Suppliers’ Perspectives on Greening the Supply Chain

A report on suppliers’ views on effective supply chain environmental management strategies

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With support from:
Performance Incentives Division
Office of Policy, Economics and Innovations
U.S. Environmental Protection Agency

June 2001
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FOREWORD

We would like to thank the U.S. EPA for providing funding for this research project and the following companies who participated in this study:

Automotive
   ArvinMeritor
   Dana Corporation
   Delphi Automotive
   Johnson Controls, Inc.
   Lear Corporation
   Magna International
   Motorola, Inc.
   Navistar-International Truck and Engine

Business Services
   CH2M Hill
   DPT Laboratories
   FedEx Corporation
   Kinko’s, Inc.
   Pitney Bowes
   Quad/Graphics
   United Parcel Service

Electronics
   Advanced Micro Devices, Inc.
   Celestica, Inc.
   Dell Computer
   Intel Corporation
   Solectron Corporation
   Tyco Electronics

Forest Products
   Georgia-Pacific
   International Paper
   New Leaf Paper
   Willamette Industries

This report was printed on 100 percent post-consumer, process chlorine-free recycled paper.
EXECUTIVE SUMMARY AND KEY FINDINGS

Over the past several years, a number of organizations have investigated the increasing number of companies seeking to influence their suppliers’ environmental practices, but typically have not specifically looked at suppliers’ perspectives on this trend. To address this imbalance and gain suppliers’ perspectives and insights into effective strategies for supply chain environmental management, the BSR Education Fund talked with representatives from 25 suppliers in four industry sectors: automotive, electronics, forest products, and business services. We sought their insights on the following:

• current trends in supply chain environmental management;
• how these trends are impacting their business;
• their recommendations to customers on effective strategies for addressing environmental issues with suppliers;
• whether and how these suppliers are addressing environmental issues with their own suppliers; and
• future trends and directions.

Current Trends in Supply Chain Environmental Management

• Nearly all of the companies interviewed had received requests from their corporate customers to address environmental issues and these requests have motivated changes in suppliers’ environmental performance.

• The types of environmental issues customer companies are seeking to address with suppliers varied by sector. Companies in the automotive and electronics sectors had received the most environmental requests from customers. These requests generally focused on ensuring suppliers are not providing customers with products that contain certain restricted substances (like lead and cadmium) and ensuring that suppliers are implementing environmental management systems. Companies in the forestry sector had mainly received requests from customers to explain their environmental practices, particularly around sustainable forestry issues. Companies in the service sector had received the fewest environmental requests from customers, but almost all of them had received a few such requests, particularly from large corporate customers.

• Although many customers communicate their environmental expectations and requests to suppliers through questionnaires and lists of restricted substances, there were examples of a small but growing number of more collaborative processes for addressing environmental issues across the supply chain, such as supplier environmental advisory councils. The suppliers interviewed expressed strong enthusiasm and support for these type of collaborative efforts and noted working collaboratively with customers can lead to better policies that make sense for business and may yield greater environmental benefits.

• Although a few participants did describe responding to multiple and varying requests as complicated and burdensome, a surprising number of participants noted that this was not a major challenge. Suppliers described steps they are taking internally to integrate multiple customer requests and also noted that in some cases, customers have begun working to coordinate and streamline their requests to avoid confusion.
• Interestingly, the most common complaint from suppliers about customers’ environmental expectations was that they felt customers are not doing enough to integrate these expectations into purchasing decisions. Several suppliers expressed frustration with customers who have issued environmental policies or articulated environmental expectations which suppliers do not see reflected in actual purchasing decisions. Many participants noted that price continues to be the major driver behind customers’ purchasing decisions, and they saw environmental issues as playing an incidental role.

• Another notable finding is that environmental requests are flowing both ways along the supply chain, and a number of suppliers described initiatives to involve their customers in meeting their own environmental goals. For instance, several suppliers described working with customers to change product specifications that precluded pollution prevention activities they wanted to engage in. Some suppliers are working to influence customers to better incorporate environmental considerations into purchasing decisions, because the supplier has better environmental performance than its competitors, or to help build greater support within the supplier company for additional environmental initiatives.

Business Impacts

• A majority of participants (14 companies) said that their environmental initiatives driven by customers have had a positive effect on their bottom line, while nine companies said these initiatives have not impacted their bottom line, and only two companies said they faced a negative impact to their bottom line.

• Participants noted that business benefits they had realized from customer-initiated environmental measures included cost reductions and greater operational efficiencies; enhanced value to customers and, in a few cases, increased sales; and other benefits, such as positive media attention and positive ratings from socially responsible investment groups.

• Comparing across the four sectors, there was strikingly little difference in responses on the issue of business value. The number of companies cited positive versus negative bottom line impacts seemed evenly split across the four sectors, as did the number of respondents who could not measure any impact. This was even true of the service sector, which generally faces fewer environmental requests from corporate customers than the other three sectors.

Effective Strategies for Supply Chain Environmental Management

• Many suppliers interviewed for this report expressed common opinions on how customers could best catalyze environmental improvements among their suppliers. Perhaps the most central incentive heard repeatedly from suppliers is for customers to truly integrate environmental performance into their everyday purchasing decisions. This entails ensuring that the environment is factored in among the other parameters used to make purchasing decisions—such as cost, service, quality, availability, innovation—and is given sufficient weight to influence purchasing decisions. As another example of an incentive customers could offer, some suppliers suggested that customers increase their volume of purchases from their suppliers that demonstrate environmental leadership.
Suppliers also called for customers to help bear the costs associated with improving their environmental performance across their supply chains. This could involve paying a premium for environmental products or services, especially in the beginning of an initiative, to help cover transitional costs. In addition, there may be other creative ways for customers to help ensure that new environmental technologies are economical, such as providing an assured market for new technologies or sharing research and development costs and capabilities with suppliers.

Other incentives cited by suppliers as effective ways for customers to promote environmental action among their suppliers include clearly articulating goals; prioritizing requests and allowing suppliers enough time to respond with the appropriate technology and staff resources; providing technical assistance and conferring awards and recognition.

According to the suppliers interviewed, an overarching need for clear and timely communication is a primary necessity for customers and suppliers to effectively address environmental issues together. Suppliers repeatedly stated that the more collaborative a environmental initiative with suppliers is, the greater its chance of success. Suppliers also noted the importance of establishing proper channels of communication to ensure the right people are communicating within their own companies and between the customer and supplier companies. Several suppliers noted that involving cross-functional teams—marketing, purchasing, technical, and sales—on such initiatives improves the process and encourages broader “buy-in.”

Communication strategies suppliers suggested appeared to cut across business sectors, and are basic to any good collaborative effort. Some strategies, like face-to-face meetings, workshops and active partnerships, work particularly well. Other communication tools, such as questionnaires and audits, receive mixed responses. Some suppliers stated that surveys are time-consuming and customers often do not follow through on the information collected, but others said such questionnaires do help their company identify and understand customers’ environmental concerns.

