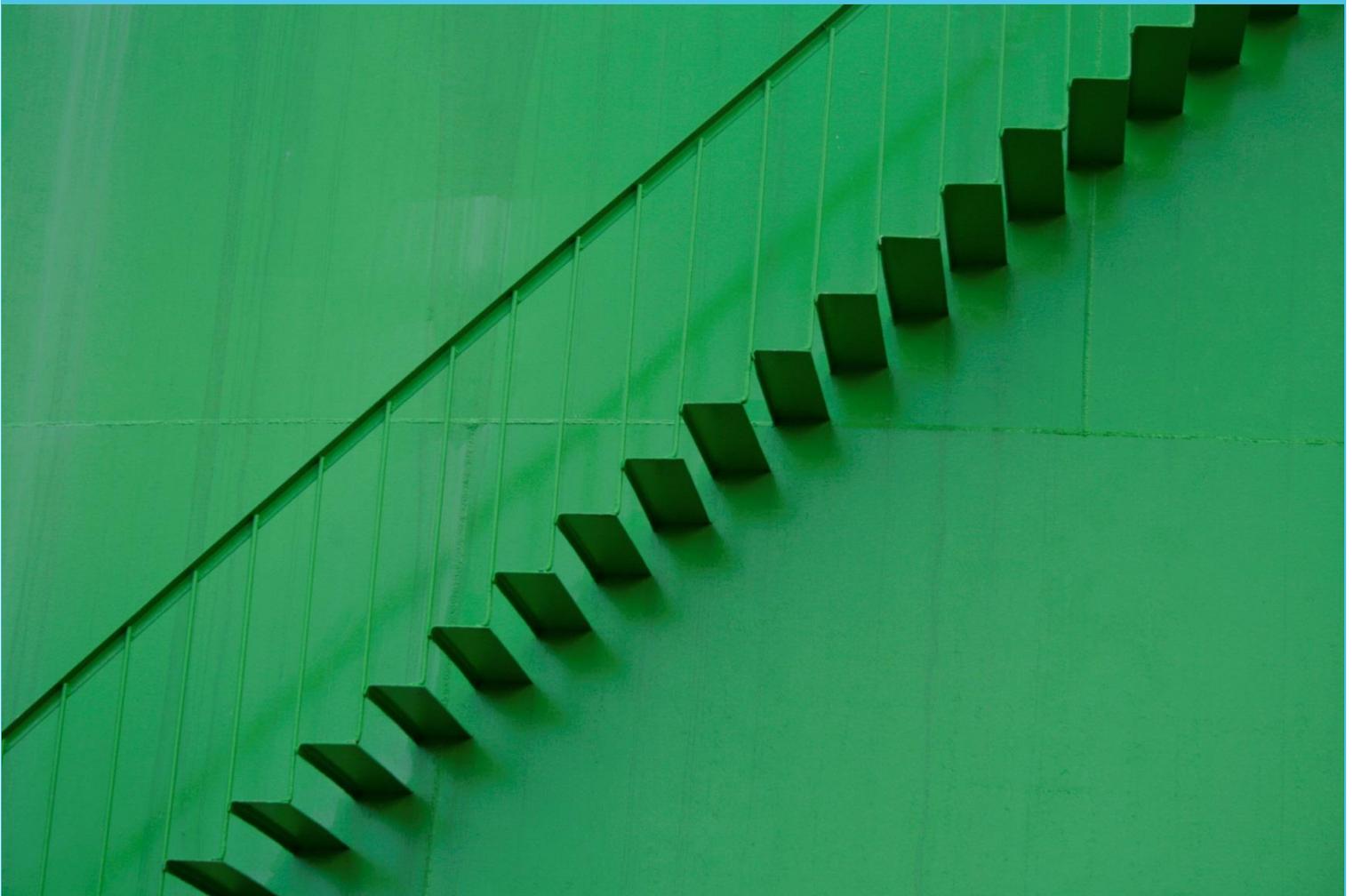




BSR's Center for Sustainable Procurement: Year 1 Findings and Insights

Driving Sustainability Impact Through Procurement

June 2013



About This Report

This publication was written by Celine M. Suarez, Manager, Advisory Services, and Eric Olson, Senior Vice President, BSR. The report is based on research and experience derived from the first year of BSR's Center for Sustainable Procurement (CSP). The authors would like to thank Hilton Worldwide for its sponsorship of the CSP, and AT&T, Best Buy, and Dell for their participation in the center's activities. Please direct comments or questions to Celine M. Suarez at csuarez@bsr.org.

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Executive Summary

As one of the leading business networks in corporate social responsibility (CSR) and sustainability since 1992, BSR has conducted numerous engagements with member companies and their stakeholders focused on sustainable supply chain management. One of our major partners in this work has been Hilton Worldwide, with whom we have been working since 2010 to integrate sustainability considerations into the way they procure a wide range of products and services. BSR worked with Hilton Worldwide to develop nearly 100 different sustainability criteria for measuring the impacts of a large number of products the company purchases. Based on this work, BSR and Hilton learned some key lessons that prompted the development of the CSP:

- » While product sustainability data is becoming increasingly available, it is still a long way from enabling buyers to make sound, fact-based decisions on many products.
- » Even where reliable sustainability information is available, there is little guidance for buyers on how to compare different products, weigh the many different factors, and integrate these considerations into their decision-making alongside traditional procurement attributes, such as cost, quality, and delivery.

While there are several existing efforts across the product sustainability space, the research uncovered several specific challenges, highlighted below.

Figure 1: Challenges in the landscape of product sustainability efforts

Summary of Challenges

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- **CHALLENGE 1: Rapidly evolving, crowded field**
The landscape is changing quickly, and the approaches vary widely in use of quantitative and qualitative data; several leading companies are in the apparel industry.
 - **CHALLENGE 2: Little product-level information available**
Few companies measuring or disclosing product level sustainability and leaders tend to be companies that have focused on product sustainability for years, yet their data is still limited.
 - **CHALLENGE 3: Transparency**
Few companies and initiatives have been forthcoming with their approaches, data, and tools, and few—if any—have publicly discussed their challenges and shortcomings.
 - **CHALLENGE 4: Limited tools**
Tools are often Excel-based, and limited in capabilities for easy use, data manipulation, and cross-sharing among stakeholders like buyers, suppliers, and consumers.
 - **CHALLENGE 5: Metrics**
There is some convergence on energy, water, and waste metrics, but other impact areas, especially social, and end of lifecycle stages are underdeveloped.
 - **CHALLENGE 4: Integration**
There is very little guidance available on how to integrate sustainability factors into purchasing decisions, alongside cost, quality, and other key business considerations.
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With funding and support from Hilton Worldwide, we set out to accelerate our development of sustainable procurement insights and impact by expanding our work to more companies. The CSP is a multiyear, multicompany effort focused on the development of tools and approaches for sustainable procurement for the benefit of the wider network of companies who are interested in integrating this concern into their overall sustainability priorities.

The CSP's work focuses on two key approaches:

- » **Conducting specific product-level pilot projects with participating companies** focused on making the business case and providing tools and methodologies to enable the procurement of more sustainable products.
- » Accelerating insights and impact by **engaging the wider network of BSR companies** and creating a **repository of information** to share with other companies through published research, articles, and other related content.

