incremental impact of initiative • Track the amount of time spent on discussing future-oriented topics vs. current or past-oriented topics • Create metrics focused on revenue or cost savings generated from new products or services launched

Compete Tactics

How Initiative Begins	• Establish goals, objectives, and measures based on company vision and standards • Benchmark performance against initiatives of key competitors • Use competitive means for project idea generation, such as a contest between individuals or teams
Expectations for Participants	• Track activities of individuals and regularly provide feedback that compares performance among others individuals, teams, or business units • Set expectations that employees will regularly be held accountable to project goals and metrics
Leadership of Initiative	• Emphasize achievement of stretch goals • Recognize top-performing employees through events or communications
Criteria for Success	• Develop metrics focused on key industry targets such as greenhouse gas emissions or solid waste reduction • Assess how the initiative contributes to overall company strategy and competitiveness

Control Tactics

How Initiative Begins	• Analyze or audit existing processes and environmental impacts (*e.g.,* life cycle analysis) • Review existing policies for procedural inefficiencies and opportunities • Understand relevant regulations and associated risk exposure
Expectations for Participants	• Set expectation that employees will recognize and act to reduce system waste, disruption, and inefficiencies • Clearly communicate accepted company structures and procedures
Leadership of Initiative	• Emphasize system optimization, coordination, structure, and smooth-running efficiency • Empower business units to analyze and adjust initiatives as needed
Criteria for Success	• Create metrics focused on ongoing reduction of the company's environmental footprint • Track adherence to environmental regulations

Benefits of Counter-Culture Initiatives

While there may be additional challenges posed by counter-culture initiatives, some practitioners may choose to experiment with counter-culture initiatives as part of longer term cultural change effort. For example, a national insurance carrier recently moved to a collaborative sales planning process in an effort to better understand local market opportunities. In addition to developing market-specific strategies, this initiative is also working to institutionalize greater collaboration across divisions in a Compete- or Control-dominant company, with the goal to increase trust, creativity, and revenue in the long term.

Areas for Future Research

Findings from this study also suggest additional areas for continued research:

1. What is the impact of framing on the success of sustainability initiatives? The way an initiative is described internally may affect its relationship to culture, so research on how issues are framed and the elements of the initiative that lead to a certain kind of framing may be of interest to researchers. For example, an initiative could have been well marketed internally, so employees *think* it was successful. Likewise, if an initiative is framed as a sustainability initiative, are participants more satisfied with a collaborative approach? Would this differ if it were framed as an efficiency or cost-saving initiative?

2. What is the impact of additional variables not measured in this study, such as financial incentive plans, the presence of an organizational change strategy to integrate sustainability into corporate culture and daily practices, the degree of individual change required by an initiative, the industry, and a history of high-profile environmental crises at a company?

3. Do certain types of company cultures lead to more successful sustainability initiatives?

4. How are *all* employees engaged in sustainability and what are the implications for creating effective green teams and implementing effective sustainability initiatives?

5. What additional relationships can be identified through a larger sample size? Expanding the sample size could allow for exploration of additional research questions. For example, the majority of companies in this study are dominant in the lower half of the CVF (Control/Compete). In addition, a larger sample could also investigate whether success is predicted by the kind of initiative (*e.g.,* emissions reduction project vs. green team formation).

6. What is the impact of corporate size and scope of initiatives? In this study, company size and engagement in sustainability varied significantly.

7. How do objective measures of sustainability alter the relative success of the initiative? In the future, we expect that more robust objective measures of sustainability success will exist as environmental accounting systems improve. Consequently, subjective measures could be supplemented by objective measures of initiative success.

Summary and Conclusion

Corporate culture is an important driver of organizational effectiveness, yet little empirical research has been done to apply this relationship to the field of corporate environmental sustainability. Using the Competing Values Framework, this study found statistically significant evidence of the relationship between company culture and the success of environmental sustainability initiatives.

In our survey of 23 companies, we found that sustainability initiatives are more successful when the initiatives are developed and implemented in a way that is generally consistent with the company's culture. In particular, sustainability initiatives are more successful when they closely match the level of collaboration that occurs within a company; that is, a collaborative initiative is likely to be more successful in a collaborative company, while a less collaborative initiative is likely to be more successful in a less collaborative company.

These findings suggest that cultural dimensions should be considered when designing and implementing sustainability initiatives. Since changing company culture requires sustained effort over a long period of time, we recommend that initiatives should be planned and implemented to match the company culture to achieve near-term success. We also recommend future research into the impact of framing on the success of sustainability initiatives and the predictive value of company-level factors such as incentive plans, industry, and history with environmental issues.