Suppliers cited a number of barriers to overcome to effectively addressing environmental issues with suppliers, including costs, lack of lead time, technological hurdles, existing procurement specifications, lack of protection for innovation in customers’ terms and conditions for suppliers, and customers’ lack of environmental awareness.

In general, it was striking to note the fairly positive tone many suppliers had about the business impacts of customers’ environmental requirements. In particular, it was surprising to see the generally positive reaction to suppliers’ implementation of ISO 14001 at the behest of customers. However, a sizeable number of participants did not believe that meeting customers’ environmental expectations generated value for their company. Since they also noted that suppliers are most likely to implement environmental initiatives that do create business value, this suggests an opportunity for customers to redesign their programs in ways that generate more business value and environmental improvements for both suppliers and customers.
Addressing Environmental Issues Up the Supply Chain

- The study findings suggest that environmental initiatives are beginning to spread up the supply chain. Overall, 20 of the 25 companies interviewed had some initiatives in place to address environmental issues with their own suppliers.

- Seven of these 20 companies reported that their environmental initiatives with suppliers were linked to meeting the environmental demands of their own customers, mostly around eliminating restricted substances. In addition, a number of companies that have begun ISO 14001 programs as a result of customer requests are now considering requiring their Tier 1 suppliers to also implement ISO 14001. (Tier 1 suppliers are those that sell directly to original equipment manufacturers.)

- Several participants noted that their own suppliers are often smaller companies that lack the resources and systems in place to address environmental issues, which makes it challenging to address with them issues like restricted materials. They noted the importance of providing these smaller suppliers with technical assistance, financial aid, and other support to assist them in meeting new environmental requirements that their customers expect. To address this need, several of the companies are sharing tools on environmental management systems, proper chemical handling, and other information with their suppliers.

- Overall, the findings suggest that customer companies’ environmental programs involving their Tier 1 suppliers have begun to translate into action further up the supply chain, but this is only beginning to take place. The findings also suggest that to be successful, customer companies should consider how requirements they impose on their Tier 1 suppliers impact further suppliers up the supply chain. Where possible, customers should provide their Tier 1 suppliers with tools and information resources to help them communicate about environmental issues and new requirements with their own suppliers.

Future Trends and Directions

- Many of the suppliers seemed to expect the field of supply chain environmental management to continue to develop. A number predicted greater collaboration between multiple tiers of suppliers on environmental issues in the future, in part to respond to growing take-back and restrictions on materials in European products and elsewhere.

- Many participants predicted significant impacts of the Internet and other communications technology on supply chain management, with both positive and negative outcomes for the environment. On the positive side, several predicted that electronic procurement systems would make it easier to track restricted materials and more easily identify and source environmentally preferable products. On the other hand, some respondents noted that business-to-business supplier exchanges can reduce the importance of supply chain relationship and make it difficult for suppliers to compete on any parameter other than price.

- Many participants also observed greater trends towards outsourcing and global supply bases, which make it more important—but more difficult—for customers to understand the environmental impacts across their supply chains.
• Many cited a continued focus on cost reduction as a key parameter in making supply chain decisions. As a result, they did not see customers being willing to pay for greater environmental performance from their supply chains. However, some participants noted that some companies are beginning to assess total costs rather than price, and may be willing to pay higher up-front costs for an environmentally preferable commodity if the company will save money overall through decreased compliance or waste disposal costs as a result. Several participants also saw the model of buying chemical management services from suppliers rather than chemicals themselves as a helpful trend that will promote more holistic supply chain management that provides both environmental and business benefits.

• A number of participants saw the issue of logistics and transportation as a key aspect of the supply chain that will likely receive greater attention in the future.
INTRODUCTION AND METHODOLOGY

Over the past several years, a growing number of organizations and publications have investigated the emerging field of supply chain environmental management. Organizations, including the U.S. Environmental Protection Agency, the U.S. Asian Environmental Partnership, the National Environmental Education and Training Foundation, the Global Environmental Management Initiative, as well as Business for Social Responsibility, have produced benchmarking reports on the topic of how companies are beginning to address the environmental impacts of their business across their supply chain. These studies have all focused in large part on steps companies are taking to influence their suppliers, and have not specifically investigated suppliers’ perspectives on this new trend. (A select set of resources and studies is included in the Appendix.)

The intent of this study is to address this imbalance and to gain suppliers’ perspectives and valuable insights into effective strategies for supply chain environmental management. Based on conversations with representatives from 25 leading supplier companies, BSR Education Fund sought to describe how these companies serve their customers, which are typically large companies that have begun adopting environmental policies and programs for greening the supply chain. Some of the suppliers serve both business customers and the consumer market, but for the purposes of this report suppliers were asked to focus on how they are meeting the environmental demands of business customers.

Suppliers were selected from four different industry sectors, to ensure that our general findings do not reflect only sector specific trends, and also to help identify similarities and differences across different types of suppliers. The four sectors investigated were: automotive, electronics, forest products, and the business service sector. The service sector included a broad range of services, including contract manufacturing, overnight shipping, printing, consulting, and general business services, including mailing and copying.

Based on the results of the interviews, this report presents suppliers’ perspectives on the following topics:

• current trends in supply chain environmental management;
• how these trends are impacting their business;
• their recommendations to customers on effective strategies for addressing environmental issues with suppliers;
• whether and how these suppliers are addressing environmental issues with their own suppliers; and
• future trends and directions.
OVERALL TRENDS IN SUPPLY CHAIN ENVIRONMENTAL MANAGEMENT

Conversations with 25 suppliers for this study suggest that the growing number of companies seeking to address environmental issues across their supply chains has begun to impact companies that are suppliers in the business-to-business market. Nearly all of the companies said they have received some customer requests to address environmental issues, and approximately 20 companies described receiving significant environmental requests from customers. Further it appears that these requests can lead to outcomes that yield both environmental benefits and create business value if they are well-crafted and implemented successfully.

Types of Environmental Requests
Suppliers in the four sectors investigated faced different levels and types of environmental requests from customers. Suppliers in the automotive and electronics sectors faced the most requests, with virtually all of the companies in these two sectors noting that they have received such requests and worked on environmental issues with customers. In addition to receiving the most requests, suppliers in these sectors appeared to receive the most particular requests, especially around their use of specific materials of concern. All of the suppliers in these two sectors described customer requests to provide them with products that did not contain certain materials (e.g., lead, cadmium) and to report on the materials in their products. Many customers of suppliers in these two sectors have included restrictions on material content into their product specifications or issued separate lists of restricted substances that suppliers cannot use. Many of these restrictions are designed to ensure that customers can sell their product in markets that have product-based regulations prohibiting the use of certain materials, particularly in Europe. The other major environmental request/requirement suppliers face in these two sectors is implementation of environmental management systems meeting the ISO 14001 standard.