The CSP has focused its first year on direct company engagements to look at the “how” of using product sustainability information to make procurement decisions. Companies that participated in the first round of CSP pilot projects are BSR members selected based on their existing supply chain sustainability focus and a high level of buy-in for this work from both their procurement teams and senior leadership. Outcomes of these projects were specific recommendations for each company to implement a change in its procurement. These projects also provide case studies that can inform other companies with similar challenges. The three inaugural CSP company pilot projects covered a spectrum of challenges.

- » **AT&T's fan belts for building mechanical equipment:** a simple product that can be substituted through upgrades to a different type of belt. To perform an upgrade, the company must first be internally aligned and understand the return on investment. Once the initial investment is made, upgrading the company's fan belts could achieve improved direct cost savings and energy performance for the company.
- » **Best Buy's in-store display units:** a moderately complex category composed of several substitutable commodities (such as wood, wood composite, metals, plastics, and others) but that requires strategic supplier engagement to identify sustainable substitutes that still meet Best Buy's needs. Changes in displays could potentially reduce costs for the company if display units are ultimately redesigned for reuse.
- » **Dell's notebook computers:** a complex product that requires management of long-term strategic relationships with a small number of key suppliers called Original Design Manufacturers (ODMs) where engagement of suppliers through the procurement function would achieve reduced embedded energy use over the total life cycle of the device.

SELECTED INSIGHTS FROM YEAR 1 PILOTS

Based on our first year of work, here are a few of our insights from the pilot projects, which covered a range of product complexities and supplier relationships.

Fit the strategy to the nature of the category and supplier relationships: In the case of a relatively simple commodity where many substitutions are available, a company can focus its sustainable procurement efforts on establishing preferred business and sustainability specifications for a product, and then it can seek the supplier that can meet these specifications through a competitive bid process. But as products increase in complexity and the specifications become tailored to the company making the purchase, the nature of the supplier relationship becomes more strategic; a simple competitive bid will not uncover a substitution that will meet the company's needs. In these cases, companies may instead focus on partnering with suppliers to build their capacity for producing products with enhanced sustainability characteristics.

Involve the right players in the sustainable procurement discussion:

Success in sustainable procurement requires alignment and engagement with a

broad range of internal stakeholders that influence the design, specification, and use of purchased products and services.

- » In our work with AT&T, it was critical that the supply chain team engage with experts in facilities and operations who could help assess the business case and implementation requirements related to purchasing more energy-efficient equipment.
- » Similarly, decisions regarding the specification and purchase of in-store displays at Best Buy require the involvement and support of a range of internal stakeholders, from store operations to the teams responsible for branding and customer experience.
- » In the case of Dell, product purchasing is working closely with supplier management and third-party ODMs to drive desired improvements in supplier energy efficiency that will reduce the “embedded energy” in notebooks.

Establish a clear business case for purchasing more sustainable products:

To drive meaningful and lasting change in procurement practices, it is critical to clearly articulate the business benefits of buying more sustainable products. In some cases these benefits will be financial, such as direct cost savings or reduced “total cost of ownership.” In other cases, some kind of “indirect” value needs to be attributed to support a company’s sustainability commitments and objectives.

- » The AT&T case is a good example of taking a total cost of ownership approach, in which purchase price and switching costs may be offset by savings generated through reduced energy consumption of the products in use.

Start with what is measurable and scale up from there: Achieving the ultimate goal of total life-cycle sustainability will take significant time and effort, making it important for companies to start simple and build momentum through early wins.

- » In the case of Dell notebooks, improvements in total life-cycle sustainability will require significant work and coordination across a highly complex supply chain. Starting with energy efficiency, which is relatively easy to measure and promises tangible benefits for suppliers, as well as Dell, is a good way to build understanding and support.
- » Similarly, in our work with AT&T, energy efficiency was chosen as the best starting point to build experience and support for broad incorporation of sustainability factors into purchasing.

The CSP’s main goal is to generate both tangible results and a growing body of case studies and related methodologies to advance sustainable procurement practices. The CSP will build on these early results and insights by continuing to work with individual companies on embedding sustainability in procurement decisions and will use this evolving body of work to create tools and guidance that others can learn from and adapt for their own use.

Over the remainder of 2013, the CSP will be continuing its work with the companies mentioned in this report, with a focus on evolving the methodology at each company so that it becomes embedded in the way they engage in procurement. We will also be working with additional companies, as well as driving the conversation forward through collaborative webinars and other content to generate a wider discussion among companies. The CSP will continue to advance an understanding of other companies that share similar challenges and what they are doing to make progress on sustainable procurement.

In this year's work we seek to increase our engagement with product design and development and to work with people within companies who influence the products at the design level. We are also interested in evolving the work we have started with these companies and others to perhaps include a deeper analysis of a total cost of ownership procurement methodology that incorporates sustainability data. We are actively looking for ways to engage a wider audience of companies, both individually and via trade associations, on these challenges.

Introduction

The Center for Sustainable Procurement (CSP) is focused on developing practical approaches to integrate product and supply chain sustainability information into corporate purchasing decisions.

While there are a large and growing number of programs and tools designed to define and measure more sustainable products (The Sustainability Consortium, Forest Stewardship Council, Rainforest Alliance, and many more), there is relatively little guidance available on how to use this information to make better purchasing decisions. The CSP is therefore focused on working with procurement professionals to develop and implement new purchasing strategies and approaches using the best information available about product sustainability.



Background and Context

As one of the leading business networks in CSR and sustainability since 1992, BSR has conducted numerous engagements with member companies and their stakeholders focused on sustainability in purchasing and supply chain management practices. This topic has gained significant momentum over the past five years as major players ranging from Walmart and Marks & Spencer to GE and Nike have launched major initiatives focused on the development and delivery of more sustainable products.

One of our major partners in this effort has been Hilton Worldwide, with whom we have been working since 2010 to integrate sustainability considerations into their purchase of a wide range of products and services. With nearly 4,000 hotels and 10 brands in more than 90 countries, the company purchases a vast variety of products across multiple categories, including food and beverage, property operations, and rooms.

As part of this work, BSR supported the development of a data-driven sustainable procurement module within Hilton Worldwide's proprietary LightStay sustainability management platform used for tracking the impacts of the company's operations. Hilton Worldwide expanded LightStay to include functionality that quantifies product sustainability so that buyers can integrate that information in buying decisions. The longer term aim was to integrate this data into a procurement model that quantifies a product's total cost of ownership throughout its life cycle.

BSR worked with Hilton Worldwide to develop nearly 100 different sustainability criteria for measuring the impacts of a large number of products the company purchases. Criteria included life-cycle-assessment components from the manufacturing, packaging, logistics, and end-of-life stages. BSR then helped collect data on nearly 1,700 SKUs (stock-keeping units for individual products) across multiple product categories, which represented more than \$165 million of the company's annual spend. Figure 2 shows a high-level example of just how challenging it can be to compare two hypothetical products within the same category, with only five sustainability criteria. In this example, an evaluator must consider whether energy use or water use is more important as a decision driver or perhaps whether third-party product sustainability certification is more important than the other factors combined.