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Appendices

Appendix A: Sample Lead Survey

Consent to Participate in Research Study: Investigating the relationship between company culture and the efficacy of sustainability initiatives

Principal Investigator: Ryan Whisnant, MBA/MS candidate, University of Michigan
Co-investigator: Anna Coldham, MBA/MS candidate, University of Michigan
Co-investigator: Liz Abbett, MBA/MS candidate, University of Michigan
Faculty Advisor: Kim Cameron, PhD, William Russell Kelly Professor of Management and Organizations
Faculty Advisor: Andy Hoffman, PhD, Holcim (US) Professor of Sustainable Enterprise, University of Michigan

Purpose
This research team at the University of Michigan invites you to participate in a research study investigating the relationship between company culture and the efficacy of sustainability initiatives. This study is being conducted to fulfill the requirements for our master's degrees from the School of Natural Resources and Environment and to help companies design and implement successful sustainability initiatives. The objective of the study is to determine whether there are any relationships between the internal culture at a company and the effectiveness of sustainability initiatives within the company.

Your Role
Your company was identified as one that may have implemented sustainability initiatives, either past or present. In the following 7 minute online survey, we ask you, as a sustainability leader within your company, to answer a few background questions about your company and its sustainability initiatives. The results of this survey will be used to populate a 15-20 minute online survey that we will send to you in a couple days. We ask that you complete this second survey and forward it to approximately 20 of your colleagues.

Benefits to Participants
Your company stands to directly benefit from participating in this study in two ways: First, your company will receive the aggregated survey results for your company (including a cultural profile, sustainability initiative profiles and associated success metrics) and preliminary data interpretation. In addition, your company will receive the final report and conclusions aggregated across all study companies. This information could be used to improve your company's approach to sustainability and lead to more successful initiatives.

Data Use and Privacy
There are no identified risks associated with this study because data collection is completely anonymous. We plan to publish the results of this study, but will not include any information that connects companies or employees to their survey responses. There may be some reasons why people other than the researchers will need to see information you provide as part of the study. This includes organizations responsible for making sure the research is done safely and properly, such as the University of Michigan or government offices.

To keep your information safe, employees' data will not be uniquely identifiable. Data will be aggregated anonymously across companies and within the company. The data provided in the survey will be encrypted and stored on a secure, password-protected computer. The researchers will retain the data for two years. The researchers will then dispose of your data by deleting it from all computers and shredding any paper files.

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. If you decide to withdraw early and provide written request to the researchers, your data will be destroyed per the means indicated above.

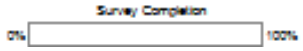
If you have questions about this research, including questions about the survey or the deadline for completion, you may contact Ryan Whisnant, MBA/MS candidate, University of Michigan at whisnant@umich.edu or 425-417-8170. You may also choose to contact the research team's faculty advisor Prof. Kim Cameron at kim_cameron@umich.edu or 734-615-5247.

If you have questions about your rights as a research participant, please contact the University of Michigan Institutional Review Board Health Sciences and Behavioral Sciences, 540 E Liberty, Ste 202, Ann Arbor, MI 48104-2210, (734) 936-0933 [toll free (866) 936-0933] or irbhsbs@umich.edu.

By clicking on the button below, you are consenting that you have authority to participate in this research study and allow the data to be used for the purposes of this study. Be sure that any questions you have about the study have been answered and that you understand what you are being asked to do. Should you have any questions either now or later, you may contact the researcher directly.

By clicking the ">>" button below, I agree to participate in the study.

If you do not wish to participate, click the 'x' in the top corner of your browser to exit.

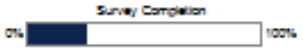


Background Information:

Your name

Your company

Who does the sustainability lead/sustainability team report to at your company?



Sustainability Initiatives - Most and Least Successful:

For this study, "sustainability initiative" is defined as a *past or present* program or project within the company to *reduce environmental impact* (e.g., less energy needed, less waste produced, inputs are environmentally preferable).

Specifically, initiatives for this study should be:

- **Tactical** (e.g., improving energy efficiency of buildings) rather than strategic (e.g., integrating sustainability into business planning)
- **Internal** operational commitments and impact (rather than public- or consumer-facing messages or partnerships)

The purpose of this narrow definition is to focus on the implementation of a company's approach to sustainability, regardless of what drives it or promotes it (e.g., an overarching sustainability strategy, desire for public recognition, or set of ad hoc activities).

Of the initiatives you identified in the prior questions, select two of the most successful sustainability initiatives, based on your opinion.

