

CREATING A TRANSPARENT SUPPLY CHAIN BEST PRACTICES

HOW TO ENHANCE SUSTAINABLE SUPPLY CHAIN EFFORTS THROUGH TRANSPARENCY

A WHITE PAPER BY THE UNIVERSITY OF TENNESSEE, KNOXVILLE,
HASLAM COLLEGE OF BUSINESS SUPPLY CHAIN MANAGEMENT FACULTY

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will improve the social, environmental, and economic performance of firms, and will help build more trust with end consumers.



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UT'S HASLAM COLLEGE OF BUSINESS SUPPLY CHAIN MANAGEMENT WHITE PAPERS

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AUTHORS:

JOHN BELL, PhD

DIANE MOLLENKOPF, PhD

J. SCOTT MELINE

MIKE BURNETTE

CONTRIBUTING EDITORS:

PAUL DITTMANN, PhD

TED STANK, PhD



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Executive Summary

Supply chain leaders across the globe are building more sustainable supply chains. Ethical, business, and waste elimination/cost savings goals are driving this work. Global supply chain executives understand that sustainability brings its own set of challenges, including:

- The need to make rapid changes to the supply system to make them more sustainable in response to stakeholder, regulatory, and business leader requirements
- Providing more information on products, materials, manufacturing processes, supply practices, and warehousing/distribution processes in response to business leaders' need to be more transparent with consumers
- Changing supply systems to create safer and more sustainable products in response to new government regulations
- Sharing progress on the supply chain sustainability journey in a way that positively resonates with their key stakeholders.

It becomes readily apparent that information transparency and communication are key to overcoming these challenges. This University of Tennessee Global Supply Chain Institute (GSCI) whitepaper addresses the key issues in supply chain sustainability transparency. To accomplish this, we conducted academic and applied research, surveying sixteen best-in-class supply chains and companies, including more than forty professionals, to establish a set of best practices related to sustainable supply chains and transparency.

The research showed us that supply chain professionals are busy working on solutions to a multitude of sustainability issues including:

- How to make sustainability projects drive total cost improvements
- How to prioritize sustainability projects
- How to ensure sustainable supply systems are built efficiently from the start of the product design phase
- How to form new partnerships and relationships with suppliers and third party providers (3PLs) to form end-to-end sustainable supply systems
- How to create and build sustainable plant and manufacturing systems (zero waste)



Throughout

the interview process we recognized that transparency was irretrievably linked to sustainability.

- How to select high quality, scientifically based organizations for endorsements and audit capability
- How to lead community work on sustainable, ethical labor practices and environmental zero-waste systems

Throughout the interview process we recognized that transparency was irretrievably linked to sustainability. Without the growing importance of sustainability in the business world, this transparency discussion might not be taking place. In this report, we present results that demonstrate the relationship between sustainable supply chain visibility, traceability, integrity, and transparency. Further, we make the case that supply chain transparency—and the underlying tenets of supply chain integrity—creates the key foundation to sustainable supply chain management.

Following the research results, we present a best practices section that shows what best-in-class companies are utilizing to create excellence. This includes finding the transparency sweet spot and dancing with the experts. The firms that we benchmarked are utilizing the demands of consumers for sustainable products and transparency to create competitive advantage in their supply systems through total cost, customer service, quality, and responsiveness (see Table 2.1). In fact, companies beginning the sustainable supply chain journey are working to accelerate through a sustainability progression model (introduced later in the paper) to drive total shareholder value faster.

To drive home the lessons learned, we share three breakthrough case studies on sustainability transparency. These diverse studies include supplier, end-to-end supply system, and energy project examples.

DEFINITIONS

Sustainable Supply Chain—A strategy that aligns the management of end-to-end supply chain activities with social, environmental, and economic goals to systemically improve long-term organizational performance through total cost reduction, risk management, ethics, and cultural initiatives.

Supply Chain Sustainability Transparency—The information communicated by a company to its stakeholders (consumers, shareholders, suppliers, customers, governments, and agencies) regarding the sustainability (health, safety, ethics, etc.) of the supply chain products, materials, supply systems (manufacturing, warehousing, transportation, etc.), and services.



Introduction: Supply Chain Risk and the Need for Transparency

Corporate and supply chain issues are becoming more and more visible to consumers and stakeholders. As such, developing transparent information systems and processes to communicate sustainable supply chain practices to stakeholders, government organizations, consumers, and the general public is vital in the twenty-first century. To illustrate this challenge, we start by sharing three examples of issues faced by major companies. These examples demonstrate the tremendous scope of sustainability and transparency issues faced by a company's supply chain, ranging from product safety to supplier's labor practices. Fundamentally, these examples demonstrate the growing risk inherent in modern supply chains, when so much attention is being drawn to social and environmental practices.

In the spring of 2015, the Blue Bell Creamery Company—the Texas-based manufacturer of the top-selling Blue Bell brand of ice cream—faced a serious dilemma related to the safety of its finished ice cream products. Allegations had surfaced outlining ten separate cases of listeriosis, a food-borne illness, connected to Blue Bell's sale of ice cream between 2010 and 2015. According to the Center for Disease Control (CDC), three customers died.

Blue Bell initially believed the listeria contamination was an isolated incident. Based on this belief, the company limited the amount of information it released to the public, while initiating a limited recall of products.¹ However, as further reports of the contamination and illnesses were received from the CDC, Blue Bell was forced to take further action. By April 21, 2015, the company realized it had no other option but to publicly disclose information about the incident as it began the widespread recall of all of its products.² Initially, the company indicated that no layoffs of employees would be necessary due to lost revenue resulting from the incident but later had to announce the layoff of 1,450 employees and the furlough of another 1,400 employees.^{3,4} This recall, the first in the company's 108-year history, started out as a small incident and quickly grew into an event that would threaten the company's survival.

Blue Bell secured a \$120 million loan to reopen its plants and return ice cream products to the majority of its markets by the end of 2015. By March 2016, Blue



Fines for

food safety incidents in the last three years by the US Justice Department have exceeded those of the previous twenty-four years.

Bell issued a root cause analysis report to the Food and Drug Administration indicating that having found the sources of the listeria in its plants in Oklahoma and Texas, it had taken positive steps to identify and remedy the contamination problem. Additionally, new testing procedures were implemented at all three of Blue Bell's manufacturing plants in order to detect any contamination prior to shipping ice cream to retail outlets.⁵

Despite the positive steps at Blue Bell, the US Justice Department opened an investigation of the listeria outbreak by December of 2015. The ongoing investigation is aimed at determining what Blue Bell managers knew about the presence of listeria at the company's plants, when they knew about it, and what actions they may or may not have taken related to the incident.⁶ Additionally, the financial impact of the incident has been staggering for Blue Bell Creameries, a company that was once ranked between first and third in its markets. The cost of the closure of its plants in 2015 resulted in the loss of millions of dollars for a firm that once made in excess of \$600 million in revenue each year. Only time will tell what the final financial and legal impact of the 2015 listeria contamination incident will be and whether Blue Bell will ever fully recover from it.

In addition to food illness, the potential occurrence of slave labor in the upstream supply chain has become a major issue for large companies including Nestlé S.A., the \$240 billion Swiss food and beverage giant. Nestlé's major product areas include both coffee and cocoa, which are sold in a vast array of consumer products in countries around the world. The supply of these two crops largely comes from locations in Africa and South America where the actual structure of the supply chain network is not always fully visible to parent companies. This lack of visibility can result in extremely negative scenarios. In particular, Nestlé has been accused in the US court system of unethically sourcing cocoa from the Ivory Coast where instances of child labor have been documented. This issue came to a head in January of 2016, when the US Supreme Court refused to consider an appeal by Nestlé and two other companies. Now, although Nestlé is working hard to defend itself against allegations in the lower courts, the issue has highlighted a potential lack of ethical sourcing in their cocoa supply chain.⁷

Similarly, in Brazil in March 2016, Nestlé had to publicly admit a lack of visibility and control in its supply chain to external customers and stakeholders because of an incident of potential slave labor. Nestlé stated that they do not really know the initial source of all of their coffee since they purchase from a large number of plantations, middlemen, and exporters; and it is therefore possible that unethical practices and slave labor occur with their coffee supply chain. The

company's direct statement was, "We do not tolerate violations of labor rights and have strongly maintained that forced labor has no place in our supply chain. Unfortunately, forced labor is an endemic problem in Brazil and no company sourcing coffee and other ingredients from the country can fully guarantee that it has completely removed forced labor practices or human rights abuses from its supply chain."⁸

While Nestlé is working to improve its communications about sustainable sourcing to its customers, it has also worked to increase the percentage of raw materials it buys directly. Eliminating middlemen increases traceability and helps ensure quality, especially in the coffee and cocoa supply chains where hundreds of thousands of farmers sell their crops directly to Nestlé.⁹ Regardless, unethical issues in the coffee and cocoa supply chains have resulted in widespread negative press about the potential for slave labor in their supply chains, and Nestlé has had to defend itself in the marketplace and in the US court system. The long-term impact of these problems and the impact on consumer trust for Nestlé is yet to be determined.