Figure 2: Hypothetical example of a simple product comparison based on Hilton Worldwide’s experience

Sample Sustainability Criteria	Product A	Product B
Energy consumed in manufacturing	6	3
Water consumed in manufacturing	4	7
Recycled content in product	60%	10%
Renewable Energy Credit (REC) carbon offset	80%	None
Third-party sustainability certification	No	Yes

This example begins to highlight the complexity of the challenge of comparing two seemingly similar products across multiple sustainability criteria. Comparing products only becomes more difficult as the number of sustainability criteria expands from just five in this theoretical sample to fifty or more, as Hilton and BSR gathered within LightStay. Additionally, while some data is readily available from suppliers, Hilton requested many sustainable criteria for which suppliers did not have or could not provide that data. One example that was particularly challenging was in the food and beverage categories, where suppliers could provide extensive data on the nutritional information of food and beverages, but across the board could provide almost no environmental or social impact data for the criteria requested by Hilton. Suppliers of other nonfood categories were able to provide more sustainability data than those in food categories were, but there were still many gaps.

The results of this work left Hilton Worldwide a long way from integrating sustainability data into buyers’ decisions relative to price, quality, and on-time delivery, and even further from a fully integrated total cost of ownership approach where the company would understand the full cost of owning the products it purchased from both a financial and sustainability standpoint.

Based on this work, BSR and Hilton learned some key lessons:

- » Product **sustainability data** across various criteria is increasingly available, but it is **still a long way from easily enabling buyers to make sound, fact-based decisions** on many products.
- » Even where reliable product and supplier sustainability information is available, there is **little guidance for buyers on how to compare different products and weigh the different factors** to integrate them into existing procurement decision drivers, such as cost, quality, and delivery.

Hilton Worldwide and BSR have come a long way along this journey, but there remained much to be learned about how sustainable procurement can work in practice. The company concluded that it could continue on the path of understanding sustainable procurement alone or find another way to help move the needle. As a result, Hilton Worldwide funded additional BSR analysis into the current efforts around sustainable procurement at leading companies, collaborative initiatives, and product certification organizations to see how others were grappling with this challenge and where gaps existed.

This research and analysis focused on interviews with seven global companies that are currently leading on responsible supply chain efforts and three multi-stakeholder efforts focused on product-level sustainability, as well as extensive

desk-based research on the current landscape of sustainable procurement initiatives. BSR's information gathering focused on several areas:

- » Product-level approaches to sustainability at companies and initiatives
- » Use of quantitative metrics to understand product impacts
- » Use of primary versus supplier or third-party data
- » Specific product categories covered by these companies and initiatives
- » The audience for the sustainable procurement data or initiative (for example, consumers, buyers, or suppliers)
- » The purpose for implementing a product-level sustainability effort

While there are several existing efforts across the product sustainability space, this research uncovered several specific challenges, highlighted in Figure 3.

Figure 3: Challenges in the landscape of product sustainability efforts

Summary of Challenges

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- **CHALLENGE 1: Rapidly evolving, crowded field**
The landscape is changing quickly, and the approaches vary widely in use of quantitative and qualitative data; several leading companies are in the apparel industry.
 - **CHALLENGE 2: Little product-level information available**
Few companies measuring or disclosing product level sustainability and leaders tend to be companies that have focused on product sustainability for years, yet their data is still limited.
 - **CHALLENGE 3: Transparency**
Few companies and initiatives have been forthcoming with their approaches, data, and tools, and few—if any—have publicly discussed their challenges and shortcomings.
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 - **CHALLENGE 4: Integration**
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As a direct result of this work, BSR created the CSP with funding and support from Hilton Worldwide to accelerate our insight and impact with more companies in the space. Because addressing the challenges outlined above represents a very large and complex task, the CSP was established as a multiyear, multicompany effort focused on accelerating the development of tools and approaches to sustainable procurement for the benefit of the wider network of companies who focus on procurement as part of their overall sustainability priorities.

The CSP's work focuses on two key approaches:

- » **Conducting specific product-level pilot projects with participating companies** focused on making the business case and providing tools and approaches to enable the procurement of more sustainable products

- » Accelerating insights and impact by **engaging the wider network of BSR companies** and creating **a repository of information** to share with other companies through published research, articles, and other related content

The CSP's first published work regarding its first year of efforts, this paper describes some of the key insights from the year.

The CSP's First Year: Working Toward Solutions

The CSP takes a hands-on practical approach to developing solutions for the challenges of sustainable procurement. Our pilot projects are designed to deliver results for companies that are working to incorporate sustainability into procurement decisions. This section describes our work with companies that participated in the first year of the CSP.

DEVELOPING PROOF POINTS: COMPANY PROJECTS

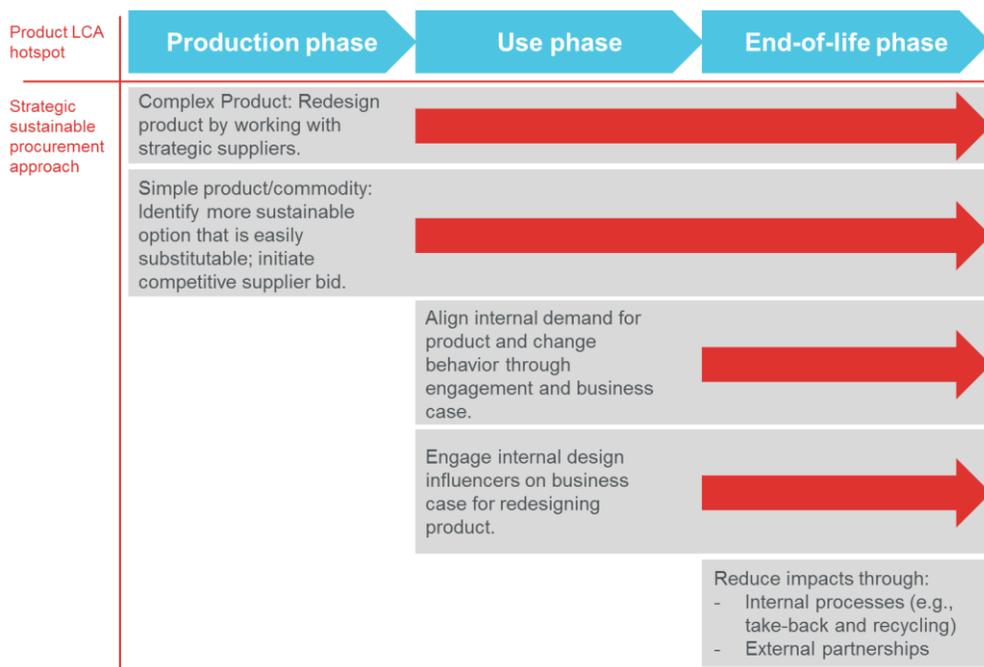
The approach taken in each company pilot project differs based on the complexity of the product category examined, the nature of the supplier relationships, and the opportunities identified by the CSP's project analysis framework. If the category is a simple commodity, there will likely be easily substitutable alternatives that would achieve improved sustainability with some changes in process and decision-making. But as the product category selected increases in complexity, simple substitutions may not be feasible, and improved sustainability outcomes will rely on a more focused engagement effort with strategic suppliers to address the sustainability implications of that product category.

In these one-to-one engagements, the CSP looks at the “how” of using product sustainability information to make procurement decisions. The CSP does not conduct life-cycle or detailed product analyses, but instead seeks the best available product sustainability data—whether from third-party multi-stakeholder initiatives, suppliers, or company testing and data gathering—and develops approaches to use these data in making better procurement decisions. The CSP is agnostic about the data source, as long as it is credible and timely and addresses the key sustainability impacts that the company seeks to reduce. These projects lead to specific recommendations for the companies to implement a change in their procurement of certain products. They also provide case studies that can inform other companies with similar challenges.

