Fall 12-18-2015

Proactive Environmental Strategies: Managing a Corporate Culture Shift toward Sustainability

Mark E. Calub
University of San Francisco, mecalub@dons.usfca.edu

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Proactive Environmental Strategies:
Managing a Corporate Culture Shift toward Sustainability

By

Mark Calub

Is submitted in partial fulfillment of the requirements
for the degree of:

Master of Science
in
Environmental Management

at the

University of San Francisco

Fall 2015
Abstract

The roles and responsibilities of Environmental, Health and Safety (EHS) professionals have expanded over the last several decades. Initially focused solely on reducing a firm’s ecological impact, many EHS professionals are now tasked with managing a firm’s cultural shift towards sustainability. EHS professionals need to develop proactive environmental strategies that further interconnect the environmental, social, and economic performance goals of the firm. Using a concept analysis and integrative literature review approach, the research examined the evolving role of corporate environmental management and evaluated strategic management tools for environmental compliance, environmental performance and corporate sustainability. The research reveals that the role of the EHS professional will continue to evolve towards corporate sustainability management, where EHS professionals must shift the perception of EHS professionals from “compliance cops” to “change agents.” EHS professionals can drive the cultural shift towards corporate sustainability and perception towards “change agents” when they are able to employ proactive environmental strategies as opportunities to improve a firm’s competitive advantage and enhance corporate social responsibility. Utilizing a baseline strategic management framework, EHS professionals can exercise the benefits of various corporate sustainability management tools through an integrated management systems approach to develop proactive environmental strategies that lead to a firm’s competitive advantage, corporate social responsibility and overall, corporate sustainability.

Keywords: Proactive Environmental Strategies, Corporate Social Responsibility, Corporate Sustainability, Corporate Environmental Management, Strategic Management, Integrated Management Systems
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<td><strong>Belief System</strong></td>
<td>A system expressing a firm’s fundamental values that motivate participants (e.g. employees, local community) to commit the firm’s objectives and should be designed to appeal to the firm’s various stakeholders</td>
<td>(Rodrique, Magnan, and Boulianne 2013)</td>
</tr>
<tr>
<td><strong>Corporate Image</strong></td>
<td>Stakeholder’s perception, manifested through deliberate or inadvertent influences, of the way a firm is positively or negatively presented</td>
<td>(Rashid, Rahman, and Khalid 2014)</td>
</tr>
<tr>
<td><strong>Corporate Culture</strong></td>
<td>A dominant system of shared meanings and shared values that are accompanied by, represented and recreated through various behaviors and practices often perceived as a distinct way of life.</td>
<td>(Howard-Grenville 2006; Barker, Ingersoll, and Teal 2014)</td>
</tr>
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<td><strong>Corporate Social Responsibility</strong></td>
<td>The ongoing commitment of a firm to make economic gains within ethical and compliant means while at the same time improving the quality of life for not just its internal workforce but also the greater community and society at large.</td>
<td>(Dahlsrud 2008; Bhattacharyya 2015; Montiel and Delgado-Ceballos 2014)</td>
</tr>
<tr>
<td><strong>Corporate Sustainability (CS)</strong></td>
<td>The effort by firms to balance the often disjointed social, economic, and environmental performance goals and values of the firm.</td>
<td>(Van der Byl and Slawinski 2015)</td>
</tr>
<tr>
<td><strong>Dynamic Capability</strong></td>
<td>The ability of a firm to exploit and reconfigure its resources towards firm-specific capabilities which are process-dependent, socially complex, path-dependent, and essentially non-replicable or inimitable.</td>
<td>(Delgado-Ceballos et al. 2012; Moreno and Reyes 2013; Aragon-correa and Sharma 2003)</td>
</tr>
<tr>
<td><strong>Eco-Efficient Practices</strong></td>
<td>Actions that concurrently save on costs while helping to protect the environment.</td>
<td>(Aragon-correa and Sharma 2003)</td>
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<td><strong>Environmental Competencies</strong></td>
<td>The firm’s capabilities to proactively protect the environment.</td>
<td>(Dibrell et al. 2014)</td>
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<td><strong>Environmental Management System</strong></td>
<td>Management tool enabling a firm to control the impact of its activities, products or services on the environment using a systematic, process-oriented approach.</td>
<td>(Christini, Fetsko, and Hendrickson 2004)</td>
</tr>
<tr>
<td><strong>Higher-Order Learning</strong></td>
<td>The ability of an organization to shift its interpretations, ideologies and understanding of a situation, even under heavy conditions of uncertainty and ambiguity, through collective absorption of knowledge</td>
<td>(Juan Alberto Aragón-Correa and Rubio 2007)</td>
</tr>
<tr>
<td><strong>Organizational Capabilities (OC)</strong></td>
<td>The synchronizing mechanisms that facilitate the most effectual use of a firm’s tangible and intangible assets</td>
<td>(Sanjay Sharma and Vredenburg 1998; Moreno and Reyes 2013)</td>
</tr>
<tr>
<td><strong>Organizational Commitment</strong></td>
<td>Intentions and willingness of firms as evidenced by its senior managers and employees to be engaged in proactive environmental strategies that improve the firm’s environmental performance</td>
<td>(Ates et al. 2012)</td>
</tr>
<tr>
<td><strong>Proactive Environmental Strategies (PES)</strong></td>
<td>Systematic practices (i.e. policies, plans, or actions) that are voluntary and designed to preventively go beyond environmental compliance with the overall aim of reducing the company’s environmental impact</td>
<td>(J. Aragon-Correa &amp; A. Rubio-Lopez, 2007; J. Aragon-Correa, I. Martin-Tapia &amp; N. Hurtado-Torres, 2013; M. Berry &amp; D. Rondinelli, 1998)</td>
</tr>
<tr>
<td><strong>Radical Innovation (RI)</strong></td>
<td>Ability of the firm to integrate various attributes and elements of competitive advantage</td>
<td>(Laszlo and Zhexembayeva 2011)</td>
</tr>
<tr>
<td><strong>Shared Values (SV)</strong></td>
<td>Policies and practices that improve the competitiveness of a firm while simultaneously advancing the economic and social conditions in which it operates.</td>
<td>(Montiel and Delgado-Ceballos 2014)</td>
</tr>
<tr>
<td><strong>Social Consciousness (SC)</strong></td>
<td>The firm’s awareness of its position and role within the larger environment by which it exists and is shaped through a firm’s core values, culture, ethics, as well as by the views and values of its stakeholders.</td>
<td>(Dibrell et al. 2014)</td>
</tr>
<tr>
<td><strong>Stakeholder Integration (SI)</strong></td>
<td>The ability of a firm to establish trust-based collaborative relationships with its diverse network of stakeholders to identify solutions that are valuable to the firm.</td>
<td>(Alt, Díez-de-Castro, and Lloréns-Montes 2015; Sanjay Sharma and Vredenburg 1998; Delgado-Ceballos et al. 2012)</td>
</tr>
<tr>
<td><strong>Sustainable Development (SD)</strong></td>
<td>Development that meets the needs of the present without compromising the ability of future generations to meet their own needs</td>
<td>(Montiel 2008; Montiel and Delgado-Ceballos 2014; Dubois and Dubois 2012)</td>
</tr>
<tr>
<td><strong>Systems Thinking Approach</strong></td>
<td>Encompassing systematized, site-wide and integrated solutions approach to management</td>
<td>(Williamson and Fister 2011).</td>
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## List of Acronyms and Abbreviations

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<th>Terminology</th>
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<tr>
<td>BOP</td>
<td>Bottom of the Pyramid</td>
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<tr>
<td>BP</td>
<td>British Petroleum</td>
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<tr>
<td>CEM</td>
<td>Corporate Environmental Management</td>
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<tr>
<td>CEO</td>
<td>Corporate Executive Officer</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental, Response, Compensation and Liability Act</td>
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<tr>
<td>CFL</td>
<td>Compact Fluorescent Lamp</td>
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<tr>
<td>CFO</td>
<td>Corporate Financial Officer</td>
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<tr>
<td>CP</td>
<td>Canadian Pacific</td>
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<td>CS</td>
<td>Corporate Sustainability</td>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<tr>
<td>ECSR</td>
<td>Environmental Corporate Social Responsibility</td>
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<tr>
<td>EHS</td>
<td>Environmental, Health and Safety</td>
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<tr>
<td>EHSS</td>
<td>Environmental, Health, Safety and Sustainability</td>
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<tr>
<td>EMAS</td>
<td>European Eco-Management and Audit Scheme</td>
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<tr>
<td>EMS</td>
<td>Environmental Management System</td>
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<td>EMVs</td>
<td>Environmental Management Variables</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>EPVs</td>
<td>Environmental Performance Variables</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<td>GBP</td>
<td>British Pounds</td>
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<td>GE</td>
<td>General Electric</td>
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<td>GHG</td>
<td>Greenhouse Gases</td>
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<td>GRI</td>
<td>Global Reporting Initiative</td>
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<td>GWP</td>
<td>Global Warming Potential</td>
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<td>HCFC</td>
<td>Hydrochlorofluorocarbon</td>
</tr>
<tr>
<td>HFC</td>
<td>Hydrofluorocarbon</td>
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<tr>
<td>IMS</td>
<td>Integrated Management Systems and Tools</td>
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<td>ISO</td>
<td>International Organization for Standardization</td>
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<td>ISO 14001</td>
<td>ISO 14001: Environmental Management Systems</td>
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<tr>
<td>ISO 26000</td>
<td>ISO 26000: Guidance on Social Responsibility</td>
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<td>LCA</td>
<td>Life Cycle Assessment</td>
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<tr>
<td>LEED</td>
<td>Leadership in Energy and Environmental Design</td>
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<td>MI</td>
<td>Manufacturing Index</td>
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<td>MSI</td>
<td>Material Sustainability Index</td>
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<td>OHSAS</td>
<td>Occupational Health and Safety Assessment Series</td>
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<td>OHSAS 18001</td>
<td>Occupational Health and Safety Management System Standard</td>
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<td>P&amp;G</td>
<td>Procter and Gamble</td>
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<td>PDCA</td>
<td>Plan-Do-Check-Act Cycle</td>
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<td>PES</td>
<td>Proactive Environmental Strategies</td>
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<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorization and Restriction of Chemicals</td>
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<td>RBV</td>
<td>Resource-Based View</td>
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<td>SAC</td>
<td>Sustainable Apparel Coalition</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>SD</td>
<td>Sustainable Development</td>
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<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities and Threats</td>
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<tr>
<td>SVHC</td>
<td>Substances of Very High Concern</td>
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<tr>
<td>TQM</td>
<td>Total Quality Management</td>
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Chapter 1: Introduction

Scope of Paper and Specific Research Questions

Corporations are looking for every opportunity to develop and maintain a competitive advantage over their peers and improve their bottom line – a strong economic performance. Accordingly, many studies have shown that companies are not only recognizing that implementing proactive environmental strategies (PES) is the right thing to do, but it makes for good business (Micliael a Berry and Rondjnelli 2000; Albertini 2013). Corporate PES can be defined as systematic practices (i.e. policies, plans, or actions) that are voluntary and designed to preventively go beyond environmental compliance with the overall aim of reducing the company’s environmental impact (J. Aragon-Correa & A. Rubio-Lopez, 2007; J. Aragon-Correa, I. Martin-Tapia & N. Hurtado-Torres, 2013; M. Berry & D. Rondinelli, 1998). These strategies are driven by a company culture, which is defined by a dominant system of shared meanings and shared values that are accompanied by, represented and recreated through various behaviors and practices often perceived as a distinct way of life (Howard-Grenville 2006; Barker, Ingersoll, and Teal 2014). Successful PES are developed through pro-environmental attitudes turned behaviors (Norton et al. 2015). However, not all PES result in a corporate return on investment, and some do more harm than good to not just the environment but to the greater community as well. These PES are more susceptible to failure when misunderstood or ineffectively implemented across the firm, or fully embraced by or aligned with the company culture and overall business strategy.

Consequently, PES have been traditionally been left to a company’s Environmental, Health and Safety (EHS) department. Technical competencies in environmental affairs and consistent involvement with the conventional community of environmental department stakeholders (e.g. environmental non-governmental organizations (NGOs), environmental academia, environmental policy makers, and environmental professional associations) allow such internal company departments to develop company environmental management systems that address environmental issues – e.g. materials and product stewardship; energy and natural resource use; emission, effluents and waste; biodiversity; and overall compliance (Montiel and Delgado-Ceballos 2014). However, EHS departments were initially developed to specifically meet the demands of regulators so that the company could minimize external barriers to
maximizing profits as compliance is typically seen a business constraint (A. J. Hoffman 2001). The perception that PES make “business sense” changes the dynamic power structure within a firm, with the EHS department having greater influence on how the company operates and specifically how the company culture should behave.

Consequently, this increased focus on company behavior parallels aligns with the increased concern over Corporate Social Responsibility (CSR) and Corporate Sustainability (CS). CSR can be defined as “the ongoing commitment of a firm to make economic gains within ethical and compliant means while at the same time improving the quality of life for not just its internal workforce but also the greater community and society at large (Dahlsrud 2008; Bhattacharyya 2015; Montiel and Delgado-Ceballos 2014).” Not surprisingly, there is a strong relationship between many environmental and societal issues and how to address them, often along consistently shared value constructs and the warranted desired behaviors. While CSR focuses on the dynamic relationship between the firm and its society at large (i.e. firm stakeholders), Corporate Sustainability (CS) in its most basic definition is the effort by firms to balance the often disjointed social, economic, and environmental performance goals and values of the firm as shown in Figure 1-1 (Van der Byl and Slawinski 2015).

![Figure 1-1. Corporate Sustainability Shift](image)

Most firms have already shifted towards the right of Figure 1-1, realizing that there are shared values or ‘win-win’ opportunities between the three dimensions, and that in order for CS
to function no dimension should work in a vacuum. EHS professionals, individuals tasked with managing the firm’s EHS department, have the newly added challenge in establishing PES aligned with CSR strategies while also leading to CS along a sustainable development pathway.

This orientation requires EHS professionals to work not just with its most traditional stakeholders, but to identify and engage all internal and external stakeholders with the firm. It also requires EHS professionals to employ a more holistic “systems thinking” approach, encompassing new systematized, site-wide and integrated solutions for managing PES that go beyond the use of basic environmental management systems (Williamson and Fister 2011).

While such rise in importance improves the stance and role of the EHS department in developing shared values across a company culture and economic growth, it provides new challenges for EHS professionals as they shift from “corporate cop” (i.e. compliance auditor) to “change agent” (i.e. driver of company behavior) (Fryxell and Vryza 1999). EHS professionals have to develop more complex strategies that: maintain compliance with the increased amount of regulations, demonstrate the company is continuously taking steps beyond compliance to reduce its environmental impact, and provide social and economic benefits to the firm and the firm’s stakeholders. To aid firms in developing comprehensive strategies towards corporate sustainability, Wheelen and Hunger (2012) has developed a strategic management model (Figure 1-2) that provides an excellent framework for strategic management and planning.

![Figure 1-2. Strategic Management Model (Wheelen and Hunger 2012)](image)
The concern with using the Wheelen and Hunger (2012) model is that it’s tailored more towards the development of the overall corporate strategy of the firm, typically set by the chief executive officer (CEO). While EHS professionals often play a role in influencing and developing essential elements of corporate strategies, the EHS professional is usually tasked with managing proactive environmental strategies. Moreover, the purpose of this research is to understand the evolution and significance of corporate environmental management and proactive environmental strategies and provide the EHS professional guidance developing and implementing proactive environmental strategies that drive the firm towards corporate sustainability. This will be done by addressing the following questions:

1. **What is the role of the EHS professional in managing the environmental performance of the company?** This question explores the evolution of the role of the EHS professional in the firm, how this has affected the direction of environmental strategies as well as the evolution of environmental management tools used to ensure the successful implementation of such strategies.

2. **How do PES improve the economic performance of the company?** This question explores the relationship between PES and the company’s basic bottom line of economic performance. Specifically, PES is examined through seven ways that it can provide a firm a competitive advantage – risk and crisis management, resource and operations optimization, product and services differentiation, market presence, brand management, industry standards influence, and radical innovation.

3. **How do PES improve the social performance of the company?** This question explores the relationship between PES and the company’s involvement with the society at large. Specifically, PES is examined through three ways that it can demonstrate or improve corporate social responsibility – organizational capabilities, social consciousness, and stakeholder integration.

4. **How can EHS professionals use the strategic management model and existing environmental management tools to develop a PES that drives the firm towards corporate sustainability?** This question goes through the Wheelen and Hunger (2012) strategic management model from an EHS professional perspective, including applying and
integrating several environmental management tools into the strategic management process.

To answer these four questions, the research paper uses a concept analysis and integrative literature review of numerous scholarly, professional, popular as well as actual publicly available company produced sources. The purpose of this methodological approach is to: bridge the gap between related areas of work; determine commonalities among the areas of corporate environmental management (CEM), CS and strategic management and planning; and identify a centralized conceptual framework that can be applied in a real world, professional setting. There is currently limited research in the evolution of CEM and its relationship to corporate sustainability and strategic management. There is also limited real-world examples of strategic management frameworks with regard to CEM and integration of CS management tools. At the end of the this paper, a conceptual strategic management model emphasizing an integrated management systems (IMS) approach is developed for EHS professionals to use as a baseline for generating PES into CS strategies that not only improve the company’s environmental performance (e.g. pollution prevention, product stewardship, effective natural resource use), but can help drive a corporate culture into accepting PES as making “business” sense through the economic and social performance lens.

Overview of Corporate Sustainability

Increasing recognition of global environmental problems such as climate change has helped drive the cultural framing of environmental issues from a limited regulatory affairs construct into a more normative, corporate-wide concern across all three CS dimensions. The early workings of this transformation can be linked to The Brundlant Report, developed in 1987, which coined the term sustainable development (SD) as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Montiel 2008; Montiel and Delgado-Ceballos 2014; Dubois and Dubois 2012).” The 1980s also witnessed a series of industrial environmental disasters (e.g. 1989 Exxon-Valdez Oil Spill) that epitomized many firms as part of the problem and not the solution. The focus on SD, complemented by the evidence that many companies were destroying the environment, shifted corporation environmental actions from reactive to proactive, including preventative measures.
that were not limited to the confines of regulatory oversight. Most environmental regulations and laws in the 1980s, were fairly new, underdeveloped or yet to be written or enacted.

Concurrently, corporate executives had the important tasks of maintaining profitable growth and furthering their competitive advantage. As a result, EHS professionals had the difficulty of fitting the “environmental paradigm” into their leaders’ overall corporate-wide economic strategies. Pollution prevention measures became strongly associated with such terms as “continuous improvement” and “innovation,” aligned with Total Quality Management (TQM) tools and approaches - lean manufacturing with waste minimization, resource optimization linked to product stewardship, etc. (M. Berry, 1998; C. Moreno & J. Reyes, 2013). The 1990s then gave way to a slew of structured frameworks for PES including management tools such as voluntary standards (e.g. ISO 14001 – Environmental Management Systems) that integrated proactive environmental protection into both long-term corporate strategy and day-to-day operations (J. Aragon-Correa & S. Sharma, 2003). While these changes have been promising for the growth of the environmental movement, desired outcomes have not been fully realized. Continual reluctance to adopt voluntary standards, and seemingly proactive environmental actions, has been stemmed by mixed results on improved environmental performance and the ongoing uncertainty that such strategies actually lead to competitive advantage. Today, other management tools such as the Global Reporting Initiative (GRI) Sustainable Reporting Framework and ISO 26000:2010 Guidance on Social Responsibility are increasingly employed as firms look for tools to help implement CS and CSR into their daily set of activities (Pojasek 2011). Accordingly, EHS professionals are tasked with developing PES that align with both the economic and social responsibilities of the firm as well as identifying and implementing various CS management tools that drive this successful alignment.

Furthermore, this conceptualization of the company triple bottom line, where a company exhibits superior environmental, social, and economic performance against its industry competitors, provides the framework for the increasingly used corporate term – corporate sustainability (CS). In alignment with The Brundtland Report’s 1987 definition for sustainable development, CS is the region where all three sets of constraints of the company triple bottom is satisfied and sustainable development itself is the process of converging the three dimensions towards one another to establish a more resilient corporate culture built on consistently shared
values, goals, beliefs and behaviors (Dahlsrud 2008; Milliman 2013; Montiel and Delgado-Ceballos 2014). From a more descriptive perspective, the three principles of SD have been commonly referred to as environmental integrity, social equity and economic prosperity (Montiel and Delgado-Ceballos 2014; Bansal 2005). Environmental integrity is achieved through effective environmental management principles aimed at reducing the firm’s ecological footprint; social equity is achieved through CSR principles that ensure the firm considers the human or social issues (e.g. legal, ethical, economic and human capital development) of all its stakeholders; and economic prosperity is achieved through competitive advantage where the firm creates a value and need for its products and/or services (Bansal 2005). Under the CS context, PES stakeholders include all individuals and entities that the firm impacts or may impact through its actions and inactions. This includes both internal firm stakeholders (e.g. employees, board of directors, senior executives) and external firm stakeholders (e.g. customers, regulatory agencies, local community, shareholders, supply chain network, etc.). Figure 1-3 demonstrates the challenge for the EHS professional, whereby environmental integrity is perceived as the most important piece of the CS puzzle. While the sample environmental action elements provided in Figure 1-3 are highly valued and well understood by the seasoned EHS professional, they are not so easily valued or understood by other firm stakeholders.