Finding and detecting slave labor in the supply chain has proven to be difficult, even for companies with an excellent reputation for sustainability and social responsibility. Patagonia has long been recognized as a company that strives for ethical practices in both the sourcing of materials and the production of its products. In fact, in 2013 Patagonia helped to organize a forum to address human trafficking in the supply chain in San Francisco. Such initiatives have made Patagonia a recognized leader in the area of sustainability, and it is consistently listed as one of the most sustainable companies in the world.¹⁰

However, in June 2015, the company discovered unethical labor practices occurring at their textile manufacturing suppliers in Taiwan. Brokers were charging workers large fees to work on Patagonia products and it took years for workers to pay off these fees, which resulted in a form of indentured servitude for the workers. Patagonia quickly acknowledged this fact to the public, providing a transparent view of their actions to fix the problem in their supply chain, and committed itself to a new set of standards for uncovering slave labor in its supply chains.¹¹ Such fast action by Patagonia helps to maintain consumer trust and also helps mitigate the impact of such an unexpected problem in its supply chain. This case shows even the most sustainable companies can be caught off guard by issues in their upstream supply chain.

These incidents highlight the fact that firms are facing increased sustainability risks including stricter scrutiny from customers, society, and our legal systems

Firms are

facing increased sustainability risks including stricter scrutiny from customers, society, and our legal systems over the social (including safety) and environmental performance of their products.

over the social (including safety) and environmental performance of their products. In fact, fines for food safety incidents in the last three years by the US Justice Department have exceeded those of the previous twenty-four years. Now, new standards of accountability are emerging for consumer products manufacturers who must ensure the highest levels of product safety, labor fairness, and environmental protection in their products' design and manufacturing, as well as across the supply chain activities responsible for producing and delivering those products to end customers.¹²

Attaining the necessary visibility of materials and products across the supply chain is itself a daunting challenge, but ensuring high levels of social and environmental performance multiple tiers up the supply chain is an even more difficult challenge. However, firms must embrace this challenge if they wish to avoid similar problems faced by companies like Blue Bell, Nestlé, Patagonia, and others. Issues include the presence of slave labor at supplier locations, product contamination, unsafe labor practices, and improper waste disposal. Additionally, firms with the highest levels of integrity have also sought to be more transparent and to use the open disclosure of company and product information as a way of building and maintaining trust with their end customers in a time of increased uncertainty and fear about product safety and performance. Knowing what information to release to customers, gathering that information across a complex supply chain and disseminating it in an accurate and timely fashion can be challenging, even for the most competent companies.

In this research whitepaper, the University of Tennessee's team sheds light on the issues of supply chain visibility and transparency including how these concepts are fundamentally different, and yet mutually supportive of each other. Additionally, we explore how strong visibility and transparency practices can act as competitive capabilities to reduce supply chain risk while building trust with consumers during periods of transition and uncertainty in the marketplace.

Drawing on current academic research, we explore the tenets of corporate integrity and the emerging concept of supply chain integrity that underlies and enables the performance of a transparent firm. In doing so, we also report the findings and best practices from field research interviews with more than sixteen leading firms who have been working to create improved visibility and transparency throughout their supply chains. This research whitepaper offers a glimpse at some of the newest ideas and managerial practices in the area of supply chain sustainability and transparency, providing a number of managerial

Open disclosures
and overt product information
are key ways to build and
maintain trust with end
consumers.

takeaways for corporate leaders who may be struggling with how to achieve better visibility and transparency across their own supply chains. Striving for supply chain transparency will improve the social, environmental, and economic performance of firms, and will help build more trust with end consumers. Such outcomes will help those firms with the highest levels of corporate and supply chain integrity to avoid the risk and disruptions seen at companies such as Blue Bell, Patagonia, and Nestlé. It will help them achieve competitive advantages in a marketplace which continues to demand increased levels of transparency and accountability.





The Research Baseline: Understanding SC Risk, Sustainability, and the Role of Transparency

Supply Chain Risk Management

Supply chain risk management has been studied extensively in academic literature over the last fifteen years due to events like 9/11, Hurricane Katrina, and the Japanese earthquake and tsunami of 2011 that sent rippling disruptive effects throughout the supply chains of major manufacturers around the globe. Although natural disasters and environmental impacts are often the source of supply chain risk and disruptions, academics have more broadly classified supply chain risk to include supply-side risks, demand-side risks, and internal production or control risks, in addition to environmental related risks.¹³

In dealing with supply chain risk, current academic thought discusses how managers should build capabilities to proactively detect, mitigate, and recover from disruptions in the supply chain. Additionally, academics have encouraged companies to map and analyze their individual product supply chains in order to identify areas where network complexity and density are at their highest levels, creating higher risk of disruption. Experts have suggested fast dissemination and information sharing about a disruption across the supply chain can mitigate the impact of the disruption incident across the network.¹⁴ Such risk analysis in the academic and practitioner literature has commonly focused purely on the economic impact of such disruptions; however, supply chain performance increasingly encompasses not only the profitable performance of a company, but also the social and environmental performance of the supply chain, known as triple bottom line, or sustainable supply chain performance.¹⁵

Supply Chain Sustainability

As environmental and social concerns increasingly pervade business strategy and operations, firms are recognizing new forms of supply chain risk. For example, the supply-side actions (or inactions) of upstream suppliers and contractors can reflect on a downstream firm's reputation and value. Not only do firms need to think about their own production and distribution strategies and operations



No longer

can supplier issues like child labor utilization, product contamination, sweatshop factory conditions, polluted waterways, or toxic spills be ignored.



related to environmental and social sustainability performance, they need to also know what goes on upstream in their supply chains so they can obtain end-to-end visibility across and provide transparency to interested parties. No longer can supplier issues like child labor utilization, product contamination, sweatshop factory conditions, polluted waterways, or toxic spills (to name just a few types of concerns that have been showcased in recent years) be ignored by major manufactures or remain hidden from the broader public. The implications for doing so have severe consequences when the facts about these problems in the supply chain are released to the public following a major supply chain disruption similar to the incidents at Blue Bell, Nestlé, and Patagonia.

Managing more sustainable supply chains can be either reactively or proactively driven. Firms may respond to customer and/or competitive pressures to be more sustainable, or they may comply with regulation that requires the avoidance of certain behaviors (such as the Dodd-Frank legislation that prohibits the sourcing of conflict minerals). Perhaps sustainability is seen as a means for enhancing profitability—Walmart has always adhered to the argument, for example, that being sustainable is good for business—or simply doing the right thing, as evidenced by Patagonia’s mission to find solutions to the environmental crisis. Regardless of the driving forces, the journey towards increased environmental and social sustainability requires a level of transparency to the public and end users regarding the firm’s activities that is new to many firms.

As the notion of supply chain transparency gains widespread attention in the business and popular press, rigorous academic research on the subject is still in its infancy. However, it is clear in the academic literature that concepts such as visibility and transparency are closely tied to the knowledge being accumulated in the research areas of supply chain risk management and supply chain sustainability. Our own research at the University of Tennessee on sustainability has gone further, suggesting that supply chain transparency and the underlying tenets of supply chain integrity are key foundations to sustainable supply chain management, and they have the ability to produce competitive advantages for firms that build competencies in these areas.