All of the suppliers in the automotive sector faced customer requirements that they implement an ISO 14001-certified environmental management system. Half of the companies in the electronics sector reported that they face customer requests for ISO 14001 certification. For electronics suppliers, these requests came especially from customers in Asia and Europe, but one supplier noted she faces a growing number of these requests from the U.S.

In contrast, companies in the forest products sector tended to receive more customer requests to explain what their environmental practices are, rather than to meet specific requirements. As a result, these companies described numerous outreach efforts to help customers understand their environmental policies and practices, from having internal teams of experts to respond to customer requests to inviting major customers to observe third-party environmental audits of forestry practices. However, these companies also reported receiving some specific customer requests to implement ISO 14001 or specific sustainable forestry standards. In addition, one company described a successful joint project with a major customer to develop lower-weight packaging materials.

The companies contacted in the service sector faced the fewest number of environmental requests from customers, although almost all of them reported that they had received at least a few such requests. In particular, they tended to receive such requests from large national
accounts for Fortune 500 companies. The types of requests they receive are generally tied to the particular service they offer, as opposed to requests to implement an environmental management system. For instance, some customers have sought overnight shipping services using alternative fuel vehicles, or have sought equipment take-back programs from companies leasing them office equipment.

Although many customers do communicate their environmental expectations and requests to suppliers through questionnaires and lists of restricted substances, there were examples of a small but growing number of more collaborative processes for addressing environmental issues across the supply chain. Several suppliers interviewed have participated in new advisory councils customers have formed to address environmental issues, such as General Motor’s Supplier Environmental Advisory (SEA) Team, which is a collaboration between GM and eight of its key suppliers. The SEA Team explores ways that GM can work effectively with suppliers to integrate environmental concerns into the design, sourcing and manufacturing processes.

The suppliers interviewed expressed strong enthusiasm and support for these type of collaborative efforts. They called for greater involvement in helping shape their customers’ environmental policies that will affect them, and argued that this type of involvement leads to better policies that make sense for business and may yield greater environmental benefits.

One notable finding is that environmental requests are flowing both ways along the supply chain, and a number of suppliers described initiatives to involve their customers in meeting their own environmental goals. Several suppliers described working with customers to change product specifications that precluded pollution prevention activities they wanted to engage in. As examples, different suppliers noted they worked with customers to change specifications and gain approval for using VOC-free coating and soldering processes; eliminating certain cleaning steps to reduce solvent use; and applying one coat instead of several on painted parts. In some cases, these requests were motivated primarily by potential cost savings, but also yielded environmental benefits. Some suppliers expressed frustration at being unable to get customers to change certain specifications that require the use of hazardous materials, such as one car-maker’s requirement that brake linings contain asbestos (when other auto companies accept asbestos-free brake linings). They also noted certain specifications that may design in waste, such as a specification that requires parts to have two coatings of paint, when one coating would provide the same appearance and performance. Several suppliers noted that they believe they have a higher level of environmental awareness and expertise than many of their customers. Some suppliers are working to influence customers to better incorporate environmental considerations into purchasing decisions, because the supplier has better environmental performance than its competitors or to help build greater support within the supplier company for additional environmental initiatives.

Supplier Responses to Requests
Overall, the findings demonstrate that customers’ environmental initiatives targeted at suppliers have motivated changes in suppliers’ environmental performance. Half a dozen of the companies interviewed indicated they obtained certification to the ISO 14001 standard as a result of customer requests, and noted that they saw positive environmental and economic benefits as a result. Numerous companies also described undertaking specific design-for-environment initiatives as a result of customer concerns about specific restricted substances or to meet customer goals such as lower weight packaging.
Several participants noted the power of markets to motivate change. These suppliers observed that customer requests yield major influence in getting their senior management to support environmental initiatives within their companies. One participant noted the influence that an environmental inquiry of even a single important customer can have, pointing out that her company is now developing and implementing a sustainability policy as a result of a customer’s inquiry about whether the company has such a policy.

Interestingly, the most common complaint from suppliers about customers’ environmental expectations was that they felt customers are not doing enough to integrate these expectations into purchasing decisions. Several suppliers expressed frustration with customers who have issued environmental policies or articulated environmental expectations which suppliers do not see reflected in actual purchasing decisions. For instance, several indicated that many environmental questionnaires they receive from customers seem like an exercise in paperwork that does not affect purchasing decisions. One supplier noted that his company prioritizes such questionnaires. They take more time responding to well-thought out questionnaires in which customers genuinely seem interested, than responding to rote requests where the customer is just “going through the motions” of asking about environmental issues.

Many participants noted that price continues to be the major driver behind customers’ purchasing decisions, and they saw environmental issues as playing an incidental role. One participant noted that her company engaged in a design-for-environment initiative to develop an environmentally preferable product with recycled content, but it cost slightly more and customers did not buy it. Another noted that he feels suppliers face a downside risk of losing major customers if his company does not meet their environmental requirements, but he does not see positive incentives to encourage environmental excellence, such as gaining greater market share or increasing revenues.

Suppliers also expressed concerns that not all of their customers’ environmental requirements for suppliers are well-thought out. They noted that some questionnaires and requirements for reporting on materials of concern are extremely burdensome and do not provide information in a way that is useful to customer companies or that will generate business or environmental benefits. However, several of them noted that some customers are now becoming more flexible in revising reporting requirements to make them more workable.

To ensure that requirements are well-thought out, many of the participants emphasized that involving suppliers in developing policies and requirements can help customers make decisions that end up generating more value for everyone involved: the customer, the supplier, the end-consumer, and the environment. Many expressed an interest in working directly with customers to help solve environmental problems or address a specific need, and called for better communication to help customers and suppliers understand each others’ business and environmental goals.

As the number of customers making environmental demands of their suppliers grows, one might expect suppliers could feel overwhelmed with environmental requests, and so participants were asked how they respond to multiple requests from different customers. Although a few participants did describe responding to multiple and varying requests as complicated and burdensome, a surprising number of participants noted that this was not a
major challenge. Several suppliers have developed common responses to environmental questionnaires. To handle varying product-based requests, some suppliers are applying the most environmentally stringent request from a customer to all their products in order to simplify their management of these requests. Moreover, a number of suppliers noted that their customers have begun working to coordinate and streamline their requests to avoid confusion. For instance, there are initiatives in both the electronics and automotive sector to consolidate lists of restricted materials and harmonize reporting requirements.

Finally, a number of participants noted that they saw any type of inquiry or request from a customer as an opportunity to strengthen their relationships and demonstrate value to the customer, and they welcomed the chance to work individually with customers on environmental issues as a result.
BUSINESS IMPACTS

For this study, supplier companies were interviewed to assess the business impacts of customer companies’ supply chain environmental initiatives. In particular, participants were asked to describe whether changes their company has made to meet customers’ environmental expectations affected its bottom line in either a positive or negative way. A majority of the participants (14 companies) said that their environmental initiatives driven by customer requests have had a positive effect on their bottom line, and only two indicated that the changes they had to make have had a negative impact on their bottom line. Nine companies indicated that they had not seen a positive or negative impact on their bottom line. Several companies within this last category said they thought these initiatives probably did have a positive impact on the bottom line, but it is very difficult to measure or quantify what the impact is.