#1: Name of One of the Most Successful Sustainability Initiatives	
#1: Year Initiative Began	
#1: Goal(s) of Initiative	
#1: Brief Description of Initiative Implementation (used to help identify initiative in follow up Team Survey)	
#2: Name of Another Successful Sustainability Initiative	
#2: Year Initiative Began	
#2: Goal(s) of Initiative	
#2: Brief Description of Initiative Implementation (used to help identify initiative in follow up Team Survey)	

Of the initiatives you identified in the prior questions, select two of the least successful sustainability initiatives, based on your opinion.	
#1: Name of One of the Least Successful Sustainability Initiatives	
#1: Year Initiative Began	
#1: Goal of Initiative	
#1: Brief Description of Initiative Implementation (used to help identify Initiative in Team Survey)	
#2: Name of Another Less Successful Sustainability Initiative	
#2: Year Initiative Began	
#2: Goal of Initiative	
#2: Brief Description of Initiative Implementation (used to help identify Initiative in Team Survey)	

Please note any additional comments below:

Do sustainability initiatives require a formal ROI analysis in order to be implemented at your company?

- Always
- Generally
- Sometimes
- Rarely
- Never

Would you like to receive a customized company report, including profiles of sustainability initiatives at your company and how they relate to the culture of those who are implementing such initiatives?

- Yes
- No

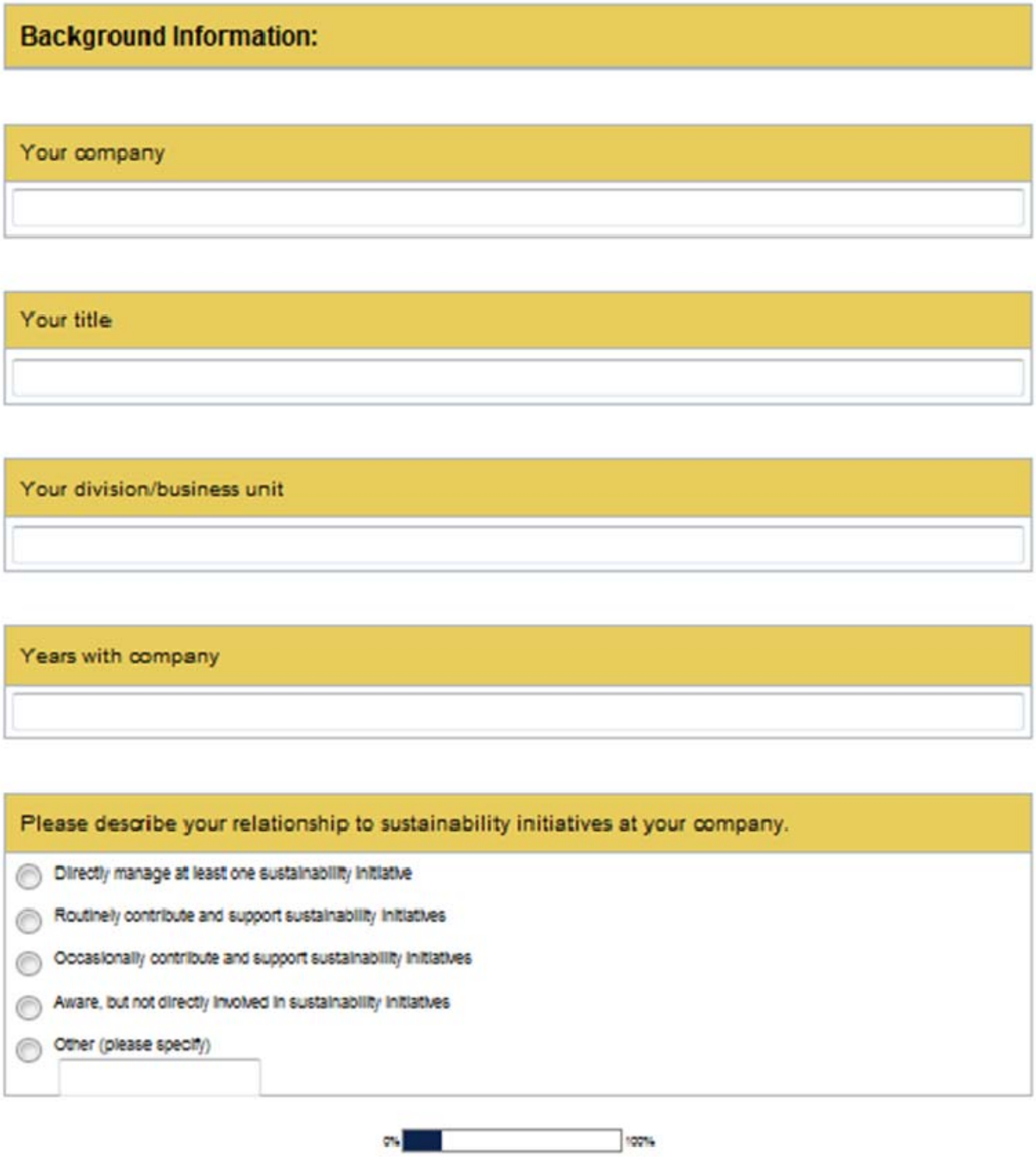
Would you like to receive a copy of the final report and findings?