In the next section, we outline the CSP's first year of work with three companies in one-to-one engagements. Each of the three companies presented unique challenges focused on three very different product categories.

As we evaluate each company project, we recognize that the procurement challenge that each company seeks to address depends on the key attributes of the product category selected and the related supplier relationships. In order to evaluate each company project and related sustainable procurement challenges and opportunities, the CSP team created a framework for understanding the various approaches to be tested in achieving sustainable procurement results (see Figure 4).

Figure 4: Sustainable procurement framework based on nature of product and location of key impacts (production vs. use vs. end-of-life)



Depending on the location of the product sustainability hot spots within the life cycle and related strategic approaches, this framework is used to determine which approach to take when addressing the challenge. In the case that the product category presents multiple life-cycle hot spots, the CSP team works with companies to prioritize these and determine where the project should focus based on company priorities and most material issues.

The three initial CSP projects cover a spectrum of challenges described in the framework above and represent three types of product categories:

- 1) **AT&T's fan belts for building mechanical equipment:** *a simple product that can be substituted* through an upgrade to a different type of belt. To perform an upgrade, the company must first be internally aligned and understand the return on investment. Once the initial investment is made, upgrading the company's fan belts could achieve improved direct cost savings and energy performance for the company.
- 2) **Best Buy's in-store display units:** *a moderately complex product category* composed of several substitutable commodities (such as wood, wood composite, metals, plastics, and others), which requires strategic supplier engagement to identify sustainable substitutes that still meet Best Buy's needs. Changes in displays could potentially reduce costs for the company if display units ultimately are redesigned for reuse.
- 3) **Dell's notebook computers:** *a complex product* that requires management of long-term strategic relationships with a small number of key suppliers called Original Design Manufacturers (ODMs) where engagement of suppliers through the procurement function would achieve reduced embedded energy use over the total life cycle of the device. For Dell, the energy consumption of their notebook computers is a significant sustainability impact of their products, and the company sought to work with

ODMs to reduce the embedded energy in their products resulting from the production phase of the life cycle.

Figure 5: Methodology for company projects includes the following activities at a high level

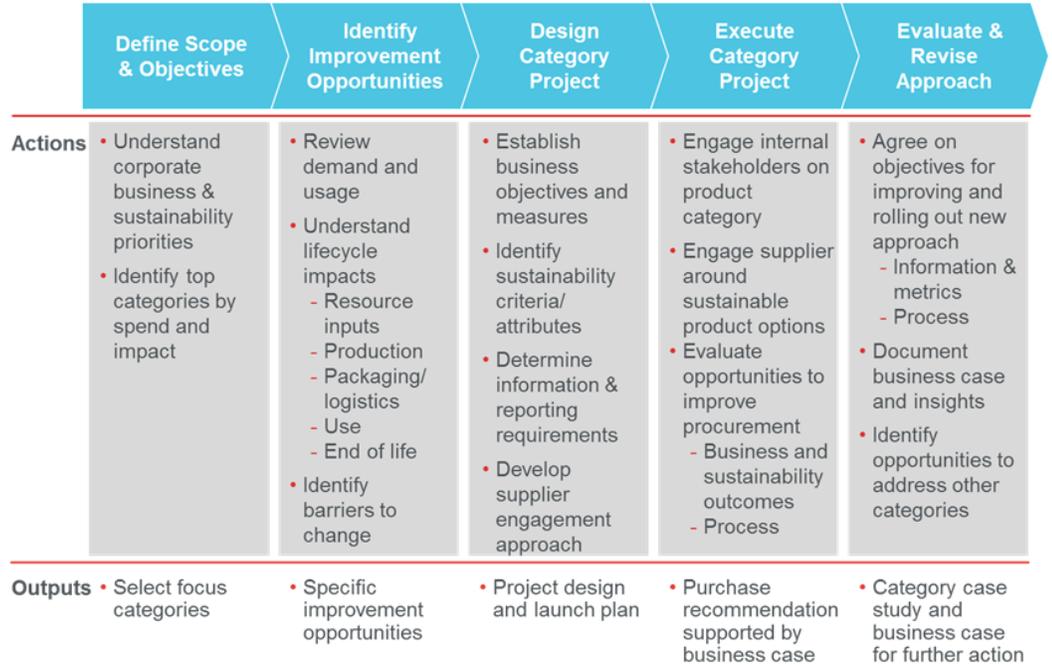


Figure 5 describes the high-level methodology that CSP applied for each of these projects. However the approaches and outcomes varied based on the differences in products, corporate cultures, and the scope of the projects, but CSP used essentially the same methodology for all three.

Case Studies: Company Projects

AT&T: Developing a scalable approach to saving energy through the procurement of fan belts

FOCUS OF CASE

AT&T places a strong focus on saving energy across its operations. Building mechanical equipment represents a large portion of the company's energy use, so the project team identified fan belts as an opportunity to potentially increase efficiency and savings. Little is known about the total life cycle of fan belts, from production to end of life, but it was clear to the team that fan belts have a significant impact on energy consumed during their use phase.

DEFINE SCOPE AND OBJECTIVES

The primary use of fan belts is to reduce energy consumption for a company through an approach that focuses on procurement when building mechanical equipment used in heating, ventilation, and air conditioning (HVAC). AT&T's operations rely heavily on energy used for mechanical cooling and air movement. The company has made significant commitments to reducing energy use and is developing an energy strategy that is scalable across its diverse real-estate portfolio. Every incremental bit of energy savings results in real financial and sustainability savings, so AT&T is taking a data-driven approach to identifying opportunities to reduce its energy consumption, while enhancing its reliability of service.

We identified the key internal stakeholders at AT&T who needed to be engaged from the purchase of fan belts through the end of their useful life. These stakeholders included the supply chain, headquarters, and real estate operations. Senior management ensured us that we had the participation and insight from key players throughout the project.

IDENTIFY IMPROVEMENT OPPORTUNITIES

After gathering insight from AT&T's internal stakeholders across the fan belt life cycle, the CSP team focused on understanding the opportunities for improvement in fan belts, and the potential gains projected in energy savings. The majority of AT&T's building mechanicals are run using a standard type of fan belt called a V-belt. We learned that an alternative to V-belts are synchronous belts, which according to the manufacturer could potentially reap 9 to 12 percent reductions in energy use. However, to switch to synchronous belts, additional parts needed to be changed to ensure that the equipment would be compatible with the new kind of belt. The team researched the use of fan belts and concluded that, indeed, there is a potential opportunity to increase energy efficiency by switching to synchronous belts that merited further exploration.

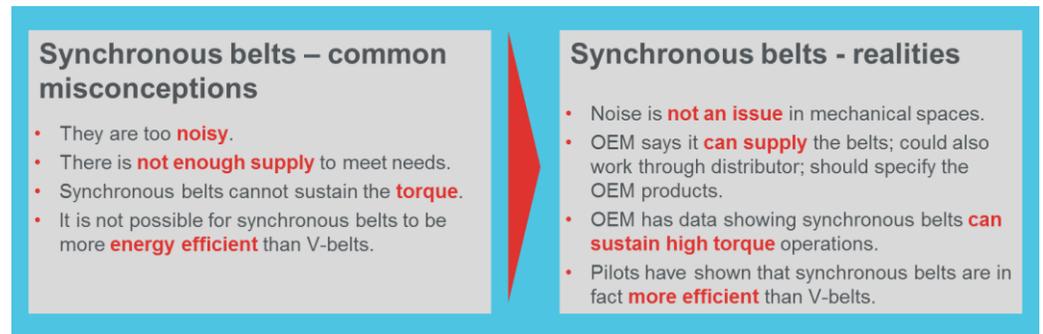
DESIGN CATEGORY PROJECT

In addition to the manufacturer's figures, AT&T's own initial testing of synchronous belts showed 9 to 12 percent energy-efficiency gains on 50 horsepower and larger motors. Even with the additional one-time, up-front costs of equipment upgrades and labor, there was a good opportunity to generate savings that could offset the cost of the upgrade.

