



The New Frontier in Sustainability

The Business Opportunity in Tackling Sustainable Consumption

July 2010



About This Report

The purpose of this report is to highlight opportunities for business to address sustainable consumption. The report is meant to be a “framing document” to drive discussion at two BSR workshops (in June and September 2010) aimed at the business community. The workshops are designed to test the ideas presented in this report and explore the possibility of collaboration among participants in putting the ideas into action.

Any errors in this report are those of the authors. Please direct comments or questions to Linda Hwang at lhwang@bsr.org.

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A leader in corporate responsibility since 1992, BSR works with its global network of more than 250 member companies to develop sustainable business strategies and solutions through consulting, research, and cross-sector collaboration. With offices in Asia, Europe, and North America, BSR uses its expertise in the environment, human rights, economic development, and governance and accountability to guide global companies toward creating a just and sustainable world. Visit www.bsr.org for more information.

Contents

4	Executive Summary
6	The Vision: Driving Business Innovation and Value
	The Consumption Challenge
	The Transformation Imperative
	The Opportunity to Create Value
9	A Framework for Action
	The Next Frontier in Sustainability
	Unlocking Opportunities in the Value Chain Cycle
	A Framework for Action
	Redefining Core Business Activities
19	The Systems View of Consumption
	Public Policy
	Economics and Market Models
23	Concluding Thoughts
	Join the Initiative
24	Appendix: Ongoing Efforts
26	References

Executive Summary

We stand at a crossroads in the world's economy. On the one hand, we are poised to generate better standards of living for more of the world's people than ever before. At the same time, it is increasingly clear that the consumption-based model of economic growth cannot be applied globally without causing immense environmental and economic disruption.



Sustainable consumption has often been framed as a limitation on business. In fact, addressing today's consumption challenges represents a new set of potential opportunities for business, as some companies have already begun to find novel ways of delivering value to more of the world's people without unduly taxing natural resources. Today, as companies are increasingly making sustainability a core part of every decision they make, sustainable consumption represents a crucial new frontier in that effort.

Consumption takes place within a larger system driven by economic forces, technological progress, political settings, cultural contexts, environmental issues, and many other determinants. In our view, business is a key leverage point that has the potential to effect large changes to the entire consumption system.

We apply an action-based framework to key segments of the business value chain, which we refer to as a cycle, using the multiple lenses of innovation, collaboration, education, and measurement to reorient core business activities related to product design, consumer engagement, use, and end-of-use.

"First-generation" sustainability efforts and other programs focused on product supply chain efficiency have achieved some success in terms of mitigating environmental and social impacts. But even as this approach becomes the business norm, we remain on a dangerous trajectory: We have begun to reach planetary limits, threatening the health and function of ecological systems that support all activity on Earth. At the same time, countless people have insufficient

access to basic needs like food, clean water, and adequate shelter, and they also lack access to the resources they need to improve the quality of their lives. The transformation imperative is clearly an opportunity for business: If more businesses adopt the principles of sustainable consumption, we have the potential to increase global prosperity while avoiding the depletion of our natural resources and still preserving the ecosystems that underpin our lives.

It is equally clear that this transformation can be beneficial for business. Sustainability can and should be thought of as a way to create opportunities and become a substantial source of competitive advantage, not solely as a way to mitigate risk. An economy transformed by sustainable consumption principles will allow companies to explore new business models and design strategies that can open up new market opportunities by promoting radical innovative solutions.

At the same time, this report takes a systems-based approach, with a focus on business' impact on the larger system, especially in terms of how business defines and delivers value, which ultimately dictates how consumers choose and use products. This paper also takes into account how business exists within a complex web of actors and factors, ranging from media to policy to information technology.

Ultimately, this paper is designed to provoke new questions and insights, and raise awareness about the enormity of the challenges we face and the opportunities for business. The journey toward a system of consumption that allows all individuals to meet their needs within the confines of planetary boundaries is not marked by a clear path. Through this paper, in our 2010 workshops, and in our work with individual companies on sustainable consumption, we invite you to help define the path and ultimately understand where the opportunities for your business lie. It is our hope that BSR's work can catalyze the transformative opportunities for companies to support a more sustainable economy that offers greater prosperity for all individuals.