- Yes
- No

Thank you for your time and participation. The initiatives identified above will be used to gather more detailed feedback from your colleagues.

Appendix B: Sample Team Survey

[See notice of consent from Lead Survey]



Company Information:

There are many cultural aspects to a company (*e.g.*, its goals, type of leadership). For each aspect noted below, divide 100 points between the four statements depending on how similar the statement is to your company (100 is very similar and 0 is not at all similar to your company).

The total points for each question must equal 100.

For example:

Question Title
Statement # 1 = 75
Statement # 2 = 10
Statement # 3 = 15
Statement # 4 = 0
Total = 100

Dominant Characteristics	
The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.	0
The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.	0
The organization is very results-oriented. A major concern is with getting the job done. People are very competitive and achievement-oriented.	0
The organization is a very controlled and structured place. Formal procedures generally govern what people do.	0
Total	0

Organizational Leadership	
The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.	0
The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.	0
The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	0
The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.	0
Total	0

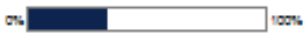
Organization Glue	
The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.	0
The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	0
The glue that holds the organization together is the emphasis on achievement and goal accomplishment.	0
The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.	0
Total	0

Criteria for Success	
The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern fo people.	0
The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.	0
The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	0
The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critica	0
Total	0

In general, how would you describe the existing level of cooperation across departments within your company?

- ◯ Very High
- ◯ High
- ◯ Moderate
- ◯ Low
- ◯ Very Low

Comments, if any, on the above:



Describing and Assessing Sustainability Initiatives:

We would now like to better understand a few of the sustainability initiatives that your company has undertaken.

For this study, "sustainability initiative" is defined as a past or present effort within the company to reduce environmental impact (*e.g.*, less energy needed, less waste produced, inputs are environmentally preferable).

The following 2 initiatives were provided by one or more of your colleagues. For each initiative, we will ask you four questions about its characteristics and your assessment of its success.

Initiative #1: NAME
Began in (DATE). Description here.

Initiative #2: NAME
Began in (DATE). Description here.

Initiative #1: NAME
Year Initiative Began:
Goal of Initiative: From Lead Survey
Description: From Lead Survey (combine with above if same as goals)

There are many aspects to a corporate initiative (*e.g.*, how it began, measures of success). For each aspect noted below, divide 100 points between the four statements depending on how similar the statement is to Initiative #1 (100 is very similar and 0 is not at all similar to the initiative).

The total points for each question must equal 100.

For example:

Question Title
Statement # 1 = 75
Statement # 2 = 10
Statement # 3 = 15
Statement # 4 = 0
Total = 100

[Insert Name of Initiative 1]: How Initiative Began	
The initiative began as a grassroots movement or through employee feedback on how to improve the sustainability of business and employee practices.	0
The initiative was started by a person or small group that developed an innovative approach to a sustainability issue.	0
The initiative began as a mandate from management stemming from a desire to outperform competitors on sustainability metrics and claims.	0
The initiative began in order to improve processes, as a response to environmental regulation, or to manage risk.	0
Total	0

[Insert Name of Initiative 1]: Initiative Participants	
The initiative participants share and engage a lot of themselves while working on this initiative. Emphasis is on the development of awareness and capability of people within the organization.	0
The initiative participants are dynamic, entrepreneurial and willing to stick their necks out. Emphasis is on developing new products or services that are environmentally preferable to current options.	0
The initiative participants are results-oriented and competitive. Emphasis is on outperforming competition and achieving sustainability goals and market gains through improved sustainable business practices.	0
The initiative participants rely on structure and procedures. Emphasis is on using tried-and-true methods for meeting sustainability metrics, satisfying environmental regulations, and smoothly integrating the initiative into existing procedures.	0
Total	0

[Insert Name of Initiative 1]: Leadership of Initiative	
The leaders of this initiative exemplify stakeholder facilitation and mentoring of employees on sustainability.	0
The leaders of this initiative exemplify entrepreneurship, innovation, and risk taking in generating sustainability solutions.	0
The leaders of this initiative exemplify a no-nonsense, aggressive, results-oriented focus on sustainability goals.	0
The leaders of this initiative exemplify coordination, structure and smooth-running efficiency.	0
Total	0