Four main challenges were identified. The first challenge was that because fan belt purchasing was decentralized, a wide rollout would require some thinking about how purchasing could be done differently. Since there was an up-front cost, the second challenge highlighted a need for incentives to drive changes in fan belt use and procurement. The third challenge was the diverse building

portfolio and regional variations in fan belt use across AT&T, which called for more real-time testing and pilots of fan belts before a wider rollout could occur. The fourth challenge indicated that any changes in fan belt purchasing would need to be aligned with existing programs within the company to address energy use. Figure 6 provides additional detail on the challenges and misconceptions that the CSP team addressed.

Figure 6: Common misconceptions and realities regarding synchronous belts



Based on the above challenges, we designed a project that would continue to engage the group of internal stakeholders. The project involved robust data collection, both from internal real-time testing and from fan belt manufacturers to demonstrate the broader benefits of synchronous belts versus V-belts for the company. We worked with the supply chain team to vet this proposed project and engaged senior managers to ensure that we had strong support to proceed.

EXECUTE CATEGORY PROJECT

Our ongoing discussions with internal stakeholders enabled us to learn about challenges regarding this procurement change. We learned that synchronous belts were already in use in some locations, and the data showed that the energy and cost savings were on par. In some locations, savings were on the high end of the manufacturer's claims of 9 to 12 percent. Through the original equipment manufacturer (OEM), we received more data on synchronous belt efficiency. We took the data and paired it with the data received from the sites where there was already real-time use of synchronous belts at AT&T.

The information gathered shaped the recommendation that a phased approach to fan belt upgrades, starting with some regional pilots, would help the company better understand the opportunity of upgrading to synchronous belts. We also recommended that upgrades occur when the building equipment is scheduled for regular maintenance to reduce equipment downtime and keep labor costs as efficient as possible.

The company continued a regional pilot in early 2013 to test opportunities in fan belt upgrades. They found that when gradually ramped up and down, the belts worked properly on fan systems with variable drive. However, when the fans were started immediately without ramping up, the belts tended to jump off the pulleys. This caused the fans to fail and resulted in a loss of air movement, which is detrimental to the functioning of the equipment. The manufacturer of the belts was consulted and it was determined that the synchronous belts could not handle the starting torque of the motors in a "hard start." This test provided a cautionary practical experience while pursuing sustainable and total cost of ownership solutions. Based on the real-time testing, and because AT&T still sees value in a

potential upgrade to synchronous belts, the company is continuing to look at fan systems that are not required to have a hard-start capability. They are also testing the performance of the synchronous belts on its variable drive systems for more data.

EVALUATE AND REVISE APPROACH

In the ongoing work resulting from the pilot, field testing will aim to identify the optimal conditions for installing synchronous belts, gather more real-time performance data, and gain a better understanding of potential challenges related to the upgrade. With the next steps in place, a larger-scale rollout may be feasible.

The CSP presented the pilot, not just as an isolated project, but as a methodological approach to exploring opportunities within procurement to reap financial savings and sustainability results. The goal was to demonstrate that this methodology is a framework that can be replicated in other similar projects, and that over time, AT&T could incorporate this type of thinking into a wide array of procurement categories. We learned that while the process started with a small team, company-wide engagement enabled the project to turn from a concept into a real initiative.

Best Buy: Procurement of display units as an opportunity for improved sustainability in stores

FOCUS OF CASE

Best Buy has a strong focus on lessening the environmental impact in the communities they serve. The large number of stores Best Buy operates led the company and the CSP to focus on opportunities related to in-store displays. Displays are a very visible element of Best Buy operations and presented a moderately complex system to test out CSP methodologies.

DEFINE SCOPE AND OBJECTIVES

For this CSP project, Best Buy chose to explore improvements in the sustainability of in-store product displays. Internal supporters for this work included the procurement lead responsible for sustainability and the sourcing manager responsible for construction and displays, as well as the senior leadership responsible for sustainability and corporate responsibility across Best Buy.

The display life cycle intersects a range of functions at Best Buy, from design and vendor management to store operations and disposal, making it a useful test case for this integration. Additionally, this work was well aligned with the company's commitment to reduce the environmental impacts of its stores and with previous work to ensure that all Best Buy displays comply with California Air Resources Board (CARB) requirements to reduce toxic emissions from composite wood products.

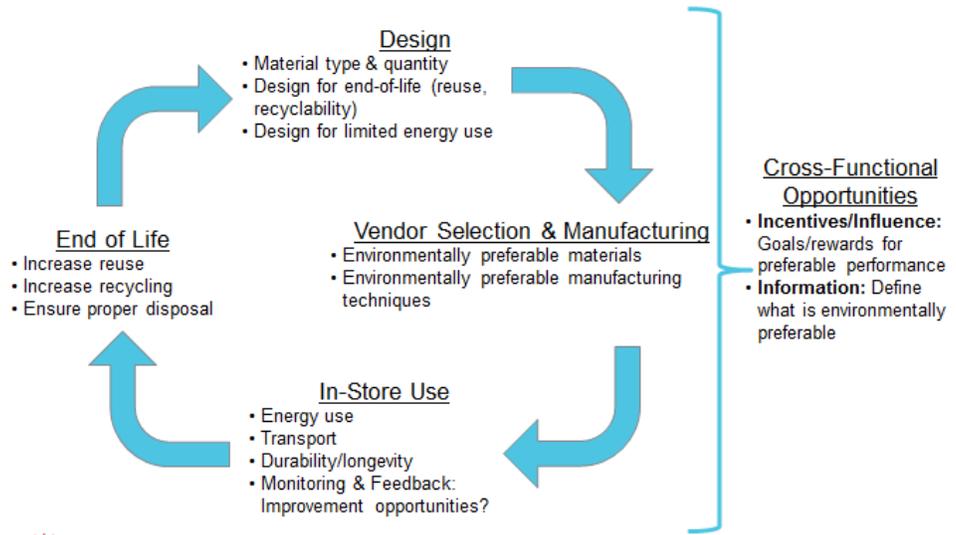
The objectives of this project were to explore ways that Best Buy could improve its procurement process for displays and define the criteria for making displays more sustainable in the future. This could be achieved through improving display design, seeking environmentally-preferable display components, extending the useful life of display components or improving the end-of-life disposal options. From the beginning, the team expected that supplier engagement would be essential to support development of more sustainable displays, whether through validating and implementing design choices or helping to identify options for preferable components at competitive pricing.

IDENTIFY IMPROVEMENT OPPORTUNITIES

Most Best Buy displays are custom made for the company's stores out of metals, acrylics, wood, and wood composites, among other materials. At the start of this project, Best Buy had basic information about the amount of these materials used in their displays. This information could be coupled with data about the environmental impacts of these materials and used to encourage use of environmentally preferable materials by partnering with display suppliers.