![Figure 1-3. EHS Perspective of the Triple Bottom Line](image)

Integrating Valente’s (2012) definition for ‘sustain-centric’ firm orientation, EHS professionals need to identify PES that further interconnect the three dimensions, employing “coordinated approaches that harness the collective cognitive and operational capabilities of multiple local and global social, ecological, and economic stakeholders operating as a unified
network or system.” Montiel and Delgado-Ceballos (2014) provides a definition of shared value as “policies and practices that improve the competitiveness of a firm while simultaneously advancing the economic and social conditions in which it operates.” Accordingly, the sustain-centric orientation means identifying PES that provide a shared value among all three dimensions, where the objectives of the EHS professional become the objectives of all firm stakeholders and PES is aligned with the overall business strategy. By doing this, not only does it improve the success of the PES but it helps to unite and strengthen the corporate culture that is built on a system of shared values. Accordingly, a more practical definition of CS for the EHS professional is the ability of the firm and its strategists to develop a corporate culture built on shared values that meet the expectations of its diverse stakeholders.

**Overview of Corporate Proactive Environmental Strategies**

The integrity of EHS professionals is upheld when PES actually reduce the firm’s overall environmental impact or ecological footprint. This is in alignment with the traditional definition of a corporate PES (J. Aragon-Correa & A. Rubio-Lopez, 2007; J. Aragon-Correa). M. Berry & D. Rondinelli (1998) states that the most impactful PES focus on a combination of:

- Waste minimization and prevention (i.e. actions built on reduction, minimization or elimination of pollutants and waste at the source);
- Demand-side management (i.e. actions that minimize waste or pollution through better understanding of customer needs and building efficiencies around the product);
- Design for the environment (i.e. actions that design out the pollutant or waste);
- Product stewardship (i.e. actions that reduce environmental risks or problems throughout a product’s life-cycle); and
- Full-cost (environmental) accounting (i.e. actions that evaluate direct and indirect environmental costs for a product, process or project).

These five focus areas relate to one essential goal – improving the company’s environmental performance. Within this context, positive net performance of a PES negatively correlates with the firm’s damage to the natural environment (E. Claver, M. Lopez, J. Molina et al, 2007). There are in fact numerous accounts of PES, characterized by one or a combination of the five focus areas, which have reduced the company’s ecological footprint (S. Sharma & H.
Vredenburg, 1998; C. Moreno & J. Reyes, 2013). For example, P. Clarkson, Y. Li, G. Richardson et al. (2011) had revealed that US steelmaker Nucor Corporation continues to lead the world in greenhouse gas minimization by taking proactive actions such as meeting emission reduction goals in advance of governing requirements (i.e. Kyoto Protocol). E. Claver, M. Lopez, J. Molina et al. (2007) provided a case study on COATO, a Spanish farming cooperative of 67 paprika producers, that was able to successfully integrate PES that produced an overall improvement to environmental performance. COATO’s proactive measures included implementing new sustainable-driven agricultural techniques, material use reduction during process production and residue treatment, materials recycling, among numerous other actions that reduced impact to almost every agriculture resource: water, soil, air local vegetation, fauna, and landscape (E. Claver, M. Lopez, J. Molina et al., 2007). From a proactive environmental strategic management perspective, T. Arimura, A. Hibki, & H. Katayama (2008) examined the effects of two voluntary actions (i.e. ISO 14001 adoption and publication of environmental reports) had on the environment (i.e. use of natural resources, solid waste generation, and wastewater effluent). This study, an analysis of responses by 792 random Japanese facilities, revealed that both actions were relatively effective in reducing a company’s ecological footprint, highlighting that the adoption of ISO 14001 was more effective than voluntary reporting in reducing impact to natural resource use, solid waste generation but not wastewater (T. Arimura, A. Hibki, & H. Katayama, 2008). T. Arimura, A. Hibki, & H. Katayama (2008) goes on to imply that the success of voluntary approaches, or further PES, will depend on several other influential factors that are specific to the individual corporation, such as the local government’s influence and the economic capabilities and resources of the firm. These examples highlight the significance of PES. They also highlight that a PES without careful consideration may not produce desired results.

The healthcare industry, for example, has been increasingly pressured to adopt PES amidst a field of internal and external barriers as research studies reveal these firms having significant negative impact to the environment. Pinzone, Lettieri, and Masella (2015) examines the effects of specific barriers of PES implementation as many healthcare firms have the problem of developing environmental protection capabilities while at the same providing affordable and quality healthcare to its patients. The study highlights the environmental problems within the
healthcare industry: UK National Health Service has an estimated carbon footprint of 21 million tons CO₂ a year, US hospitals produce over 6,600 tons of waste a day, and that hospitals are one of the most energy-intensive buildings within the commercial industry. But despite huge undertakings in energy conservation, recycling sustainable mobility and even green procurement by the various firms, many firms were unsuccessful in going beyond compliance, leading many firms to become “cautious adopters” of PES (Pinzone, Lettieri, and Masella 2015). Utilizing an ad hoc questionnaire to sample 462 Italian healthcare firms, Pinzone, Lettieri and Masella (2015) reveal that stakeholder pressure positively relates to PES, lack of commitment towards environmental goals by employees has a negative influence in the successful adoption (and implementation) of PES, and the challenge of evaluating performance of environmental practices minimized the positive influence of stakeholder pressure on PES. Accordingly, not all PES will be successful, especially when they fail to match or meet the social and economic needs or values of the firm and its stakeholders.

Accordingly, given the transition from managing the environmental performance of the firm to managing the shift towards corporate sustainability, EHS professionals need to reevaluate what exactly goes into developing a successful PES. Rather than simply following ISO 14001, which provides a standardized framework in environmental management, this paper takes a holistic approach and reevaluates core elements of strategic management planning towards CS to determine what is needed to develop an effective PES towards CS. The core elements of strategic management can be defined as follows (R. Hahn 2013; Wheelen and Hunger 2012):

1. Environmental Scanning - Identify current strategic contextual factors (external and internal elements) that will determine the future of the firm.
2. Strategy Formulation – Development of long-range plans that lead to the effective management of environmental opportunities and threats in light of corporate strengths and weaknesses (i.e. SWOT).
3. Strategy Implementation – Process by which strategies are placed into action through the development of programs, budgets and procedures. Actions might involve changes within the overall culture, structure, and/or management system of the entire firm.
4. Strategy Evaluation and Control – Process in which corporate activities and performance results are monitored so that actual performance can be compared with desired performance.

5. Feedback/Learning – Process by which a firm can go back to revise or correct decisions made earlier in the strategic management planning process.

On top of reevaluating elements of the strategic management model, it’s important to understand how existing management tools can be used and integrated to help formulate, implement and monitor and control PES towards CS. Specifically, this paper evaluates and considers the integration of ISO 14001, ISO 26000 and GRI Sustainability Framework elements into a strategic management model.
Chapter 2: Environmental Dimension

Overview

Corporate Environmental Management (CEM) can be defined as management of impacts from a firm’s activities, products and services on the natural environment, where the measurable results of environmental management is environmental performance (Albertini 2013). However, less than twenty five to thirty years ago, commonly referenced terms today such as “environmental management,” “cleaner technology,” “life-cycle assessment,” and “green accounting” were hardly unknown (Jorgensen and Lauridsen 2005). Accordingly, the actual professional practice of CEM, the structure and company-wide position of the corporate environmental departments (or EHS departments), and the management tools used to ensure environmental performance has dramatically and continuously transformed as technological advancements, intensified market competition, globalism, and a movement towards CS has driven a need for change (MacLean 2004; Jorgensen and Lauridsen 2005; MacLean 2011). While many would see this as an opportunity for advancement of the practice itself, it can also be seen as a challenge as many EHS departments have not smoothly transitioned to meet the needs of emerging corporate environmental and sustainability issues. MacLean (2011) emphasizes the challenge faced by EHS departments, referring to this transition challenge as an “identity crisis” and suggesting that EHS professionals today should necessitate a clearer definition of their roles and responsibilities in alignment with their firm’s overall strategies. Taken even further, it’s important to understand how CEM has changed over time to best determine the threats and opportunities for strategic alignment between business needs of the firm and the EHS department as well as to determine the best path towards managing CS. Moreover, this section provides a historical review and analysis of CEM specifically in four waves: Environmental Compliance; EHS Compliance; EHS Compliance and Management Systems; and EHS Compliance, Management Systems, and Sustainability.
Evolution of Corporate Environmental Management

First Wave: Environmental Compliance

Corporate environmental departments emerged in the 1970s following the establishment of the United States Environmental Protection Agency (EPA) and the associated laws. During these early times, environmental issues were perceived as economic externalities or market failures, and the mitigation to these failures was increased government oversight (A. J. Hoffman 2001; S. Sharma, Pablo, and Vredenburg 1999). Environmental responsibility was delegated to a regulatory affairs type function (i.e. environmental department) with a strategic focus on legal compliance and pollution abatement. The rapid growth and acceptance of regulation required a higher demand of skilled environmental scientists, engineers and policy analysts to interpret and implement the requirements of regulation, where most environmental professionals came grounded with a strong environmental science background (Bootsma and Vermeulen 2011). Accordingly, firms branded environmental issues as a cost to doing business, associated strictly with conventional “end of pipe” type actions such as waste treatment and remediation to avoid liability (Williamson and Fister 2011; Greenwood, Rosenbeck, and Scott 2012).

During the “Environmental Compliance” years of CEM, the role of the environmental department was defined and focused, where environmental professionals often specialized in one specific environmental media (e.g. air, waste, water) and managed programs that had direct markers or measurements for solid environmental performance – i.e. conformance to regulation (Williamson and Fister 2011). The environmental department also only had to manage a working relationship with few core stakeholders. Externally, CEM involved maintaining a relationship mostly with local regulators and a few non-governmental organizations (NGOs) with strong interests in environmental issues. Internally, CEM remained rather isolated and only got involved with other company departments when there were compliance-related issues, specifically enforcement which was the main management tool for EHS departments. Additionally, the continuous flow of new environmental regulations meant an equal expansion of the environmental department, as staff sizes and budgets were increased to develop the infrastructure needed to comply with regulation and avoid unnecessary environmental liabilities (MacLean 2010; Greenwood, Rosenbeck, and Scott 2012). But while this timeframe helped establish the
environmental department, there were several threats to the department’s legitimacy as well as limitations to its growth and welcomed integration into the company’s business and culture.

First, being such an isolated function of the company and only interacting with other departments when there was an environmental compliance issue negatively positioned the department as they were seen as “corporate cops” that slowed down or interrupted business operations (Fryxell and Vryza 1999). It was widely perceived that pollution management activities would automatically increase the firm’s operating costs. Second, the focus on pollution abatement and compliance meant that firms were developing reactive rather than proactive environmental strategies to address their environmental issues. S. Sharma, Pablo, and Vredenburg (1999) revealed that firms that perceived environmental issues as threats to the company business took on more reactive environmental strategies rather than proactive environmental strategies. Perceiving environmental issues as threats negatively impacted the relationship between the environmental department and the rest of the company. Consequently, firms that provide a context by which employees are motivated to encompass and support environmental issues as opportunities are more likely to reap competitive benefits that lead to better economic performance (S. Sharma, Pablo, and Vredenburg 1999). With one industrial environmental disaster after another occurring throughout the 1980s, most firms started to realize that a reactive strategic approach was not sufficient enough to maintain a competitive advantage (Fryxell and Vryza 1999).

**Second Wave: EHS Compliance**

In the early 1990s, technological advancements in data management systems allowed many firms to optimize human resources and service-oriented activities leading to shifts in organizational structure, including the consolidation of the environmental, occupational health, and workplace safety departments into one organization, often referred to as the Environmental, Health and Safety (EHS) Department (Williamson and Fister 2011). While this paper focuses on the environmental issues managed by EHS department, there are few significant factors to consider about this consolidation effort and second wave. First, many PES have direct linkages to the occupational health and workplace safety field. For example, minimizing hazardous waste output in a firm’s manufacturing operations reduces the firm’s ecological impact and hazardous
material exposure to its workforce. Second, the occupational health and workplace safety departments had similar humble beginnings to that of the environmental department. The U.S. Occupational Safety and Health Administration (OSHA), also established in the early 1970s, was developed to administer and enforce workplace health and safety standards (Occupational Safety and Health Administration 2009). Firms built up their health and safety departments to ensure compliance, where the health and safety personnel were also seen as corporate policemen. These similarities and connections among the three different groups (i.e. environmental, occupational health, and workplace safety) helped to validate the reasons behind forming the EHS department. However, there were management challenges following this integration.

EHS department managers typically started their careers in just one of the three disciplines but now had the responsibility of all EHS activities and operations in the firm (Williamson and Fister 2011). Limited, even knowledge across all three domains led to resources unequal distribution of resources across the entire EHS department. Additionally, another reason the EHS department was formed was that it was part of a 1990s wave of organizational restructuring, movement towards outsourcing overhead services and/or consolidating of service-oriented activities into shared service departments in order to cut operational costs (MacLean 2005). This meant EHS professionals now had to do more work with fewer resources including a shrinking budget, leading further to competing resources within the department itself. The main management tools at the time still evolved around compliance and enforcement, such as auditing and inspections, which continued to negatively impact the relationship between the EHS department and the rest of the firm. There were also limited management tools or opportunities for the three disciplines to integrate like processes and systems. At the same time, the EHS department was still seen negatively as a cost of doing business and for the most part, maintained its efforts in addressing EHS issues as an isolated function within the company.

Third Wave: EHS Compliance and Management Systems

Significant movement from reactive environmental strategies to proactive environmental strategies began in the 1980s following a series of significant environmental disasters (e.g. Bhopal Disaster (1984), Chernobyl Nuclear Reactor (1986), Exxon Valdez Oil Tanker Spill (1989)) and during the infancy stage of the sustainable development movement (i.e. The
Brundlant Report, 1987) (MacLean 2010). At the same time, many firms such as Dupont with their 1980s “Pollution Prevention Pays” program gained high publicity and favorable results after committing to a proactive environmental philosophy (Fryxell and Vryza 1999). Many firms were beginning to realize that taking a reactive approach was simply not enough to address the firm’s environmental impact and remain competitive in an increasingly complex market. With this global shift for firms to go beyond compliance, several voluntary standards were developed to not only organize and structure the environmental shift but also drive EHS leaders to provide governance over management systems and processes (MacLean 2005; Fryxell and Vryza 1999). One of the major international consensus building approaches towards proactive environmental management was the ISO 14001 Environmental Management System (EMS) international standard established in 1996 (Fryxell and Vryza 1999).

Prior to this timeframe, EHS professionals rarely worked with firm operations on process optimization and pollution prevention. ISO 14001 provided a gateway for effective collaboration between the EHS department and manufacturing as firms began to realize that aside from lowering risks, effective CEM may lead to a competitive advantage (Fryxell and Vryza 1999; Williamson and Fister 2011). The nature and purpose of ISO 14001 and other environmental management system tools were to progress a firm towards proactive environmental management or what has been term “systems thinking” approach, where a firm’s environmental aspects were systematized and integrated into all business processes including: product design, delivery and use; manufacturing processes; customer service; and marketing (Wiengarten, Pagell, and Fynes 2013). An EMS was slowly being seen as an integral part of a firm’s overall comprehensive management system, providing a systematic approach to environmental issues with an overall aim of reducing a firm’s adverse environmental impacts and providing improved sustainability (Misztal and Jasiulewicz-Kaczmarek 2014). Additionally, rising pressure from customers to implement an EMS and validation of “good” environmental performance via third-party ISO 14001 certification pushed firms and their EHS departments to take on this “systems thinking” approach to CEM (Williamson and Fister 2011). Accordingly, the EMS movement did provide and lead many firms towards CEM optimization and improved integration of the EHS department function across the firm. Melnyk, Sroufe, and Calantone (2003), in a survey of various North American Managers regarding their attitudes towards EMS and ISO 14001,
revealed that firms with a formal EMS perceived results above and beyond pollution abatement including a positive impact on a firm’s operational performance. And with significant improvements in technology in the 1990s (e.g. advent of the internet and complex data management system applications), EMS were readily more executable. But even with these mounting efforts towards proactive environmental management, EMS and overall PES, many firms were reluctant to consider environmental performance as part of the business economic strategy and the EHS department suffered new challenges with new role and responsibility.

A 2000 survey of 295 Canadian public company senior executives (including Corporate Financial Officers (CFOs)), revealed that less than half of the respondents believed environmental performance affected competitiveness and enhances shareholder value (Clarkson et al. 2011). One threat to this newly expanded role was that EHS professionals were still perceived as compliance cops, considering they still had the role of ensuring the firm adhered to regulation. EHS professionals would have to balance their regulatory compliance efforts with one of opportunity and collaboration (Williamson and Fister 2011). And while being further integrated into the overall business strategy meant EHS managers had potentially more leverage within the firm, the relationship dynamic between the EHS department and its expanded group of stakeholders brought about even more challenges to CEM. M. A. Delmas and Toffel (2008) indicates that an internal department’s relative power and influence stem from various sources including placement within the firm’s organizational hierarchy, significance to the firm’s social networks and operational workflow, and the department’s capacity to provide a desired and scarce resource to the firm. Consequently, this expanded role meant EHS department personnel had to develop new competencies and capabilities in “end to end” pollution prevention solutions such as: identifying and integrating “greener technology” into process operations, analyzing environmental impacts across the life-cycle of products, providing governance over demanding management systems, and driving energy reducing programs (Jorgensen and Lauridsen 2005). Williamson and Fister (2011) go on to recommend that EHS professionals’ responsibilities must now include a balance among “compliance, regulation, reporting with pollution prevention, process optimization and system thinking.” Not having many of these initial competencies made it difficult for EHS professionals to adapt quickly and work collaboratively with their expanded group of stakeholders.
This third wave towards PES and strengthening a firm’s competitive advantage also meant EHS managers had to build “soft skill” competencies, where responsibilities now included green marketing and branding, stakeholder (e.g. community-based) relationships, and communications (MacLean 2010). Many EHS professionals, especially during this third wave, had skill sets built specifically in environmental science, engineering and policy. Another major challenge to this newly expanded role was that indicators of good or exceptional environmental performance were limited. For example, ISO 14001, aside from requiring firms comply to regulations, fails to provide definitive minimum levels of performance needed to achieve or maintain 3rd party ISO 14001 certification, nor does it provide definitive requirements regarding measuring continuous improvement (Comoglio and Botta 2012). Furthermore, while the third wave helped move the firm towards PES and provided many new opportunities for EHS professionals, there were significant challenges that made it difficult for the EHS department to transition effectively and smoothly facilitate CEM.

Fourth Wave: EHS Compliance, Management Systems and Sustainability

Today, this global shift beyond environmental compliance and reactive environmental strategies is more apparent with the increased significance of CSR and CS, which further expands the role and responsibilities of many EHS departments. This new wave has been considered the most dramatic paradigm shift where EHS professionals, once focused only on reducing a firm’s ecological impact, are now tasked with taking a more “holistic” look at the entire firm’s processes and products and integrating environmental “life-cycle” solutions to shift corporate efforts and culture towards sustainability and ensure PES are in alignment with the overall business strategy (MacLean 2005; Williamson and Fister 2011; Jorgensen and Lauridsen 2005; Greenwood, Rosenbeck, and Scott 2012). MacLean (2011) highlights some of the critical influences on the new roles and responsibilities of many EHS departments as follows:

- Global awareness and focus by NGOs and industry on the concept of sustainable development
- Increased public interest in green products
- Competitive ranking lists of firms that address environmental and CSR issues
• Increased power and influence of NGOs, effectively leading to many new joint firm and NGO partnerships
• Rising demand for standardized corporate sustainability reporting
• Assimilation of environmental and social performance metrics into financial performance reports (i.e. one corporate performance report)
• Increased concern by stakeholders such as shareholders in liabilities pertaining to corporate sustainability risks and externalities
• Expansion of shareholder resolutions introduced to address corporate sustainability issues
• Rising concern regarding global warming, natural resource availability, energy conservation, and metrics to measure a firm’s performance in managing these environmental issues
• Continuous loss of natural resources, globalization of a firm’s supply chain network, and increased challenges with developing new mining and manufacturing sites.