Companies that did identify a positive impact on the bottom line cited several business benefits, which are outlined below.

Operational efficiencies and cost reduction
Cost reductions and increased efficiency were the most common business benefits participants said resulted from responding to customers’ environmental expectations. In particular, they cited reduced procurement costs from more efficient energy and materials use and reduced compliance and disposal costs from decreased waste generation and use of hazardous materials. Several suppliers noted that they screen customers’ environmental requests according to their business value, and are most likely to implement requests that generate cost savings or other operational efficiencies.

A number of companies were particularly positive about implementing ISO 14001, which many large customer companies in the automotive and electronics sectors have encouraged or required their Tier 1 suppliers to do. Most of them noted that ISO 14001 had produced positive financial returns for their company by helping them better manage environmental issues, identify opportunities for greater efficiency and identify pollution prevention measures that would save money. Even several respondents who criticized most of their customers environmental requirements for not creating business value generally felt that the ISO 14001 requirement was one initiative that had generated business value for them.

Enhanced customer value/sales
Several respondents noted that their company had attracted significant new business because of their customer-related environmental initiatives, and others cited enhanced customer relationships and loyalty as a result. Two companies also noted that their design-for-environment initiatives had increased the value of their products for customers by increasing quality or functionality. In addition, one company noted that they have seen greater sales for environmentally preferable products in Japan and Europe. Finally, many other respondents noted that it is always beneficial to address customer needs and expectations on any issue, including the environment, to deepen the relationship with the customer and create greater customer loyalty. However, they noted that it is very hard to determine whether their environmental initiatives lead to increased sales.
Other benefits
A few companies noted that socially responsible investment funds and the media have responded positively to environmental initiatives they put in place at customers’ requests and that this has had a positive effect on their stocks’ share prices. Several companies also noted that responding to customers’ environmental requests has put them ahead of upcoming or expected regulations and given them an advantage over competitors when those regulations do come into effect.

As noted above, a sizeable portion of the companies stated that they had not seen much of an impact of these initiatives on their bottom line, either in terms of revenues or costs. A few companies noted that the “jury is still out” on the impact, and two companies are working to develop better metrics to understand the impacts. Finally, two or three respondents said that customers are passing on environmental requirements to suppliers without considerations of their costs and benefits, and that these requirements are hurting suppliers financially. They saw their efforts to meet new environmental requirements from customers as an added cost of doing business that customers are not willing to pay for, and that have not led to increased revenues.

Several suppliers mentioned that they see a mix of customer expectations that have business and environmental benefits, and other requirements that do not produce such benefits. As already noted, many saw business benefits from implementing ISO 14001. However, several suppliers questioned the environmental and business value of certain cumbersome reporting requirements on materials of concern or filling out generic questionnaires that are perceived as a paperwork exercise that do not yield useful information.

Comparing across the four sectors, there was strikingly little difference in responses on the issue of business value. The number of companies citing positive versus negative bottom line impacts seemed evenly split across the four sectors, as did the number of respondents who could not measure any impact. This was even true of the service sector, which generally faces fewer environmental requests from corporate customers than the other three sectors.

In general, it is important to note the fairly positive tone many suppliers had about the business impacts of customers’ environmental requirements. In particular, it was surprising to see the generally positive reaction to suppliers’ implementation of ISO 14001 at the behest of customers. However, a sizeable number of participants did not believe that meeting customers’ environmental expectations generated value for their company. Since they also noted that suppliers are most likely to implement environmental initiatives that do create business value, this suggests an opportunity for customers to redesign their programs in ways that generate more business value and environmental improvements for both suppliers and customers.
SUPPLIER PERSPECTIVES ON EFFECTIVE STRATEGIES FOR SUPPLY CHAIN ENVIRONMENTAL MANAGEMENT

In an effort to comply with increasing environmental demands from their customers, supplier companies are faced with an array of technological and informational challenges. The supplier companies interviewed for this report expressed a range of opinions on effective strategies for working with their customers, and also provided recommendations on how customer companies can effectively work with them on environmental issues.

Suppliers generally agreed that the most effective collaborations occur when customers integrate environmental considerations broadly into their purchasing decisions. The need for customers to fully understand the implications of their decisions—the environmental issues, costs and benefits, and technological feasibility—was echoed by many suppliers who expressed frustration at meeting complex or potentially costly customer requests with little lead time or financial mechanisms in place.

In identifying effective strategies customers can take to green their supply chains, suppliers articulated a range of incentives that could catalyze positive environmental change. Some of these were general, such as increased customer preference for environmentally responsible products or processes, while others were specific, such as supplier awards and recognition programs. Conversations with suppliers also revealed a number of specific strategies to bolster efforts to green the supply chain, many of which centered around clear and consistent communication with customers. Likewise, suppliers also identified barriers or obstacles to environmental collaboration, often citing poorly articulated demands and a disparity of environmental knowledge between suppliers and customers.

Effective Incentives to Catalyze Environmental Improvements

Many suppliers interviewed for this report expressed common opinions on how customers could best catalyze environmental improvements among their suppliers. Perhaps the most central incentive heard repeatedly from suppliers is for customers to truly integrate environmental performance into their everyday purchasing decisions. Suppliers noted how some customers said they cared about environmental measures and even asked suppliers to fill out environmental questionnaires and change materials or processes, but then appeared to base their purchasing decisions solely on which supplier came in cheapest on a bid. One supplier warned of customer “hypocrisy,” in which they required an environmental measure to be used, but did not support that measure through their own business practices or purchases.

To incent change in suppliers environmental practices, many of our participants cited a need for companies to better integrate environmental considerations into their purchasing decisions. This entails ensuring that the environment is factored in among the other parameters used to make purchasing decisions—such as cost, service, quality, availability, innovation—and is given sufficient weight to influence purchasing decisions. As another example of an incentive customers could offer, some suppliers suggested that customers increase their volume of purchases from their suppliers that demonstrate environmental leadership.
Suppliers across the four industry sectors also identified the following specific suggestions for effective incentives or strategies customers can take to catalyze environmental improvements among their suppliers:

**Influence purchasing decisions**
- As noted above, suppliers emphasized the importance of demonstrating that environmental performance is a criteria given significant weight in making purchasing decisions. Where customers use supplier scorecards to make purchasing decisions, suppliers noted the importance of including environmental criteria among the factors evaluated to ensure they are factored into the purchasing process.

- Many suppliers are concerned that the cost of implementing environmental initiatives falls solely on the supplier, and that they are in a bind to adapt the measure or risk losing business. According to a majority of suppliers, a key incentive to making successful environmental changes is for customer companies to understand the environmental impacts of their own business, and to help bear the costs associated with improving their environmental performance. Paying a premium for environmental products or services, especially in the beginning of an initiative, can help cover the transitional costs that may be associated with switching to more environmentally friendly technologies, build the market for environmentally preferable goods, and eventually bring down costs. However, in addition to paying a price premium, there may be other creative ways for customers to help ensure that new environmental technologies are economical, such as providing an assured market for new technologies or sharing research and development costs and capabilities with suppliers.