The supply chain sustainability work is complex. Below we provide clarity about key terms, their definitions, and relationships to each other. We’ll start first with supply chain visibility.

Visibility

Visibility refers to the ability of a firm to “see” what is going on (upstream/downstream) across the supply chain.

Supply Chain Visibility

Visibility refers to the ability of a firm to “see” what is going on (upstream/downstream) across the supply chain. Visibility results when information is shared across locations and companies in a supply chain—primarily information about inventory positioning or movement, or schedules and plans. Information sharing can be either operational or can involve information about longer-term strategic decisions reflecting changes in the supply chain network. Fundamentally, having access to more information, thus greater visibility across the supply chain, enables better decision making by managers. For example, managers who can see the production schedule of components at a supplier’s facility can make better decisions about when to schedule production of a finished good, or when to promise product availability to customers.

Information technology is at the root of supply chain visibility. During much of the twentieth century, information was shared among buyers/supplies in a sequential process that resembles the telephone game sometimes used in classrooms to point out how information can get distorted as it is passed along from one person or entity to the next in a chain. In the game, as information gets passed along from one member of the chain to the next, the message changes drastically from the original source to the final receiver—and oftentimes, much of the information is either lost or completely incorrect. It is hard to have any real sense of supply chain visibility when communication and information flow in the supply chain are limited to a series of one-to-one communiqués.

Yet, with the advent of the Internet and the Cloud, firms can now experience information exchanges in a many-to-many structure and must choose the most important data to assess. For example, a retailer’s sales forecasts and even sales shelf inventory levels can be shared simultaneously with vendors and second and third tier suppliers (within and including security walls around company-specific information, so that vendors can’t see competitors’ information). Therefore, in today’s supply chain, enhanced visibility enables upstream suppliers to be more attuned to actual marketplace demand while allowing firms to understand upstream supply conditions that may impact their own operations.

As firms embrace sustainability initiatives and attempt to manage risk, supply chain visibility becomes an important factor in successful implementation of strategic sustainability initiatives. Beyond just seeing where inventory is in the pipeline, firms can employ their visibility capabilities to see what upstream suppliers and downstream customers are doing in terms of sourcing practices, adherence to codes of conduct, employment practices, etc. Supply chain visibility all comes down to the notion of seeing what’s going on across the supply chain in order to use this information to improve overall firm and supply chain performance.



Track-and-trace

capabilities have become essential in the food industry, where product safety issues are of paramount concern.

Supply Chain Traceability

Traceability is closely related to visibility and refers to the ability to track product provenance (i.e., its origin or source), maintaining a record of activities and events related to an individual product as it flows across the supply chain to end consumers. Track and trace capabilities have become essential in the food industry, for example, where product safety issues are of paramount concern. But traceability also becomes important in industries where firms face governmental regulation to ensure they don't purchase any conflict minerals. In such situations, firms must trace the source of minerals in a product to the point of origin, no matter how many ownership transfers have taken place since the mineral first emerged from the earth.

Traceability has proven to be a difficult task for most companies, and a 2014 report indicated that over 90 percent of the 1,200 firms reporting to the SEC were unable to fully trace the origin of materials in their products and therefore could not guarantee the absence of conflict minerals. However, there are now many tools available to ensure track-and-trace capabilities as goods move through the supply chain. We note that traceability may be considered a prerequisite for transparency but is more limited in meaning.

Supply Chain Integrity

The concept of personal integrity is well understood, but it has more recently been adapted into the corporate world. Corporate integrity refers to a company's awareness of and commitment to high ethical principles and business practices.¹⁶ It is a close companion to business transparency. Merriam-Webster's dictionary defines two aspects of integrity: "the state of being complete or whole" and "the quality of being honest or fair." As such, corporate integrity has been identified as one of the most important or desirable moral traits in an organization.¹⁷ As corporate citizens of the communities and societies in which they operate, corporations are increasingly being held accountable for their policies, actions, and ethical behaviors. That accountability also includes the citizenship behaviors of a firm's supply chain members. Thus, supply chain integrity can be defined as a company's *dedication to maintaining truthfulness in its supply chain activities and the recognition of the systemic and strategic implications of maintaining integrity in supply chain processes and flows.*⁷

Firms displaying a high level of supply chain integrity will develop and implement ethical supply chain practices and will act in accordance with stated corporate responsibility and sustainability objectives. Such firms will also be cognizant of their actions on the various communities and constituencies in which they operate. We introduce the notion of supply chain integrity here because our research suggests supply chain integrity is a prerequisite to supply chain transparency (See the section: "Concept of Supply Chain Integrity" for a more detailed explanation of the link between integrity and transparency).



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Supply Chain Transparency

While visibility refers to the ability of supply chain managers to see across the supply chain—and traceability refers to the ability to track goods across the supply chain—transparency shifts a manager’s focus to external stakeholders and what they know about a firm’s products and activities. Supply chain transparency is about the clarity of communication from the firm so outsiders can see what is going on within the firm and its supply chain. Thus, transparency refers to a firm’s proactive engagement and communication with external stakeholders such as customers, community groups, non-government organizations (NGOs), and governments. Such engagement is designed to share the firm’s practices with those who have an interest in the citizenship behaviors of the firm, including the environmental and social performance of the firm’s products and operational activities.

As firms increasingly address issues of environmental and social sustainability, being transparent with their broader constituents provides a level of credibility and trust with customers and other more broadly interested parties. Companies that are transparent willingly share or make available information about a variety of their activities and decisions. These might include ingredients used in products, production and sourcing practices that may have environmental or social implications, labor relations, community involvement, or more.

As firms respond to calls for greater supply chain transparency from their stakeholders, the importance of supply chain visibility and traceability is apparent. These can be considered foundational capabilities to creating and providing supply chain transparency. Consumers want to know where a product came from, all the way back to the Cashmere goat herd on the slopes of the Himalayas (Patagonia), or they want to know that the ingredients in a cleaning or fragrance product are not toxic. In order to provide that kind of information to customers or other stakeholders, however, supply chain managers must first ensure they have visibility across their own supply chain and that they can trace materials, components, and products through all stages of transformation and movement to the end customer.

While the concept of transparency may be easy to understand, implementation can be challenging. Early efforts at transparency emerged in corporate sustainability reports, or as efforts to gain some form of sustainability certification. Unilever, for example, works with the Rainforest Alliance to certify the environmental sustainability of products like Lipton Tea. But as consumer demand for fuller transparency emerges (“Just what is going on in those overseas factories?”) transparency increasingly involves a firm’s supply chain relationships and information from upstream suppliers and downstream customers. Therefore,

firms will need to be careful not to disclose proprietary information that can undermine their own competitive position. Such carelessness would only serve to create distrust among supply chain partners, inhibiting efforts at transparency and sustainability. At the same time, efforts to create transparency across the supply chain can help ensure accountability of supply chain partners, thereby enhancing credibility and trust among customers and other constituents.

Fundamentally, supply chain transparency is of strategic importance for firms and their supply chain partners. In a world in which customers increasingly want to know about the behaviors and practices of the firms they patronize, as well as the social and environmental impacts of the services and products they purchase, companies need to ensure they're investing in developing key capabilities relating to supply chain visibility, traceability, and integrity in order to support increased transparency to stakeholders.

Extending the Boundary of Supply Chain Knowledge

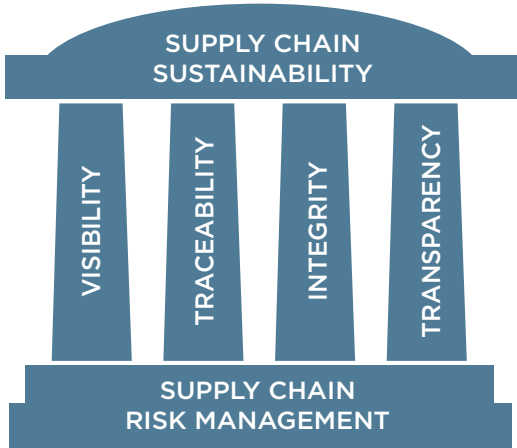
Although academic research on supply chain transparency is still in its infancy, a number of relationships are beginning to emerge that managers should note. These relationships are summarized below to motivate managers to consider the current state of supply chain transparency capabilities at their own firm and how to move them forward.