The Vision: Driving Business Innovation and Value

During the past quarter century, we have seen extraordinary improvements in living standards around the world, with progress made on many fronts, including education reforms and access to safe drinking water. Despite this progress, significant questions remain about whether the current models of progress can be maintained given the degradation of ecosystems and the subsequent inability of natural systems to provide us with the range of services we need to survive and thrive.

Companies that create and adopt new models progress stand to gain tremendous ground and will develop competencies that their rivals will find difficult to match. Companies that use sustainability principles to rethink current business models will build resilience against the ups and downs of economic cycles and shifting consumer expectations, and they will deliver positive outcomes in new markets for themselves and for consumers.

The Consumption Challenge

Of the three factors often singled out as responsible for the unsustainable path of the world's economic, social, and environmental patterns—population growth, industrial processes, and consumption patterns—consumption has received the least attention.

Consumption takes place within a larger system driven by economic forces, technological progress, political and cultural contexts, environmental issues, and many other determinants. These forces are constantly changing and interacting, resulting in recurring problems that are made worse by attempts to fix them, generating new, unintended consequences (both positive and negative) or creating patterns and cycles that appear and reappear over time.

What's more, consumption, as measured by GDP and purchasing power, has developed as the pathway to a decent life—a crucial goal on a planet where two billion or more people lack access to basic human needs. The current economic system, and most of its measures of success, promotes more consumption. This means that, for businesses as well as governments, incentives point us in the direction of consuming resources that will become ever more scarce and expensive. In effect, our current system is inherently flawed, with the very human quest for better lives in conflict with the maintenance of a healthy planet. This paper argues for a systems-based approach, in which business considers its opportunities and limits, and also aims to reshape how it intersects with other key actors.

The Transformation Imperative

"Decoupling growth from environmental degradation is the No. 1 challenge facing governments in a world of rising numbers of people, rising incomes, rising consumption demands, and the persistent challenge of poverty alleviation."

—Achim Steiner, Executive Director, United Nations Environment Programme¹

Corporate sustainability efforts have demonstrated that some environmental impacts, such as greenhouse gas emissions and energy and water usage, and social considerations, including fair treatment of workers and freedom of association, can be managed effectively. These first-generation sustainability efforts and other similar programs remain vital. But even as this model of continuous improvement on sustainability becomes the norm, the overall trajectory of the economy continues to be unsustainable: Ecosystems that support human life are degrading faster than they can recover.²

With population growth, increasing per capita consumption, and tremendous technological capacity leading to ever greater levels of production and consumption, we have begun to reach planetary limits, threatening the health and function of ecological systems that support all activity on Earth. Consider these facts:



In the book *An All-Consuming Century*, Gary Cross defines consumerism as “the belief that goods give meaning to individuals and their roles in society.” Consumerism defines our age and is reflected in the huge numbers of cars, electronic devices, fast-food meals, holiday trips, and myriad other goods and services that an increasing proportion of the world’s population is driven to desire, acquire, and consume.

- » By recent estimates, our global footprint now exceeds the world’s capacity to regenerate by about 30 percent, and if our current demands continue, by 2030 we will need the equivalent of two planets to maintain our lifestyles.³
- » Marine biodiversity loss is increasingly impairing the ocean’s capacity to provide food, maintain water quality, and recover from disturbances.⁴
- » More than 386,000 square miles (1 million square kilometers) of forest were lost around the world between 2000 and 2005, representing a 3.1 percent loss of total forest as estimated from 2000.⁵
- » In 60 percent of European cities with more than 100,000 people, groundwater is being used at a faster rate than it can be replenished.⁶

Quite literally, we are living beyond our ecological means, destroying the natural world in the process.