Accordingly, EHS professionals today have the opportunity to serve in a “cross-functional, diverse, multi-level, change agent role (Greenwood, Rosenbeck, and Scott 2012).” EHS professionals not only serve as environmental stewards on behalf of their firms but now act as internal firm facilitators that guide and enable sustainability efforts across the firm and beyond through expanded stakeholder collaborations. For example, EHS managers that provide governance over CS activities may now have to consider customer, supplier, and local community concerns when developing PES. Accordingly, many EHS professionals see this change as any opportunity to further legitimize the profession considering the larger role they play in shaping the company’s business strategy and overall company culture. Hoffman (2001) indicates that EHS professionals must now focus on developing a firm’s culture that encourages a merge between environmental and economic interests in employee decision-making. Legitimacy is also strengthened with the transparent use of management tools such as corporate sustainability reporting and the consolidation of company performance reports, where environmental and social performance could be more closely linked to a firm’s competitive advantage, which could lead to improved economic performance. Global Reporting Initiative (GRI), for example, was developed in 1997 to help promote a sustainable global economy where firms could effectively manage their environmental, social and economic performance through a
transparent reporting framework that also enables firms to compare themselves against their competitors (Fogliasso 2012). Like many CS and CSR management tools available today, GRI provides EHS professionals an avenue to finally define metrics for their PES. This was a challenge during the third wave when EHS departments were responsible for implementing ISO 14001 but had limited guidance on setting environmental metrics. Other new management tools such ISO 26000 Guidance on Social Responsibility promotes further integration of EHS department into driving the company’s business strategy. For example, ISO 26000 suggests firms integrate corporate sustainability and corporate social responsibility into its vision or mission statement to ensure it becomes an integral part of the firms’ policies (R. Hahn 2013).

Accordingly, many firms have been creating senior management positions in corporate sustainability to promote a cross-functional solution governed and facilitated top down within the firm (MacLean 2011). Greenwood, Rosenbeck, and Scott (2012) indicates that EHS managers are becoming even more critical to a business in that they can develop the “firm’s policies and programs to achieve scientific objectives related to environmental impacts and sustainability as well as evaluating whether or these efforts can succeed in advancing sustainability within the context of the firm and its business framework.” Moreover, this newly expanded role provides a multitude of opportunities for EHS professionals to move away from being seen as “compliance cops” to “change agents.” But like every transitional wave before, this current fourth wave has increased the roles and responsibilities of the EHS department leading to even more complex set of challenges and constraints to effective CEM.

First, the leverage of influence and authority many EHS departments have within their firms are still not sufficient enough to the drive the necessary attitudes and behaviors to shift a firm’s culture towards approving and supporting PES and corporate sustainability. Greenwood, Rosenbeck, and Scott (2012), in an analysis of 2011 survey results administered to working professionals in various corporate functional units (including environmental), revealed that while environmental managers were inclined to play a major role advancing the firm’s sustainability efforts, professionals from other functional units still perceived environmental managers as having a major role in only traditional environmental issues such as pollution prevention and waste management. The study goes on to suggest that the EHS professionals may be underutilized in the firm’s efforts to transition towards sustainability. Accordingly, while many
EHS departments have been given these expanded responsibilities and firms rely on them for strategic management towards sustainability, the organizational support and commitment has not followed. MacLean (2005) stresses that these new roles and responsibilities have left EHS departments with inadequate resources, specifically limited management support on actions that go beyond regulatory requirement and, within some firms, limited senior management engagement regarding sustainability issues. From this perspective, it would appear that much like the environmental issues of the 1970s, CS is also seen as “externality” and is still delegated to an isolated cop-like functional group (i.e. EHS Department) rather than truly integrated across the firm and among the firm’s stakeholders. Some firms today, for example, focus simply on “green messaging” where marketing and public relations professionals are used to protect or enhance the firm’s brand through advertisement of the firm’s environmental and social activities and EHS departments are left to bridging the gap between the messaging and reality (MacLean 2010). Another gap is that as of yet, there is no centralized, universal or consistent standard or single management tool that firms can use to address the various sustainability issues. There is in fact numerous management tools (e.g. ISO 14001, ISO 26000, GRI G4 Sustainability Reporting Framework, among many others) that are readily available to firms yet only provide guidance in certain elements of effective CS management and thus, many firms have taken on an “ad hoc” approach (MacLean 2011). For example, while some firms have established senior Environmental, Health, Safety and Sustainability (EHSS) Departments led by individuals with a strong EHS background (e.g. Dupont), others have decided to appoint marketing professionals (e.g. Coca-Cola) or accountants (e.g. Alcoa) to lead corporate sustainability efforts (MacLean 2011). Additionally, CS and CSR are still relatively new concepts that still seem to baffle most company senior executives, and the nature of the metrics required to effectively measure environmental, social and economic performance continues to be a challenge for even the most adept EHS professional (MacLean 2004). Moreover, this new role is even more complex, filled with both challenges and opportunities as the EHS department increasingly plays a pivotal role in CS, managing the shift in the corporate culture, and driving the overall business strategy.
Summary

In a 2014 survey of over 250 interviewed EHS leaders, research firm Verdantix revealed that 67% of EHS leaders were responsible for measuring the firm’s sustainability data collection reporting results and 75% were responsible for establishing CS data collection and reporting policies (Verdantix 2015). The expectation is that the two fields, EHS and CS, will continue to migrate closer together. Accordingly, the evolving role of EHS professionals will keep increasing in complexity, filled with both challenges and opportunities as EHS professionals manage EHS compliance, EHS performance beyond compliance, and now CS. This is further complicated by the fact that the profession and academic training itself has not been able to keep up with the evolution of the EHS professional discipline. There is currently no centralized professional license or certification required to practice in the EHS field as professionals continue come from various disciplines and backgrounds. In one survey of over 5,000 individuals in various EHS positions, 20% had no certifications whatsoever and many firms continue to hire senior leaders outside the EHS discipline to oversee the Environmental, Health, Safety and Sustainability issues (MacLean 2010; MacLean 2011; Greenwood, Rosenbeck, and Scott 2012).

A summary of the various opportunities and threats to the evolving role of environmental management is provided in Table 2-1. The challenge and opportunity for EHS professionals is to provide value that is of strategic importance to the company (MacLean 2005). The traditional players who defined the EHS professionals’ role (e.g. regulators) in the global business environment continues to change and EHS professionals must adapt by developing the necessary competencies and capabilities needed to lead this cultural shift. Some of the core competencies needed by EHS professionals can be derived from Bootsma and Vermeulen (2011) as follows:

- Intellectual qualities (e.g. analytical and integrating capacity)
- Professional knowledge (e.g. knowledge of natural and social science discipline)
- Research skills (e.g. knowledge of research methods and working with system models)
- Numeric and information sharing skills (e.g. statistical knowledge)
- Practical skills (e.g. translating theory into practice; project management);
- Communication skills (e.g. customer-directed, presentation skills)
- Social skills (e.g. network, teamwork)
- Self-Management (e.g. sense of responsibility, discipline)
- Management System (e.g. Systems thinking approach)

Jorgensen and Lauridsen (2005) states that “competences are developed and sustained as an integral element of the community of practice when complex technological and organizational problems are defined, structured, and solved by combining practical and scientific knowledge, giving due consideration to the context and circumstances of the problem to be solved.” While many of these are generic in nature, it provides a foundation of how EHS professionals should approach both the social and economic dimensions, where a combination of core competencies can be used to highlight and emphasize the significance of the role of the EHS professional. Additionally, taking a strong stand in acquiring, assimilating, transforming, and exploiting knowledge is a valuable precondition to realizing the benefits of a proactive environmental strategy (Albertini 2013). Furthermore, the value of the EHS professional to the firm itself is validated when he or she can provide the appropriate level of environmental competencies and influence to corporate social responsibility and competitive advantage through PES. The next sections of this paper highlight some of the ways by which EHS professionals can employ their set of core competencies and capabilities that help to sustain or improve value of PES for both the economic and social dimensions of CS.
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<td><strong>Second Wave: EHS Compliance</strong></td>
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<td>• Compliance</td>
<td>• Reactive strategies</td>
<td>• Hard set of metrics (i.e. regulation)</td>
<td>• Cost of doing business</td>
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<td>• Reduce Mitigation Costs</td>
<td>• Compliance risk management</td>
<td>• Focused responsibilities</td>
<td>• Isolated functional department</td>
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<td>• “End-of-Pipe” Solutions</td>
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<td>• Functional department integration</td>
<td>• Expanded roles and responsibilities</td>
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<td><strong>First Wave: EHS Compliance and Management Systems</strong></td>
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<td>• Compliance</td>
<td>• Proactive environmental strategies</td>
<td>• Optimization of environmental management</td>
<td>• Complexity of integration across the corporation</td>
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<td>• Reduce Mitigation Costs</td>
<td>• Compliance risk management</td>
<td>• Functional site-wide integration</td>
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<td>• “End-of-Pipe” Solutions</td>
<td>• Environmental management systems (e.g. ISO 14001)</td>
<td>• Legitimacy (e.g. ISO 14001 certification)</td>
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<td>• Compliance</td>
<td>• Proactive environmental strategies</td>
<td>• Legitimacy (e.g. ISO 14001 certification, reporting)</td>
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<td>• Reduce Mitigation Costs</td>
<td>• CS strategies</td>
<td>• Stakeholder involvement and integration</td>
<td>• Complexity of integration &amp; alignment</td>
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<td>• “End-of-Pipe” Solutions</td>
<td>• Compliance risk management</td>
<td>• Business strategy integration</td>
<td>• Expanded roles and responsibilities</td>
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Table 2-1. Evolution of Corporate Environmental Management
Chapter 3: Economic Dimension

Overview

More than ever before, PES are being adopted as more firms are realizing its relevance to economic growth opportunity. A 2012 survey, conducted by Deloitte and Business in the Community Ireland, revealed that 93% CFOs believe there is a direct link between environmental and social impacts and business performance and 58% believe that these impacts should be part of the Corporate Financial Officer (CFO) strategy (“The Deloitte CFO Survey: Sustainability and the CFO” 2012). Accordingly, many more recent studies have supported the “it pays to be green” mantra. A meta-analysis of over 52 independent studies over a 35-year period (i.e. 1975 to 2011), exploring the relationship between corporate environmental management and corporate environmental, supports the “win-win” hypothesis indicating mostly a positive relationship between the two factors (Albertini 2013). In a Clarkson et al. (2011) study of over 242 firms within four of the most U.S. polluting industries, there is supporting evidence of this positive relationship as well. Specifically, the study revealed that companies focused on improving environmental performance generally had a better economic performance (i.e. higher return on assets and cash flow) in comparison to similar firms that lacked emphasis on improved environmental performance. Furthermore, these studies suggest that PES are being readily accepted and integrated into the overall company’s strategies pertinent to sustainable economic growth. And today, EHS professionals should have fewer challenges to any directives and actions they provide to encourage pollution prevention.

Unfortunately, this assimilation has not been smooth, transparent, or always successful. For example, while the 2012 independent Deloitte-funded survey revealed that most CFOs are starting to recognize an increased involvement in environmental and social issues, a follow up survey (the 2012 Deloitte and Business in the Community Ireland survey previously noted) revealed that only 28% of the CFOs surveyed actually reported any linkage between environmental and social impacts and business performance (Pearson, Park, and Hespenheide 2013; “The Deloitte CFO Survey: Sustainability and the CFO” 2012). One challenge is that while firms are slowing moving away from reactionary management, these same organizations
are still in the mindset that poor environmental management is a simply a cost inhibitive concern. One supporting perspective is provided in the Journal of Economic Perspectives, for example, claiming stricter environmental requirements must, by its nature, reduce a company’s profitability (Laszlo and Zhexembayeva 2011). Actions such as enhancing mitigation controls, using cleaner energy sources or developing new “green” products require initial human and resource capital or an added cost in doing the right thing. Other firms have claimed pollution prevention measures can divert resources (including financial) from otherwise more productive investments that would not otherwise be recovered (Clarkson et al. 2011). Furthermore, when considered strictly as cost avoidance, actions taken by a firm to reduce its environmental impact will often be looked at as a trade-off with economic growth of the company. Conversely, strategies could be focused entirely on cost reduction such as improving process efficiencies through optimized operations built on waste and resource minimization. Many firms have successfully developed “eco-efficient” strategies, defined as actions that concurrently save on costs while helping to protect the environment (Aragon-correa and Sharma 2003).

Part of the challenges with just employing the eco-efficient strategic approach is that some companies, specifically high-polluters, may not be able to reduce their environmental impact without reducing operational efficiency or absorbing costs that would otherwise be pushed down to someone else in the supply chain such as the consumer (Juan Alberto Aragón-Correa and Rubio 2007). For example, a power plant may discharge its toxic waste into a local stream that could lead to serious illness to the organisms that live in and humans that use the stream. While there may be liability costs (e.g. fines and penalties) and potential reputational costs associated with this practice, this costs may be cheaper or less riskier to the company’s economic future since the overall cost (e.g. human health, river biodiversity) may be transferred to other firm stakeholders such as the local community. Quite often, the government and local residents would be taking in more of the costs and recuperation from such damage, not the company itself. At the more global level, consider who inherits the costs of environmental damage when international firms have high-polluting facilities in third-world countries. Many third-world countries have relaxed environmental regulations and ill-informed local populations that more often than not, have to embrace the environmental damage costs since they are unable to link or impose the costs back to the firm that is in a different country. Accordingly, eco-
efficiency strategies may often times provide financial gains only when there are clear market and social drivers or legal restrictions, demonstrating or proving that operational external costs should be fully internalized into the company’s budget (Juan Alberto Aragón-Corra and Rubio 2007). For example, consider the conflicting market challenges of current recommended and highly advertised pro-environmental actions – switching from plastic bags to recycled bags, using solar panels versus existing energy sources, and replacing standard gasoline vehicle with a new hybrid or electric vehicle. While all these new replacements are seen as more favorable to improving the environment, the prices for these “greener” products are much higher for most consumers, and the market demand is substantially mixed (Laszlo and Zhexembayeva 2011).

Even corporations, eager to reduce their ecological impact, are reluctant to employ the use of these “green” products. Many consumers just don’t prioritize the environmental argument in their purchasing decision. So, why should firms follow or attempt to go against the market demand? Some studies suggest that eco-efficient practices may not be directly positively correlated with financial performance, where such PES over time do strengthen the firm’s organizational capabilities leading to eventual long-term competitive advantage (Juan Alberto Aragón-Corra and Rubio 2007; Laszlo and Zhexembayeva 2011). While there may be no immediately apparent profit gain, these practices could then lead to other measures of improved company performance – introduction into new markets, increase in customers, innovative operational systems, influence on social reputation, legitimization of proactive environmental practices, etc.

Furthermore, PES should be evaluated within the context of a company’s competitive advantage versus strictly on financial performance, where financial performance is often tied simply to direct costs. Firms, which establish a broader context for which its stakeholders are compelled to embrace environmental issues as opportunities, stand to realize significant benefits from a number of sources, including eco-efficient practices of optimization and waste reduction but also product differentiation and improved firm reputation and goodwill (S. Sharma, Pablo, and Vredenburg 1999). The Albertini (2013) study supports this theory, revealing that effective CEM was more positively related with a firm’s economic performance when measured through environmental management variables (EMVs) versus measured through environmental performance variables (EPVs). In the study, EMVs focused on a firm’s attitude and objectives
on environmental responsibility and the environmental management structural and processes in place to ensure successful strategy development and integration, whereas EPVs focused strictly on variables along resource use inefficiency and incompleteness, evaluating environmental impact in physical (e.g. reduction in emissions, waste minimization) and monetary (e.g. cost savings) terms. This study indicates that the firm is more likely to gain a competitive advantage if it recognizes that there is value in addressing its environmental impact. Seemingly, PES should be derived from one or a combination of the following principles or conditions (Hansmann and Kroeger 2001; Ervin et al. 2013; Juan Alberto Aragón-Correa and Rubio 2007; J. Alberto Aragón-Correa et al. 2008):

- Environmental performance is an inherent and transparent company goal that is seen just as significant as economic performance.
- Firms remain at the forefront of legislation by continuing to set pollution level goals below emission standards and regulatory requirements.
- Firms have the internal capabilities and resources needed to design environmental protection into their processes and for effective product stewardship, further attracting an ‘eco-oriented’ consumer base.
- Environmental strategies are associated with reducing costs, specifically through energy savings, process optimization and waste minimization or elimination.
- Environmental strategies are associated with establishing shared values and vision across the product and supply chain, responding to or helping to drive stakeholder pressure and demand.
- Environmental strategies enhance or generate new revenue streams through entrepreneurial orientation and innovativeness.
- Environmental or CSR reasons may be more relevant and useful in establishing successful and sustainable proactive environmental strategies than pure profitability.

These principles or conditions attempt to integrate the three CS dimensions into one value creation space, where creating an inherent value is an important facet of establishing and securing a competitive advantage. Following the Lazlo and Zhexembayeva (2011) strategy for creating value for a business and the Hoffman (2001) cultural framework for diffusing corporate
environmental practice, PES is further discussed and evaluated through the lens of seven competitive advantage elements: risk and crisis management, resource and operations optimization, products and services differentiation, market presence, brand management, industry standards involvement, and radical innovation.

**Competitive Advantage**

**Risk and Crisis Management**

Risk mitigation is one of the more accepted PES approaches for EHS professionals considering its often tumultuous relationship to regulatory affairs or compliance as well as strong ties to the environmental sciences. Managing environmental risks is a two-fold concept - value creation (i.e. minimizing environmental impact or increasing environmental protection) and avoiding value destruction (i.e. reducing business consequences that come with harming the environment) (Hoffman 2001; Laszlo and Zhexembayeva 2011). For example, preventive measures such as installing ventilation controls, secondary containment and hazardous chemical substitution can be used to minimize the chances or effects of an accidental toxic release. On a grander scale, where stakeholders could get heavily involved, firms could develop a comprehensive toxic release emergency response plan with members of the local community or provide periodic open forums with community leaders to educate them on and acquire feedback with regard to appropriate environmental safety measures being taken. Should a toxic release occur, a firm would need to manage not only the release itself, but also any: remediation efforts, loss due to production delays, compensation to injured parties, public relations, customer and employee concerns, and regulatory citations and fines. All of these secondary risks can directly affect the company’s economic performance and competitive advantage. Studies have shown insurance underwriters positively linking environmentally risky operations with increased financial risk (A. J. Hoffman 2001). Integrating suggestions from Hoffman (2001) and Schooley (2009), several specific risk mitigation practices and considerations when addressing a firm’s risk include:

- Minimizing environmental exposures to the ecosystem, employees, contractors, customers and the public to reduce insurance premiums and limit liability costs.
• Developing proactive plans for managing environmental disasters such as a spill or release that reduce the costs associated with environmental response.
• Managing remediation projects efficiently and more quickly to limit remediation costs.
• Addressing potential environmental impacts at the design stages of a product to reduce liability costs from the product’s use, misuse and disposal.
• Establishing risk communication practices that documents and discloses the company’s environmental concerns with stakeholders to limit liability.

Sanjay Sharma and Vredenburg (1998) provide examples of successful PES focused on risk management, highlighting Canadian oil companies that produce less polluting fuels, voluntarily avoid oil drilling operations in areas with highly negative environmental impact, and educate consumers on responsible use of fossil fuels. Similarly, some firms have taken on initiatives that focus on better managing eliminating environmental accidents and developing effective environmental response procedures, often to the satisfaction of the public and regulatory agencies. Dow Chemical, for example, has developed a Community Advisory Panel (CAP) program that focuses on strengthening its relationship with the community in and around its various facilities (Epstein and Buhovac 2014). Some of the CAP program efforts include providing emergency response education to local residents, collaborating and/or leading community projects and hiring directly from the community. But while these actions are impactful to protecting the environment as well as reducing a firm’s risk and associated liabilities, they are oftentimes considered reactionary and not proactive since they’re driven by regulatory compliance, do not focus on minimizing a firm’s environmental impact at the onset of pollution generation, nor does it always provide a firm direct advantage against or differentiation from the competition other than against those who fail to meet compliance. With respect to emergency response education and procedures, the competitive advantage would come from how much the firm actively engages with its stakeholders, such as the local community, and how far beyond regulatory commitment the firm is willing to go to reduce its environmental effect while adding value to its stakeholder constituents. Moreover, while certain risk mitigation approaches can positively impact the environment, it’s important to consider the grander scheme of proactive environmental strategy in the context of value creation.
Resource and Operations Optimization

When attempting to link environmental protection to economic performance, EHS professionals typically shape an environmental issue as an opportunity to improve a firm’s efficiency, primarily through energy, waste and material reduction. Many studies have shown that pollution prevention practices across the product and a firm’s process life cycles can be less costly than remediation or simple end-of-pipe treatment or control (Laszlo and Zhexembayeva 2011). One study revealed pollution prevention and emission reduction efforts improved a firm’s performance within only two years – operational performance improvements were observed the first year and financial performance improvements were observed by the second year after implementation (Iraldo, Testa, and Frey 2009). An example of resource optimization can be seen through via efforts by US firm Procter and Gamble (P&G). Through PES, P&G was able to reduce its use of material for its powdered laundry detergent packages by eighty percent as well increase the use of recycled plastic by twenty five percent (Michael Berry and Rondinelli 1998). These efforts helped P&G save on energy and materials costs, providing direct benefits to the financial performance of the firm. Accordingly, operational efficiencies are often times easier to measure and quantify – e.g. total reduced waste output, monthly energy bill, annual emission rates, etc. These impacts are also indications of costs that can be driven out of the entire supply system in a “triple win” strategy for the firm, EHS professional and the firm’s stakeholders (Laszlo and Zhexembayeva 2011). But as indicated earlier, while cost avoidance via eco-efficient practices can be lucrative avenue for the firm to develop a competitive advantage, it is oftentimes a trade-off decision or at odds with other objectives of the firm. Additionally, many processes reach their resource optimization threshold to a point that attempting to “lean” out any more material or use of energy would take a toll on production of goods or services. Moreover, resource and operations optimization may not always be the easiest or most lucrative approach to developing value creation of competitive through PES.