- Supply chain visibility has a direct impact on the quantity and quality of supply chain traceability and transparency capabilities. The ability to map the tiers of the supply chain for individual products and understand the firm's supplier and distribution network from raw materials to end products is at the very heart of providing high levels of transparency to consumers and other stakeholders.
- Traceability has a direct impact on supply chain disruption recovery and recall management capabilities at a firm. While supply chain visibility is important for providing a transparent supply chain, firms must also be able to provide traceability for products that are already fielded. This means it is often necessary to retrace the steps of a product's evolution and manufacturing, including sources of supply and knowledge about the actual content and material in a particular product or lot of products.
- Transparency has a direct impact on consumer trust and a firm's sustainability performance. Good supply chain visibility and traceability not only allow firms to recall and recover fielded products in the event of problems, but they also enable firms to transparently provide information to customers and stakeholders about the nature and origin of products when requested. Such

transparency can build increased levels of trust with end customers about the sustainable performance of the firm's supply chain.

- The structural and moral components of supply chain integrity underlie and directly influence the competencies of visibility, traceability, and transparency. Firms with high levels of moral and structural integrity will aim to do good while doing well. Once a firm has these capabilities, managers will be motivated to openly share such information with their stakeholders.
- Firms with high levels of supply chain integrity, visibility, traceability, and transparency competencies will be able to mitigate supply chain sustainability risks, leading to competitive advantages in the marketplace (see table 1.0). Firms face a number of supply-side risks including slave labor, product contamination, and environmental damage at supplier locations. Building a transparent supply chain will proactively ensure consumers that the firm is achieving high levels of sustainable performance.

Table 1.0





Concept of Supply Chain Integrity

Corporate Integrity

refers to a company's awareness of and commitment to high ethical principles and business practices.

The concept of corporate social responsibility (CSR) has been around for some fifty years. In many instances, CSR has become the shorthand term for all sustainability efforts in which firms engage and many firms produce some sort of an annual CSR report as a form of disclosure—or transparency—in which they highlight their sustainability efforts and achievements. Yet, CSR has become such an umbrella term that it simultaneously means everything and nothing. Is CSR just the annual report or the activities conducted so as to earn bragging rights in the annual CSR report? All too often, CSR efforts are divorced from supply chain strategy and operational actions. Yet, supply chain managers are often the key to the success for their firm's long-term sustainability efforts.

The term *supply chain integrity* provides an alternate approach for firms thinking about how to incorporate sustainability efforts into their corporate and supply chain strategies. The neoclassical economic roots of CSR suggest ethical, sustainable, and philanthropic activities come after the firm has made a profit. That is, firms should only do good *after* they have done well. Peter Drucker, the famous management guru of the twentieth century, took exception to this approach and suggested firms should consider how to “do well by doing good.”¹⁸

The concept of supply chain integrity builds on this approach by enabling firms to embed ethical and sustainable decision making into their corporate and supply chain strategies. Instead of creating false trade-offs between being profitable or being sustainable, a management philosophy of integrity enables firms to find the mutual successes along economic (financial), environmental, and social performance criteria. This is particularly important when considering the many national boundaries that modern supply chains span. Working with suppliers in developing economies or managing scarce resources to mitigate environmental impact are examples of complex decision-making situations in which managers need to balance the long-term goals of their organizations in the global supply chain. Therefore, the concept of supply chain integrity provides a roadmap for such decision making currently absent in the CSR framework.



As firms

increasingly address issues of environmental and social sustainability, being transparent with their broader constituents provides a level of credibility and trust with customers and other more broadly interested parties.

Supply chain integrity is in the very early days of development as an academic concept. What is already apparent, however, is the connection between integrity and transparency. Supply chain integrity is believed to have two dimensions: a structural dimension referring to the development of ethical supply chain practices and consistency of action to stated principles, and a moral dimension encompassing a firm's awareness of and commitment to doing the right thing (particularly related to social and environmental impact decisions). Having a high level of supply chain integrity enables a firm to achieve authenticity in the eyes of its stakeholders. Thus, supply chain integrity is often a prerequisite to supply chain transparency and firms with a high level of supply chain integrity are usually motivated to openly and transparently share information about their products and practices.

Additionally, it is believed that disclosing information about business practices across the supply chain to stakeholders will engender significantly more trust and understanding from stakeholders when they perceive the integrity and intent behind the actions. Without supply chain integrity, providing supply chain transparency becomes a daunting and potentially dangerous activity for firms, whose reputations can be put at risk if stakeholders do not sense the integrity behind a firm's actions. Conversely, firms with high levels of supply chain integrity will be motivated toward more open and transparent policies that share supply chain information with their customers, engendering higher levels of trust from consumers and achieving competitive advantages over other companies that lack integrity and the resulting levels of transparency.



Transparency Best Practices

We interviewed sixteen companies with a reputation for practicing world-class sustainability and/or transparency, speaking with more than forty professionals. The companies ranged across food, retail, airline, chemical, suppliers, furniture, prescription drug, and CPG industries. Sustainability directors and marketing and supply chain managers were included in the discussions. The focus of the discussions was to determine what the best companies and supply chains are working to deliver best-in-class results in transparency. Throughout this interview process we quickly recognized that transparency was irretrievably linked to sustainability.

In the next sections, we provide insights from companies that are successfully learning how to be transparent. Six critical best practices that were identified in the benchmark interviews are summarized in the following narrative (see table 2.0). None of the companies claim to have the structure and processes perfected, but by sharing their experiences they are contributing to the progression toward worldwide sustainable supply chains that transparently share relevant data.

Figure 2.0

SUSTAINABILITY TRANSPARENCY BEST PRACTICES
■ Embrace Sustainability as a Major Business Driver
■ Develop a Culture of Transparency
■ Partner with Sustainable Suppliers
■ Ensure Traceability to Enable Transparency
■ Find your Transparency Sweet Spot
■ Dance with Experts

Benchmark

companies make sustainability an important part of the stated business needs. Routine, clearly transparent communication has the ability to drive dramatic increases in a company's top line by differentiating it from its competition.

1. Embrace Sustainability as a Major Business Driver

Developing transparency within the supply chain is important to both public and private companies, from small to very large. Business leaders stated they found immense business value in sustainability and the associated transparency work from both a top and bottom line perspective. One of the large companies had incorporated sustainability—their environmental and social impact—into their business strategy purpose and vision. Their corporate, business and functional strategies are long-term focused. Quarterly reports are still used, but the focus is on ten to twenty years in the future. A question commonly asked within business reviews is “Will these actions move us toward our ultimate goal in ten years?” Another company firmly believes business results will take care of themselves if the company is trusted by consumers, and their suppliers are earning an income that allows them to be healthy and remain in the supply chain.

Benchmark companies make sustainability an important part of the stated business needs. Routine, clearly transparent communication has the ability to drive dramatic increases in a company's top line by differentiating it from its competition. It drives brand image, trust, and loyalty among customers and consumers. Transparency provides evidence that the company is making the right decisions every day. Information shared beyond company walls regarding sustainability of products can drive sales. One company had 50 percent of its growth from sustainable brands (brands that cost the consumer more to purchase, but were seen as worth the added expense for the knowledge of the ingredients and social impact). Another remarked on the absolute necessity of being transparent in their conformance to sustainability regulations such as conflict minerals (per the Dodd-Frank Act) to secure government and transportation business as well as maintain important longer term contracts.

As part of a company's practice of knowing their customer base, it has become apparent to many of the participating businesses the millennial generation has a higher awareness of environmental and social issues that impact the products they purchase. They are attracted to companies with sustainability information included on product packaging or posted on the Internet. Their use of social media is a form of consumer-created marketing, be it good or bad. Having honest, clear information readily available for social media consumption is becoming an important marketing tool with millennial consumers.