At the same time, countless people have insufficient access to basic needs like food, clean water, and adequate shelter, and they also lack access to the resources they need to improve their lives. In 2006, the 1.2 billion people in the OECD countries had an average annual income per capita of US\$30,580, while the 5.4 billion people in the rest of the world earned an average of US\$3,130. Of those, 19 percent suffer from hunger, 28 percent are drinking polluted water, and 29 percent are illiterate.⁷ More than 2 billion people continue to rely on less than US\$2 per day to meet their needs.

And while there has been remarkable progress toward poverty alleviation over the past 30 years, ongoing progress could be cut short or reversed, given the lack of natural resources needed to sustain this progress. The fast-growing middle class in poor countries—an impressive 80 million people become middle class every year—are exacerbating environmental challenges. In 2005, China added as much electricity generation as Britain produces in a year. In 2006, it added as much as France’s total supply. Nonetheless, millions in China still lack reliable access to electricity. This is problematic given the fact that today, despite the government’s pledge to reduce the carbon intensity of economic activities, China sources 78 percent of its electricity from coal—and regulations governing emissions are not well enforced.⁸

An economic model that overshoots natural resource constraints while failing to meet peoples’ basic needs is, quite literally, unsustainable. What’s needed, therefore, is a new model of economic development in which all people can meet their basic needs without disrupting healthy ecosystems, which serve as the foundation for sound economies, sustaining and enhancing human life.

The Opportunity to Create Value

It is clear that this new model of economic development would be beneficial for business. In light of the changes sweeping the world’s economy, heightened attention to sustainable consumption can position companies well to achieve lasting value in the marketplace.

First, sustainable consumption can help drive and define innovation in the world’s fastest-growing markets. As noted earlier, nearly 80 million people are joining the middle class in emerging markets every single year. While it is true that many of these people deeply aspire to access the same products and services available

in the wealthier Western economies, the ongoing development of these economies may depend on the creation of different ways to improve well-being. The most obvious positive examples include the leapfrogging of resource-intensive infrastructure in favor of light materials and digital services. These economies also have the opportunity to avoid some of the mistakes of the West, such as the unhealthy dietary practices that have caused a decline in certain health measures as prosperity increases.

Second, the need for sustainable consumption creates market opportunities for companies that use information technology to deliver positive outcomes for consumers. The most obvious examples are smart buildings that reduce energy and other forms of resource use. With the right products and marketing efforts, consumers will pay for services that help them reduce their energy use. Companies such as Best Buy—which is investing in the device-management hardware company Control4 to help people save money and manage home energy and water use—are already looking at such market opportunities. Digital marketplaces can also drive down resource use, as exemplified by eBay, which has sparked a brisk trade in pre-owned items that drive demand for recycled products.

Third, with evidence that consumer interest in sustainability is on the rise, companies can protect themselves against rapid and potentially devastating changes in consumer expectations. U.S. Senator Lindsey Graham, a Republican from South Carolina, told the *New York Times* in February 2010 that he has seen a sea change among students in America concerning the environment: “I have been to enough college campuses to know if you are 30 or younger, this climate issue is not a debate. It’s a value. These young people grew up with recycling and a sensitivity to the environment—and the world will be better off for it.”⁹ This statement underlines what many consumer attitude surveys have shown, that the rising generation of consumers is likelier to favor products whose sustainability attributes are clear.

Finally, embracing sustainable consumption provides a shield against price volatility and potential supply shortages of key commodities. In 2007-08, before the recession took hold, prices for oil, base metals, and grain skyrocketed, prompting food riots in Egypt, Italy, and Thailand, as pasta, bread, and rice grew scarce. Most economists believe that with current demographic pressures and the rise of the biggest emerging economies, we’re likely to see similar conditions in the future. Simply put, resource-intensive business strategies could leave companies exposed, just as they leave consumers and national economies vulnerable.

Ultimately, companies that embrace the principles of sustainable consumption described in the following pages will have a competitive edge as economics, values, and markets continue to evolve. What follows is a framework for thinking about how to put these principles into action.

“Brands aren’t defined by campaigns anymore, but by the consumer ecosystems we nurture to support them.”