**Clearly articulate goals**
- Numerous suppliers noted that customers often make environmental demands with insufficient forethought or clear articulation of how the measure will impact the supply chain. Understanding the broader impacts of a decision, and including suppliers early on in the decision-making process, improves a measure’s chance of success.

- Suppliers in technical or manufacturing sectors were especially adamant about customers streamlining the supplier questionnaire process. By harmonizing requests for information, such as restricted substances or material recyclability, suppliers felt this was a more efficient use of time and resources, and would ultimately provide more useful information.

- Prioritizing requests and allowing suppliers enough time to respond with the appropriate technology and staff resources were cited by a number of respondents as important incentives. Being involved early in the implementation of environmental measures is an incentive to work with customers.

- Several suppliers noted that it is helpful to base expectations on clearly articulated general standards where they exist to help suppliers understand customers’ needs. These include standards such as ISO 14001, and more specific standards, such as Energy Star labels for office equipment or the LEED (Leadership in Energy and Environmental Design) standard for green buildings.

- Several suppliers also suggested that it is most effective for customers to share their overall environmental goals with suppliers, but provide flexibility in how they meet those
goals. In other words, they suggested setting performance-based standards rather than prescribing specific steps to follow.

**Provide technical assistance and share knowledge**

- When the bottom-line benefits of pollution prevention, waste reduction, materials substitution, and resource and energy efficiency are accounted for, many of these measures may in fact be cost effective. Customers were urged to quantify and demonstrate savings of environmental measures, and communicate to their suppliers the bottom-line benefits of these measures, as a way to catalyze environmental improvements.

- Trainings, workshops and other technical assistance were repeatedly cited as key incentives for successful collaboration. More customers are demanding ISO 14001 compliance from their suppliers, and several suppliers reported customer-sponsored workshops were very helpful in understanding the demands of compliance. Additionally, opportunities to share success stories regarding pollution prevention, restricted substances and other environmental measures via informational forums enhanced suppliers’ ability to work with their customers on mutual solutions to environmental demands. Several automotive suppliers specifically mentioned incentives such as the General Motors Supplier Environmental Advisory Team.

**Confer awards and recognition**

- Many suppliers supported the use of customer-initiated awards, recognition events and media attention that acknowledge suppliers’ environmental achievements. Such recognition elevates supplier reputations, and encourages opportunities for initiatives with other customers.

Although suppliers in the four industrial sectors interviewed identified many similar incentives to help catalyze environmental improvements with their customers, a few notable differences stand out. The automotive suppliers, more than others, tended to cite customer-initiated awards and recognition as important incentives. This may be attributed to the fact that the automotive industry already has a well-established tradition of conferring supplier awards and recognition. Likewise, because the automotive industry so strongly emphasizes ISO 14001 certification, its suppliers identified customer-sponsored workshops dedicated to ISO training and education as an important incentive. Suppliers in the electronics sector stressed the importance of customer-sponsored technical forums, as well as a willingness to collaboratively work on, and fund, research and development of new environmental initiatives. The forest products industry is under especially close scrutiny by the environmental stakeholder community. Those suppliers more often expressed a desire for their customers to not only value their suppliers’ environmental undertakings, but to actively share and defend those undertakings with the NGO community. The service sector suppliers generally did not raise sector-specific incentives. More often than not, suppliers across the sectors agreed that key incentives revolve around embedding environmental considerations into purchasing decisions; clearly articulating environmental goals; and providing technical assistance and sharing knowledge.

**Communication Strategies**

According to the suppliers interviewed, an overarching need for clear and timely communication is a primary necessity for effective environmental collaboration between suppliers and their customers. Suppliers generally agreed upon what strategies and tools are
particularly helpful, and identified similar obstacles or barriers to effectively communicating with their customers. Most suppliers agreed that clear communication between them and their customers hinges on several key factors:

- a willingness to create partnerships and have open dialogue;
- proper channels of communication—speaking with the right people in the right departments;
- a solid foundation of environmental awareness and knowledge, and linking of environmental considerations into broader purchasing decisions;
- adequate preparation time and advance notice of new initiatives or requirements; and
- more streamlined or harmonized requests for technical information.

Suppliers repeatedly stated that the more collaborative a process, the greater the initiative’s chance of success. One supplier spoke of “building an internal culture of listening” in order to foster a collaborative environment, while several spoke of the value of partnerships like supplier-customer advisory meetings. Many environmental staff at supplier companies noted the importance of taking cues from their customers to work on win-win solutions to environmental issues. For example, one customer company requested from its paper supplier lighter packaging specifications. The supplier examined the environmental, technological, and economic criteria, and was able to come up with a solution that suited everyone. On the other hand, another supplier noted that their company may have an idea about reducing the environmental impacts of a product or process, but if the customer is not willing to go along, it will not work. She asserted that “successful situations are mutual.”

Many effective communication strategies cut across business sectors, and are basic to any good collaborative effort. Some strategies, like face-to-face meetings, workshops and active partnerships, work particularly well. Other communication tools, such as questionnaires and audits, receive mixed responses. Some suppliers stated that surveys are time-consuming and customers often do not follow through on the information collected, but others said such questionnaires do help their company identify and understand customers’ environmental concerns.

Suppliers emphasized the importance of getting the right people to communicate within their own companies, between their companies and their customers, and within their customer companies. Many noted that an environmental measure initiated by a customer company without the appropriate staff people actively engaged may get derailed in the process. Environmental staff need to consult with purchasing, design, engineering, and other staff for greater success with initiatives. Equally important is the need for supplier staff to communicate with their customer counterparts. In several ways, suppliers address the need to improve two-way communication. Some suppliers embark on company-wide education campaigns to fully integrate environmental awareness throughout their staff, enabling all staff to fluently address customers’ environmental demands. Other suppliers, especially in the business service sector who rely heavily on sales teams, will train their teams to facilitate working with customers on environmental initiatives. A third important strategy is for suppliers to make sure their customers are kept apprised of the right staff person with whom they can consult on environmental issues via one-on-one meetings and supplier-customer partnerships.
Across sectors, suppliers identified a number of other communication strategies or requirements for effectively addressing their customers’ environmental needs:

**Direct meetings, forums, workshops**
Face-to-face communication is the cornerstone of collaboration. Customers that engage in open dialogue with their suppliers provide greater opportunities to review product specifications in advance of implementation.

- A number of customers who require ISO 14001 certification invite their Tier 1 suppliers to workshops dedicated to assist them with compliance.

- Some customers, especially in the automotive and electronics sectors, provide opportunities to meet with engineers and designers on new products and technologies, or on green initiatives which require a change in materials and/or process specifications. General Motors sponsors “Green Days,” in which suppliers are afforded the chance to talk with GM engineers to expand the dialogue.