[Insert Name of Initiative 1]: Criteria for Success for Initiative	
Success means employees "own" the initiative and support each other as they act on it. The initiative promotes engagement and meaning in work by creating a more sustainable company.	0
Success means innovating new solutions and approaches. The initiative reduces the footprint of the company through a new-to-the-world technology or process.	0
Success means achieving the best sustainability performance compared to the competition, whether among business units or among industry competitors.	0
Success means efficient implementation. The initiative improves adherence to environmental regulations and reduces the company's environmental footprint through gains in efficiency.	0
Total	0

Please rate to what extent you agree or disagree with the following statements about the *[Insert Name of Initiative 1]* initiative.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	I Don't Know
"I think this initiative was worth doing."	○	○	○	○	○	○	○	○
"This initiative significantly reduced the company's environmental impact (e.g., reduced energy, inputs, waste)."	○	○	○	○	○	○	○	○
"This initiative significantly improved the company's bottom line."	○	○	○	○	○	○	○	○
"This initiative significantly improved employee awareness and/or morale."	○	○	○	○	○	○	○	○

Please include any other comments you would like to share about the *[Insert Name of Initiative 1]* initiative in the space below.

0% 100%

Initiative #2: NAME
Year Initiative Began:
Goal of Initiative: From Lead Survey
Description: From Lead Survey (combine with above if same as goals)

There are many aspects to a corporate initiative (*e.g.*, how it began, measures of success). For each aspect noted below, divide 100 points between the four statements depending on how similar the statement is to Initiative #2 (100 is very similar and 0 is not at all similar to the initiative).

The total points for each question must equal 100.

For example:

Question Title
Statement # 1 = 75
Statement # 2 = 10
Statement # 3 = 15
Statement # 4 = 0
Total = 100

[Insert Name of Initiative #2]: How Initiative Began	
The initiative began as a grassroots movement or through employee feedback on how to improve the sustainability of business and employee practices.	0
The initiative was started by a person or small group that developed an innovative approach to a sustainability issue.	0
The initiative began as a mandate from management stemming from a desire to outperform competitors on sustainability metrics and claims.	0
The initiative began in order to improve processes, as a response to environmental regulation, or to manage risk.	0
Total	0

[Insert Name of Initiative #2]: Initiative Participants	
The initiative participants share and engage a lot of themselves while working on this initiative. Emphasis is on the development of awareness and capability of people within the organization.	0
The initiative participants are dynamic, entrepreneurial and willing to stick their necks out. Emphasis is on developing new products or services that are environmentally preferable to current options.	0
The initiative participants are results-oriented and competitive. Emphasis is on outperforming competition and achieving sustainability goals and market gains through improved sustainable business practices.	0
The initiative participants rely on structure and procedures. Emphasis is on using tried-and-true methods for meeting sustainability metrics, satisfying environmental regulations, and smoothly integrating the initiative into existing procedures.	0
Total	0

[Insert Name of Initiative #2]: Leadership of Initiative	
The leaders of this initiative exemplify stakeholder facilitation and mentoring of employees on sustainability.	0
The leaders of this initiative exemplify entrepreneurship, innovation, and risk taking in generating sustainability solutions.	0
The leaders of this initiative exemplify a no-nonsense, aggressive, results-oriented focus on sustainability goals.	0
The leaders of this initiative exemplify coordination, structure and smooth-running efficiency.	0
Total	0

[Insert Name of Initiative #2]: Criteria for Success for Initiative	
Success means employees "own" the initiative and support each other as they act on it. The initiative promotes engagement and meaning in work by creating a more sustainable company.	0
Success means innovating new solutions and approaches. The initiative reduces the footprint of the company through a new-to-the-world technology or process.	0
Success means achieving the best sustainability performance compared to the competition, whether among business units or among industry competitors.	0
Success means efficient implementation. The initiative improves adherence to environmental regulations and reduces the company's environmental footprint through gains in efficiency.	0
Total	0

Please rate to what extent you agree or disagree with the following statements about the *[Insert Name of Initiative #2]* initiative.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	I Don't Know
"I think this initiative was worth doing."	○	○	○	○	○	○	○	○
"This initiative significantly reduced the company's environmental impact (e.g., reduced energy, inputs, waste)."	○	○	○	○	○	○	○	○
"This initiative significantly improved the company's bottom line."	○	○	○	○	○	○	○	○
"This initiative significantly improved employee awareness and/or morale."	○	○	○	○	○	○	○	○

Please include any other comments you would like to share about the *[Insert Name of Initiative #2]* initiative in the space below.

Thank you for your time and participation.

Appendix C: Company Engagement Materials

Project Marketing

"How can my company
make **sustainability**
a **success**?"