Beyond their role as consumers, millennials also are seeking employment at companies known for their sustainability practices. They want companies with integrity in their business practices including how they treat their employees, customers, and suppliers, and how they impact the world overall. They also want to be personally involved in the effort. In this regard, transparency is also becoming a human resource recruitment device.

EXAMPLE:

As part of their strategic business plan, one company created a line of sustainable products under a brand name easily recognizable by the consumer. By putting full effort into this brand for disclosure of ingredients along with their social and environmental impact, the door was opened to trace other brands to their source and becoming more transparent overall. The company also realized that having one highly sustainable product line provides a positive halo effect to their other products. Consumers have a heightened trust that the company is doing the right thing due to the transparency of the sustainable brand line.

Our benchmark interview process found that supply chains move through a progression of effectiveness in managing sustainability. We have mapped this progression in Table 2.1, which tracks the journey that companies and their supply chains take as they move from infancy to adolescence and maturity phases prior to achieving excellence. True value creation occurs in the excellence phase as organizations learn, share, and deliver improved business outputs through their work. For companies new to sustainable supply chain work, the challenge is to learn from the past and accelerate their capability to the excellence phase.

Table 2.1

GSCI SUSTAINABILITY TRANSPARENCY PROGRESSION MODEL			
INFANCY	ADOLESCENCE	MATURITY	EXCELLENCE
Initial commitment from executive leadership to develop sustainability transparency throughout organization	Investigate appropriate audits for supply chain visibility and sustainable practices	Participate in Industry-wide sustainability efforts	Focused sustainability measures
Communicate commitment to all internal employees that will be involved in transparent communication	Evaluate sustainability of individual product supply chains as each becomes visible • Environment impact—Energy use, waste, renewable sources • Social impact—local and world community	Open disclosure of sustainability efforts	Internally and externally supply chain sustainability is evident
Report baseline data for all goals to employees and pertinent stakeholders	Establish consistent policies for company and suppliers related to sustainability	Create communication plan for transparency to outside stakeholders—consumers and NGOs	Clear “cause/effect” of sustainability work and transparency to business results
	Establish sustainability goals based on current metrics computed through visibility work (SMART goals)	Write clear standards for transparency levels for marketing, public relations, and personnel within the supply chain, including suppliers	Sustainability measures drive business results (profit, revenue, ROI)



Transparency
*is also becoming a human
resource recruitment device.*

2. Develop a Culture of Transparency

Benchmark supply chains have a culture of transparency. This starts internally with a clear and compelling sustainability strategy and vision. Executive leadership must clearly support the vision and demonstrate how it fits within the existing business strategy. In addition, buy-in must be driven at all levels. Those who are in position to execute actions must be included in the creation of the tactics deemed necessary to move toward sustainable business practices. Individual goals should be set within various functions, such as procurement or product design, and a scorecard should be created for all those involved in the improvement effort. All employees should know what their role is within the sustainability vision. This daily, personal involvement in sustainability as a part of ongoing work drives the desired culture.

There also must be a recognized transparency commitment to customers and consumers. It must become part of the company ethos to conduct itself transparently. To define what this looks like, policies and standards need to be written and shared across the organization as well as all along the supply chain.

Broad culture-impacting policies, such as those on social compliance and sustainability commitments, must be in place and routinely reviewed for adherence and necessary revision based on new evidence. Supplier agreements delineating the controls and measures to ensure material supply should be expanded to include assurances that every supplier will adhere to the company's social responsibility commitment as well as provide visibility and efforts toward traceability and transparency. One company stated, "Our job is to ensure suppliers live up to our core values." Several companies in the benchmark noted that they are assisting suppliers to create their own corporate responsibility report, and there are recommendations to require this of all suppliers within a specified time period.

Company leadership must demonstrate transparency in their interactions with the community, academia, and industry groups. Sharing sustainability, safety, and community project results outside the organization should become commonplace.

EXAMPLE:

The majority of the benchmark companies interviewed have an active program to reduce their reliance on fossil fuels. Examples include purchasing wind power, building cogeneration plant energy systems, designing natural light warehouse and manufacturing lighting systems, implementing zero land fill plants, and designing zero waste facilities. The typical results include significant cost savings and creation of supply systems with self sufficient energy (on average 95 percent or more of electrical energy creation).

Adding

a sustainable capability profile as another criterion for supplier evaluation is a process that benchmark supply chains are practicing.

3. Partner with Sustainable Suppliers

In choosing suppliers, supply chains traditionally have used cost, reliability, and quality as the major decision factors. Adding a sustainable capability profile as another criterion for supplier evaluation is a process that benchmark supply chains are practicing. At the University of Tennessee, we strongly recommend supply chains use total cost of ownership (TCO) for these supplier decisions, with sustainability capability included as an element in the TCO assessment. It also must be recognized that suppliers may not be anywhere near the level of sustainability that your own company requires. Therefore, decisions may be made to accept a supplier with deficiencies, knowing there is a solid plan by the supplier to progress to the level of visibility, traceability, and overall sustainability sought by the supply chain's expectations.

A first step in evaluating suppliers is to request a self-assessment of labor, safety, environment, and business practices. Industry-specific audits are available through various organizations, such as the Higg index for apparel vendors and the Electronic Industry Citizenship Coalition (see Table 2.1 - Examples of Industry Supply Chain Certifications/Audits).

Table 2.2

EXAMPLES OF INDUSTRY SUPPLY CHAIN CERTIFICATIONS/AUDITS			
Certification/Audit	Sponsor	Industry	Website
Higg Index	Sustainable Apparel Coalition	Apparel	http://apparelcoalition.org/the-higg-index/
SEDEX	Supplier Ethical Data Exchange	Fast Moving Consumer Goods	http://www.sedexglobal.com/member-services/sedex-data-monitor/
EICC Validated Audit Process (VAP)	Electronic Industry Citizenship Coalition	Electronics Industry	http://www.eiccoalition.org/standards/validated-audit-process/
Conflict Materials Report "CMR" Audit	Conflict Materials Consortium	Metals Industry	http://www.conflictmineralsconsortium.com/node/29
Forest Stewardship Council (FSC) certification	Forest Stewardship Council	Forestry	https://us.fsc.org/en-us/certification
UTZ Certification	UTZ	Coffee, Cocoa, and Tea	https://www.utz.org/what-we-offer/certification/
MSC Fisheries	Marine Stewardship Council	Seafood	https://www.msc.org/get-certified
Fair Trade Certification	Fair Trade USA	Encompass many products, from tea to chocolate to body care to wine	http://fairtradeusa.org/certification

The audit can be a part of the qualification process prior to being selected as a supplier or may be a routine step in maintaining a supplier relationship with the company. The results of the audit open the doors to discussions regarding environmental and social responsibility, policies, and standards that must be adhered to by all the company's suppliers. In a transparent organization, standards for sustainability among suppliers should be high. It is important to carefully determine the parameters whereby a potential supplier cannot be considered for a relationship due to a deficiency in any particular area of sustainability. This is also true for current suppliers with a history of specific violations. The company must be clear where there is zero tolerance for audit shortfalls.

Visibility must be reinforced at the beginning of a supplier partnership. The supplier must agree to allow access to their material sources and to participate in company or third party audits related to sustainability practices. Creation of a supplier scorecard to monitor progress against audit issues should be done with key personnel on the supplier side; working issues together develops an ownership of the targets and assists employees in developing a sustainability mindset. Quarterly reviews of progress against audit results, not just with senior management but with work group participation, is another way benchmark supply chains ensure persistent attention to needed actions. Critical issues may require real-time results communicated electronically to the company so that all available experts are able to assist in resolution of problems as they are discovered. This rapid communication lends itself to improved, time-effective customer service results. This is visibility—and partnership—at its finest.

A concern of companies that have begun the process of transparency is the risk of eroding their image, and subsequent loyalty, if they are not consistent in

EXAMPLE:

A recent food industry publication regarding the humane and safe use of gestation crates in pork production and cages for poultry noted how food industry companies with open visibility throughout their supply chain are able to quickly assess their suppliers and make strategic decisions in response to customer concerns. Continuous visibility with transparency in the supply chain can also allow for prompt recall execution with minimal damage to customer loyalty or consumer sales. In fact, one company reported an instance where a safety recall, with clear messaging to consumers through their already established transparent communication methods, resulted in increased sales. Such visibility is a clear reward for their practice of transparency.