—Michael Mendenhall, Chief Marketing Officer, HP, in “Digital Darwinism,” *Strategy + Business*, February 24, 2009

Subaru: Zero Waste Manufacturing

Subaru of Indiana Automotive (SIA), Subaru's sole U.S. plant, was built in 1989 and makes anywhere from 110,000 to more than 200,000 vehicles a year. In 2004, SIA became the first “zero landfill” auto factory in the United States, with 99 percent of waste from the plant being recycled, and the remaining 1 percent turned into electricity. SIA's solvent recovery system is a great example of this process. After use, paint solvents are broken down into their base elements and reused repeatedly. Other examples are the massive plastic trays used to transport engines, and the thousands of brass lug nuts used to temporarily secure the wheels to the cars. After use, they are sent back to their point of origin for reuse.

A Framework for Action

Many companies are beginning to make this journey. They are starting to push the boundaries of their corporate sustainability strategies to shape the contours of this new frontier in sustainability. These companies are using sustainability to reconceptualize how they deliver value, create innovative products with small footprints, aim toward closed-loop systems, and engage consumers through choice and behavioral change.

The Next Frontier in Sustainability

Throughout the 1970s and 1980s, pollution control—the treatment and/or disposal of industrial byproducts or waste and discharge to the air, water, or land—was the centerpiece of environmental management. The limitations of this approach led to a shift toward pollution prevention, which focuses on business activities to reduce the waste generated during production, and which was eventually extended to supply chains. The last decade has seen increased attention to global challenges that are now at the top of both the business and the public agenda—energy, climate change, water, and waste—with many companies developing corporate commitments to ensure that energy and water consumption within both direct operations and supply chains are managed efficiently, effectively, and economically.

Today, we are seeing the new frontier in sustainability: Companies are looking to make sustainability a core part of every decision they make, and a means of creating opportunity, not just minimizing risk. In the words of noted green architect William McDonough, companies are waking up to the idea of being “more good,” not “less bad.”

There are multiple reasons for this shift. First, changing economics—a sharp financial slow down, fluctuating energy and food prices that have reached record highs, and growing consumer debt levels—are changing the cost of goods, with subsequent impact on individuals’ desires to economize. In addition to basic economics, there is evidence of a values shift. Identity, belonging, and a strong desire to contribute to, or experience, something “meaningful” rather than to acquire more things is slowly emerging as a set of values that may come to rival consumption-driven wealth and status, especially among the millennial and digital generations. Third, technology is evolving in a way that makes it more possible for consumers to understand the implications of their purchasing habits and their behavior—in ways that improve their lives and save them money. Fourth, the rise of emerging markets means that new solutions with radically improved efficiency are crucial to the largest market opportunities today and in the future.

All of this is creating an environment in which questions about consumption patterns are growing in importance. They are likely to shape the next generation of efforts to integrate sustainability into business strategy.

Understanding What Drives Consumer Behavior

Southern California Edison conducted an experiment in which the utility company gave its customers ambient orbs that glowed red with excessive household energy use and green when energy use was low. Within a few weeks, household energy use in a pilot group declined by 40 percent during peak periods. All this is evidence that access to new environmental information that is accurate, understandable, and reliable can lead to significant changes in consumer behavior.

Unlocking Opportunities in the Value Chain Cycle

As noted earlier, most sustainability efforts have focused on steps in the value chain centering on mitigating the social and environmental impacts of material inputs, processing and assembly, and distribution, as highlighted in the linear diagram below.



While this has driven substantial progress in water and energy efficiency and reduction of toxics and waste, these improvements in making the existing system more efficient miss larger opportunities to reorient the entire process toward more sustainable outcomes.

Transformative progress depends on giving significantly greater attention to segments of the value chain cycle that have been overlooked in first-generation sustainability efforts. As depicted in the figure below, we see new opportunities to make significant advancements in sustainability through a heightened focus on **product design, consumer engagement, use, and end-of-use** elements of the value chain cycle. We refer to this as a “cycle” to reinforce the importance of thinking of these elements as part of single system, rather than simply as disconnected steps in a linear chain.