Help us find the answer.

Purpose of study Sustainability is increasingly rising to the top of the corporate agenda, and different companies are approaching sustainability in different ways. Some of these approaches are tremendously successful while others fail to gain traction. We believe that organizational culture plays a critical role, and we invite you to participate in a study to help discover relationships between company culture and successful sustainability initiatives.

What you get In addition to supporting groundbreaking sustainability research, your company stands to directly benefit from this study. First, you will receive a customized company report, including profiles of sustainability initiatives at your company and how they relate to the culture of those who are implementing such initiatives. In addition, you will receive the final report and conclusions based on data from multiple study companies. We hope this information could be used to improve your company's approach to sustainability.

How you can help This research study is based on a cultural framework that has been used by more than 1,500 companies in the past 20 years and has linked company culture to merger success as well as financial and quality performance. We have developed a brief online survey based on this framework, and should your company choose to participate, we would use this survey to gather insights and opinions from approximately 20 employees who are familiar with your company's sustainability initiatives. All company information will remain anonymous and will be used in aggregate for data analysis.

For more information or to sign up for this study, email SustainabilitySuccess@umich.edu.

"From my experience, a company's culture is critical to whether it can successfully integrate 'sustainability' into its corporate strategy. This study will properly investigate this notion and should provide valuable insights for those companies that see opportunity in going down this path."

Steven W. Percy
Retired CEO, BP America

"The results of this study could hold promise for making a unique contribution to the sustainability conversation and provide real guidance to help companies best approach their sustainability strategy."

Andrew J. Hoffman
Holcim (US) Professor of Sustainable Enterprise, University of Michigan

ERB INSTITUTE
FOR GLOBAL SUSTAINABLE ENTERPRISE
UNIVERSITY OF MICHIGAN

UNIVERSITY OF MICHIGAN
NATURAL RESOURCES AND ENVIRONMENT

Sample Solicitation Letter

Hi [Contact]-

My name is [Liason], and I am writing on behalf of the Erb Institute and the School of Natural Resources and Environment at the University of Michigan. I got your contact information from [Contact], who mentioned that you might have some interest in research that I'm currently conducting. I am part of a MBA/MS graduate student team that is researching the impact that company culture has on the efficacy of sustainability initiatives. I think he may have forwarded the details, but just in case here's some background on the study:

Benefits to Participants
Our end goal is to help companies better understand the impact that their culture has on their sustainability initiatives and provide prescriptive guidance for approaching such initiatives most effectively. All company information will remain anonymous and will be used in aggregate for data analysis. From this research, you would receive a unique sustainability culture profile and summary of how your sustainability initiatives relate to this profile. We would also be glad to send you a copy of our final report.

Our Area of Interest
No matter how well intentioned or well organized a sustainability plan may be, many sustainability initiatives fail to gain traction within companies. We believe that part of the answer to this problem may lie in organizational culture. Our review of industry and academic literature has identified a gap in the research on organizational culture and its impact on the effectiveness of sustainability initiatives. The purpose of our study is to address this gap. In particular, we hope that the results of this survey will improve understanding of the organizational culture and characteristics that help companies find success in achieving their sustainability goals.

Our Request
We would like your help completing a 15-20 minute online survey, designed to help us identify and assess corporate sustainability initiatives and the relationship of such initiatives to broader company culture. The survey is designed to be completed by 10 employees within your company who (1) have some familiarity with your sustainability initiatives, and (2) represent as many of the departments involved in the design and implementation of sustainability initiatives as possible. As a first step, one person very familiar with the company's sustainability initiatives will fill out a single preliminary 5-10 minute survey identifying the initiatives.

Your Response
If you are interested in participating in this exciting research, please respond to me at your earliest convenience. I would be more than happy to answer any questions you may have. I can be reached directly via email or phone as follows:

Email: uniquename@umich.edu
Phone: xxx-xxx-xxxx

You can reach any member of our team at the following address: SustainabilitySuccess@umich.edu

Thank you in advance for your consideration and I look forward to your response.

Sample Lead Survey Email

Hi [Contact],

Thanks again for your time this morning. Here is the link to Survey 1 with instructions:

Instructions
Step 1. This is the first of 2 surveys you will receive. For the first survey, you will be the only person to fill it out. Complete "Survey 1" using the link below (this should take 10-15 minutes). In this survey you will provide information about sustainability initiatives at your company. If possible, please complete the survey by [date].

[Link]

Step 2. Once Survey 1 is completed, I will then send you a customized survey based on your responses. Please forward this "Survey 2" to 15 - 20 people that are familiar with the sustainability projects/initiatives at [Company] (*e.g.,* helped to plan, implement, manage, etc). Once we have received 10 responses to Survey 2[Company] qualifies to participate in the study, and I will contact you at that point to confirm participation.