Products and Services Differentiation

Within this context, environmental attributes of a firm’s products and services are positively related to quality or performance (Laszlo and Zhexembayeva 2011). A company can be a leader in its industry by providing safer and “greener” products and services than its
competitors. An example of this differentiation can be seen with the rapid increase in the voluntary adoption of environmental management systems (EMS) such as ISO 14001 and European Union Eco-Management and Audit Scheme (EMAS). A survey of over 228 Spanish automotive supplier and manufacturers revealed that major benefits in adopting an EMS includes improvement in stakeholder relations, image and market acceptance on top of resource management and air emission reduction and cost reduction (Martín-Peña, Díaz-Garrido, and Sánchez-López 2014). These benefits provide differentiating factors that give these companies a competitive position within the market. Through product differentiation, firms are also able to increase their market share. A case study of five German energy and gas firms implementing a voluntary EMS revealed that three of the five firms purposely sought EMS adoption to boost competitive advantage (Morrow and Rondinelli 2002). Specifically, one of the energy plants saw the EMS adoption as an opportunity to draw away customers from using coal heating used by its competitors to district heating.

Other firms are taking a contrasting differentiation strategy, where they are marketing their products and services at the “bottom of the pyramid (BOP)” where many of the poorest communities have limited access to more environmentally-friendly products and services (Epstein and Buhovac 2014). GE, for example, has been penetrating the BOP market by selling small-scale distributed solar and point-of-use water treatment devices (Epstein and Buhovac 2014). The challenge for the firm is that there must often be: a consumer base willing to pay for these products (supply vs. demand); employees drawn to the firm by its environmental practices and reputation; suppliers that complement the efforts or would prefer to work with a more environmentally-conscious firm; and/or shareholders that are willing to invest in a firm’s environmental performance goals such as providing more environmentally-friendly products and/or services that are not consistent with its competitors (Moreno and Reyes 2013; Laszlo and Zhexembayeva 2011). While there may be market orientation challenges in differentiation, it can be lucrative in developing value creation and plays an important role in driving other competitive advantage elements.

Market Presence
Product and process stewardship, differentiation and optimization as well as shareholder and consumer demands often lead to new market ventures. When a firm successfully maneuvers through PES in alignment and in collaboration with its stakeholders, the end product often becomes a supply chain specific, communally complex, path-dependent value added for all stakeholders, including consumers (Moreno and Reyes 2013; Aragon-correa and Sharma 2003). For example, a firm through a robust and dynamic supply chain network may have secure rights to discounted raw materials, operational systems, and customers. Nike, for example, has developed an evaluation system of its suppliers that measures sustainability performance management (e.g. lean implementation, environment/energy) through their manufacturing index (MI) and specifically Material Sustainability Index (MSI) (Epstein and Buhovac 2014). Suppliers that perform well on the MI are provided special access to additional leadership resources, enhanced public recognition and priority consideration on new orders. This strategy provides the most sustainable suppliers with new opportunities with Nike and other similar manufacturing firms. Conversely, this strategy provides Nike an opportunity to strengthen its supply chain network through a self-governed integrated system, improves its cost structure, as well as reduce its overall ecological footprint. A survey study of 128 Columbian firms, suggests that competitive benefits, such as exclusive access to consumers and establishing premium price on products are also likely related to successful development of more highly advanced proactive environmental practices (Moreno and Reyes 2013; Albertini 2013).

In alignment with product and service differentiation, new markets include a brand new customer base such as BOP, or quite often the high-end or environmentally-aware consumer, which often include a niche market of individuals willing to pay a premium for more environmentally-friendly products. Successful “green” products that are, at least initially, priced at a premium include herbal food products, several Energy Star qualified appliances, and compact fluorescent lamps (CFLs) (Biswas and Roy 2016). Companies can enter these new markets either by adapting existing know-how to new needs or through a form of radical innovation. Additionally, higher revenue markets arise from meeting a more environmentally-conscious customers’ needs of eco-design, building product position and customer loyalty towards green attributes (Moreno and Reyes 2013). For example, highlighting the energy efficiency benefits of Energy Star products or CFLs even with initial high purchase investment
has helped to shape consumer willingness to pay and continuously pay for premium products (Biswas and Roy 2016).

Consequently, there are still several underdeveloped markets that firms can tap into using appropriate PES. The EHS Academy, a public-private partnership between the US for International Development and several private foundations, has been helping US firms with industry leading energy products and services to gain better access to new markets in China, where local standards are not as conducive to environmental protection (Degroot 2012). Other markets are being formed in the field of carbon emissions reduction, where new emission control instruments are entering the engineering controls market and firms are increasingly noticing the impact their carbon emissions have on the financial bottom line (Burritt and Tingey-Holyoak 2012). The challenge is penetrating new markets or even initiating new markets is the dilemma of understanding and meeting unfamiliar or new stakeholder (i.e. consumer) demand as well as competitors’ response. Accordingly, in order to reach competitive advantage, EHS professionals must include market orientation into the foundation of their competitive PES where stakeholder integration, including value creation, is central to strategy design and implementation (Chen et al. 2014).

**Brand Management**

Several studies reveal that one of the most important benefits from PES is to improve the company’s reputation and image (Sambasivan and Fei 2008; Guerrero-Baena, Gómez-Limón, and Fruet 2014; Juan Alberto Aragón-Corra and Rubio 2007). PES can improve the reputation and image of a firm, often putting it above the competition. Along with differentiation, this element may help to draw in shareholders, suppliers, customers and even new employees. It can also help to ease negotiations with regulators and environmental interest groups. For example, Coco-Cola has been able to secure special licenses for the water it uses for its manufacturing operations by showing evidence of responsible water use and demonstrating to regulators that it’s not in the best interest of the firm to harm water resources and local communities (Epstein and Buhovac 2014). To further improve on CSR, Coca-Cola maintains constant communication with residents around in facilities, educating them on how the firm is making strides to improve its water usage. For many firms being “green” has transitioned from a cost of doing business to
strategic positioning of its image. Accordingly, many companies are self-reporting their environmental impact through such avenues as annual sustainability reports or public domain sites such as the US EPA Toxics Release Inventory. While bad marketing could result in a form of corporate “greenwashing,” this public release of information may help to not only market its environmental efforts but also as one method to ensure the firm’s accountability (Williamson and Fister 2011). On the reverse end, poor PES can have a dampening effect on a company’s image, reputation and overall economic performance. The 2010 BP Deepwater Horizon oil spill disaster provides a great example of a company’s significant financial and reputation loss from ineffective CEM. On top of the 7% loss in shares and over $93 billion drop in stock market evaluation, the company suffered worldwide reputational harm including: the lowest grade of “E” by Covalence, a firm that monitors multinational companies’ ethical reputation; second to lowest score out of 60 most visible US firms with worst corporate reputation by a Harris Interactive 2011 US Reputation Quotient Survey; and ongoing demands by the public to boycott use of BP products (Wolf and Mejri 2013).

**Industry Standards Involvement**

Firms can also take an active role in forming and influencing environmental regulation and recognized voluntary standards that gives them a competitive advantage. Rather than lobbying against stricter legislation as is common among reactive firms, many firms are advocating for more stringent requirements that both protects the environment and makes it tougher for its rivals to compete. Sharma, Pablo, and Vredenburg (1999) revealed the successful strategies of two Canadian oil companies that gained additional competitive advantage through their early-mover advantage and direct involvement in shaping industry standards and local regulations. One of the proactive firms, for example, performed joint problem solving with local communities, interest groups and regulators and actively campaigned for air pollution reduction through the use of cleaner alternative fuels and the use of less polluting technologies (Sanjay Sharma and Vredenburg 1998). Accordingly, many firms are increasingly adopting voluntary certifications and standards to ensure their efforts are captured and proving that reducing environmental impact and maintaining competitive advantage is possible. The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) legislation, for example, requires firms to register its products sold in Europe that have substances of very high concern.
(SVHC). The process and declaration itself may help weed out competition, specifically those in emerging or poorly regulated markets, that find it costly to meet this requirement (Laszlo and Zhexembayeva 2011). Accordingly, as international trade becomes more competitive, influencing the development, legitimacy and adaptation of recognized environmental standards will help create entry barriers for many firms. Additionally, the most informed and engaged firms will generate PES that are in direct alignment with best industry practices and standards, making it easier for the firm to be an early adopter and therefore gain a competitive advantage.

**Radical Innovation**

Radical innovation can be described as the ability of the firm to integrate various attributes and elements of competitive advantage, which ultimately links sustainability strategies to financial gains for the firm (Laszlo and Zhexembayeva 2011). The inherent value of innovation for a firm is the ability of the firm to become leaders in its industry by not only simply developing new consumer products and services or developing new ways to manage its business performance, but by shifting the industry (as well as all the firms’ stakeholders) to share the same values and ideologies and further developing stakeholders’ behaviors that lead to a firm’s competitive advantage. Tim Brown, CEO of the innovation design firm IDEO, describes three constraints of innovation via design thinking as “feasibility (what is functionally possible within the foreseeable future); viability (what is likely to become part of a sustainable business model); and desirability (what makes sense to people and for people)” (Brown 2009). Innovation is achieved when PES are capable of meeting all three constraints through solutions based on shared values as shown in Figure 2-1.

![Figure 3-1. Design Innovation](image-url)
Consequently, sustainable development innovation (SDI) has been described as a firm’s ability to integrate the added constraints of social and environmental pressures into every business action, while considering future generations (Montiel and Delgado-Ceballos 2014). What makes successful PES innovative is that this integration and essential balance between the triple bottom line is multifaceted, considering the wider range of stakeholders and the associated conflicting goals, and ultimately implies radical, disruptive change in how firms do business (Montiel and Delgado-Ceballos 2014; Laszlo and Zhexembayeva 2011). Accordingly, studies have shown that green products and service innovation as well as environmental process innovations are good proxies for the evaluation of competitive advantage (Albertini 2013).

One of the most successful innovative products is the Toyota Prius, an energy hybrid vehicle, which has completely altered the US automobile industry and how potential car buyers (i.e. future Toyota product consumers) make purchasing decisions. In alignment with the rising concerns over climate change, the automotive factor sector continuously faces the challenge of CS innovations, with strong pressures from various stakeholders to produce cleaner vehicles with lower emissions (Comoglio and Botta 2012). Drawing away from their traditional hierarchical and functional organizational structures for product design and manufacturing, Toyota established a new product development team, built within a more innovation-oriented environment of equal-access communication and information-sharing opportunities such as integrating engineers typically out on the production floor into the design and planning review stages of the product that was successfully able to develop a vehicle with a fuel efficiency of 28.9 mpg while maintaining standard car buyer appeal such as strong horsepower and good cargo space (Epstein and Buhovac 2014). Accordingly, Toyota was able to capture demand from an emerging market (i.e. energy-efficient motor vehicles amidst rising fuel prices), while many of its competitors focused on meeting the demand of the popular sport utility vehicle market (Brown 2009). Toyota has sold over 4 million hybrid cars since 1997 and maintains roughly half the market share of hybrid vehicles in North America (Epstein and Buhovac 2014). Accordingly, Toyota has increased its brand and reputation as manufacturer of eco-friendly products.

Accordingly, innovation goes beyond just producing eco-friendly products and services. Guerrero-Baena, Gomez-Limon and Fruet (2014) indicate that firms which actively use innovative PES will not only reduce its environmental impact, but are also able to:
• Reduce risk and crisis management by improving compliance with environmental regulations;
• Optimize resources and operations through reduced production waste and increased productivity;
• Differentiate its products or services through greener products and services and having environmental protection know-how that can be sold at premium prices;
• Improve its market presence and seeking new opportunities by developing new markets such as international ones;
• Improve its brand through improved public image and increased employee motivation; and
• Influence the industry through enhanced communication with stakeholders.

Accordingly, radical innovation is an important facet of creating a competitive advantage. The challenge for firms, or specifically EHS professionals, is to develop proactive environmental strategies that anticipate the changing business landscape and use social, environmental and economic pressures as a source of innovation (Epstein and Buhovac 2014). This can only be done through development of an innovation-oriented environment built on shared values between the various firm stakeholders as well as clear objectives that are “specific, attractive and challenging” (Dibrell et al. 2014). This theory aligns with Tim Brown’s tri-dimensional design for innovation balance between viability, feasibility and desirability and will be discussed further in this paper as value creation is further explained.

**Case Study Example – DuPont**

The chemicals industry is one of the most competitive in the world, requiring often large and complex manufacturing and production facilities that require significant high-end and fixed capital costs that contribute to the a high degree of rivalry (“Chemicals in the United States” 2015). US chemical manufacturer, DuPont, is one of the largest and oldest global firms in the chemicals industry, maintaining operations in over 90 countries worldwide, with a recorded $36 billion in revenues in the fiscal year ending December 2013, and has been in the news currently following a merger agreement with rival company The Dow Chemical Company (“Chemicals in
the United States” 2015; DuPont 2013; Bunge, Benoit, and Dulaney 2015). Given its high profile position within its industry, DuPont has chosen to address corporate sustainability as a leader in the industry, developing proactive climate-change related strategies that have led to both a reduction in their environmental impact and an increase their competitive advantage (Andrew J. Hoffman 2006; “Chemicals in the United States” 2015). One of these strategies focused on the reduction and control of its hydrofluorocarbon (HFC) emissions.

Under the 1992 Kyoto Protocol (an international treaty on climate change) and 1988 Montreal Protocol an international treaty on ozone layer protection), many countries and firms were pressured to develop emission-reduction projects through regulation, financial incentives and voluntary commitments (Andersen, Sarma, and Doniger 2010). Part of this reduction effort includes an eventual phase out of HFC-23, an unwanted byproduct of hydrochlorofluorocarbon-22 (HCFC-22). HFC-23 is a chemical that depletes the ozone layer and highly affects climate change, with a global warming potential (GWP) 310 times that of carbon dioxide with a GWP value at 11,700, and HCFC-22 is a common refrigerant manufactured by DuPont (Andrew J. Hoffman 2006). There are three options to managing HFC-23 reduction: 1.) Stop production of HCFC-22 through development of substitute chemicals or leaving the market, 2.) Reduce amount of HFC-23 per unit of HCFC-22 (i.e. minimize the HFC-23/HCFC-22 output ratio), or 3.) Use “end-of-pipe” solutions that incinerate HFC-23 just before it’s released into the environment (Andersen, Sarma, and Doniger 2010).

Immediately following the climate change protocols, DuPont saw the HFC-23 phase out not only as a risk management exercise towards cost avoidance and minimization of regulatory liability, but also as an economic interest and political impact opportunity (Maxwell and Briscoe 1997). Andrew J. Hoffman (2006) highlights some of the strategic actions that DuPont took to increase its competitive advantage. First, DuPont set a strategic objective of reducing its GHG emissions by 40% of 1990 levels by 2000 and 65% of 1990 levels by 2010, targeting GHG emissions that had great impact and were considered “low hanging fruit” such as HFC-23. Second, while many other manufacturers focused entirely on “end-of-pipe” incineration solutions, DuPont aggressively invested in all three options towards HFC-23 reduction, requiring significant research and development, innovation, and initial capital investment. Third, DuPont took a proactive approach in driving voluntary and regulatory recommendations towards HFC-23
through heavy involvement and partnerships with NGOs, regulatory agencies, and other market stakeholders. Based on Andrew J. Hoffman (2006), Table 5-1 highlights the results of DuPont’s proactive environmental strategic actions in managing HFC-23, leading to an improved competitive advantage for the firm.

The expectation by the Montreal Protocol is that, minus a few exceptions, production and consumption of all emissive uses of HCFC-22, and thus HFC-23, will be phased out by 2020 in all developed countries and 2030 in developing countries (Andersen, Sarma, and Doniger 2010). Today, DuPont continues to remain proactive in its reduction efforts and focus on climate change. Actively engaged in ongoing update of the Montreal Protocol, DuPont has been continuously advocating for a HFCs cap and reduction plan that not only moves the industry towards alternative products with lower GWP but provides the firm with an even greater competitive advantage (DuPont 2013). Accordingly, much can be learned from the progressive efforts of a global company such as DuPont. As firms continue to migrate towards CS initiatives and strategies, EHS professionals must take a similar holistic approach and continue to develop PES that not reduce a firm’s ecological impact but provides a competitive advantage.

Summary

When framing PES as an added cost or trade-off to doing business, EHS professionals may lose the opportunity to link strong environmental performance to strong economic performance (Laszlo and Zhexembayeva 2011). Specifically, many firms struggle to find PES that directly increase financial returns for the firms, leading many to perceive that economic performance is best when environmental actions are performed to simply meet regulatory requirements (Aragon-correa and Sharma 2003). The “win-win” approach evaluates PES not only as an opportunity to improve the environmental performance but the economic performance of the firm, where reducing the firm’s ecological footprint is equal to improving the firm’s competitive advantage. Accordingly, only under the right conditions and settings can the EHS professional turn PES into a driven business value. While oftentimes several or all of the seven value-creation elements of competitive advantage align, they may at other times be contradictory (Laszlo and Zhexembayeva 2011). There will often be barriers to implementing PES, specifically under added costs such as upfront human and material resources, operational risks such as
<table>
<thead>
<tr>
<th>Net Impact</th>
<th>Specific Actions</th>
<th>Results</th>
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<tbody>
<tr>
<td>GHG Reduction</td>
<td>• Establish and achieve long-term company objective: Reduce GHG emissions 40% below 1990 levels by year 2000</td>
<td>• 40 billion lbs. reduction of GHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Met 1994 Reduction Target Goal by of by 1999</td>
</tr>
<tr>
<td>Risk and Crisis Management</td>
<td>• Reduce regulatory liability: First company to participate in EPA Department of Energy Climate Wise Program</td>
<td>• Remain ahead of the curve on regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Continuous pressure on regulators to develop stricter regulatory requirements</td>
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</table>
| Resource and Operations Optimization | • Initial high-cost investment in TQM optimization of production line  
• Advanced incineration technologies using thermal destruction                                                                 | • $2 billion cost savings through energy reductions and yield improvements between 1990 and 2005                                      |
| Brand Management         | • Promote Corporate Vision: “To be the world’s most dynamic science company, creating sustainable solutions to a better, safer and healthier life for people everywhere.”                                                                 | • Cited in Business Week magazine as “top company of the decade” from 1995-2005 for its climate-change achievements.            |
|                          |                                                                                                                                                                                                                  | • Ceres, non-profit organization advocating sustainability leadership, names DuPont leader in its industry in 2005                  |
| Industry Standards Involvement | • Remain active with Intergovernmental Panel on Climate Change (IPCC), Pew Center, Business Roundtable                                                                                                     | • Received early action credits for achieving voluntary GHG reduction goals                                                            |
|                          |                                                                                                                                                                                                                  | • Continuous pressure on IPCC to develop stricter voluntary guidelines regarding HFC-23/HCFC-22 ratio                                |
| Radical Innovation       | • Research & Development (R&D) investment towards patented production line of HCFC-22                                                                                                                               | • Proprietary production line with a 1.37% HFC-23/HCFC-22 ratio output (vs. average 2% HFC-23/HCFC-22 by most competitors)               |

Table 3-2. DuPont Case Study: Proactive Environmental Strategies as a Competitive Advantage
uncertainties in future benefits, incompatible management policies, and time commitment (Ervin et al. 2013). The very nature of the value-creation element of risk and crisis management seems to be at odds with the very nature of the value-creation element of radical innovation. Additionally, not all firm stakeholders can benefit equally from PES, where trade-offs such as between shareholder and customer demands must be balanced (Aragon-correa and Sharma 2003; Clarkson et al. 2011). Firms will gain a competitive advantage when they are able to integrate its complementary capabilities in a way that benefits its stakeholders better than its competitors. All in all, the role of the EHS professional is not only to formulate PES that drive environmental and economic performance, but one that creates values for a multitude of various stakeholders through improved social performance. In the next section of the paper, PES is discussed as a mechanism for enhancing social performance.
Chapter 4: Social Dimension

Overview

Beyond simply meeting the demands of regulators, firms are being increasingly pressured to consider PES as not only a legitimate economic requisite (i.e. new market opportunities, innovation, cost savings) but also a social requisite of doing business (Williamson and Fister 2011; Alt, Díez-de-Castro, and Lloréns-Montes 2015). Financial crises, globalization, climate change, unethical acts, corporate corruption, and environmental disasters have all resulted in the need for firms to consider the consequences of their actions and its effects within the larger socially complex system it lies in. Firms have been attempting to integrate their social responsibility efforts into their overall strategies, hoping that demonstrating CSR would provide them a competitive advantage. The significance of CSR is evidenced by increased social responsibility reporting by Fortune Global 500 firms and a reported, by economic consulting firm EPG, $15.2 billion a year on CSR actions by US and UK firms alone (Smith 2014). CSR marketing efforts is also one of the top three budgeted items for communication departments of large US firms (L. Tang, Gallagher, and Bie 2014). But like PES, while CSR strategies are increasingly seen by company senior executives as fundamental to the business, they are challenging to execute. Even with globally recognized guidance such as ISO 26000, the costs and benefits of CSR actions are proven difficult to measure and there are still limited studies on the relationship and effects of CSR on corporate culture (Barker, Ingersoll, and Teal 2014; Uecker-Mercado and Walker 2012). Given these challenges, how should an EHS professional frame and address corporate social responsibility?