- On-site visits also provide customers and suppliers a chance to share first-hand the abilities and limitations of facilities and staff to respond to environmental requests. One forest products supplier noted that site visits to forests and processing facilities were the most effective way to show customers what the company does “on the ground,” and how they can best accommodate environmental initiatives.

- Several leadership suppliers stated that in-person meetings are an ideal way to convey their environmental health and safety (EH&S) expertise to some of their customers who may not be as environmentally savvy. Several suppliers indicated that this kind of knowledge sharing led not only to increased business, but to more widely disseminated and accepted environmental practices.

**Collaborative partnerships and affiliations**
Suppliers cite partnerships with customers, technical associations, trade groups, and non-governmental organizations (NGOs) as an important communication tool.

- Suppliers repeatedly praised customers who actively engage both their environmental staff, and their suppliers’ environmental counterparts, on environmental activities. Involving the right people, especially senior-level decision-makers, in environmental considerations was also cited by a supplier. Several suppliers noted that involving cross-functional teams—marketing, purchasing, technical, and sales—on such initiatives improves the process and encourages broader “buy-in.”

- Suppliers stressed the need to incorporate environmental considerations into broader business and purchasing decisions. One supplier added that including the environmental team on purchasing decisions elevates the priority of such considerations.

- Affiliations with trade groups, technical organizations and the NGO community also help suppliers accommodate environmental measures. In some cases, an NGO may challenge an industry to address certain issues, which can open the door to cooperative efforts that prove valuable to customers. For instance, some business service suppliers began working with organizations like The Alliance for Environmental Innovation and
Environmental Defense on pollution prevention initiatives that provide greater environmental benefits to customers.

- Technical associations and professional groups can advise suppliers on emerging issues and trends. For instance, electronics suppliers are beginning to grapple with demands for lead-free processes and have turned to technical associations for guidance on alternatives to lead and other restricted substances. These associations can also be helpful in standardizing the reporting process. For example, the Electronics Industry Association created a standardized format for reporting restricted substances, thus streamlining the process for suppliers and reducing the overall number of questions.

**Education and training**
A common need identified by suppliers is for increased environmental awareness for their customers—and their own sales staff—in order to better respond to environmental requests.

- Some suppliers have taken a leadership role in developing environmental initiatives, and are in the position of sharing expertise with their customers on a variety of issues. For instance, one service supplier provides customers with a “client environmental impact statement.” This statement identifies the air emissions and waste generation associated with a particular project. The supplier has gathered data from EPA to compare its performance to competitors in its sector, and therefore can help customers compare specific environmental impacts for a project among different suppliers.

- One supplier said that his environmental staff is beginning to engage its marketing department on environmental issues in order to be more proactive in their communication and outreach to customers.

- A number of suppliers noted that their customers have provided them with environmental training to share information that helps them meet new requirements, such as implementing ISO 14001.

**Specific communication tools**
Suppliers identified a number of tools and resources to fulfill customers’ environmental needs.

- **Surveys and questionnaires.** Customers frequently ask their suppliers to complete questionnaires on a number of environmental policies and practices, including use of restricted substances, materials content, recyclability, ISO 14001 certification, environmental management systems, etc. Questionnaires provoked a lot of response from suppliers. In general, suppliers felt that such tools were burdensome to complete, asked for too much information, asked for conflicting information, and were repetitive (see “Barriers and Challenges” section below). However, some suppliers found that these surveys helped them understand their customers’ needs better.

- **Internet-based communication.** Nearly all suppliers publish some information on environmental practices and policies on their websites, both for inter- and intra-company communication. Numerous annual and EHS reports, customer newsletters and materials safety data sheets can be found on suppliers’ websites, expediting communication with customer companies, and creating marketing opportunities for environmental practices. Additionally, some suppliers are using web sites to report their
responses to questionnaires and audits in the hopes that the information will be more accurately and securely recorded.

- **Technical brochures and product information.** In addition to web-based resources, a number of suppliers provide hard copy brochures and information sheets for customers requesting technical information on products. Some suppliers noted that this kind of information can give them a marketing edge when bidding on contracts, but that in-person meetings are still more effective for customer communication. One service supplier with a retail component has found that environmental point-of-sales brochures intended for retail customers have proven effective for educating staff.

- **Benchmarking information** was cited by some suppliers as helpful for gauging the effectiveness of environmental initiatives, and for providing customers with useful information.

- **Other tools and resources.** Suppliers also mentioned life-cycle analyses, environmental labeling on products, and media publicity as ways to communicate with customer companies, or gather further information, on environmental initiatives.

While there was general agreement among suppliers on how best to effectively communicate environmental information with customers, some distinctions can be found in each sector. Suppliers in the automotive and electronics sectors most often cited ISO 14001 certification as a key strategy, due to the growing number of OEMs requiring ISO certification. Automotive and electronics suppliers also noted how affiliations with professional and technical associations were especially effective for dealing with restricted substance requirements and technological challenges, such as lead-free manufacturing or design-for-disassembly issues. Forest products suppliers echoed many of the tools and strategies cited by other sectors, but due to vocal stakeholder demands regarding sustainable forestry, emphasized the need to communicate their environmental expertise and initiatives with their customers and the environmental NGO community. These suppliers tended to emphasize training and education for their sales forces, and working with forest product certifiers. In the business service sector, some suppliers mentioned service contracts tailored to their customers’ needs as an especially effective method for improving environmental performance. Others also mentioned working with environmental organizations as an important communication strategy.

**Barriers and challenges**

Suppliers conveyed a number of challenges to overcome when collaborating with customers on environmental initiatives. The lack of open dialogue within and between suppliers and customers is still an overriding barrier to effective communication. As discussed above, suppliers identified many communication tools and strategies that facilitate the collaborative process. However, these strategies are not necessarily implemented. Also mentioned earlier, the other major issue for suppliers is the need for customers to fully embed environmental considerations into their business decisions. In spite of surveys and other requirements, many suppliers simply are not convinced that customers actually base their purchasing decisions on environmental parameters, and this remains a barrier to motivating suppliers to help customers green their supply chains.

In addition, suppliers identified other barriers and challenges:
Cost. With near unanimous agreement, suppliers cited cost as a key challenge to address. Many suppliers questioned the wisdom of customer demands for increased environmental performance with little or no responsibility for paying for it. Rather than pass along all costs associated with environmental improvements to Tier 1 suppliers, requests were repeatedly made for cost sharing; a willingness to pay a premium, especially early on in an initiative; and accurate measurement and integration of savings due to environmental measures. “Ownership” of a company’s environmental impacts and an understanding of the total costs of doing business—not just purchase price—were seen as important ways to move beyond short-term bottom-line thinking.