The team and I will then analyze the data and generate the company-specific and overall study reports. Once those are complete, I will send you the reports and we will be available to discuss any questions or comments you may have.

If needed, you may exit and re-enter the survey by clicking on the "Exit this Survey" button in the upper right corner of each page – when you do this, your answers will be automatically saved. Additional instructions are provided in the survey.

Follow-Up
On the survey, you will have the option to request a copy of our final report (expected completion Spring 2010). Based on the survey responses, we may be reaching out to select companies that we identify as "best in class" for more in-depth qualitative study via phone interview.

If at any time you have questions, please don't hesitate to contact me. Thank you again for your participation!

Sample Team Survey Email

Hi [Contact],

Thank you for completing the Lead Survey. We have created a customized [Company] Team Survey and included a link with instructions below.

Please send this survey to 15 - 20 people in your company that are familiar with the sustainability projects/initiatives at [Company] (*e.g.,* they are on the green team and/or they helped to plan, approve, implement, or manage sustainability initiatives). The two initiatives selected for the survey are:

#1 [Initiative 1]
Goal(s) of Initiative: Leverage sustainability in the ideation process.
Brief Description: Train innovation teams to build sustainability principles into concept development process.

#2 [Initiative 2]
Goal(s) of Initiative: Improve raw materials and pack components environmentally.
Brief Description: Classification system for raw materials and packaging components.

Once we have received at least 10 responses, [Company] qualifies to participate in the study. Thanks again!

On behalf of a research team at the University of Michigan, I invite you to participate in a groundbreaking research study on sustainability and organizational culture. We thank you in advance for your insights, which will be aggregated with other respondents from [Company] and companies across the country to assess the impact that company culture has on the efficacy of sustainability initiatives.

Our end goal is to draw on the results of this survey, which we are sending to approximately 150 companies, to create a diagnostic tool that helps companies better understand the impact that their culture has on their sustainability initiatives. This tool could then provide prescriptive guidance for approaching such initiatives.

Instructions
This survey is being completed by approximately 15 - 20 employees who are involved with sustainability initiatives at [Company]. In this survey, which will take 15-20 minutes to complete, you will provide information about your company in general as well as about your company's sustainability initiatives. All responses are anonymous and will be aggregated for analysis. Additional instructions are provided in the survey. A link to the survey is below.

Please complete the survey by Wed, Feb 3rd.
Here is the link to [Company] survey: [Link]

If at any time you have questions, please feel free to contact me:
Email: uniquename@umich.edu
Phone: xxx-xxx-xxxx

Thank you for your participation!

Appendix D: Overview of Participating Companies

The sample of companies represented a variety of sizes, industries, and ownership structures. Of those responding to the survey, 58 percent are publicly held and 42 percent are privately held. In the final sample, participating companies were generally large in size, with the majority over 10,000 employees and 83 percent with sales more than US$1B annually.

The following is a breakdown of company size by number of employees:

- 999 or fewer: 4
- 1,000 – 9,999: 6
- 10,000 or 49,999: 4
- 50,000 or 99,999: 6
- Greater than 100,000: 3