Many of the

benchmark supply chains use third party endorsements and certifications. The key initial step is to ensure that the third party is a high quality, data-based organization.

establishing visibility throughout their supply chain. Without standard visibility, they are unable to find problems and fix them before the issue becomes public. This supply chain visibility allows for rapid action related to consumer or non-governmental organizations' (NGO) concerns.

Many of the benchmark supply chains use third party endorsements and certifications. The key initial step is to ensure that the third party is a high quality, data-based organization. In order to obtain these certifications, audits are established with an understood set of metrics. The measures identify sustainability and social aspects of the suppliers' practices that can impact the company's products and consumer loyalty. The company may partner with suppliers in addressing areas of concern and share best practices.

Ideally, chosen suppliers have committed to sustainability and will participate in, or even lead, initiatives to improve the environmental and social impact of their products. As suppliers become more familiar with expectations, they are able to translate standards into the way they do business. Partnering with suppliers and thoroughly mapping their supply chain processes can advance sustainability work related to logistics, energy, and scarce resources more rapidly up and down the supply chain.

4. Ensure Traceability to Enable Transparency

Work on traceability often occurs simultaneously to developing mechanisms for visibility in the supply chain. Traceability, depending on the industry, can be continually changing and difficult to manage. Supplier partnerships must be maintained and second/third tier suppliers need to be brought under the same standards and policies as first tier companies. In areas where traceability is critical, some benchmark supply chains make the decision to change practice and buy direct versus going through brokers as visibility, traceability, and transparency are often more controlled with a direct relationship.

Firms must ensure traceability to create transparency. Knowing where materials come from and how they are produced is critical for quality assurance against sustainability standards. Lack of traceability in the face of a safety or environmental violation can be a brand killer. While the company is scrambling to trace particular products, consumers may have already made the decision to buy another brand.

For raw and packaging materials, benchmark supply chains use a combination of internal tracing systems and external resources such as coalitions and industry associations to gain quick access to helpful data when issues arise. The Conflict Minerals Consortium is an example of a worldwide collaboration in the process of creating traceability of conflict minerals across several industries.



EXAMPLE:

Traceability takes time and ongoing collaboration with suppliers. One company, in their efforts to trace raw materials in the third and fourth tier suppliers, found several issues that could impact their product stream. Inefficiencies in local processors as well as inappropriate decisions by the farmers were recognized as a lack of basic knowledge. The company, along with local university personnel and in collaboration with other companies utilizing the same resources, began an education process at the local level with these suppliers. The outcome was better use of energy and water, increased yields, and less waste of product. Socially, the suppliers increased their annual income and were able to raise more food crops for local use and the betterment of the whole community.

5. Find Your Transparency Sweet Spot

Social and environmental responsibility for an organization begins with leadership. All the benchmark supply chains interviewed had a transparent sustainability strategy within their business. The focus on sustainability was embraced and championed by top leadership, where the example must be set for the communication of visibility and traceability results. One hurdle for companies to overcome is the fear of sharing too much or too little information, both internally and externally. The key point is that best companies find the transparency sweet spot that communicates what is important to consumers without adding to information overload.

We found that supply chain transparency decisions make supply chain executives very uncomfortable: too much information causes confusion and too little information causes lack of trust. Supply chain executives must depend on their sustainability and public relations professionals to understand and communicate the transparency sweet spot.

Creating defined responsibilities for obtaining data across the supply chain and clear processes for how, when, and to whom to share the information is part of the first phase in creation of a transparent organization. The organizations interviewed were at different stages in their communication strategy and many were proud of particular products with regard to visibility and traceability, which were transparent to external stakeholders on a consistent basis. But many of these same companies were still struggling to uncover portions of their supply chain in another area and were concerned there would be a need for traceability they would not be prepared to share.

TAILOR COMMUNICATION TO YOUR STAKEHOLDER'S NEEDS

Transparency communication is ever evolving and changing. From our interviews we found that it is important to tailor transparency communication to the audience, be it stockholders, NGOs, or consumers. Each firm must take the time to identify the issues most significant to stakeholders in their industry, and develop an engagement plan for categories of stakeholders from this identification process.

Consumer/customer information gathering is crucial to identifying the information that should be readily available. Stockholders and NGOs are often simultaneously customers and have the same concerns, albeit at a different level of understanding, as consumers. Access to the results from global or national surveys, for example surveys by the American Customer Satisfaction Index (ACSI), are a good starting point for analyzing how consumers view various products or services. Internally, a brand health survey completed by those directly responsible for the product and those in the organization that are further removed, but are consumers of that product, can unveil insights into areas of sustainability, including packaging, waste, and supplier social impact.

Toll-free hotlines for customers are important to quickly address safety issues and answer questions or clear misconceptions. One sustainability director emphasized that the more firms work with the consumers of their goods, the more they understand the importance of visibility and what transparency means for the business and customers. The key is to take information from a myriad of inputs and evaluate it for repeated sustainability concerns. Openly sharing what the public and regulatory groups are asking for, while also having data and detailed analysis readily available for a possible in-depth examination is the architecture of organized transparency.

CREATE A SUSTAINABILITY REPORT

Nearly all of the companies interviewed had published sustainability reports. Those that have had these reports the longest describe an evolution of the content over the past ten years. Originally, the report was relatively superficial, with data shared regarding only the completed improvement projects, rather than also including the company's future and ongoing goals. Current reports pull the stakeholders and consumers into the sustainability journey by sharing overall goals and progress and communicating the successes, as well as the challenges, all across the organization.

The sustainability report can be organized using the United Nations Global Compact's Ten Principles. Companies that are participants of the UN Global Compact are required to report their sustainability progress against these ten principles (see table 2.3 below). The sustainability report is often titled the CSR report.

It is not only the reporting of data collected, but is a way to communicate progress toward sustainability goals and make the importance of sustainability and integrity part of the culture for both internal and external stakeholders.

The goals published in the CSR report must be measurable and reflect the high level concerns of the stakeholders. Sustainability goals are often long-term with short-term targets that can demonstrate appropriate progress. These goals require an organized strategic planning process, for which several of our companies reported the use of a consultant to assist. Key management and line personnel must be included when setting goals and functional tactics in order to have buy-in and reduce barriers to progress.

There is risk in making sustainability goals public. Good and bad results must be reported, with the less-than-optimum results having clear future actions spelled out to improve the results. Due to the nature of environmental and social concerns, a CSR report may only be published every two to three years in order to capture improvements. Knowing the CSR report will be read by consumers, stockholders, NGOs, and academia, the language of the report must be succinct with the opportunity for the reader to contact an appropriate person with questions or more detailed information.

Table 2.3¹⁹

UN GLOBAL COMPACT: THE TEN PRINCIPLES	
HUMAN RIGHTS	Businesses should:
	• Principle 1: support and respect the protection of internationally proclaimed human rights; and • Principle 2: make sure that they are not complicit in human rights abuses.
LABOR STANDARDS	Businesses should uphold:
	• Principle 3: the freedom of association and the effective recognition of the right to collective bargaining; • Principle 4: the elimination of all forms of forced and compulsory labor; • Principle 5: the effective abolition of child labor; and • Principle 6: the elimination of discrimination in employment and occupation.
ENVIRONMENT	Businesses should:
	• Principle 7: support a precautionary approach to environmental challenges; • Principle 8: undertake initiatives to promote environmental responsibility; and • Principle 9: encourage the development and diffusion of environmentally friendly technologies.
ANTI-CORRUPTION	
	• Principle 10: businesses should work against corruption in all its forms, including extortion and bribery.



Having honest, clear information readily available for social media consumption is becoming an important marketing tool with millennial consumers.

MARKETING THE SUSTAINABILITY MESSAGE

Our research pointed to four key principles for appropriately marketing the sustainability message, including:

- **Keep it simple**
- **Focus on your sweet spot**
- **Utilize social media**
- **Avoid greenwashing**

We'll review examples of each below.