Onerous or conflicting reporting requirements. A key concern of suppliers is the numerous and frequent audits and questionnaires requested by customers requiring detailed information on hundreds or thousands of environmental attributes. A common perception is that customers do not understand the implications of their environmental demands, and therefore do not realize the complexity of their reporting requirements. Some industry surveys requested information on thousands of restricted substances, which was so burdensome as to be ineffective. More than one supplier expressed deep skepticism over such surveys, noting a lack of follow-up and results. Many suppliers called for improved data management, harmonized lists and standardized questionnaires.

Lack of lead time for implementing initiatives. Many suppliers expressed a need for customer companies to make their environmental requirements known much further in advance than they often do. Suppliers—especially in technical and manufacturing industries—reported that they often do not receive adequate lead time in order to change or develop new technologies, document requested information, educate employees and work with other suppliers in order to accommodate customer requests.

Customers’ lack of environmental awareness or values. In some cases, suppliers felt they had more expert knowledge and experience with environmental issues or technologies than their customers, and were in the position of having to educate their customers. However, some suppliers acknowledged a hesitancy to be too prescriptive in their initiatives, especially if the customer is lacking broader understanding of the issues, or if the company has yet to integrate environmental values into its overall business strategies. More often than not, however, suppliers called for increased environmental awareness, and a willingness for customers to learn from, and partner with, their suppliers who may be more advanced in certain knowledge areas.

Disparity of knowledge/lack of education. Whether on the part of the supplier or the customer, a lack of understanding each others’ businesses and environmental issues was a common message. One supplier stated that senior management does not adequately train its sales staff, and if environmental education were increased, it would help pull customer demand for environmental measures. Conversely, he added if environmental attributes were more “legitimized” by customers, there would be more internal incentive on the supplier side to undertake environmental measures.

Technological barriers. While technological challenges will vary across industry sectors, a common challenge was meeting customer demands for materials substitution. When responding to requests for reduction in toxic substances, many suppliers found a lack of
proven alternatives, with some claiming they cannot get the same performance from alternative materials. Two specific examples include the technological challenges of lead-free processes in the electronics sector; and the lack of an alternative fuel infrastructure to support cleaner freight delivery systems in the service sector.

• **Environmentally unsound design specifications.** Suppliers report that they are still seeing wasteful or ecologically unsound design specifications. An automotive supplier noted that one customer is still requiring asbestos in brake lining, even though others have discontinued the practice.

• **Lack of protection for innovation.** A few suppliers have expressed concerns that their investments in new environmental designs and processes could be co-opted by customers who bid out those innovative specifications later on to the lowest paying supplier. Suppliers identified the need for a mechanism to protect, or reward the sharing of, such innovations, in order to avoid stifling of innovation and knowledge sharing.

• **Exposure risk.** One supplier expressed concern over divulging too much information on their company’s environmental impacts, suggesting that it exposes their liabilities, as well as assets. The concern is that a customer may negatively judge or reject that supplier based upon disclosure of their environmental record on one or two points, in spite of many positive measures taken.

Barriers to effective environmental collaboration with customers were similar across sectors, but included some key distinctions. In the automotive sector, suppliers stressed materials substitution as a major technological challenge, especially when customers eliminate hazardous chemicals or processes, and viable alternatives are not readily available. Automotive suppliers tended to emphasize the difficulties they had responding to lengthy and cumbersome environmental reporting requirements. Similarly, electronics suppliers faced technological challenges, especially around complying with lead-free manufacturing requirements. They also stressed the difficulties with complying with environmental requests with very short lead time. This was compounded by a lack of effective communication between suppliers and customers, as well as within the supplier company. While some forest products suppliers noted the technological challenges of improving recycled-content paper products and chlorine-free processes, they also cited the challenges in dealing with a vocal stakeholder community. Service sector suppliers echoed many similar concerns as the other groups, but noted the challenges presented by their customers’ perceptions—or misperceptions—about the environmental impacts of the service sector, versus the manufacturing sector. This knowledge disparity requires a concerted effort by suppliers to educate their customers on the environmental impacts of the customers’ business. It presents a challenge to service sector suppliers to keep their sales staff as informed as possible on environmental issues, so they can effectively communicate with their customers.

The table on the following page summarizes key barriers or obstacles to supplier environmental initiatives, with suggested ways to overcome or resolve the issues at question.
## Common Barriers to Effective Supply Chain Environmental Management and Potential Solutions

<table>
<thead>
<tr>
<th>Barriers or obstacles</th>
<th>Potential solutions</th>
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| Cost of environmental requirements | • “Ownership” of true cost of environmental demands; willingness to share the costs (e.g., pay a premium, help fund joint research and development)  
• Accurately measure and integrate savings due to waste, energy, materials conservation and efficiency  
• Full-cost accounting |
| Burdensome reporting requirements; lack of lead time | • Harmonized, streamlined surveys  
• Adequate preparation time  
• Improved data management  
• Web-based reporting |
| Lack of environmental awareness/values | • Integrate customer and supplier environmental staff into decision-making process  
• Improve internal education at the customer and supplier level.  
• Collaborate or affiliate with knowledgeable NGO |
| Technological barriers | • Understand the processes involved before making a change in process or materials  
• Be willing to pay for new technologies  
• Allow adequate time for R&D  
• Involve engineers and designers in the decision-making process  
• Devise equitable system for sharing innovations |
| Conflicting communication | • Identify right people within divisions or departments  
• Create cross-sectoral teams (marketing, environmental, purchasing, accounting, engineering, design, etc.) |
BEYOND TIER 1:  
CASCADING ENVIRONMENTAL IMPROVEMENTS UP THE SUPPLY CHAIN

A number of environmental professionals have identified supply chain environmental management as a key tool for driving environmental improvement up the supply chain to improve the environmental performance of small suppliers who may lack technical expertise or environmental management systems. To test this premise, participants were asked how they were addressing environmental issues with their own suppliers and whether these initiatives were linked to their customers’ environmental requests.

In general, these findings suggest that customers’ environmental requests are beginning to drive change up through several tiers of the supply chain in some instances, but this is still in the early stages and not yet widespread. Overall, 20 of the 25 companies interviewed had some initiatives in place to address environmental issues with their own suppliers. However, only seven of these 20 companies reported that their environmental initiatives with suppliers were linked to meeting the environmental demands of their own customers.

The initiatives the companies were implementing with their own suppliers varied significantly in substance and scope, from sharing basic environmental information with suppliers to integrating environmental criteria into purchasing decisions. Other such initiatives include:

- minimizing packaging and implementing reusable shipping packaging;
- including environmental criteria in customers’ purchasing specifications;
- assessing suppliers’ environmental performance through questionnaires and audits;
- collaborating on design-for-environment initiatives with suppliers to reformulate key components or materials;
- providing technical assistance on hazardous materials, ISO 14001, and overall environmental management systems; and
- communicating on environmental issues through a variety of forms, from password-protected Internet sites to which suppliers have access, to face-to-face meetings.