The CSP and Best Buy interviewed key internal stakeholders and decision makers related to display procurement and management. We also researched the materials used in displays to understand the options for environmentally-preferable alternatives. Through this analysis, we identified a potential set of opportunities across the lifecycle of displays, starting with design, vendor selection, manufacturing, and deployment, through to in-store use, and display end of life. We also identified opportunities to improve for the information to help define environmentally-preferable characteristics and cross-functional incentives for environmentally-preferable procurement. Figure 7 shows this initial mapping of opportunities for environmental improvements in displays. This analysis identified two major areas for further focus: materials selection, and reuse/recycling. Within these two areas, the team identified both potential short-term improvements, and longer-term opportunities for improvements related to design, procurement, and disposal of displays.

Figure 7: Initial mapping of opportunities for environmental improvements in displays



Challenges identified in this analysis included educating both staff and vendors about the desired sustainability improvements, unclear incentives for change, unknown cost implications of changing display components, and limited information about the sustainability, availability, and durability of alternative components. The CSP team concluded that there may be opportunities to provide incentives for display designers to include environmental considerations in their work, or to engage with suppliers to encourage use of environmentally preferable materials. Display and component reuse or reduced energy use was also an area where there could be noticeable cost and sustainability improvements. Figure 8 shows the initial areas of sustainability improvement for in-store displays that were identified by the CSP for Best Buy.

Figure 8: Short-term opportunities for sustainability improvements to in-store display units to be explored by Best Buy and CSP

Change	Opportunity		Challenges	
	Environmental	Business		
DESIGN				
Increase durable, reused/reusable & recyclable components	<ul style="list-style-type: none"> • Less manufacturing • Less disposal 	<ul style="list-style-type: none"> • Decreased input costs? • Decreased maintenance • Increased end of life value • Decreased disposal costs 	<ul style="list-style-type: none"> • Is it possible? • What are full cost implications? (e.g. transport, storage) • Unclear availability & durability • Need to educate staff & vendors • Lacking incentives? • Limited information 	
PROCUREMENT				
Preference to vendor with recycled/ recyclable or eco-certified components (all else equal)	<ul style="list-style-type: none"> • Less disposal • Fewer concerns about materials 	<ul style="list-style-type: none"> • Increased end of life value • Decreased disposal costs • Strengthen vendor relationships 		
DISPOSAL				
Increase reuse & recycling	<ul style="list-style-type: none"> • Less disposal 	<ul style="list-style-type: none"> • Decreased disposal costs 		

DESIGN CATEGORY PROJECT

Based on the analysis, the CSP team recommended that Best Buy gather information from select suppliers and outside experts about environmental opportunities and areas where suppliers are considering the environmental impacts of display materials. These discussions would be designed to identify current activities and to clarify specific opportunities for short-term actions to improve the procurement process or displays themselves.

In addition to interviews with suppliers and stakeholders, we recommended that Best Buy investigate targets or preferences for more sustainable materials, principally focused on availability and cost, while also documenting other sustainability benefits or concerns. If these targets were feasible, then in partnership with the CSP, Best Buy could define implementation of these targets. One example of implementation might be setting specific component goals, such as 75-percent Forest Stewardship Council (FSC)-certified content for all wood and wood composite components. Another example could be working with existing suppliers on methods to meet sustainability targets and including these targets in procurement criteria with new suppliers through the request for proposals (RFP) process. In addition, Best Buy could then establish a timeline for making these shifts in display procurement.

EXECUTE CATEGORY PROJECT

In early 2013, the CSP team and Best Buy engaged key suppliers of metal and wood-based displays to execute the recommendations from the design phase of the pilot. In discussions with these suppliers, we found that several potential improvements are already being addressed on the suppliers’ side, including:

- » Light-weighting of display components (design enhancements to reduce materials while retaining structural integrity)
- » Use of recycled content
- » End-of-life recovery of electronic components in displays
- » Use of environmentally preferable materials and techniques in transport packaging

Additional information was also gathered about the potential for the use of various display component attributes, such as:

FSC certification: The FSC's certification for wood products is currently known as the most rigorous forest certification program, and FSC-certified products represent best practices in forest management, so Best Buy was interested in exploring ways to increase FSC-certified content in its displays. According to suppliers, FSC-certified wood components currently cost approximately five percent more than non-FSC-certified counterparts, although this cost differential varies with market conditions.

Adhesives: According to suppliers, adhesives currently used in Best Buy displays are CARB compliant and Leadership in Energy and Environmental Design (LEED) certified, but they still contain solvents. Non-solvent-based adhesives would contribute a very small amount to production costs and therefore are a possible opportunity for a nearly cost-neutral environmental improvement. However, adhesives researched to date do not meet the requirements for structural integrity of displays.

Reuse: Suppliers have conducted pilots for reuse of display components, with limited success. In particular, these pilots demonstrated that a mismatch between supply (end-of-use in one store) and demand (need for new or used components in another store), as well as distance between the source and destination lead to significant storage and transport costs that make ongoing reuse challenging, particularly in an uncertain economic environment with elevated fuel costs and uncertain demand for display components.

EVALUATE AND REVISE APPROACH

Evaluation of the project execution phase highlighted two key findings:

The feasibility of immediate changes to display materials or disposal processes is unclear. Existing activities such as light-weighting and improved packaging both reduce costs and improve environmental impact, while some environmentally-preferable materials or activities such as FSC-certified wood or component reuse are not currently feasible based on cost. It is recommended that Best Buy continue to explore these activities because they have environmental benefits and potential positive business impact.

Despite this finding, **the integration of environmental issues into Best Buy's supplier discussions is a promising addition to the procurement process.** Although immediate opportunities for changes to displays were not found, these discussions resulted in a much deeper understanding of both current activities and where opportunities may exist, and they emphasized to its suppliers the importance of environmental sustainability that Best Buy places on the products it purchases. By regularly posing questions to suppliers about specific opportunities such as FSC-certified material, as well as using open-ended questions about where other opportunities for environmental improvement may exist, new opportunities can be identified and acted on in the future.

As a result of these efforts, Best Buy now includes questions about relevant environmental issues in its display procurement process. The value of integrating environmental issues into supplier engagement for displays suggests that this approach can be applied in other areas at Best Buy, and may lead to more immediate changes to other products or services that are procured. Actively sharing these lessons with those in charge of other product or service categories, internal alignment with company goals, and support from Best Buy's sustainability team and senior leadership will be important to implementing this

within the organization. In partnership with procurement at Best Buy, the CSP is in the process of identifying an opportunity to build on these lessons and apply this methodology with another category in the next year of work. In particular, the CSP and Best Buy are exploring the opportunity to reduce the amount of packaging used and to substitute more sustainable materials in shipping from its online stores to customers.