Keep it simple: Most stakeholders are not going to read the full CSR report; similarly, most consumers are not going to dive deeply into supply chain databases. All those interviewed agreed that every company needs a social media and web presence with content related to what the public wants to know about their services and products. If a consumer searches for information and doesn't find it on the company's website, it can be seen as a negative. The person can conclude that the company doesn't have the information, doesn't care, or is hiding something.

Focus on your sweet spot: Every industry has a material or issue somewhere in its supply chain that needs continual communication on improvement. Appropriate sweet spot communications to consumer groups, NGOs, and individual consumers must be designed. These are the areas that require businesses to proactively create visibility, traceability, and transparency even when not all the results are in the favor of the brand. Transparency with the public cannot be a one-shot disclosure, but should be the development of a partnership where the consumer and the company are traveling the improvement journey together.

Utilize social media: Several of the organizations interviewed have robust websites consistently updated with new environmental and social information. Several have entered the world of social media with tweets on new endeavors or accomplishments or the use of QR codes on products for immediate display of ingredient or source information. Companies utilizing the EPA SmartWay program, which aims to reduce the impact of freight transportation on the environment, are able to place the SmartWay logo on their trucks to inform the public of their commitment to sustainability.²⁰

Effective websites often include easy consumer tools. In the case study below, we discuss a tool used for ingredient and food safety (including preservatives and chemicals). Another company has published a Safe Ingredient List for consumer reference on their website. This tool is easy to use and directs consumers to ingredients concerns.

Local news outlets also can be utilized to help promote sustainability success stories. The benchmark firms promoted stories such as attaining zero-waste in manufacturing plants through water reclamation, recycling, and energy co-generation, refitting trucks with energy saving side skirts and trailer tails, use of wind energy for plants and offices, employing local bicycle or four-wheel couriers for delivery of products, and involvement in world-wide efforts for forest restoration. Marketing can be engaged to be proactive in the arena of social responsibility from local financial support of recycling to assisting in the education for farming improvements. These efforts not only make an impact on the environment and social conditions of suppliers, but have a bearing on the long-term economic success of the organization both in decreased costs and in consumer loyalty.

Avoid Greenwashing: The benchmark companies have very clear and data-based scorecards and measures (see examples in Table 2.4). This data-oriented approach helps avoid the pitfalls associated with “greenwashing” (see definition below). For example, the term “carbon footprint” is mainstream and is data based. As mentioned previously, the best companies focus and simplify the results for consumers; they want to know that the companies and brands they choose are doing all they can to decrease negative impact on the environment. Seeking consistent ways to communicate use of nonfossil energy sources simplifies the message for consumers.

GREENWASHING:

Disinformation disseminated by an organization so as to present an environmentally responsible public image.



Table 2.4

EXAMPLE SUSTAINABILITY SCORECARD MEASURES FROM INTERVIEWS

OUTPUT MEASURES

BROAD ISSUE	SUSTAINABILITY PERFORMANCE MEASURE
Energy	1. Energy Use Efficiency (kWh x 1000/ton of product) – % of Energy from Renewable Energy
Greenhouse Gas Emissions	2. GHG CO2 Emissions Intensity (kg/ton of product) – Direct (Scope 1) Greenhouse Gas Emissions (Metric Tons CO2e) – Indirect (Scope 2) Greenhouse Gas Emissions (Metric Tons CO2e)
Environment	3. Environmental Particulate Emissions (metric tons) 4. Environmental/Social Incidents 5. Carbon Footprint
Water	6. Water Use Efficiency (m3/ton of product)
Waste	7. Waste Generated (metric tons)
Sustainable Sourcing	8. % Certified Sustainable Sourcing of Key Materials – Palm Oil, Wood Fiber, Cocoa, Sourcing etc.

IN-PROCESS MEASURES

BROAD ISSUE	SUSTAINABILITY PERFORMANCE MEASURE
Sustainability Results	1. Sustainability Savings/Ton of Product
Sustainable Innovation	2. Improved Sustainability Profile of New Products 3. % of Recycled Packaging Content
Energy	4. Facility Energy Star Certifications 5. Transportation Metrics—MPG, Cube Efficiency, Cube Per Mile, % Intermodal Containers
Water	6. % Water Recycled
Waste	7. % of Zero-Waste-To-Landfill Operations 8. % Recycling Rate 9. % Reuse Rate
Sustainable Sourcing	10. % Traceability of Key Materials: Palm Oil, Wood Fiber, Cocoa, etc. 11. % of Product Packaging Sourced from Sustainable Sources 12. % Sustainability Audit Results Completed of Selected External Suppliers and Internal Manufacturing Sites. 13. Demonstrate 100% Transparency of Key Issues within Our Supply Chain, Working with Suppliers to Mitigate Risks in Those Areas

A national or global database can assist in decision making regarding environmental or social projects as well as initiating transparent communication.

6. Dance with Experts

Making sustainability efforts transparent is not something a company can do in isolation. Indeed, the fact that much of the work involves factors not under its immediate control makes it a greater challenge than any other organizational initiative. As part of the process to learn about stakeholders' concerns, it may be beneficial to join an organization that gathers data from other firms in the same industry and shares the results to members. A national or global database can assist in decision making regarding environmental or social projects as well as initiating transparent communication. Businesses must choose the database organization carefully in order to have the best fit for their industry and to benefit from the reports that organization creates. These organizations evaluate the sustainability performance of a variety of companies in many industries utilizing a mixture of self-report surveys and analysis of public news items and reports. Examples of data base organizations include the Global Reporting Initiative Data Sustainability Reports, the Dow Jones Sustainability Indices, and the Carbon Disclosure Project.

There are also consortiums, societies, and institutes that research and share best practices within their industry sector. Whether free-standing or associated with a university or government program, these groups often have a wealth of knowledge to share. Examples include The Sustainability Consortium® sponsored by Arizona State University and the University of Arkansas; AIM-PROGRESS, a global initiative sponsored by the Grocery Manufacturers Association in North America; and the EPA's SmartWay program for transportation benchmarking and efficiency.

Industry collaboration, often coined as "precompetitive collaboration" can also provide vital help in addressing sustainability issues (see Table 2.5 for sustainability coalition examples). Industry-wide efforts are able to drive progress beyond what a single company is capable of within the supply chain. With collaboration, it is possible to address and apply pressure for supply chain accountability in visibility, traceability, and adherence to sustainable and ethical standards. Industry collaboration may also improve supply production or quality by combining efforts for education and audits.

EXAMPLE:

A group that addresses multiple supply issues is CocoaAction, which joins leading cocoa companies in sustainability efforts. The World Cocoa Foundation facilitates the group's efforts.

Table 2.5²¹

SUSTAINABILITY COALITION EXAMPLES			
Coalitions	Description	Goal	Website
UN Global Compact	Companies and non-business participants committed to creating a culture of integrity	Operate responsibly, in alignment with the universal sustainability principles	https://www.unglobalcompact.org/
Sustainable Packaging Association	Industry working group dedicated to a more robust environmental vision for packaging	Endeavors to build packaging systems that encourage economic prosperity and a sustainable flow of materials	http://sustainablepackaging.org/
AIM-Progress	Forum of leading Fast Moving Consumer Goods companies	Positively impact peoples' lives through combined leadership of robust, responsible sourcing practices throughout their supply chains	http://aim-progress.com/
Sustainable Brands	Global community of business innovators who are shaping the future of commerce world-wide	Inspire, engage, and equip today's business and brand leaders to prosper for the near and long term by leading the way to a sustainably abundant future	http://www.sustainablebrands.com/
Electronics Industry Citizenship Coalition	A nonprofit coalition of electronics companies committed to supporting the rights and wellbeing of workers and communities worldwide affected by the global electronics supply chain	Members, suppliers, and stakeholders collaborate to improve working and environmental conditions through leading standards and practices	http://www.eiccoalition.org/about/

NGOs and governmental organizations help drive strategy for raw materials. They often have global connections that spur sustainability conversations. Participating on regulatory committees allows companies to have input into new regulations and guidelines that could impact their business either directly or indirectly. Examples include company membership on State Environmental Regulatory Committees or design teams working directly with the EPA on a new to the world product innovation to ensure it will be environmentally compliant. Partnering with high quality, data/scientific based NGOs in particular sends a message to consumers that the organization is serious about its impact on the environment and social responsibility.