The customer requirements most frequently passed along to suppliers further up the supply chain involved not using restricted materials. Several companies noted that they had to work with their suppliers to meet customers’ requirements on restricted substances they are seeking to design out of their products (e.g., cadmium and lead in the electronics and automotive sector, fiber from old growth forests in the paper sector). Several companies also noted that the growing number of product take-back initiatives will require companies to work more closely with suppliers to ensure that products are designed for disassembly and remanufacture. As a result, they predicted they would be collaborating with suppliers on design-for-environment projects more often in the future.

A number of companies that have begun ISO 14001 programs as a result of customer requests said they are considering requiring their suppliers to implement ISO 14001 environmental management systems as well. In addition, several other companies are encouraging suppliers to consider ISO 14001 implementation by sharing information on their own experiences implementing environmental management systems.
Several participants noted that their own suppliers are often smaller companies that lack the resources and systems in place to address environmental issues, which makes it challenging to address with them issues like restricted materials. They noted the importance of providing these smaller suppliers with technical assistance, financial aid, and other support to assist them in meeting new environmental requirements that their customers expect. To address this need, several of the companies are sharing tools on environmental management systems, proper chemical handling, and other information with their suppliers. One participant noted that the major original equipment manufacturers have essentially outsourced management of environmental issues throughout their supply chain to their Tier 1 suppliers, who are compelled to apply material restrictions to a wide range of smaller suppliers with limited capacity to address the issue.

Comparing across sectors, companies in all four categories of suppliers were addressing environmental issues with suppliers. Overall, the automotive companies cited the most environmental initiatives with their suppliers. Many of them are interacting with suppliers on addressing restricted materials and reporting requirements, and several are considering requiring their suppliers to implement ISO 14001. The automotive suppliers also tended to make the most mention of involving their suppliers in design-for-environment initiatives and in thinking through addressing product take-back issues. Electronics suppliers cited similar initiatives. The forest products companies are generally focused on understanding how to address environmental issues associated with logs and fiber they procure from third parties, many of which are private landowners of small parcels. Customers’ requests that fiber products come only from sustainably harvested forests have increased their need to address the challenges of promoting sustainable forestry among these small landowners. Companies in the service sector likely faced the least pressure to address environmental issues with their own suppliers, since they face less regulatory requirements on restricted materials and may receive fewer environmental requests from customers than companies in the other three sectors investigated. Despite this, almost all the service sector companies interviewed were undertaking environmental initiatives with suppliers. These ranged from environmental specifications for their paper purchasing to partnerships to promote a new generation of environmentally friendly vehicles for their delivery fleets.

Overall, the findings suggest that customer companies’ environmental programs involving their Tier 1 suppliers have begun to translate into action further up the supply chain, but this is only beginning to take place. The findings also suggest that to be successful, customer companies should consider how requirements they impose on their Tier 1 suppliers impact further suppliers up the supply chain. Where possible, customers should provide their Tier 1 suppliers with tools and information resources to help them communicate about environmental issues and new requirements with their own suppliers.
FUTURE TRENDS AND DIRECTIONS

Overall, many of the suppliers seemed to expect the field of supply chain environmental management to continue to develop. A number predicted greater collaboration between multiple tiers of suppliers on environmental issues in the future, in part to respond to growing take-back and restrictions on materials in products in Europe and elsewhere. In addition, several are working to develop better metrics to understand the impact of customers’ environmental requirements to their own bottom lines. Some also expressed a “wait and see” attitude, wondering to what extent customer companies will truly integrate environmental issues into their purchasing decisions, and to what extent they are just expressing preferences that will not affect their buying behavior. The more customers do integrate their environmental values into purchasing decisions, the more those values are likely to be reflected throughout their supply chains.

Participants were also asked to identify overall trends in purchasing that might intentionally or unintentionally impact environmental initiatives across the supply chain, either positively or negatively. Their predictions had significant overlap, although they did not always agree whether the outcome for the environment would be positive or negative.

Many participants predicted significant impacts of the Internet and other communications technology on supply chain management, with both positive and negative outcomes for the environment. On the positive side, several predicted that electronic procurement systems would make it easier to track restricted materials and more easily identify and source environmentally preferable products. Several respondents said they already have computer systems in place to identify restricted materials and lock out the purchase of components containing specified hazardous materials. They also noted that companies and other groups are developing new databases and tools to make it easier to track and report on restricted substances. In addition, several participants noted that Internet-based procurement can cut paper consumption.

On the other hand, some respondents noted that business-to-business supplier exchanges can reduce the importance of supply chain relationship and make it difficult for suppliers to compete on any parameter other than price. In such exchanges, the customer may not know who their suppliers are, and may be unable to select suppliers based on environmental performance or exert influence on suppliers to improve their performance. For instance, one respondent noted that supplier exchanges for paper do not take companies’ environmental performance into account, and may favor overseas suppliers with low environmental standards that offer paper at lower prices.

Overall, many participants observed greater trends towards outsourcing and global supply bases, which make it more important—but more difficult—for customers to understand the environmental impacts across their supply chains. In addition, many participants cited a continued focus on cost reduction as a key parameter in making supply chain decisions. As a result, they did not see customers as willing to pay premiums for greater environmental performance from their suppliers.

However, one participant did see commodity managers beginning to take a broader view of the supply chain and to work with environmental managers and others within their company...
to understand the total costs of their purchasing decision. In doing so, they may be willing to pay higher up-front costs for an environmentally preferable commodity if the company will save money overall, through decreased compliance or waste disposal costs as a result. Several participants also saw the model of buying chemical management services from suppliers rather than chemicals themselves as a helpful trend that will promote more holistic supply chain management that provides both environmental and business benefits.

Several respondents cited the importance of consolidation as an influence, although the results may be mixed. One noted that ongoing consolidation of suppliers in key industry sectors like forest products limits customers’ choices of suppliers, making it more difficult for them to push suppliers for environmental improvements. On the other hand, another participant noted that the consolidation of the retail sector and development of retailing giants like Home Depot, Lowe’s and Wal-Mart does give such customers tremendous power to mandate what their suppliers do, and some of those retailers have mandated environmental requirements for their suppliers.

Finally, a number of participants saw the issue of logistics and transportation as a key aspect of the supply chain that will likely receive greater attention in the future. Some saw new Internet technologies and opportunities for intermodalism in shipping to boost ground transportation as holding strong promise for reducing the environmental aspects of logistics. Continued concern about global warming and increasing focus on energy issues may also increase focus on shipping efficiencies, both for environmental reasons and cost containment.

Suppliers’ identification of emerging issues and trends did not vary significantly across sector. Most participants expected the emerging issues described in this section to apply to suppliers broadly, regardless of their sector. In addition, some participants identified a few sector-specific trends or upcoming regulations, such as Europe’s end-of-life take-back requirements for vehicles.
APPENDIX:
SELECTED RESOURCES ON GREENING THE SUPPLY CHAIN

Following are a select set of studies and reports on greening the supply chain and the emerging field of supply chain environmental management that are available on-line. Most of these focus on the types of environmental activities customer companies are engaging in with their suppliers.