Figure 1. Opportunities to Address Sustainable Consumption in the Value Chain Cycle

Tailoring a Service to User Needs

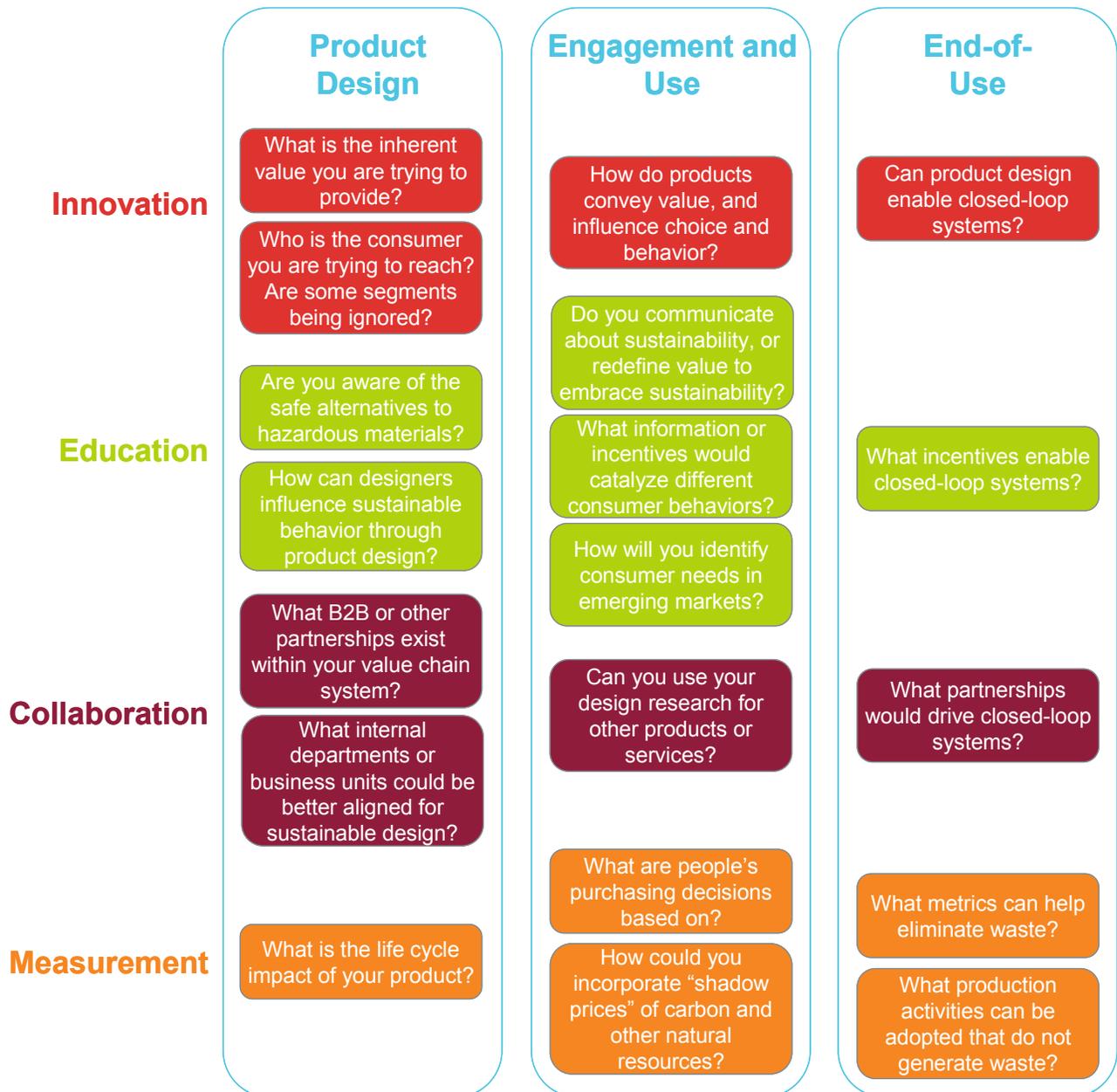
In 2009, Google test launched a text message search service in Nigeria and Ghana. In places like Africa, where the prevalence of mobile phones far outstrips access to the internet via a computer, services like Google’s search service make a lot of sense. It provides access to information through a mobile phone without internet. Users create a text message about what they are looking for and send it to the Google number (4664 or “GOOG”) and wait for a response by text message.