Dell: Improving the life-cycle energy impacts of notebook computers in the production phase

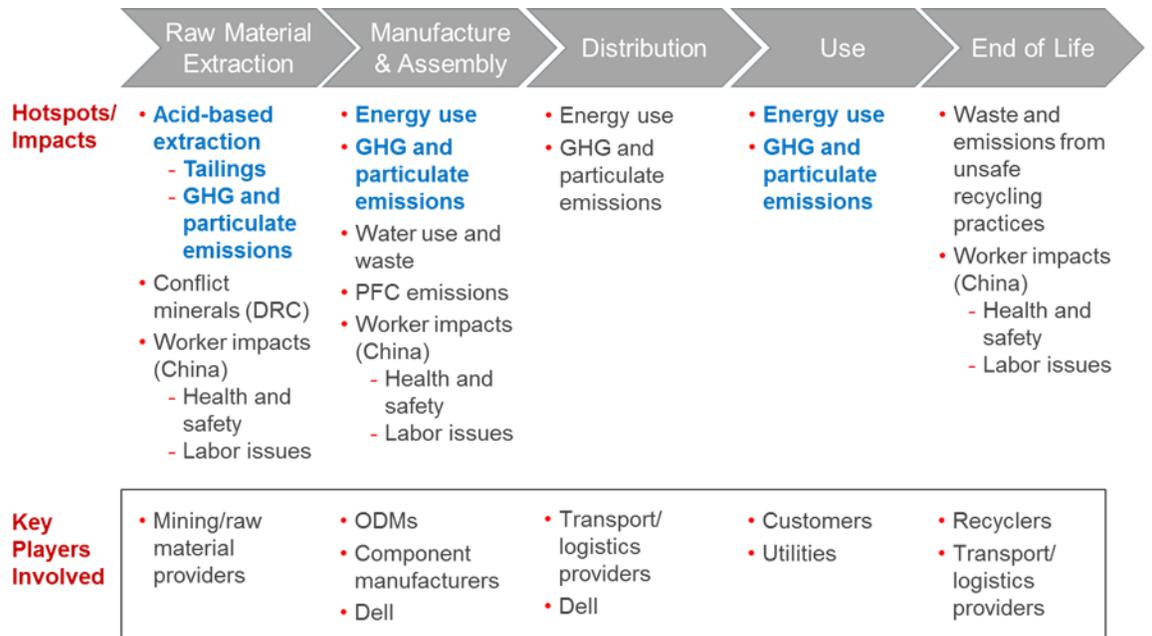
FOCUS OF CASE

Notebooks represent a highly complex product category and supply chain in which collaboration with strategic suppliers is critical to measuring and improving key sustainability impacts.

DEFINE SCOPE AND OBJECTIVES

Prior to our engagement Dell had done a lot of work to understand and address the life-cycle sustainability impacts of its notebook computers, through its own work gathering life-cycle data from suppliers, as well as via involvement in collaborative initiatives such as the Massachusetts Institute of Technology’s [PAIA](#) (Product Attribute to Impact Algorithm) and [The Sustainability Consortium](#). As a result of these efforts, the company had already identified the hot spots and other critical impacts that must be addressed to substantially improve the sustainability of notebooks (see Figure 8 below).

Figure 9: Key life-cycle hot spots of computers, including notebooks



Sources: Dell and The Sustainability Consortium (TSC)

Note: Key hot spots for this pilot are in **bold**. Hot spots are defined by TSC as “activities that are known, through scientifically derived evidence, to cause significantly greater environmental or social impact than the other activities in the products’ life cycles.”

As noted in Figure 9, there are a number of significant impacts across the life cycle of a notebook computer, ranging from the environmental impacts of raw materials extraction to energy use and emissions in manufacture and product use, as well as a range of impacts on workers in almost all phases. Viewed

through the lens of the actual product, these impacts constitute two different types of product sustainability attributes:

- » Physical product attributes: material content, energy use (efficiency), and recyclability
- » “Embedded” attributes represented by the sum total of production impacts (energy, water, waste, social and labor effects, etc.) from extraction to component manufacture, assembly, and transport

Figure 9 also shows that many of these impacts are related to the practices of suppliers, recycling partners, and transport and logistics providers. This is particularly true in Dell’s case, as all manufacturing and some elements of design and service are contracted out to small number of Original Design Manufacturers (ODMs). With respect to energy and emissions, for example, Dell has conducted life-cycle assessment (LCA) studies that suggest that fully half of life-cycle energy use and related emissions for a typical notebook computer are found in the supply chain (extraction, manufacture, and transport), with the other half represented by product use.

Over the last several years, Dell has achieved significant improvements in a number of these key impact areas, particularly in those where the company exercises direct control via its product design standards and take-back and recycling programs. For example:

- » **Use:** Dell has focused significant effort on improving the energy efficiency (and related emissions profile) of its various product lines. Dell set and achieved the goal of reducing product greenhouse gas (GHG) emissions by 25 million tons by 2012 through improved product design and performance and preconfigured systems and settings and is investigating the potential for further improvement.
- » **End of life:** Dell was the first manufacturer to offer free computer recycling to consumers worldwide, and also the first global IT company to ban the export of e-waste to developing nations. Dell has committed to increase Dell-branded take-back volume totals to a worldwide cumulative 1 billion pounds of collected equipment by 2014.
- » **Manufacturing and assembly (owned operations):** Dell met its operational carbon neutrality goals ahead of schedule in 2008 and then committed to further reduce worldwide facilities’ GHG emissions 40 percent by 2015.

Dell has also invested significant effort in the more difficult task of driving improvements along its highly complex supply chain. Here the challenge and opportunity is great, as the company’s control is less direct but the impacts represent a significant share of the total. For example:

- » **Manufacturing and assembly (suppliers):** Dell has established goals and programs to reduce or eliminate the use of certain potentially hazardous materials in its products, for which it collaborates closely with its direct suppliers (ODMs). The company also requires ODMs to measure and publicly report their GHG emissions, set improvement goals, and also set expectations for their suppliers. Similarly, the company has established social compliance programs to address worker impacts at ODMs and expects the latter to do the same with respect to their own suppliers.
- » **Raw materials extraction:** As implied above, the impacts at this primary phase of production are generally managed via the requirements that ODMs are expected to impose on their own suppliers which—by extension—are assumed to cascade through all the tiers of the supply chain. That said, the recent focus on “conflict minerals” may represent the beginning of a new phase in supply chain responsibility that requires OEMs to establish more

direct visibility and control beyond their direct (tier-one) suppliers. In this context Dell has established a policy that applies to its suppliers and their suppliers, collected data from suppliers on the origin of their materials, and engaged the electronics industry to establish conflict-free sourcing.

While important progress is being made in these areas of supply chain performance, the sustainability team at Dell saw an opportunity to enable more improvement in supply chain sustainability practices—and hence the overall sustainability profile of its notebooks—by working with the CSP to find new ways to engage and support ODMs.

IDENTIFY SPECIFIC IMPROVEMENT OPPORTUNITIES

To define the focus and scope of this CSP pilot project, Dell and the CSP team considered the following:

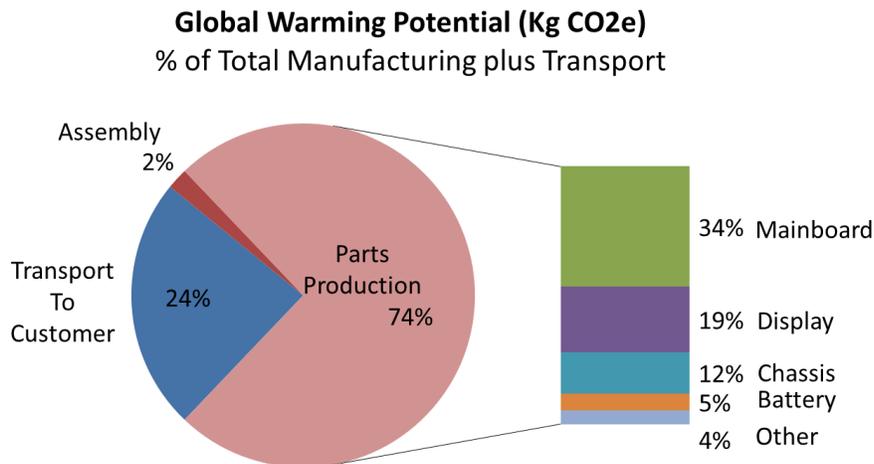
- » What are Dell's business and sustainability priorities for notebook computers?
- » Where are we likely to find opportunities to improve sustainability performance that also create business benefits for our suppliers and partners?
- » In what areas are suppliers most likely to have at least some of the capacity, data, and infrastructure needed to drive improvement over a reasonable time frame?