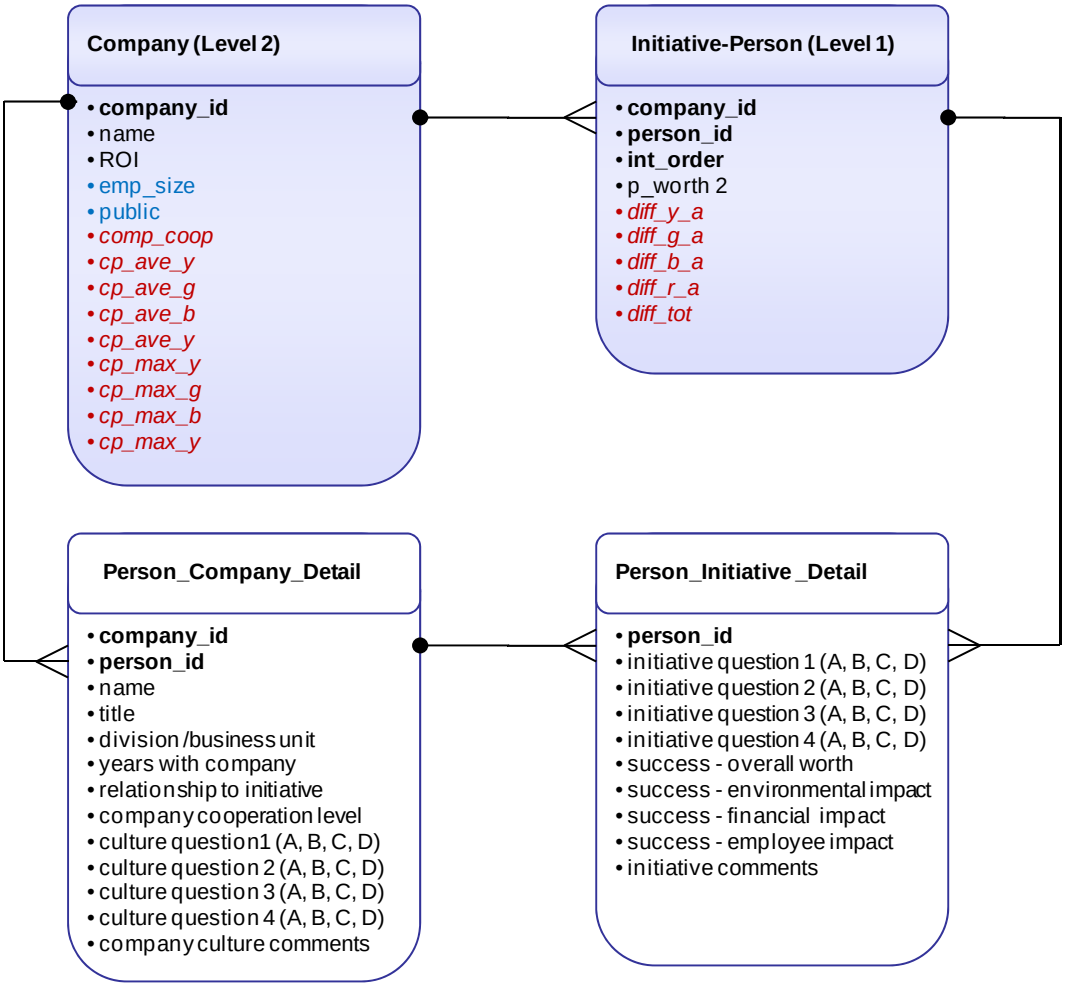
Companies also represented a diverse set of industries:

- Chemical Manufacturing
- Apparel and Accessories
- Auto and Truck Parts
- Business Services
- Chemicals - Plastics and Rubber
- Computer Hardware
- Computer Services
- Electric Utilities
- Food Processing
- Forestry and Wood Products
- Furniture and Fixtures
- Metal Mining
- Motion Pictures
- Office Supplies
- Personal and Household Products
- Restaurants
- Retail (Grocery)
- Retail (Specialty)
- Semiconductors
- Textiles - Non Apparel

Appendix E: Study Database

Legend

Black Text	- Survey data
Red Text	- Calculated field
Blue Text	- Secondary research
Blue Fill	- Dataset used in analysis
White Fill	- Supporting data
	- One to many relationship



Appendix F: Data Dictionary for Variables Used in Analysis

Field Name	Level	Description
company_id	**2 & 1**	Unique identifier for participating companies
comp_coop	2	5 point Likert scale. Level of cooperation across departments, as assessed by employees and averaged across all respondents at a given company.
emp_size	2	Number of employees at the company.
public	2	Flag for whether the company is a public company.
ROI	2	5 point Likert scale. Degree to which ROI is used to inform company initiative decisions, as assessed by employees and averaged across all respondents at a given company.
cp_y_max	2	Dummy variable indicating if the Collaborate quadrant is the highest quadrant for the company.
cp_g_max	2	Dummy variable indicating if the Create quadrant is the highest quadrant for the company.
cp_b_max	2	Dummy variable indicating if the Compete quadrant is the highest quadrant for the company.
cp_r_max	2	Dummy variable indicating if the Control quadrant is the highest quadrant for the company.
person_id	**1**	Unique identifier for individual survey respondents
p_worth2	1	4 point Likert scale. Please rate to what extent you agree or disagree with the following statements about Initiative "I think this initiative was worth doing." (1 = disagree, 4 = strongly agree).
diff_y_a	1	The absolute value of difference between the initiative profile and company culture profile in the Collaborate quadrant, averaged across all individuals at a given company.
diff_g_a	1	The absolute value of difference between the initiative profile and company culture profile in the Create quadrant, averaged across all individuals at a given company.
diff_b_a	1	The absolute value of difference between the initiative profile and company culture profile in the Compete quadrant, averaged across all individuals at a given company.
diff_r_a	1	The absolute value of difference between the initiative profile and company culture profile in the Control quadrant, averaged across all individuals at a given company.
diff_tot	1	The absolute value of difference between the initiative profile and company culture profile in the Create quadrant averaged across all individuals at a given company.