A Framework for Action

This section outlines a framework for companies to define their strategies in this new sustainability frontier, and explores how business can lead the way toward sustainable consumption. The framework is an approach for redefining core business activities through the multiple lenses of innovation, education, collaboration, and measurement. These four pillars represent different strategies companies can apply that will lead to systemwide changes to consumption. This is not an exhaustive list of questions, but rather an illustrative set of questions companies can ask to help identify opportunities for addressing consumption in their business.

Figure 2. Framework for Redefining Core Business Activities





Eco-Box = No Box

Puma's new "Clever Little Bag" will reduce cardboard use by 65 percent and save 8,500 tons of paper, 20 million megajoules of electricity, and 1 million liters of water. Because it weighs less than a shoebox, it will also reduce the amount of fuel used to transport the shoes.

Steelcase: Integrating Life Cycle Assessment into Product Design

For years, Steelcase, an international office furniture company, has been applying life cycle assessment (LCA) in development, manufacturing, marketing, and product management. Steelcase is now looking to bring elements of LCA into earlier stages of its product-development process, with the intention of applying LCA results more broadly and further integrating environmental considerations into its products. One element of this integration is the creation of an interactive tool to help developers address environmental impacts during early-stage product development and engineering phases. The tool will help developers estimate impacts, make trade-offs, and provide early-stage reports on environmental performance.

Redefining Core Business Activities

What does this mean for business? There is growing evidence that innovation in production processes and product offerings can generate a triple win of creating competitive advantage, delivering new value to consumers, and transforming economic systems, all the while contributing to great leaps forward on sustainability.

PRODUCT DESIGN

The shift to sustainable consumption begins with product design. On one level, the essence of sustainable consumption is about finding ways to deliver value without taxing natural resources—or people—in the process. This is inherently a design question. In some cases, radical redesign of familiar products may result, and in other cases, there may be an opportunity to deliver value through services rather than products. Design is applied not only to products, but also to business processes and business models.

Design is increasingly being viewed as a critical component in enabling sustainability because the design function is a concentration point for decisions around a large set of human and material resource flows. Design specifications can have significant economic, environmental, and social ripple effects. For example, formulations for personal-care products and pharmaceuticals can impact the biochemistry in downstream watersheds. Additionally, design can have a large impact on the materialization or dematerialization of products. Design choices about material weight and packaging have direct impacts on transport costs and fuel use. Choices about energy efficiency directly impact energy consumption in a product's use phase. And choices about durability, disassembly, or reusability affect the technological challenges and economics of product recovery.¹⁰

Good design is generally judged based on its ability to meet a need. The challenge is to develop frameworks that allow people to design with the needs of sustainability in mind. Addressing this challenge requires more than adding new tools to a designer's toolkit. It requires bringing sustainability into the ethos of design. In short, it all starts with design, and by embedding sustainability considerations into the design phase, product attributes and consumer behaviors can be influenced in potentially valuable ways. The following are some ways to advance this approach:

1 Marry "human factors" and "systems thinking" in design analysis.

Design firms like IDEO have built design and innovation practices rooted in an understanding of the latent needs and desires of people. Dubbed the "human factors" aspect or "user-centered" design, a key objective of designers is to systematically and empathetically integrate human behavioral needs in design.