Consumers see

certifications as a seal of approval by a third party that the company and/or the product is doing the right thing and engendering trust.

EXAMPLE:

Often governmental and non-governmental organizations are viewed as the groups companies don't want to see on their doorstep. While it is true these organizations often are the first to be heard from when there are mistakes made, they are also great resources for improvement initiatives. Partnering with these groups allows the business to determine a shared agenda, support research, and develop industry-wide strategies. These group also offer another avenue for consumer education and awareness regarding sustainable living such as saving water and decreasing energy usage.

As improvements are made within the company with facilities, processes, and brands firms must make a choice whether to validate these successes with third-party certifications and endorsements. The information shared in our interviews indicated that certifications and endorsements are important, but they need to be chosen carefully. Consumers are more and more aware of sustainability certifications, like the Leadership in Energy and Environmental Design (LEED). Both business to business (B2B) standards and consumer standards are valuable to a company that is moving toward transparency. The certifying organizations have set checklists and steps that can help the company to first achieve the certification as well as to maintain sustainable practices. For consumer groups and NGOs, the possession of a certification demonstrates a certain level of sustainability, visibility, and traceability. B2B standards, such as those from the Forest Stewardship Council (FSC) for harvesting from sustainable forests, have become well known to consumers. Consumers see certifications as a seal of approval by a third party that the company and/or the product is doing the right thing and engendering trust. Certifications are in themselves a form of transparency to the public.

In addition to external validation, experts within the organization should be available to consistently move the company forward along the sustainability track. More universities are offering degrees in sustainability within engineering, business, public policy, and science curricula. There are also increasing offerings of graduate degrees in green chemistry and environmental policy. Seeking talent in these areas is important for ongoing success in sustainability and transparency initiatives.



Case Studies

W

e have included three case studies that utilize several of the best practices to illustrate our learning.

CASE STUDY: **FRAGRANCE INGREDIENTS**

In 2012, the SC Johnson Company began communicating its fragrance ingredients to consumers as part of its long history and commitment to transparency. Believing that transparency is key to earning the trust of consumers, the company makes product and fragrance ingredient information available to the public in a consumer-friendly, special section of its website.

The International Fragrance Association (IFRA) publishes a list of fragrance ingredients that meets the Code of Practice and standards for consumer goods. Many companies develop fragrances from the thousands of fragrance molecules included on the IFRA list. This company carefully examined their fragrance ingredients not only under the IFRA standards, but also under their own standards that may look at ingredients differently. The end result was an exclusive fragrance palette that listed fragrances allowed for use in their products.

This work required robust cross-functional collaboration and enabled the company to hit a major milestone in 2015 as the company announced disclosure of all fragrance ingredients down to 99.9 percent of the product formula. Consumers now have visibility and can make informed purchase decisions at the shelf.





CASE STUDY: CHOCOLATE SUPPLY

At the turn of the century, a global food company was actively improving the sustainability of their manufacturing operations. The company focused on reducing overall plant carbon footprint, water usage, particle emissions, and landfill tonnage. The results have been impressive, including greater than 50 percent reduction in landfill tonnage.

In the last five years, the supply chain sustainability strategy was renewed and integrated with a corporate sustainability strategy to include:

1. End-to-end supply chain carbon footprint reduction
2. Social and ethical responsibility
3. Ensuring future supply chain availability (Invest in Future)

With this renewed strategy the supply chain analyzed the end-to-end supply chain and found that the largest carbon footprint opportunities were in Tier 1, 2, and 3 supplier systems. Furthermore, significant opportunities in ensuring future availability of materials and social/ethical responsibilities for supplier labor practices existed.

The organization initially proposed the use of a third party certification and audit provider to manage their progress. After investigating several options, these providers did not have the scientific and technical capability necessary to support and track the progress. Internal resources were allocated to develop program support and tracking.

One of the overall corporate programs launched was on the chocolate supply chain. Cocoa is produced in areas near the equator, including Ecuador, Indonesia, Ivory Coast, Ghana, and the Dominican Republic. This chocolate supply program has invested hundreds of million dollars worldwide in supplier development. The program includes:

- A. Carbon footprint reduction projects with milk suppliers
- B. Investments in local schools and farming education programs
- C. A farming program to ensure ongoing planting of cocoa seedlings.
A cocoa plant takes about four years to mature and may produce for twenty to twenty-five years. This requires a continual seedling program to ensure future availability.

The results of the program have been successful improving total cost, worker conditions, and the long term cocoa supply viability.

CASE STUDY: INDONESIA BIO FUEL

The SC Johnson Company, with a long history and commitment to sustainability, implemented two innovative solutions to utilize waste products as a fuel source.

The company's manufacturing facility in Indonesia partnered with local farmers and suppliers to find a sustainable energy solution to replace diesel fuel. As part of their manufacturing process, the plant utilized waste palm shells as a fuel source to heat water in its boilers. The project was very successful as it reduced greenhouse emissions by 6,000 metric tons per year and diesel fuel usage by 80 percent and returned a waste product back into the value chain.

At another manufacturing facility in Indonesia, the company considered implementing an identical biofuel initiative by extending its use of palm shells. However, they discovered rice husks were in abundant supply and were in close proximity to the plant. Utilizing rice husks as a fuel source reduced greenhouse emissions by 7,090 metric tons and created sixty new jobs in the agricultural sector.

The success of the project impacted the three pillars of sustainability (economic, environmental, social) resulting in:

- More than \$10 million in savings
- 15 percent reduction in greenhouse gas emissions
- Sixty new jobs in the local community

This is an impressive example of a project impacting the triple bottom line.





Summary

We are facing some of the greatest environmental and social challenges in history. Sustainable manufacturing/product supply and business practices are essential to successfully compete in this century. Consumers, potential employees, and associated businesses want to know how well a particular company cares for its people, employees, and community. When companies develop their capability to deliver improved profit and revenue through creation of sustainable supply chains, the business strategy and corporate sustainability efforts are seen as the same.

In order to meet consumer needs for the transparency of products and services, the supply chain must meet high standards for sustainability and all materials/products/processes need systems for traceability.

In order to meet consumer needs for the transparency of products and services, the supply chain must meet high standards for sustainability and all materials/products/processes need systems for traceability.

Transparency is dependent on partnerships with suppliers, industry associates, and contractors. In order to deliver on the transparency promise, collaborative supply chain practices must be in place throughout the end-to-end supply chain. Sustainable supply chains decrease risk of error, therefore dramatically reducing possible public scrutiny, loss of customer trust, and waste in the supply systems.

All organizations, not just those seen as leaders in their industry, have a responsibility to make a positive difference in the lives of their global consumers and future generations.

Sustainable supply chains enable people to have faith the companies they do business with have done the right thing on their behalf. In the last decade benchmark companies have transitioned from thinking about sustainability as an investment to making it a competitive advantage. Sustainability projects are delivering both consumer needs and improving total cost (Excellence Phase of GSCI Sustainability Progression Model).

End Notes

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INNOVATIONS IN SUPPLY CHAIN

A FINAL NOTE

We hope you have found the material in this white paper helpful and useful. We at the University of Tennessee's Haslam College of Business are committed to translating our top-ranked position in academic research into information useful for practitioners. We believe the real world of industry is our laboratory. It's why we have the largest Supply Chain Forum in the academic world, with over sixty sponsoring companies. We are always looking for industry partners to assist us in this journey. Let us know if you are interested in being one of our valued partners.

J. Paul Dittmann, PhD
Executive Director, The Global Supply Chain Institute
The University of Tennessee's Haslam College of Business
jdittman@utk.edu
O: 865-974-9413
C: 865-368-1836

gsci.utk.edu



310 STOKELY MANAGEMENT CENTER
KNOXVILLE, TN 37996
865.974.9413

GLOBALSUPPLYCHAININSTITUTE.UTK.EDU