We also agreed that to be successful, any proposed improvements would need to be cost effective and scalable, produce real sustainability improvements, and maintain or improve quality—all without causing any delays in production.

Based on these criteria, the team concluded that it would focus this initial project on reducing the total life-cycle energy and related GHG emissions of Dell's notebook computers by engaging with key ODMs on reducing energy use in the manufacturing phase. From Dell's point of view, an increasing number of large customers are asking for *action* (not just reporting) on life-cycle energy impacts. From the suppliers' perspective, energy has the benefit of being *relatively* easy to measure, and increased efficiency leads to immediate financial benefits.

As noted earlier, manufacturing represents approximately one half of total life-cycle energy use and emissions for a notebook computer (somewhat more or less, depending on where the computer is sold and used). Within the manufacturing phase, parts production represents by far the largest impact area, while assembly contributes relatively little. Furthermore, within parts production, four components (chassis, display, mainboard, and battery) represent more than 90 percent of energy use and related emissions (see Figure 10 below).

Figure 10: Global Warming Potential (GWP) of the manufacture phase (parts production and assembly) and the transport to customer



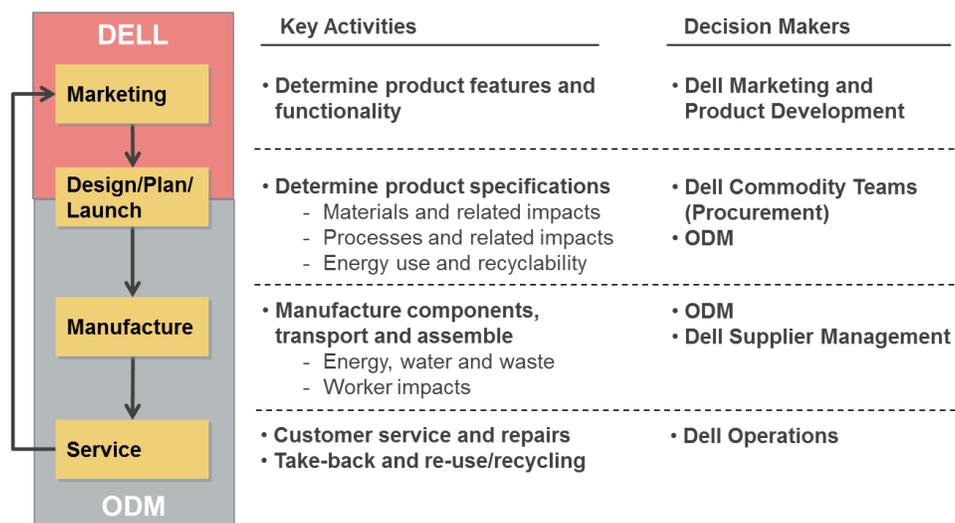
Source: Dell

As mentioned earlier, partnership with ODMs is critical to Dell’s sustainability efforts because 1) these relationships are long term and strategic and 2) they have an influence on a significant portion of total life-cycle impacts of Dell products. The implication of the data in Figure 10 is that Dell and its ODMs will need to work together to help improve performance further upstream in the supply chain—with a focus on the production of chassis, mainboards, batteries, and/or displays—to have a significant impact on the overall energy use and emissions of Dell’s laptops.

DESIGN CATEGORY PROJECT

The project next needed to assemble the right cross-functional team within Dell, with the aim of bringing together key players in the overall product development process, especially the product/commodity teams responsible for determining desired product specifications and the supplier management teams whose job it is to work with supplier partners to make sure that Dell product specifications and production standards are being met (see Figure 11 below).

Figure 11: Summary of key product management activities and players



For the purposes of this pilot project, the supplier management team has a key role to play in 1) engaging with ODMs to help drive improved energy-efficiency practices and 2) working with the relevant Dell product/commodity teams to agree on the metrics and measures that will be used to track and report progress on supplier energy efficiency.

While the company already works to incorporate environmental standards into product specifications, and supplier management has robust programs and processes for monitoring and improving supplier operating practices, the two have not historically been linked. As indicated above, improving the total life-cycle sustainability performance of notebooks will require that we connect the dots between the commodity purchasing teams and those who directly manage key suppliers.

This is important for two reasons. First, it is the supplier management teams who will work with suppliers to improve the energy efficiency of their operations. Second, product/commodity teams need to work with supplier management to define metrics and capture data that will enable them to assess whether meaningful environmental performance improvement is being achieved (in terms of embedded energy per notebook). Currently, Dell collects only limited data on GHG emissions and energy use from suppliers, and it is unclear whether and how much data the ODM will be willing or able to share. Furthermore, supplier management teams are not trained to understand or collect this information. The work to define metrics and collect data will focus on availability, willingness of suppliers, and usability for the types of LCA modeling that Dell uses to identify opportunities for environmental improvement.

EXECUTE CATEGORY PROJECT AND EVALUATE AND REVISE APPROACH

As the CSP gears up for its second year of work on this complex challenge of working with ODMs to reduce the life-cycle impacts of notebooks by improving their embedded energy use in the manufacturing phase, the CSP team is in the process of fostering collaboration among environmental affairs, the procurement team, and ODM suppliers. The project will identify an ODM partner to test the process by which Dell can understand the supplier’s energy usage and then work with that supplier to reduce that energy use, thereby improving the life-cycle

impacts of their notebooks. Dell can then use that information to better manage supplier relationships and ultimately drive decision making around procurement that improves embedded energy in this complex product category.

The pilot will collect available ODM baseline energy data, identify opportunities for energy reductions at the facilities level, provide guidance to the ODM to act on realizing improvements, and then measure energy post project-execution. Based on pilot results, the CSP will work with Dell on recommended process modifications for notebook procurement that would replicate the results with other suppliers and categories for continuous energy improvement of notebooks.

These phases of work will be forthcoming in 2013 and beyond, as the CSP team is working with Dell to finalize the approach, select the ODM, and assemble the teams both in the United States and in China where the ODMs are based.

The CSP in 2013 and Beyond

The CSP's main goal is to generate both tangible results and a growing body of case studies and related methodologies to advance sustainable procurement practices.

Over the remainder of 2013, the CSP will be continuing its work with the companies mentioned in this report, with a focus on evolving the methodology at each company so that it becomes embedded in the way they engage in procurement. We will also be working with additional companies, as well as driving the conversation forward through collaborative webinars and other content to generate a wider discussion among companies. The CSP will continue to advance an understanding of other companies that share similar challenges, and what they are doing to make progress on sustainable procurement.

In this year's work, we seek to increase our engagement with product design and development and to work with people within companies who influence the products at the design level. We are also interested in evolving the work we have started with these companies and others to perhaps include a deeper analysis of a total cost of ownership procurement methodology that incorporates sustainability data. We are actively looking for ways to engage a wider audience of companies, both individually and via trade associations, on these challenges.

For more information on the CSP, please contact Celine Suarez at csuarez@bsr.org.