A traditional definition of CSR is the “ongoing commitment of a firm to make economic gains within ethical and compliant means while at the same time improving the quality of life for not just its internal workforce but also the greater community and society at large (Dahlsrud 2008; Bhattacharyya 2015; Montiel and Delgado-Ceballos 2014).” While this definition provides a solid foundation for understanding CSR, further clarification is warranted. First, what is not as apparent in this definition is a driver for firms to go above and beyond what might be seen as required such as simply meeting regulatory requirements. A firm with an inactive waste site, for
example, could easily market and highlight its communication efforts with the local community, on the history and cleanup actions of the inactive site, as being socially responsible. Coincidentally, CERCLA requires that firms with inactive waste sites to develop community relations plans. While these communication efforts may appear like CSR, the issue is whether or not the firm would be so actively engaged with the local community if it wasn’t required to do so. And from a competitive advantage perspective, what differentiates this effort from the efforts of other firms with similar inactive waste sites within that community? The traditional CSR definition also negates to clearly highlight the strong relationship between environmental and societal concerns. Environmental protection is one of the many various elements in the CSR guidance document ISO 26000, considering damage to the environment could easily lead to damage to the society. Studies have also shown shaping environmental issues as social issues not only lead to successful PES but further promotes a firm’s competitive advantage. A survey of Western US food-processing companies revealed firms, which were able to integrate their environmental competencies with their social consciousness, were able to increase innovativeness, further contributing to and sustaining a competitive advantage (Dibrell et al. 2014). Dibrell et al. (2014) defines environmental competencies as “the firm’s capabilities to proactively protect the environment” and social consciousness as “the firm’s awareness of its position and role within the larger environment by which it exists and is shaped through a firm’s core values, culture, ethics, as well as by the views and values of its stakeholders.” Finally, the traditional CSR definition minimizes the value of as well as the relationship the firms has with its stakeholders. Aligning with CS and PES, CSR should consider the traditionally-accepted members of society (e.g. local community, family members of employees, consumers, etc.) as direct stakeholders of the firm’s behaviors. Additionally, the firm’s “greater community and society at large” includes all firm individuals and entities that the firm impacts through its actions or inactions.

Moreover, to recognize PES as value creation for the social dimension of the CS model, EHS professionals should consider Dahlsrud’s (2008) proposed five dimensions of CSR: stakeholder, environmental, voluntariness, economic, and social. PES by their very nature meet the voluntary and environmental dimensions of CSR and the economic dimension is achieved when PES provide the firm a competitive advantage. To meet the social dimension of CSR, EHS
professionals should revisit the linkage between environmental competencies and social consciousness and its overall effect on innovation. According to the resource-based view (RBV) of competitive advantage, a firm gains competitive advantage through an effective mix of resources and capabilities that become valuable to the firm since they are difficult to imitate (Dibrell et al. 2014; Moreno and Reyes 2013). In alignment with environmental competencies, firms that create capabilities through human resource management will not only protect the environment but create opportunities for competitive advantage (S. Rothenberg, Hull, and Tang 2015). But while a firm may have the resources or competencies needed to execute PES, what is lacking more often than not is the will and motivation to act responsibly. The literature also indicates that when proactive environmental corporate social responsibility (ECSR) strategies take into account various stakeholders’ expectations, firms will start to meet the triple bottom line of economic, social, and environmental performance (Manika et al. 2015). The value of PES within the social dimension of CS, or specifically ECSR, is discussed further and evaluated through the lens of three corporate social responsibility elements: organizational capabilities, social consciousness, and stakeholder integration.

**Corporate Social Responsibility**

**Organizational Capabilities**

Organizational capabilities are the synchronizing mechanisms that facilitate the most effectual use of a firm’s tangible and intangible assets (Sanjay Sharma and Vredenburg 1998; Moreno and Reyes 2013). Therefore, a firm’s resources and capabilities help drive PES that lead to competitive advantage, whether through innovation, higher learning, development of core competencies or continuous improvement (Sanjay Sharma and Vredenburg 1998; Aragon-correa and Sharma 2003; Delgado-Ceballos et al. 2012; S. Rothenberg, Hull, and Tang 2015). Strategies such as pollution prevention programs or actions are integrated into the administrative, entrepreneurial and engineering functional groups of the firm and in turn, these groups are provided the knowledge and skills needed to optimize their activities, save costs, while also providing ethical and social contributions to the firm (Aragon-correa and Sharma 2003). These are win-win solutions for firms and one of their most important resources as well as stakeholders - employees. The firm and employee dynamic, for example, is typically characterized by a high-
resource interdependence, where employees are dependent on a firm and a firm is dependent on
an employee (Alt, Díez-de-Castro, and Lloréns-Montes 2015). Firms can empower their
employees through core competency development (i.e. environmental competency) and
employees become part of the overall unique capabilities of the firm while at the same time
improving environmental performance. Co-operative, a UK food retailer, cut energy by 41% and
saved over 50 million GBP a year through in-store employee energy-saving training and
incorporating employee suggestions (Alt, Díez-de-Castro, and Lloréns-Montes 2015).
Consequently, there have been studies demonstrating that employees involved in environmental
initiatives are likely to be more supportive and will work harder towards achieving positive
environmental performance (Tung, Baird, and Schoch 2014).

PES also facilitates higher orders of learning, which, in turn, could lead to innovativeness
and competitive advantage (Juan Alberto Aragón-Correa and Rubio 2007). Higher-order learning
is the ability of an organization to shift its interpretations, ideologies and understanding of a
situation, even under heavy conditions of uncertainty and ambiguity, through collective
absorption of knowledge (Sanjay Sharma and Vredenburg 1998). Doing so allows a firm to
courage its employees to rapidly adapt to new ways of thinking including adopting and
suggesting PES that provide the firm a competitive advantage. A study of 232 Spanish hotels
revealed that higher learning orientation favors innovativeness and goes on to suggest that the
firms should invest in learning capabilities prior to establishing innovative proactive
environmental strategies (Fraj, Matute, and Melero 2015). These knowledge-building
mechanisms can facilitate collective learning that essentially provides for new ideas to be
introduced and more easily assimilated. Fraj, Matute, and Melero (2015) states that
organizational learning is linked to innovativeness by providing: greater attention to
technological changes, new market opportunities through better understanding of customers’
needs, and market intelligence that leads to a better comprehension of its competitors’ strengths
and weaknesses. MillerCoors, for example, took on higher orders of learning via internal
benchmarking leading the company to adopt best practices that optimized its operations while at
the same improve its environmental performance (Epstein and Buhovac 2014). The US-based
company sent a team down to three if its South American breweries to evaluate innovative
solutions that reduced operational energy and water use, enhanced process efficiency and
minimized waste. The MillerCoors South American facilities, for example, were able to improve natural light usage as well as recover and reuse heat and steam energy in its operations. The breweries were also able to cut down water use by optimizing its cleaning system process and landscaping with drought-tolerant vegetation. Waste minimization efforts revolved around preventive plant maintenance of its operational equipment that helped to reduce spills and product loss. Through observation and engagement with its South American counterparts, MillerCoors was able to integrate several of these practices at its US operations that not only helped to further reduce the firm’s ecological impact and boost economic performance, but showed that the firm was consistently engaged and committed to company-wide to CS practices through employee empowerment and encouragement to innovate (Epstein and Buhovac 2014). PES also often require input from various disciplines and fields of expertise, where firms with higher levels of learning capabilities will be able to exploit their knowledge on environmental protection over the competition (M. Delmas, Hoffmann, and Kuss 2011). Last, PES help firms establish new paths of learning and knowledge that can then help shape norms, values, world-views, or frames of reference. Epstein and Buhovac (2014) highlight “knowledge assets” as one of the firm’s valuable capabilities:

1. Employee skills and knowledge including expertise and qualifications;
2. Physical technical systems that incorporate tacit knowledge and skills such as software databases and work procedures;
3. Management systems that provide guidance, organization and control of acquired knowledge; and
4. Values and norms that help to determine and control the right knowledge and skills necessary to pursue desired (i.e. proactive environmental) behaviors.

Value is also established through cross-functional employee involvement, coordination and integration as well as reconfiguration and recombination of resources that turns into a win-win for the various stakeholders. Teamwork provides great opportunities for improving environmental performance, while simultaneously providing mutual trust, cooperation, increased shared interest and opportunities for knowledge sharing and transfer (Tung, Baird, and Schoch 2014). Howard-Grenville (2006), through an ethnographic study of a semiconductor manufacturer attempting to integrate environmental practices highlights the positive and
negatives of cross-functional teams. Particularly, the study revealed that one of the firm’s diverse engagement teams, referred to as EnviroTech and comprised of individuals from the firm’s EHS, facilities and materials departments, were able to tailor environmental solutions to an expanded group of stakeholders since its members had the resources and connections to work on multiple fronts. This value of knowledge sharing and skills development can further extend beyond internal stakeholder cross-functional relationships. For example, Sanjay Sharma and Vredenburg (1998) reveals through its case study on two proactive Canadian oil firms that the organizations were able to hear and use ideas from local communities and environmental groups that enabled the firms to provide innovative actions of environmental protection. This open communication channel between the stakeholders also led to improved relationships between the various organizations as well as reinforced organizational learning. Other academic studies have indicated that initial focus on its internal stakeholders are better able to develop capabilities and embed these into their own routines and strategies that can make it easier to engage external stakeholders more effectively (Z. Tang, Hull, and Rothenberg 2012). This promotes strengthening of the firm’s shared values and integrated capabilities necessary to drive behaviors both inside and outside the firm. Furthermore, PES can provide improve CSR efforts through honing of a firm’s organizational capabilities, specifically through building employee environmental competencies. These capabilities and resources, over time, become rare an inimitable, yielding a firm environmental competency, improved social capabilities and ultimately a competitive advantage (Dibrell et al. 2014).

Social Consciousness

A corporate culture is defined by a dominant system of shared meanings and shared values that are accompanied by, represented and recreated through various behaviors and practices often perceived as a distinct way of life (Howard-Grenville 2006; Barker, Ingersoll, and Teal 2014). The literature has shown that these shared cultural meanings focus attention and provides an interpretive lens for issues, in this case being environmental, and that this interpretation activates the desired mindset for strategic action (Howard-Grenville 2006). A company culture’s perception of environmental management issues will help determine what the company is currently willing to do to tackle environmental issues as well as determine where there are gaps and help develop strategies that would help shift cultural mindset towards being
more open to proactive management activities, often referred to as improving the “environmental orientation” of the firm (Segarra-Oña, Peiró-Signes, and Mondéjar-Jiménez 2013). Logistics and shipping company Canadian Pacific (CP) was able to shift the culture through improved social consciousness through a corporate-wide campaign to minimize bottled water usage and waste as well as engage its employees on broader sustainability issues (Epstein and Buhovac 2014). First, CP brought emphasis to the issue through facility presentations and walk-throughs, providing a visual representation of the plastic bottle issue. To transform employee attitudes, CP communicated through its company intranet and newsletter the consequences of issue, presenting images of bottle waste mountains and highlighting the huge costs associated with waste management. Finally to encourage desired behaviors, CP showcased employees committed to the effort through recorded interviews and an active rewards system as well as demonstrated organizational commitment by having their senior managers use tap water at their meetings. And since a corporate culture is suggested to bridge together as well as engage the entire corporation, ECSR must be embedded within it to ensure accountability and success of a PES. An “ECSR-driven” culture is said to develop shared values and meanings based on the ECSR and sustainability principles, where strategies and decisions are not purely financially driven, but fundamentally values-driven (Barker, Ingersoll, and Teal 2014). From this perspective, ECSR can be seen as valuable in that it improves the firm’s fundamental values and overall consciousness. And as indicated in literature, an ECSR-driven culture can ultimately lead to competitive advantage through avenues such as new markets and differentiation (Barker, Ingersoll, and Teal 2014).

The literature has suggested that a focused approach to managing environment issues accompanied with an impetus on an organization’s social consciousness may result in broader gains to the firm through increased innovativeness (Dibrell et al. 2014). These changes in ways of thinking increases the firm's overall capabilities, where encouraging pro-environmental attitudes enhances an individual's ability to become more curious and engaged with improving existing environmental practices, developing creative suggestions to environmental problems, and doing tasks differently to benefit the environment. US metals producer Alcoa, for example, stirred innovate thinking on sustainability across its organization through active meetings underscoring its business units with the best eco-friendly growth practices as model targets, and
thus encouraging other units to adopt new ways of thinking and action (Epstein and Buhovac 2014). An ECSR strategy allows firms to enhance their culture, through increased legitimacy, awareness, and revaluation of values that compels employees to go against the norms by seeking new ways to protect the environment (Papadas and Avlonitis 2014). For example, employees may work harder and or come up with new ideas on how to do things more responsibly because they understand the larger impact the work could have on society, it makes them feel like they’re doing the right thing, and/or they feel like they have an important role to play within a complex system. An analysis of ECSR motives of managers of top environmentally-responsible sport and public assembly facilities provides supporting evidence of this concept, where the managers’ responses on supporting the environment society included: “the right thing to do,” “being a good neighbor means being a sustainable and environmentally socially conscious business,” and “it’s really amazing when people find out that your building is being operated green and built green (Uecker-Mercado and Walker 2012).” ECSR can also lead to improved engagement and worker happiness. Not surprisingly, a Green Workplace Survey reveals that employee morale (44%) is a top benefit in implementing environmental programs, while companies that not yet formulated sustainability plans, the majority of the employers (75%) would like their employees to “go green (Papadas and Avlonitis 2014)”. A more engaged, high-morale workforce becomes a stable entity that would more than likely wish to stay with the company and align with the company’s overall objectives.

Accordingly, ECSR-driven firms could potentially have higher levels of employee retention. The positive emotions resulting from moral and ethical behavior increase social capital, which, in turn enhances the attachment to the organization (Dibrell et al. 2014). An analysis of quantitative data drawn from seven various United Kingdom companies (e.g. Telecommunication, Gas and Electric, Financial, etc.) demonstrates a positive and significant relationship between general environmental friendly employee attitudes and perceived importance of the organization’s environmentally friendly reputation (Manika et al. 2015). Consequently, this UK study on effective employee green behavior motivators or what was referred to as “interventions” also demonstrated that perceived importance of the companies’ environmentally friendly reputation had a positive and significant relationship with perceived environmental actions (behaviors) of the firms (Manika et al. 2015). When a firm’s culture
adapts to an ECSR-driven mindset and perspective, its members value the company’s reputation and are more apt to seeing the company as executing the right actions to combat environmental issues. Manika et al. (2015) goes on further to show that organizational commitment, as represented through perceived acceptable or unacceptable behaviors and supported by a strong positive or negative reputation, can strengthen or deter intended employee green behaviors. For example, the Manika et al. (2015) study reveals that when the companies exhibited strong proactive environmental actions to enhance recycling efforts such as additional waste bins, employees were encouraged to recycle, and when the firm provided support via organizational resources and capabilities (e.g. budget, investment in technology, ability to turn off equipment) employees were encouraged to save on energy.

A firm’s social consciousness also brings unity across firm units and supports a coherent and clear corporate identity that is vital to making effective decisions and managing change. Demonstrating commitment through enhancement of the firm’s specific capabilities as well as the firm’s social context of the problem can shape its environmental practices (Howard-Grenville 2006). Skilled and knowledgeable through environmental competencies and higher-order learning, EHS professionals understand the inherent value of PES, specifically in how they can be effective in improving a firm’s environmental performance. Only by employing ECSR-centered tactics will the EHS professional be able to shift the rest of the firm to considering PES as an opportunity to improve the quality of life and meet its ethical obligation to the community and society at large. All in all, aligning organizational capabilities with organizational consciousness will help EHS professionals shape and increase shared values which in turn enhance the corporate culture, drive the firm toward sustainable development, and sets expectations for the firm’s stakeholders.

**Stakeholder Integration**

Stakeholder integration is the ability of a firm to establish trust-based collaborative relationships with its diverse network of stakeholders (Alt, Díez-de-Castro, and Lloréns-Montes 2015; Sanjay Sharma and Vredenburg 1998; Delgado-Ceballos et al. 2012). Within the domain of PES, this capability enables the firm to develop solutions to environmental issues that satisfy the needs of all or at least balance the demands of its complex stakeholder network. There are
countless studies that demonstrate stakeholder integration positively influences proactive environmental strategies and even further competitive advantage. Delgado-Ceballos et al. (2012), in an analysis of survey responses from 73 Spanish business education industry senior managers, finds a significant and positive correlation between the firm’s stakeholder integration capability and the ability of a firm to develop PES. Alt, Díez-de-Castro, and Lloréns-Montes (2015), in an analysis of survey responses from 196 CSR, EHS and CS managers from various industries and countries, revealed employee stakeholder integration had an indirect but positive impact on a firm’s environmental performance via PES when shared vision between the employees were moderate to high. Moreno and Reyes (2013) discusses the value of stakeholder integration to PES in that it helps to promote the firm’s legitimacy by helping it to reduce the uncertainties in the environment. Furthermore, firms that incorporate stakeholder integration into its PES not only positioned to improve their environmental performance but also their competitive advantage. While this perspective of the stakeholder integration – PES relationship often provides benefits to a firm’s stakeholder, it may also be perceived as more beneficial to the firm than its stakeholders. In return, some proactive environmental strategies may in fact reduce stakeholder trust, which could lead to loss in economic performance. Therefore, another way to consider this relationship is how PES creates value to stakeholder integration? Within this context, social value can be defined as being created when the firm produces greater utility for stakeholders than stakeholders do for the firm and further, exceeds its competitors’ ability to provide solutions to social problems as well as stakeholders’ individual needs (Dibrell et al. 2014).

Organizational capabilities can be applied beyond the firm’s internal stakeholders (i.e. employees) as many PES can enhance the environmental competencies of other firm constituents – e.g. consumers, local community, suppliers, NGOs, shareholders, etc. Accordingly, one of the most valuable assets of a firm is its supply chain network. Ates et al. (2012), in an analysis of questionnaire responses by 96 Turkish manufacturing firm purchasing or environmental managers, reveals that a successful PES leads to higher internal investments (i.e. resources in environmental design, production and logistics) and external environmental investments (i.e. collaboration activities with suppliers regarding resources in environmental design, production and logistics). The study specifically reveals that these environmental investments serve as
mediator between PES to environmental performance. Ates et al. (2012) stresses the importance of investing time and resources on suppliers, emphasizing the positive relationship between the supplier’s environmental performance and product quality of the purchasing firm, as well the importance of shared values through consistency in environmental awareness and environmental capabilities. This investment not only improves the environmental performance of the firm itself but the stakeholders’ environmental performance, ultimately improving stakeholder integration.

Global firm Unilever, for example, has stepped up its sustainability efforts through purchasing tea from suppliers that engage in sustainable practices, working with the non-profit organization Rainforest Alliance to evaluate the practices of its tea suppliers (Epstein and Buhovac 2014). According to the firm’s CEO, these actions have resulted in wins for not only the firm, but many of its stakeholders – “Consumers will have the reassurance that the tea they enjoy is both sustainably grown and traded fairly. Subsistence farmers will get a better price. Tea pluckers will be better. The environment will be protected. And we expect to sell more tea (Epstein and Buhovac 2014).” Drawing from several attribute elements of competitive advantage, PES have also been shown to improve the capabilities of customers, local community and industry peers.

Packing products company Sonoco, for example, initiated a packaging products return policy in the 1990s that helped its customers cut costs and minimize waste generation while at the same improving the firm’s economic growth through a continuous supply of reclaimed product and eventual expansion of its stakeholder and consumer network as Sonoco eventually became a leader in the materials-reclamation business and added new paper stock operations to its portfolio (Michael Berry and Rondinelli 1998). GOJO Industries, Incorporated assisted in the development of sustainable skincare industry standards as well as the insertion of hand hygiene requirements in LEED buildings, which helped increase the consumer base for the entire hand hygiene market (Laszlo and Zhæxembayeva 2011). By working towards improving the environmental competencies of its stakeholders via enhanced capabilities, a firm is not only improving its own economic and environmental performance, but its stakeholder’s economic and environmental performance as well. These capabilities correlate to improved CSR as stakeholder integration is strengthened. Consequently, ECSR provides an opportunity for firms to secure a socially embedded competitive advantage by gaining exclusive access to important, but limited, resources or by jointly establishes rules, regulations or standards that are uniquely melded into the firm’s capability (Dibrell et al. 2014; Sanjay Sharma and Vredenburg 1998).
Dibrell et al. (2014) indicates that socially-conscious firms are those that are based on shared visions (or values) with its stakeholders, where social consciousness is a reflection of the firms’ ability to align the social wealth and satisfaction of different stakeholders to the performance goals of the firm. Accordingly, value is created when a firm can drive ECSR-centered values not just through its internal corporate culture, but across its value chain network of stakeholders. A field investigation analysis of senior management interviews and corporate document review highlights the importance a company’s belief system on stakeholder integration (Rodrigue, Magnan, and Boulianne 2013). This case study describes a belief system as a system expressing a firm’s fundamental values that motivate participants (e.g. employees, local community) to commit the firm’s objectives and should be designed to appeal to the firm’s various stakeholders. Rodrigue, Magnan, and Boulianne (2013) suggest that a strong belief system leads to not only shared values but shared responsibilities, where stakeholders are compelled to achieve common goals. Moreover, an ECSR-driven corporate culture can be a motivator for a firm’s stakeholders to become not only socially conscious of environmental issues but obligated to help the firm meets its environmental goals as the goals of the firm become the stakeholders’ goals. Specifically, the study identifies employees, government, community, industry and professional associations as social stakeholders that may exhibit this joint effort of common goals. One example of this collaborative effort can be seen through the California Climate Action Registry, created in 2000 to assist firms with monitoring and reducing GHG emissions (Epstein and Buhovac 2014). Firm registration is completely voluntary and the state’s development of the registry was voluntary as well. However, both proactive environmental firms and the state government see value in developing systems to meet a common goal - reduced GHG emissions. Accordingly, these actions build trust and further improve stakeholder integration.

Albertini (2013) states that clear and fully integrated PES should not only guide the development of competencies but also shape the firm’s relationship with customers, suppliers, other companies, policy makers and all other stakeholders. By its very interdisciplinary nature, ECSR requires the effective collaboration and integration of all stakeholders. Heightened loyalty through improved company brand or image, mutual interdependencies through commonly shared economic and environmental goals, and cross-organizational learning through benchmarking can
all strengthen both PES and stakeholder integration. For example, several studies have shown the mediating role corporate image has between ECSR dimensions and customer loyalty, where loyalty is said be a significant driver of predicting economic growth (Rashid, Rahman, and Khalid 2014). Clorox, through its Green Works line of biodegradable plant-based and non-toxic cleaning products, has gained significant market share and Richline Group’s jewelry line, through its use of supply chain traceability program, has developed priority status with many large clients such as Walmart (Laszlo and Zhemchugova 2011). Described earlier, supply chain networks also provide an avenue for trust-based collaborations where the literature emphasizes the possibilities for inter-organizational learning, which entails a “problem-solving routine connecting the focal firm with its suppliers and/or customers (Moreno and Reyes 2013).” Sony Corporation, through its Green Partner Environmental Quality Approval Program, periodically provides assessments of its supplier’s green practices (Laszlo and Zhemchugova 2011). Other literature highlights how industry benchmarking, a common activity or action in PES, necessitates a “collaborative spirit.” A firm, for example, can submit its environmental data (e.g. Environmental Performance Indicators) to its industry association and, in return, acquire collective information for its whole industry that it can use to evaluate its performance against its peers and improve its environmental legitimacy (Rodrigue, Magnan, and Boulianne 2013). In order to preserve its reputation in the industry, remain current in the latest technologies and best practices, influence industry-recognized standards, and ultimately maintain or improve its competitive advantage, these benchmark collaborations require stakeholder participation and integration. Oil and Gas Industry Guidance on Voluntary Sustainability Reporting, for example, provides the oil and gas industry firms of various sizes and from different locations added flexibility in reporting, identifies industry-specific product and materials sustainability issues, and helps to communicate and encourage the use of best practices in the industry (Epstein and Buhovac 2014). All these examples demonstrate value added towards a firm’s stakeholder integration.

Moreover, there is mutual relationship between PES and stakeholder integration. With respect to CSR, stakeholder integration serves as mediator between the firm’s environmental integrity and social equity, even serving as measurement of a company’s ability to mirror the two domains to common, shared values via attitudes turned behaviors. Since stakeholder integration
requires complex coordination of several human and technical skills and heterogeneous resources, it can be seen in itself as an organizational competence that if, used appropriately, can serve to reduce the firm’s environmental impacts while simultaneously maintaining or increasing the firm’s competitiveness (J. Alberto Aragón-Correa et al. 2008). EHS professionals have the challenge of identifying where the relationship between stakeholders can be improved through PES. Subsequently, EHS professionals also need to determine which stakeholders are potential barriers to PES, identifying solutions that reduce or circumvent the conflicts. Finally, the EHS professional, through the simultaneous development of a firm’s organizational capabilities and social consciousness must demonstrate that PES provides value added to a firm’s social equity through enhanced stakeholder integration.

Case Study Example – Nike, Inc.

The athletic apparel, footwear and equipment industry is a multibillion dollar highly competitive global market. For example, the global footwear sector of the market had total revenues of almost $250 billion in 2013 (“Company Profile: Nike Inc., 27 April 2015” 2015). Nike is a prominent leader in the athletic apparel and footwear market as represented by a recorded revenue of almost $28 billion dollars during fiscal year ending May 2014 as well as its leadership in driving corporate sustainability not only internally but external with its stakeholders (“Company Profile: Nike Inc., 27 April 2015” 2015). Through a comprehensive combination of organizational capabilities, social consciousness development and stakeholder involvement, Nike has been recognized for its CSR efforts and overall sustainable performance. For example, Nike has consistently been named one of Innovest’s “100 Most Sustainable Global Firms” as well as one of Sustainable Business’ “World’s Top Sustainable Stocks” (Epstein, Buhovac, and Yuthas 2010). Accordingly, one such example of Nike’s proactive strategic actions is through development of an industry benchmark and standardized system for monitoring and evaluating environmental performance across its value chain network (Nidumolu et al. 2014).

Started in 2003 through partnerships with NGOs such as the Sustainable Apparel Coalition (SAC) and collaborations with its various stakeholders, Nike began conducting research and development in driving ECSR and thus corporate sustainability (“Sustainable Chemistry Guidance” 2014). By 2009, the firm launched project “Rewire” that slowly transitioned its supply chain monitoring program away from compliance auditing and
remediation and towards a ECSR strategy based on integration, incentives and innovation (Porteous and Rammohan 2013). Additionally, the 2009 shift included an internal cultural shift in sustainability integration through internal scorecards that held each department accountable for sustainability performance using a top down management approach to ECSR management (Epstein, Buhovac, and Yuthas 2010). Finally in 2011, Nike launched its Materials Sustainability Index (MSI) using a “cradle-to-grave” and life-cycle-assessment (LCA) approach towards ECSR, providing a consistent framework for measuring, developing, promoting and rewarding environmental performance across its supply chain, brands and products (Porteous and Rammohan 2013; “Sustainable Chemistry Guidance” 2014). Today, Nike has expanded its sustainable reach with the MSI by opening it up for public use, integrating it into the SAC’s widely used Higg Index, and promoting use of the MSI through technology advancements such as a mobile platform application that provides designers and product innovators information on the environmental impacts of the materials they use (Porteous and Rammohan 2013).

While the long-term advantages of the MSI have yet to be seen, Nike has already seen dramatic effects since the MSI implementation that has not only reduced its environmental impact, but has helped drive corporate social responsibility. Based on “Sustainable Business Performance Summary for the Fiscal Year 2012-2013” (2013) and Porteous and Rammohan (2013), Table 6-1 highlights the results of these proactive environmental strategic actions linked to corporate social responsibility. Consequently, Nike has also aligned its environmental and CSR efforts with its overall company strategies which focus on innovation, premium pricing strategies (i.e. consumers will pay more for products that bear the Nike brand) and closed-loop business model (i.e. move towards a zero waste resource and operations optimization approach) (Mahdi and Abbas 2015). Epstein, Buhovac, and Yuthas (2010) describes Nike’s sustainability success as a sustainable competitive advantage driven by its strengths in leadership, organizational design, market strength, market positioning, and culture. Not surprisingly, Nike remains the dominant leader in the athletic apparel market (Mahdi and Abbas 2015). As represented by the Nike’s aggressive efforts in ECSR, not only can EHS professionals develop PES that reduce a firm’s ecological impact and enhance corporate social responsibility, EHS professionals have the opportunity to drive sustainable competitive advantage.
<table>
<thead>
<tr>
<th>Net Impact</th>
<th>Specific Actions</th>
<th>Results</th>
</tr>
</thead>
</table>
| Environmental        | • Developed, implemented and leveraged the Nike MSI in 2011 to reduce environmental impact across value chain from fiscal year (FY) 2011 to FY 2015, including:  
  o 20% reduction of CO₂ emissions  
  o 15% water efficiency per unit in apparel materials dyeing, and in finishing and in footwear production  
  o 10% waste reduction from finished goods production and shoeboxes | • 13% reduction in carbon by FY 2013  
• 10% water efficiency reduction by FY 2013 (apparel)  
• 23% water efficiency reduction by FY 2013 (footwear)  
• 8.6% waste reduction by FY 2013 (footwear)  
• 3% waste reduction by FY 2013 (shoebox) |
| Management           |                                                                                                                                                                                                                 |                                                                                                                                                                                                       |
| Organizational       | • Promoted Innovative Technologies: Rewarded and invested in innovative sustainability efforts  
• Established an open technology mobile application platform that leads to information sharing by experts and brand worldwide. | • Supplier Innovation – Development of waterless textile dyeing machine that results in no water used or discharged.  
• Supplier Innovation - Nike Flyknit technology which reduces footwear waste by 80% |
| Capabilities         |                                                                                                                                                                                                                 |                                                                                                                                                                                                       |
| Social               | • Enhanced social consciousness through MSI scorecard incentives: Suppliers must receive bronze rating by FY2020.  
• Developed information access tools and technology platforms to share sustainable materials and chemistry information with stakeholders | • 68% of suppliers achieved bronze rating or better by FY 2013  
• Co-developed LAUNCH 2020 to support sustainable innovation projects. Identified and investing in 10 sustainable projects. |
| Consciousness        |                                                                                                                                                                                                                 |                                                                                                                                                                                                       |
| Stakeholder          | • Identify key, like-minded suppliers through MSI scorecard assessment ratings  
• MSI information development – develop partnerships with other firms to identify sustainable materials and chemistries | • 800 Suppliers (FY 2013) vs. 1,000 Suppliers (FY 2009)  
• Formed PTC (Plant PET Technology Collaborative) along with other global firms to accelerate development and promote use of 100% plant-based PET materials and fiber |
| Integration          |                                                                                                                                                                                                                 |                                                                                                                                                                                                       |

Table 4-1. Nike, Inc. Case Study: Proactive Environmental Strategies towards Corporate Social Responsibility
Summary

Dynamic capability is the ability of a firm to exploit and reconfigure its resources towards firm-specific capabilities which are process-dependent, socially complex, path-dependent, and essentially non-replicable or inimitable and could therefore create competitive advantage (Delgado-Ceballos et al. 2012; Moreno and Reyes 2013; Aragon-correa and Sharma 2003). Through a combination of improving a firm’s organizational capabilities, social consciousness and stakeholder integration, ECSR-centric strategies become a dynamic capability of the firm and as described may lead to a firm’s competitive advantage. And unlike the relationship between the environmental and economic domains of CS, the relationship between the environmental and social domain is often more apparent where environmental is often considered a dimension of CSR (Dahlsrud 2008). The “win-win” approach evaluates PES not only as an opportunity to improve the environmental performance but the social performance of the firm, where reducing the firm’s ecologic footprint is equal to improving corporate social responsibility. Accordingly, ECSR-centric strategies are not always successful. Not all stakeholders exert the same influences or pressures, where some may even act as barriers to a firm’s PES. This balancing act will be a constant challenge for EHS professionals as they attempt to develop PES built on improving a firm’s dynamic capability. But when ECSR-centric PES are seen as improving the firm’s competitive advantage, they help to transition a firm towards sustainable development, where shared values are increased and a company’s culture is transformed.
Chapter 5: Strategic Management Model

Overview

Strategic planning can be either seen as an informal process built solely on experience for planning ahead or as formal process that is deliberately planned, comprehensive, and systematic (R. Hahn 2013). In alignment with systems thinking and ISO 14001, this paper takes the latter approach to managing PES towards CS. Many scholars suggest that proactive corporate support of environmental issues at the strategic level positively influences environmental performance and others have showed that formal strategic planning is positively linked to corporate social responsibility, is increasingly important in achieving competitive advantage and therefore advantageous to corporate sustainability (R. Hahn 2013; S. Sharma and Vredenburg 1998). Given the evolving role of the EHS profession and the complexities involved with the shift towards CS, EHS professionals need to develop PES within the scope of environmental strategic change planning.

Sandra Rothenberg, Maxwell, and Marcus (1992) described the two essential elements of strategic environmental change planning beyond environmental compliance and towards PES as strategy formulation and strategy implementation. Comprehensive strategy formulation would involve evaluating the firm’s capabilities (current and best guess of the future state), understanding the internal and external contextual and strategic factors of the firm, and providing a best guess time horizon for implementation (Sandra Rothenberg, Maxwell, and Marcus 1992; Pondeville, Swaen, and De Rongé 2013; Wheelen and Hunger 2012; R. Hahn 2013). Accordingly, well formulated PES integrates various stakeholder interests and demands in the decision-making process and distributes the value established by the firm equitably to all impacted stakeholders (Bansal 2005). This is aligned with the motives of CSR, where stakeholder integration is essential. A strong strategic formulation provides the firm with strategic direction and the foundation for how to move forward (Sandra Rothenberg, Maxwell, and Marcus 1992). Strategic implementation is then built around programs, support systems, and processes designed to ensure the strategic goals outlined in the proposed strategy are met. This includes being aware of all resource requirements and providing mechanisms to manage the strategy execution through innovation, market orientation, and other firm contextual factor
changes over time (Van der Byl and Slawinski 2015; Chen et al. 2014; R. Hahn 2013). This might involve managing changes and shifts with the company culture, technology, organizational structure, industry, or stakeholder dynamics of the firm.

Accordingly, CEM has drastically changed and evolved since the 1990s, when limited research articles such as Rothenberg, J. Maxwell & A. Marcus (1992) were making the case for using a strategic management framework for environmental strategy development. This evolution in both the role and need for a more rigorous management framework was further substantiated by the establishment of the ISO 14001 standard in the mid-1990s. Adhering to the total quality management (TQM) concept known as the plan-do-check-act (PDCA) cycle, ISO 14001 expanded the environmental strategic planning process beyond strategy formulation and strategy implementation, and incorporated mechanisms for strategy evaluation and control as well as continuous improvement. For example, ISO 14001 requires firms to establish and maintain processes to monitor and measure operational performance and providing corrective action (Martin 1998). A strategy evaluation and control process is needed to ensure the firm’s activities and performance results can be compared to desired performance and continuous improvement process enables a firm to revise or correct prior decisions anywhere within the strategic management planning process especially as the contextual factors of the firm.

EHS professionals need to use a strategic management framework that drives PES towards CS. This includes identifying and implementing processes, tools, systems to ensure elements of competitive advantage and corporate social responsibility are met to drive improved economic and social performance. Firms that consider such a framework generally outperform those that do not, achieving long-term performance goals and developing capabilities to control for change (Wheelen and Hunger 2012). Christini, Fetsko, and Hendrickson (2004) suggest that the ISO 14001 PDCA framework could be a mechanism to connect a firm’s processes towards SD. Additionally, there are other several management tools (e.g. ISO 26000, GRI G4) currently available and being used in formal strategic planning towards CS. But given that there are numerous management tools available and the various limitations of each tool (e.g. ISO 14001 is focused on traditional CEM versus CS management) as discussed in earlier sections of this paper, EHS professionals need to take an even more holistic approach to environmental strategic change. A holistic approach regarding PES means that EHS professionals need to consider all three dimensions of corporate sustainability, as well as their respective impacts and interrelations.
In a comprehensive analysis of strategic management, Wheelen and Hunger (2012) has developed a strategic management model (Figure 5-1) that attempts to consider globalization and environmental sustainability.

![Strategic Management Model](image)

**Figure 5-1. Strategic Management Model (Wheelen and Hunger 2012)**

Given the numerous elements provided in the model, it serves as a solid baseline for an analytical strategic management framework (R. Hahn 2013). But as simple as the model may seem, there are limitations to its effectiveness and ease of use, especially if used by EHS professionals to develop PES towards CS. There are also other strategic management tools such as ISO 14001, ISO 26000 and GRI G4 that can be employed to drive effective PES and use of these management tools continues to increase. Moreover, this section of the paper identifies some of the challenges and opportunities with using several globally recognized strategic management tools, specifically: Wheelen and Hunger (2012) Strategic Management Model, ISO 14001 Environmental Management Systems, GRI Sustainability Reporting Framework, and ISO 26000 Guidance in Social Responsibility.
Corporate Sustainability Management Tools

Strategic Management Model

There have been several strategic management models that have attempted to weave CS elements into business strategy but very limited literature that has focused on the complete integration of CS into strategic management and the interrelated issues (Engert, Rauter, and Baumgartner 2015). The strategic management model can be used for the latter approach considering it takes a more expansive view of basic elements of the strategic management and planning process (i.e. environmental scanning, strategy formulation, strategy implementation and evaluation and control), and attempts to cover most if not all the necessary elements needed to manage CS issues. For example, CS strategic management is about identifying an innovative marketing position for the firm or rather doing things that gives the firm a competitive advantage such as providing lower cost products or higher quality services to meet stakeholders’ needs while taking into consideration and integrating environmental and social issues (Engert, Rauter, and Baumgartner 2015). This identification of the three CS dimensions is derived from a thorough scan of the firm’s internal and external environment, or what is referred to as “context” of the firm. The strategic management model includes gathering and internalizing all applicable external contextual factors (e.g. natural, economic, technological, political-legal, and socio-cultural environment) as well as all applicable internal contextual factors (e.g. organizational structure, corporate culture, resources) that highlight the current state of the firm and can be used to predict the future state of the firm (R. Hahn 2013; Wheelen and Hunger 2012).

If simply following an EMS approach to PES, certain contextual factors may be missed as the focus tends to be biased towards the environmental dimension of CS. Often tools such an EMS is ‘built’ first without obtaining top-level commitment and agreement, and without alignment with the company’s overall strategic objectives (MacLean 2005). The strategic management model forces the EHS professional to consider all contextual factors, including the firm’s overall business strategy, prior to developing a PES. The strategic management model itself also provides a simple, consistent and systematic process view that can be used not to not only ensure market success and improve financial performance but to streamline CS and CSR management given the lack of existing CS and CSR management system processes (R. Hahn...
Engert, Rauter, and Baumgartner (2015) emphasize the importance in strategic management structure, which reduces uncertainty and creates consistency and opportunities for alignment with other management systems and the overall corporate strategy. *Wheelen and Hunger* (2012) itself is a detailed comprehensive textbook on strategic management theory that uses the model as a conceptual baseline, highlights global and environmental sustainability issues, and provides a wealth of real world examples for application of strategic management concept. All this considered, application of the strategic management model can be challenging.

First, the *Wheelen and Hunger* (2012) strategic management model and most others like it are tailored more towards the development of the overall corporate strategy of the firm, typically set by the chief executive officer (CEO) or senior executives. Some of the example strategies highlighted in the *Wheelen and Hunger* (2012) literature are associated with identifying mergers and acquisitions, managing the diversification of product and service portfolio, and corporate business model redevelopment. While it is possible for EHS department leaders to have influence over some of these high-level corporate activities, these are not the typical strategic decisions that an EHS professional would lead or facilitate. Rather, it’s more at the operational level where actual CS strategies can be implemented (Engert, Rauter, and Baumgartner 2015). At the operational level, EHS professionals are able to develop PES that can be aligned with or integrated into the overall business strategy. Consequently, the strategic management model is catered toward the economic dimension and the examples provided in *Wheelen and Hunger* (2012) only sometimes highlight the criticality of integrating the environmental dimension and social dimension into all aspects of the firm’s strategic management process as it shifts towards CS. EHS professionals need to use the strategic management model to develop PES that encourages CSR and/or leads to a firm’s competitive advantage such as creating a path to cost reduction and market differentiation (Engert, Rauter, and Baumgartner 2015). Finally, another critical issue with the strategic management model and the conceptual strategic management theory provided in *Wheelen and Hunger* (2012) is that they fail to integrate or capitalize on the many existing CS management tools used and available.
ISO 14001

ISO 14001 Environmental Management Standard (EMS) is one of the most commonly used environmental management tools by firms and EHS professionals today. The “ISO 14001 Continual Improvement Survey 2013” reveals that almost 75% of firms that have implemented ISO 14001 perceive ‘high’ to ‘very high’ value in its use for meeting environmental compliance requirements and improving the firm’s environmental performance, while over 60% of firms perceive ‘high’ to ‘very high’ value for improved employee engagement and management commitment (ISO 2014). Consequently, ISO 14001 goes hand in hand with the strategic management model in that it requires mapping out CEM along the PDCA cycle. For example, ISO certified companies are required to implement procedures to monitor and measure the key characteristics of their activities that can have an environmental impact (Comoglio and Botta 2012). Additionally, ISO 14001 requires that environmental considerations encompass every aspect of a firm’s operations and procedures. An integral dimension of the ISO 14001 EMS standard series is its incorporation of CEM within a firm’s business strategy (Petroni 2001). Table 5-1 provides a comparison of the suggested process steps for the strategic management model and PDCA cycle (Wheelen and Hunger 2012; Moen and Norman 2010).

<table>
<thead>
<tr>
<th>Strategic Management Model</th>
<th>PDCA Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Scanning</td>
<td>Plan</td>
</tr>
<tr>
<td>Identify strategic contextual factors that will determine the</td>
<td>Define the problem and hypothesize</td>
</tr>
<tr>
<td>future of the firm.</td>
<td>potential causes and solutions</td>
</tr>
<tr>
<td>Strategy Formulation</td>
<td></td>
</tr>
<tr>
<td>Develop long-range plans for the effective management of</td>
<td></td>
</tr>
<tr>
<td>environmental opportunities and threats in light of firm</td>
<td></td>
</tr>
<tr>
<td>strengths and weaknesses.</td>
<td></td>
</tr>
<tr>
<td>Strategy Implementation</td>
<td>Do</td>
</tr>
<tr>
<td>Put strategies and policies into action.</td>
<td>Implement solutions</td>
</tr>
<tr>
<td>Strategy Evaluation and Control</td>
<td>Check</td>
</tr>
<tr>
<td>Monitor results so that actual performance can be compared</td>
<td>Evaluate results</td>
</tr>
<tr>
<td>with desired performance.</td>
<td></td>
</tr>
<tr>
<td>Feedback/ Learning</td>
<td>Act</td>
</tr>
<tr>
<td>Go back to revise or correct decisions made earlier in the</td>
<td>Go back to planning steps if</td>
</tr>
<tr>
<td>strategic management planning process.</td>
<td>desired results were not achieved or</td>
</tr>
<tr>
<td></td>
<td>standardize solutions if desired</td>
</tr>
<tr>
<td></td>
<td>results were met.</td>
</tr>
</tbody>
</table>

Table 5-1. Strategic Management Model vs. PDCA Approach
As a total quality management (TQM) tool, The PDCA cycle highlights the avoidance of error recurrence through creation of standards and ongoing updates of the standards to reflect changes (Moen and Norman 2010). Accordingly, most if not all ISO management system standards, including ISO 14001, follow the PDCA cycle framework. Table 5-2 illustrates some of the parallels between the strategic management model and ISO 14001 elements.

<table>
<thead>
<tr>
<th>Strategic Management Model</th>
<th>ISO 14001 EMS</th>
</tr>
</thead>
</table>
| **Environmental Scanning** | • External Factors Analysis  
|                           | • Internal Factors Analysis  
| **Strategy Formulation**  | Plan  
|                           | • Context of the Firm  
|                           | • Scope of Interested Parties  
|                           | • Leadership and Commitment  
| **Strategy Implementation** | • Policy  
|                           | • Actions to Address Risks & Opportunities  
|                           | • Environmental Objectives  
|                           | • Planning to Achieve Objectives  
| **Strategy Evaluation and Control** | • Programs  
|                           | • Budgets  
|                           | • Procedures  
| **Feedback/Learning**     | Do  
|                           | • Support (e.g. Resources, Competence, and Communications)  
|                           | • Operations (e.g. Operational Planning and Control, Value Chain Planning and Control)  
| **Performance Monitoring** | Check  
|                           | • Monitoring, Measurement, Analysis and Evaluation  
|                           | • Management Review  
| **Revisions**             | Act  
|                           | • Nonconformity and Corrective Action  
|                           | • Continual Improvement  

Table 5-2. Strategic Management Model vs. ISO 14001

Moreover, ISO 14001 and the PDCA cycle align with strategic management and planning. MacLean (2005) goes on further to indicate that at the firm’s operational level – where EHS professionals can work closer to the actual operations and drive more tactical goals then high-level strategic goals – ISO 14001 can provide a significant value for strategy implementation. But as noted in Chapter 2, ISO 14001 is focused solely on the continuous improvement of a firm’s environmental performance and it does not provide enough guidance regarding minimum performance levels beyond compliance or measuring continuous improvement (Comoglio and Botta 2012). Without detailed elements that require integration of
social or economic issues into the EMS, ISO 14001 alone may not be sufficient in driving PES towards CS. Another issue with ISO 14001 is that it is specifically a management system standard that while designed to encompass the flow of management activities, does not fully specify the required content of the associated policies (Henriques 2012). It has also been suggested that management tools towards CS and CSR integration need to go further beyond the PDCA cycle by applying interconnected soft and hard core factors as the building blocks of the strategic management framework (Maas and Reniers 2014). The literature suggest that ISO 14001 can be used as a “support tool” to help accomplish a firm’s overall business strategy and can serve as incremental process step towards CS management (Maas and Reniers 2014; MacLean 2005). Furthermore, the strategic management model may serve well as a baseline analytical framework for CS strategy, with integration of ISO 14001 into the model for quality control and consistency towards enhanced environmental performance as well as consistency with other ISO management standards and the PDCA cycle.

**GRI Sustainability Reporting Framework**

The Global Reporting Initiative (GRI) Sustainability Reporting Framework is currently the most widely-cited and referenced system of sustainability performance indicators, encompassing over 79 performance measures across the environmental, social and economic dimensions of the firm (Asif et al. 2013). The “KPMG Survey of Corporate Responsibility Reporting 2013” revealed that 78% of reporting firms across the world use the GRI reporting guidelines in developing their CS reports, while over 82% of the global top 250 firms use the GRI reporting guidelines (KPMG International 2013). Main objectives of GRI is to make CS reporting commonplace and comparable as and in alignment with financial reporting, and for its framework to become the most broadly adopted and accepted method for developing, communicating and requesting corporate performance information (Tschopp and Nastanski 2014). Given the convergence towards centralized corporate performance reporting, the GRI sustainability reporting framework can be useful tool in developing PES towards CS and ensuring PES are aligned with a firm’s overall business strategies. Using the GRI five phase cycle for reporting (Prepare-Connect-Define-Monitor-Report), Table 5-3 illustrates some of the parallels between the strategic management model and GRI elements (Ligteringen and Arbex 2011).
Strategic Management Model | GRI Sustainability Reporting Framework
--- | ---
Environmental Scanning | • External Factors Analysis  
  • Internal Factors Analysis  
  Prepare & Connect  
  • Identify, prioritize and facilitate dialogue with stakeholders  
  • Identify most critical environmental, social and economic impacts  
  • Identify weaknesses and strengths and potential value to be gained.
Strategy Formulation | • Mission  
  • Objectives  
  • Strategies  
  • Policies  
  Prepare, Connect & Define  
  • Develop vision and strategy  
  • Develop actions plans with essential decision-makers and stakeholders of the firm  
  • Develop recommendations and set goals and objectives
Strategy Implementation | • Programs  
  • Budgets  
  • Procedures  
  Define & Monitor  
  • Connect departments and encourage innovation  
  • Make internal changes such procedural development to achieve sustainability goals  
  • Ensure quality of information through established processes to ensure high-quality data collection.
Strategy Evaluation and Control | • Performance Monitoring  
  Monitor  
  • Routinely check processes  
  • Continually follow up and monitor overall performance
Feedback/Learning | • Revisions  
  • Corrections  
  Report  
  • Choose format, establish and communicate report  
  • Adjust reporting framework, as needed, and repeat cycle

Table 5-3. Strategic Management Model vs. GRI Sustainability Reporting Framework

Accordingly, GRI fills in many gaps in strategic management and planning where ISO 14001 might be lacking. First, the GRI performance indicators provide a solid baseline for developing CS initiatives, specifically those that go beyond traditional CEM. For example, the GRI framework provides an exhaustive set of performance indicators along the environmental dimension (over 30 indicators across 9 sub-categories) and mechanism for relating these environmental performance indicators to indirect economic and social impacts (Montiel and Delgado-Ceballos 2014). The GRI framework also drives PES towards competitive advantage, driving consistency in reporting (even at the industry-specific and regional level) that makes it
easier for firms to measure against one another, enhanced company branding, and legitimation of corporate CS actions through transparent reporting and 3rd party assurance (Asif et al. 2013; Tschopp and Nastanski 2014; Ligteringen and Arbex 2011). Other elements required in formulating the GRI report also are major components of a strategic management model (Tschopp and Nastanski 2014; Ligteringen and Arbex 2011):

- Strategy and Analysis
- Organizational Profile
- Report Parameters
- Governance, Commitments and Engagement
- Management Approach & Performance Indicators

Consequently, the GRI sustainability reporting framework alone is not sufficient enough to develop a comprehensive PES towards CS. One of the biggest concerns with the GRI framework is that it’s too overly general with a broad set of indicators that, regardless of regional and industry-specific comparison capabilities, are not context-specific enough to meet specific business requirements or stakeholder needs (Asif et al. 2013; Tschopp and Nastanski 2014; Montiel and Delgado-Ceballos 2014). Considering the GRI is focused specifically on developing performance indicators and reporting, it does little to define the specific actions needed to ensure desired performance is achieved. Accordingly, some firms are simply matching existing strategic actions to the most closely related GRI performance indicators reinforcing a “business as usual” and “check the box” mentality rather than driving new actions and activities in CS (Asif et al. 2013). As firms continue to implement sustainability reporting tools such as the GRI framework, more strategic management and planning will need to be used to ensure harmonization with the overall strategy of the firm and stakeholder demands and actual improved CS performance (Montiel and Delgado-Ceballos 2014).

ISO 26000

Published in 2010, ISO 26000:2010 Guidance on Social Responsibility (ISO 26000) was developed to provide any firm, regardless of size, location and industry, guidance on integration of socially responsible behavior into the firm, emphasizing a firm’s contribution towards sustainable development (Misztal and Jasiulewicz-Kaczmarek 2014). Unlike ISO 14001 or GRI,
ISO 26000 does not have any certifiable elements that can be verified or validated by a 3rd party service provider and it’s been unequivocally stressed by ISO that ISO 26000 is not management systems standard that follows the standard PDCA cycle approach inherent in other ISO standards. Regardless, many scholars suggest that this recognized global standard could assist firms with following a more strategic management path towards CSR and furthermore CS (Pojasek 2011). Many of the ISO 26000 elements align with components of the EMS and PDCA cycle, and can be thus aligned and fit into a strategic management framework as demonstrated in Table 5-4 (R. Hahn 2013; Pojasek 2011).

<table>
<thead>
<tr>
<th>Strategic Management Model</th>
<th>ISO 26000 Elements</th>
</tr>
</thead>
</table>
| **Environmental Scanning** | • External Factors Analysis  
                   • Internal Factors Analysis  
                   Plan |
| **Strategy Formulation** | • Mission  
                   • Objectives  
                   • Strategies  
                   • Policies |
| **Strategy Implementation** | • Programs  
                   • Budgets  
                   • Procedures  
                   Do |
| **Strategy Evaluation and Control** | • Performance Monitoring  
                   Check |
| **Feedback/Learning** | • Revisions  
                   • Corrections  
                   Act |

• Social responsibility along six core subjects, broken down into multiple issues, relevance, related measures and external expectations.
• Provides some likely impacts of a firm along environmental, social and economic dimensions.
• Encourages firms to engage in reviewing all six core subjects to identify those issues relevant to the firm’s operations.
• Encourages firms to include CSR and CS in its vision or mission statement to make it integral part of firm’s policies.
• Overview of which issues firms should consider and can be used for developing objectives and goals
• Provides good practice examples in strategic actions and expectations
• Some guidance on integrating CSR and CS throughout firm’s operations
• Emphasizes connecting strategies to daily actions and routines
• Encourages awareness and building competence in CSR
• General comments on reviewing and improving firm’s CSR-related actions and practices
• Advises on systems for internal review of CSR activities
• Emphasizes systems for communications with stakeholders.

Table 5-4. Strategic Management Model vs. ISO 26000 Elements
The ISO 26000 standard acknowledges the importance of integrating CSR into a firm’s core strategies and provides a strong foundational step for broadly improving CS performance of a firm (R. Hahn 2013). One of the key elements of strategic planning often missed in more rigid management tools such as ISO 14001 are the soft aspects and impacts of strategic management. Soft impacts affect a firm’s culture and stakeholder’s attitudes, which in turn influence firm behavior and drive desired performance (Henriques 2012). ISO 26000 focuses heavily on soft impacts of a firm, encouraging “sphere of influence” integration and encouraging voluntary actions as opposed to simply following regulation (Pojasek 2011; Tschopp and Nastanski 2014). This emphasis on “voluntary actions” strongly aligns with the evolution of PES towards CS. ISO 26000 also aligns with the three critical CSR value creation elements – organizational capabilities, social consciousness, and stakeholder integration where the two fundamental practices of the standard are “recognizing social responsibility” (i.e. social consciousness) and “stakeholder identification and engagement” (i.e. stakeholder integration) (Pojasek 2011).

The ISO 26000 soft and broad approach towards CSR integration is one of the biggest critiques and challenges with effectual use of the standard. Maas and Reniers (2014) reveals that the wide-scoped guidance of ISO 26000 inhibits firms to convert the advice directly into concrete actions. Accordingly, much of ISO 26000 is not based on or set up along a systematic structure and scientific approach to CSR management and decision-making and therefore leads to many gaps in addressing potential CS impacts (Missimer, Robert, and Broman 2014; R. Hahn 2013). This is further complicated by a lack of certification process which, like ISO 14001 and the GRI sustainability reporting framework, may help a firm demonstrate and measure CS performance against competitors. Moreover, ISO 26000 by itself will not lead to CSR management from strategic management development perspective. Missimer, Robert, and Broman (2014) suggests that the confusion driven by its broad and generic approach of CSR integration as well as the overlap between ISO 26000 and other management tools already used makes a strong case for why a strategic framework for CS might be useful to complement the benefits of ISO 26000.
Summary

All in all, each of the CS management tools, including the strategic management model, provide some benefits in managing the PES towards CS. The strategic management model provides a more holistic perspective by considering most if not all strategic management and planning elements needed to manage CS issues. ISO 14001 and the PDCA cycle it adheres to aligns well with the strategic management model but has limitations such as complete focus on the environmental dimension and minimum performance standards beyond compliance. GRI provides performance indicators across all three dimensions of CS helping to drive PES towards competitive advantage, but the GRI framework itself focuses mostly on designing indicators and reporting versus the actions needed to ensure desired performance. ISO 26000 considers the soft impacts of a firm often missed in other management tools such as ISO 14001, encouraging voluntary actions and acknowledging the importance of CSR integration. However, the wide-scoped guidance, non-systematic structure and organization of the standard and the lack of a certification process, complicates the effectual implementation and integration of ISO 26000. Given the limitations of each CS management tool, when used independently there is greater risk with successfully managing the corporate cultural shift towards CS and meeting desired performance across all three dimensions of CS. Given their rising popularity and prominent use of the various CS management tools, EHS professionals will have to determine how best to maximize the use of each tool. Accordingly, the next section of this paper emphasizes the need and role of an integrated management system (IMS) to build on the benefits of each tool and help drive the cultural shift towards corporates sustainability.

Overview

Given the shortcomings of the various available management tools for CS management yet the significance of their continued and increased use, EHS professionals should consider a more holistic approach for PES towards CS through an integrated management systems and tools (IMS) approach. An IMS approach caters better to needs of firms as it builds on existing systems, policies, and structures, utilizing existing organizational resources and helps drive stakeholder integration through centralization towards a single management system (Pojasek 2011; Henriques 2012). An IMS also allows the firm to integrate already used and commonly accepted management tools with the necessary internal structures to develop organizational processes that better balances stakeholder requirements across the environmental, economic, and social dimensions of CS (Asif et al. 2013). Consequently, there has been movement towards a global architecture convergence of various commonly used standards, where CS tools are being grouped as normative frameworks, process guidelines, or management systems and where each available management tool is slowly being updated to drive such convergence (Ligteringen and Zadek 2005; Pojasek 2011). Figure 5-1 provides an example of the converging global architecture between various CS tools (Ligteringen and Zadek 2005).

<table>
<thead>
<tr>
<th>Management Tool Type</th>
<th>Description</th>
<th>CS Management Tool Examples</th>
</tr>
</thead>
</table>
| Normative Frameworks (i.e. what to do) | Provide guidance on what is considered good or an acceptable level of performance | • ISO 26000  
• UN Global Compact Principles  
• OECD Guidelines |
| Process Guidelines (i.e. how to measure and communicate it) | Enables measurement, assurance and communication of firm performance | • GRI Sustainability Reporting Guidelines  
• Dow Sustainability Index |
| Management Systems (i.e. how to integrate) | Provide an integrated management framework for governing and managing environmental, social and economic impacts. | • ISO 14001  
• AA1000 Framework  
• OHSAS 18001 |

Figure 6-1. Emerging Global Architecture towards CS Management
The “KPMG Survey of Corporate Responsibility Reporting 2013” revealed that over 50% of reporting firms see a high value for business management capabilities that integrate the various management standards (KPMG International 2013). ISO 14001 was recently updated in September 2015 to increase prominence of environmental management with a firm’s strategic planning processes and align terminology with other ISO standards and management tools (Miguel, Martins, and Fonseca 2015). There are also various guidance documents that promote the alignment of the GRI sustainable reporting framework and ISO 26000 (Global Reporting Initiative (GRI) 2011). Likewise, there is significant evidence that an increasing number of companies are adopting an IMS approach in practice (Durdevic, Searcy, and Karapetrovic 2013).

While there is significant evidence that firms are beginning to adopt IMS practices through careful selection and use of various CS management tools, many firms still lack a strategic approach to CS integration (Durdevic, Searcy, and Karapetrovic 2013; T. Hahn et al. 2015). Missimer, Robert, and Broman (2014) reveals that often management standards and tools abstract the complexities of CS issues towards things that can be easily verified or measured whereas a strategic framework may allow for some simplicity but without the bias reduction. Accordingly, EHS professionals should consider a strategic management framework as the foundation for management tool integration. As noted earlier, the strategic management model offers a qualitative context analysis and allows users to plan and innovate systematically with a long-term horizon view of PES versus the “check-the-box” mentality associated with many CS management tools (Missimer, Robert, and Broman 2014; T. Hahn et al. 2015). A strategic management framework would provide a governance and accountability infrastructure over the various applied tools and ensure CSR is built into every level of the firm (Asif et al. 2013).

Accordingly, creating one footprint that centralizes and integrates all management tools and systems providing governance over all various operational aspects and impacts of a firm’s CS actions is challenging. Gianni and Gotzamani (2015) demonstrate that that a sustainable IMS can only work when multiple management systems are complementary to one another, wherever possible and highlighting integration constraints such as: incompatible concepts among management systems and tools, complex organizational structures and dynamics, limited management commitment, high initial costs, inadequate audit approaches and limitations in human and other firm resources and capabilities. Given the expanding role and responsibilities of
the EHS department, there is learning curve for many EHS professionals that now need to
develop new competencies, skills and capabilities in even more multifaceted systems thinking.
T. Hahn et al. (2015) describes the challenges with an integrative management system and tools
framework for CS as the tensions that should be expected with attempting to manage the
environmental, economic and social dimensions simultaneously. Per the definition, CS is where
there is a balance between the often disjointed social, economic, and environmental performance
goals and values; however, one solution to one dimension could easily be detrimental to another.
Accordingly, CS involves integration of various stakeholders’ considerations into a firm’s
strategic management and planning process, but stakeholder demands and needs consistently
vary and conflict. CS is also a multi-level complex issue, where commitment by the top, middle
and bottom of the organizational structure are needed to effectively shift the culture. Finally,
managing the shift towards CS requires significant change and alteration of existing, commonly
accepted patterns of behavior. This tension is complicated even further as many EHS
professionals are still transitioning between the role of “compliance cops” to “change agents.”

Case Study Example – Fujifilm Holdings Corporation

Fujifilm Holdings Corporation (“Fujifilm”) provides a great example of an IMS approach
that may be better conceptualized and overall managed through the use of a strategic
management model. Fujifilm is a Japanese firm that is mainly engaged in the imaging,
information and documented solutions product and services market with a recorded revenue of
roughly $24 billion during the fiscal year ended March 2014 (FY 2014) (“Company Profile:
Fujifilm Holdings Corporation, 10 July 2015” 2015). Fujifilm has segmented its diverse portfolio
or business products and services into six major business fields (i.e. healthcare, highly functional
materials, document solutions, digital imaging optical devices, and graphic systems), has
segregated the firm into mainly three subsidiaries (i.e. Fujifilm Corporation, Fuji Xerox Co., Ltd.
And Toyama Chemical Co., Ltd.), and has governance over 273 consolidated companies
worldwide (Corporation 2015). Each business field, subsidiary and consolidated company has its
own set of: stakeholders with their own respective needs and demands, environmental issues,
social issues and economic issues. Accordingly, one challenge with a multifaceted and diverse
set of stakeholders and CS issues is providing CS strategies that drive shared values and
corporate-wide objectives, but also address individual stakeholder need.
To address this challenge, Fujifilm has developed a comprehensive Sustainable Value Plan which uses both a top-down approach (through senior executive leadership) to provide CSR corporate governance structure and unification of corporate sustainability efforts, and a bottom-up approach (through employees working locally in each region) to identify and address individual stakeholder needs (Corporation 2015). To better organize these efforts, Fujifilm has developed a comprehensive Sustainability Report that uses elements from ISO 14001, GRI framework, and ISO 26000 to carefully map out as well as communicate its Sustainable Value Plan. Consequently, very few firms have used all three management tools to develop their corporate sustainability strategies, which has led to limited business case study reviews on the effectiveness of an IMS approach. Additionally, many firms that have indicated they’ve used all three management tools have not openly shared or displayed how they’ve went about it. Fujifilm is one of the few exceptions. While there is limited case study information on the effectiveness of the firm’s IMS approach, the Fujifilm’s sustainability report provides an example of how each management tool can be used and developed into a strategic management model towards CS. Based on (Corporation 2015), Table 6-1 provides a few examples of how each management tool was used by Fujifilm to develop CS strategies as part of their Sustainable Value Plan.

To better organize these efforts, Fujifilm has developed a comprehensive Sustainable Value Plan which uses both a top-down approach (through senior executive leadership) to provide CSR corporate governance structure and unification of corporate sustainability efforts, and a bottom-up approach (through employees working locally in each region) to identify and address individual stakeholder needs (Corporation 2015). To better organize these efforts, Fujifilm has developed a comprehensive Sustainability Report that uses elements from ISO 14001, GRI framework, and ISO 26000 to carefully map out as well as communicate its Sustainable Value Plan. Consequently, very few firms have used all three management tools to develop their corporate sustainability strategies, which has led to limited business case study reviews on the effectiveness of an IMS approach. Additionally, many firms that have indicated they’ve used all three management tools have not openly shared or displayed how they’ve went about it. Fujifilm is one of the few exceptions. While there is limited case study information on the effectiveness of the firm’s IMS approach, the Fujifilm’s sustainability report provides an example of how each management tool can be used and developed into a strategic management model towards CS. Based on (Corporation 2015), Table 6-1 provides a few examples of how each management tool was used by Fujifilm to develop CS strategies as part of their Sustainable Value Plan.

<table>
<thead>
<tr>
<th>Strategic Management Model</th>
<th>Management Tool</th>
<th>Management Tool Element</th>
<th>Management Tool Element Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Scanning</td>
<td>ISO 14001</td>
<td>Environmental Aspects</td>
<td>Identify business-specific priority issues and strategies</td>
</tr>
<tr>
<td></td>
<td>GRI</td>
<td>Materiality Aspects</td>
<td>Materiality Flow System – Align social activities with corresponding business operations</td>
</tr>
<tr>
<td>Strategy Formulation</td>
<td>ISO 26000</td>
<td>CSR Governance</td>
<td>CSR Management Structure – Ensure leadership commitment and alignment of corporate vision</td>
</tr>
<tr>
<td>Strategy Implementation</td>
<td>ISO 14001</td>
<td>Awareness</td>
<td>Kids’ ISO 14000 Program – Educate stakeholders on EMS</td>
</tr>
<tr>
<td></td>
<td>ISO 26000</td>
<td>Voluntary Initiatives</td>
<td>CSR Activity Program – Develop program elements for each CSR activity</td>
</tr>
<tr>
<td></td>
<td>GRI</td>
<td>Sustainability Reporting</td>
<td>GRI Guideline (G4) Comparison Table &amp; Matrix – Monitor and compare actual performance to desired performance</td>
</tr>
<tr>
<td></td>
<td>ISO 26000</td>
<td>Voluntary Initiatives</td>
<td>Audit program to monitor effectiveness of CSR activities</td>
</tr>
</tbody>
</table>

Table 6-1. Fujifilm Holdings Corporation Integrated Management Systems Approach
Proactive Environmental Strategic Management Model

Overview

The challenges with integration and managing the cultural shift towards CS provides an even more compelling case for an integrated management system that is built on a more formalized process and framework that is deliberately planned, comprehensive, and systematic. An IMS built within a strategic management framework helps to better manage the tensions that come with managing the shift towards CS and even considers the challenges with the evolving role and responsibilities EHS professionals. Accordingly, Figure 6-1 provides a conceptual overview of how an EHS professional could integrate the various management tools, utilizing the strategic management model as the foundation for the analytical framework.

The Proactive Environmental Strategic Management Model is derived from various recommendations found in scholarly articles, professional association reports, and management tool guidance documents as well as an analysis of each management tool used by several corporate firms within their respective public corporate sustainability reports. The strategic management model foundation is a modification of the Wheelen and Hunger (2012) strategic management framework and the management tools used (i.e. ISO 26000:2010, Global Reporting Initiative G4 Framework, and ISO 14001:2015) are the latest revisions publicly available. The pink shaded areas highlight ISO 26000:2010 elements, the blue shaded areas highlight Global Reporting Initiative (G4) Framework elements, and the green shaded areas highlight the ISO 14001:2015 elements integrated into the strategic management model. Those elements shaded in grey highlight areas of the strategic management model that were not covered by any specific CS management tool. Finally, the strategic management model is aligned with the PDCA cycle.

Implications and Limitations

Since there is currently no recognized standard for sustainability management systems, the strategic management model serves as the base framework, moving beyond the oversimplification of the PDCA cycle by allowing for both the interconnected soft and hard core factors as building blocks within the framework (Maas and Reniers 2014). It also allows for some simplicity but without the limitations of using an existing CS management system tool.
Figure 6-2. Proactive Environmental Strategic Management Model
such as ISO 14001 which alienates integration of CSR across all phases of proactive environmental strategic management. Additionally, integration of the GRI framework across the strategic management model ensures all reporting requirements are fulfilled, including setting performance indicators all three dimensions of CS which promotes PES as competitive advantage. Additionally, the strategic management model allows for continuous improvement across all phases of strategic management versus the circular framework of the PDCA cycle that circles back from “Act” to “Plan” after each cycle loop. This promotes mechanisms for continuous learning and opportunities to immediately manage change across different strategic management phases that may arise with evolving role of CEM.

The strategic management model also takes into consideration the emerging convergence of management tools and global architecture using management tools from each of the categories (i.e. normative frameworks, process guidelines, and managements) noted by (Ligteringen and Zadek 2005). Using the latest revisions of each of the management tools not only ensures use of the latest and greatest tools but reduces the challenges of an IMS given the latest revisions of the tools, specifically ISO 14001:2015 and GRI G4 framework, have been updated with more commonly accepted terminology and focuses on alignment of CS with overall business strategy. Accordingly, while one tool such as ISO 26000 serves as a normative framework and ISO 14001 serves as a management system, the strategic management model allows for both tools to work off one another. Given ISO 14001 follows the PDCA cycle more consistently than the other two tools used, it’s more thoroughly used and serves as another baseline framework on top of the existing strategic management model. This approach aligns with the need to build on existing systems and resources, including the systems thinking approach (i.e. EMS) most familiar to EHS professionals. This makes it easier for EHS professionals to capitalize on existing frameworks as they continue to build competencies in IMS. To ensure consistency with other potential management system tools that might be used in the firm (e.g. ISO 9001), some of the terminology in the Wheelen and Hunger (2012) model such as “Programs” and “Budget” has been replaced with more commonly accepted and used terms such as “Support” and “Operations” to ensure greater consistency and promote an IMS.

The strategic management model only provides some examples of how management tool elements can be integrated into a strategic management model. Not all elements of each
management tool will be relevant to every firm given the context-specific nature of strategic management (Maas and Reniers 2014). And as demonstrated by the grey boxes in the strategic management model, existing management tools being used by the firm may fail to cover every element of the strategic management model. Accordingly, some firms may find other management tools more appropriate than the three provided in the strategic management model. This may include identifying other areas of responsibility for the EHS professional (e.g. Occupational Health and Workplace Safety) and integrating an appropriate management tool (e.g. Occupational Health and Safety Assessment Series (OHSAS) 18001 Occupational Health and Safety Management System Standard) into the strategic management model (Merlin, Pereira, and Pacheco 2012). And while the strategic management model shows each management tool element that can be applied for one specific strategic management process step such as “analysis” or “objectives,” the strategic management model does not detail out the internal linkages between the various tools under each process step. A more thorough analysis would have to be completed to determine how each management tool can be used as complements to one another. Despite these limitations, the proactive environmental strategic management model still serves as a holistic framework that can be used by EHS professionals to better manage the cultural shift towards CS.

Summary

There is still a clear need for globally accepted corporate sustainability standard that harmonizes and streamlines the various management standards’ requirements and guidelines to assist firms with use and implementation (Gianni and Gotzamani 2015). But through effective use of a comprehensive strategic management model and by implementing complementary standards and management tools that fit within the context of the firm and strengthen the strategic management process, EHS professionals can reduce the tensions expected with managing the cultural shift and PES towards CS. Ligteringen and Zadek (2005) recommends firms should consider the following when selecting and integrating various management systems and tools to manage CS:
• Implement management standards and tools that not only fit the context of the firm but are most likely to be recognized as future commonly accepted global sustainability management architecture
• Help mainstream the use of CS management standards, tools and guidelines by promoting further development and adoption by others
• Support corporate activities and actions that demonstrate integration of management standards, tools and guidelines as enhancing cost effectiveness and creating value.
• Actively participate in the industry standards community to drive the standards forward, ensuring a broad-based legitimacy through governance and accountability.

Convergence towards IMS will continue as firms continue to migrate towards CS, maximizing resources and improving efficiency through a single management system approach. This includes building synergies between multiple management tools used across the firm such as ISO 9001 Quality Management Systems, ISO 30001 Risk Management – Principles and Guidelines, and OHSAS 18001 Occupational Health and Safety Management Systems (Merlin, Pereira, and Pacheco 2012). Figure 6-3 provides an example of how Fujifilm has taken a proactive approach towards an IMS framework using the PDCA strategic management model as a base framework to integrate four EMS standard – ISO 9001 Quality Management Systems, ISO 14001 Environmental Management Systems, OHSAS 18001 Occupational Health and Safety Management Systems, and ISO 27001 – Information Security Management Systems (Fujifilm Holdings Corporation: Application of Integrated Management System (IMS) 2015). Through an IMS approach, Fujifilm is able to develop economies of scale and further promote integration of various management tools such ISO 14001 across the business and culture. Accordingly, it is up EHS professionals to determine the appropriate strategic management framework, management tools, and integrated approach needed to effectively management the cultural shift towards CS.
Figure 6-3. Fujifilm Application of Integrated Management System
(Fujifilm Holdings Corporation: Application of Integrated Management System (IMS) 2015)
Chapter 6: Conclusion and Recommendations

Research Summary and Conclusion

The traditional roles and responsibilities of EHS professionals will continue to evolve as firms continue to shift towards corporate social responsibility and corporate sustainability. Currently, many EHS professionals have the ongoing responsibility of: maintaining compliance with EHS regulations, driving a firm’s environmental performance beyond regulatory compliance, and managing the shift towards CS. The CEM evolution towards CS is complicated further by the perception by many within the firm that EHS professionals are “compliance cops” and the EHS department should still serve as an isolated, overhead functional department within the firm. However, the perception and value of the EHS professional to the firm changes if he or she can provide through a dynamic level of environmental competencies through effective PES. Accordingly, given the lack of a recognized universal certification or license in corporate environmental, health, safety and sustainability management, EHS professionals must proactively adapt with the evolving role by developing the competencies and capabilities needed to lead the cultural shift towards corporate sustainability. This includes identifying and developing both hard skills (e.g. research skills, practical skills, professional skills, scientific knowledge) and soft skills (e.g. communication skills, social skills) that are matched to the appropriate context and circumstances of the corporate sustainability issues that need to be addressed at the EHS Professional’s respective firm.

Additionally, EHS professionals need to consider PES as opportunities to improve a firm’s competitive advantage and enhance corporate social responsibility. When framing PES as an added cost or trade-off to doing business, EHS professionals lose the opportunity to link environmental and economic performance. In a win-win approach between the environmental and economic dimension, PES can be perceived as a competitive advantage through seven value-creation elements: risk and crisis management, resource and operations optimization, products and services differentiation, market presence, brand management, industry standards involvement, and radical innovation. However, not all firm stakeholders can benefit economically from PES, where trade-offs such as between shareholder and customer demands
must be balanced. Firms will gain a competitive advantage when they are able to integrate its complementary capabilities in a way that benefits its stakeholders better than its competitors. Additionally, EHS professionals can drive consensus among various firm stakeholders through alignment between the environmental and social impacts of the firm. In a win-win approach between the environmental and social dimension, PES leads to corporate social responsibility through three value-creation elements – organizational capabilities, social consciousness, and stakeholder integration. By focusing on the three elements of enhanced CSR, EHS professionals improve a firm’s dynamic capabilities which also could lead to competitive advantage, helping to drive cultural shift towards corporate sustainability.

Transforming PES into competitive advantage and corporate social responsibility opportunities is no easy task, especially given the challenges associated with the evolving role of the EHS professional discipline such as the lack of a formal license or certification that demands minimum competency requirements. But through the course of the CEM evolution, EHS professionals have been afforded a variety of management tools that may be employed to develop PES towards CS. ISO 14001 Environmental Management Systems, structured as a TQM tool through the PDCA cycle, provides a rigid integrative framework for strategy implementation and has built-in mechanisms for quality control and continuous improvement in environmental performance. GRI Sustainability Reporting Framework provides a solid baseline for developing environmental, social and economic performance indicators that can be used to drive competitive advantage through competitor benchmarking, alignment of CS performance indicators with the overall company business strategy and legitimacy and promotion of the company’s actions which could overall enhance the company brand. ISO 26000 Guidance on Social Responsibility focuses heavily on the soft impacts of the firm which affect a firm’s culture and stakeholder’s attitudes and promotes desired behaviors. Additionally, ISO 26000 can drive PES towards CSR through the value-creation elements (i.e. organizational capabilities, social consciousness, and stakeholder integration), where two fundamental practices of the ISO standard is for firms to “recognize social responsibility” and “stakeholder identification and engagement” and the prime emphasis of the standard is to align CSR with every action and activity of the firm (Pojasek 2011).
These three management tools also have their share of limitations and effectiveness in transforming PES towards CS. ISO 14001 strictly focus on the environmental aspects and impacts of the firm and has minimal performance standards beyond compliance, the GRI framework strictly focuses on designing performance indicators and sustainable reports and provides little to no information on the strategic actions needed to ensure desired performance, and the ISO 26000 lacks systematic structure and organization complicated further by the lack of rigid requirements and opportunities to validate and legitimize a firm’s actions such as through 3rd certification assurance. Used independently, these management tools can complicate the management of the cultural shift towards corporate sustainability. Consequently, there have been several efforts towards convergence of the various types of management tools into an integrated global architecture, including an update of standards to develop common terminology and multiple publications that provide guidance on how to integrate a few of the management tools.

An integrated management systems and tools (IMS) approach builds on existing systems, policies, and structures that helps drive stakeholder integration towards an approved single management system (Pojasek 2011). It also integrates and uses commonly accepted management tools (i.e. ISO 14001, GRI, ISO 26000) that can provide some structure towards balancing stakeholder requirements among the environmental, economic and social dimensions of CS (Asif et al. 2013). However, there is still no globally accepted corporate sustainability standard that meets the requirements for CS strategy development or that harmonizes and streamlines the various management standards and tools’ requirements and guidelines to assist EHS professionals with use and implementation (Gianni and Gotzamani 2015). Given this constraint towards CS strategic management, EHS professionals should consider an IMS approach using an analytic strategic management framework as a foundation and integrating the appropriate complementary standards and tools that fit within the context of the firm and strengthen the firm’s CS strategic management process into the strategic management framework. A strategic management model, such as the one presented by Wheelen and Hunger (2012), attempts to cover most if not all elements of a the strategic management and planning process, drives alignment with a firm’s overall business objectives, encourages an evaluation of all contextual factors (including soft and hard aspects) of the firm, and provides a consistent, systematic framework built on continuous improvement. With the role of the EHS department continuously evolving,
EHS professionals need to take a holistic approach towards managing the cultural shift. By developing a comprehensive and formal strategic management process for IMS, EHS professionals are not only maximizing the CS management tools and resources available and taking proactive steps towards driving PES towards CS, but effectively managing the cultural shift towards corporate sustainability.

**Management Recommendations**

**Evolving Role of Corporate Environmental Management**

With the role of the EHS professional constantly evolving and expanding in complexity and importance to the firm, there is a great demand and need for a globally-recognized professional license or certification that sets the minimum educational and work experience requirements to perform the job. With one survey of over 5,000 individuals in various EHS positions indicating 20% EHS professional had no certifications whatsoever, many firms continuing to hire senior leaders inside and outside the EHS discipline, and over a hundred professional certifications in individual EHS disciplines, it may be no surprise that the current role of EHS is still filled with significant management challenges (MacLean 2010; MacLean 2011; Greenwood, Rosenbeck, and Scott 2012). A unified professional license or similar would: add legitimacy and respect to the profession, drive consistency among firms and their respective EHS efforts, ensure EHS professionals are receiving the latest training courses and maintaining their competencies, promote ethical and moral obligation, and help manage the issues that come with a shift in EHS roles and responsibilities. Accordingly, the competencies that need to be developed and met to attain this professional license must go beyond the traditional education and work experience requirements embodied by more traditional EHS professional that focused strictly on environmental science, engineering and policy (Bootsma and Vermeulen 2011). Some of the core competencies can be derived from Bootsma and Vermeulen (2011) as follows:

- Intellectual qualities (e.g. analytical and integrating capacity)
- Professional knowledge (e.g. knowledge of natural and social science discipline)
- Research skills (e.g. knowledge of research methods and working with system models)
- Numeric and information sharing skills (e.g. statistical knowledge)
• Practical skills (e.g. translating theory into practice; project management);
• Communication skills (e.g. customer-directed, presentation skills)
• Social skills (e.g. network, teamwork)
• Self-Management (e.g. sense of responsibility, discipline)
• Management System (e.g. Systems thinking approach)

Driving the necessary competencies through a unified professional license will shift the EHS profession away from an “identity crisis” and will help demonstrate to the firm that the EHS professional is a valued asset (MacLean 2011).

Corporate Sustainability

Driving proactive environmental strategies as opportunities to improve a firm’s competitive advantage and enhance corporate social responsibility is a critical step in managing the shift towards corporate sustainability. Accordingly, EHS professionals need to get out of the mindset of seeing environmental aspects (e.g. chemical use, energy usage, paper supplies) as leading only to environment impacts (e.g. land or water contamination, natural resource depletion, waste generation). A comprehensive evaluation each environmental aspect within the seven elements of competitive advantage (i.e. risk and crisis management, resource and operations optimization, products and services differentiation, market presence, brand management, industry standards involvement, and radical innovation) and the three elements of corporate social responsibility (i.e. organizational capabilities, social consciousness, and stakeholder integration) will help EHS professionals move towards a holistic systems-thinking approach that includes corporate sustainability. Accordingly, strategic framing of PES is critical to cultural acceptance with Williamson and Fister (2011) recommending the following steps to drive influence and increase successful implementation:

• Develop a dynamic working relationship with the firm’s manufacturing or operations organization, emphasizing a collaborative rather than regulatory approach
• Educate and engage essential stakeholders on all direct and indirect benefits of the PES and sustainability initiatives
• Highlight the bottom line (i.e. economic impact) to obtain critical buy-in from the senior management and personnel
• Develop a contextual baseline, analyzing the current state of the process to predict an estimated desired state
• Continue to focus on identifying significant environmental improvements and cost savings efforts
• Prioritize opportunities
• Gather buy-in from senior leader on the essential opportunities
• Identify and use experts to drive prioritization, assessments, and implementations
• Identify funding opportunities minimize the cost of CS initiatives implementation.

Integrated Management Systems Framework

Given the shift towards CSR and CS and numerous management tools available to manage CS, there is increasing need for a centralized corporate sustainability standard that aligns with all globally-recognized management standards such as integrating the PDCA cycle process equipped by ISO to ensure crossover integration. While there are significant challenges with implementing such as a standard, such as promoting a “check the box” mentality, a corporate sustainability standard would: provide consistency among global firms; stimulate the global shift towards CS; and create a systematic, standardized framework that eliminates the challenges associated with developing a PES towards CS. Until such a universal standard, EHS professionals should use a baseline foundational strategic management framework and then identifying and integrating complementary standards and tools that fit within the context of the firm and strengthen the firm’s CS strategic management process within the strategic management framework. Ligteringen and Zadek (2005) provides solid recommendations for identifying and integrating the appropriate CS management systems and tools:

• Implement management standards and tools that not only fit the context of the firm but are most likely to be recognized as future commonly accepted global sustainability management architecture
• Help mainstream the use of CS management standards, tools and guidelines by promoting further development and adoption by others
• Support corporate activities and actions that demonstrate integration of management standards, tools and guidelines as enhancing cost effectiveness and creating value.

• Actively participate in the industry standards community to drive the standards forward, ensuring a broad-based legitimacy through governance and accountability.
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