For example, many modern cars prevent us from making mistakes that will cost us time and effort. If you leave your headlights on after turning off the engine and opening the door, a noise will sound, reminding you to turn them off before draining the battery. This solution takes into account the behavior of people and prevents an undesirable, costly side effect of product use. These same principles can be applied to sustainability challenges. Indeed, anyone who's been in a Singapore taxi knows that a bell starts to chime when a certain speed is exceeded, causing the driver to slow down—and save fuel.

For many consumer products, it is widely acknowledged that major environmental impacts occur or are caused during the use phase, in

Zipcar: Scaling by Taking Advantage of Consumer Behavior

The grand vision behind Zipcar's global expansion is for a subscriber who lives near the company's Cambridge, Mass. headquarters, for example, to rent a car in a Barcelona or London Zipcar fleet just as easily as in their home network. Zipcar's ideal vehicle for car sharing would be modeled after smart phones, with an open platform that would allow Zipcar to roll new cars into its fleet with little more than a software download. Cars would be designed to function more like smart phones— with GPS, an intuitive user interface, a web connection and a set of standard applications to help drivers, say, manage their fuel consumption, plus an open platform that would allow third-party developers to provide software that could be customized for each driver.

particular through energy consumption. For consumer electronics in particular, most business efforts have focused on lowering the energy consumption of products through renewable energy sources and increasing energy efficiency with technological solutions. However, the actual demand for energy also depends on the way people use a product in daily practice. Information-sharing between sustainable product design teams and human-focused design groups—with a particular look at sustainability—can make it easier to change the so-called “use profile” of the product into a more sustainable direction.

- 2 Take a life cycle perspective to assess potential impacts.** A life cycle perspective, which considers the entire system of materials and energy used in production and transportation systems, can highlight areas along the product supply chain that can be improved to make them more compatible with the environment. Analyzing a product's development process, including looking at materials and technologies, can uncover significant opportunities to reduce the energy and material usage and work toward zero waste. More than 80 percent of a product's environmental impact is determined during its design phase. Products should be designed using material that could be easily reused or repaired when they have outlived their usefulness.
- 3 Anticipate unintended consequences.** Consideration of the system and its users is critical to expansion of the design process because it helps deal with one of the major pitfalls of designing for sustainability: the law of unintended consequences. Just because a product is bio-based, for example, does not mean it is superior to a synthetic product in terms of environmental performance, since it may be more toxic or resource intensive to produce. While some outcomes are unpredictable or unknowable until after the fact, the broad reach of sustainability encourages us to “know what we do not know.” That is, it reinforces the importance of a multidisciplinary approach to forestall myopia and groupthink, and it encourages secondary investigations to revisit and revise assumptions.
- 4 Be inspired by nature.** Biomimicry is the practice of developing sustainable human technologies inspired by nature.¹¹ Some examples include:

- » WhalePower President Frank E. Fish figured out that humpback whales are so agile in spite of their size because of bumps on their fins. Calling it “Tubercle



Technology,” the company has designed wind turbine blades that use the same physical streamlining properties to help them be quieter, more reliable when winds fail, and perform better in turbulent winds.

- » Columbia Forest Products looked at the natural adhesive abilities of the blue mussel and came up with a way to use soy-based, formaldehyde-free technology in the construction of hardwood plywood products.



The Shift from Products to Services

Another aspect of rethinking product design is rethinking the necessity of the product itself: Could the same product objective be provided by a service? For consumer product companies, the shift toward services means consumption



“Nudging” Consumers Toward Healthy Choices

Through a project called the Healthy Food Retailer Initiative, 25 neighborhood retailers partnered with the Hartford Food System to confront health problems such as diabetes, hypertension, and obesity by expanding food choices in low-income communities in Hartford, Connecticut. Participating stores committed to shift 5 percent of the shelf space allocated to junk food and soft drinks to healthier items. In addition to this aggregate shift in inventory, each store also agreed to stock a short list of healthy items such as whole wheat bread and reduced-fat milk. A few rearranged their merchandise layout to create new sections for additional groceries, while others moved junk food to less prominent locations in the store.

shifts from purchase and use of a product to purchase of a service. For manufacturers and service providers, their involvement with a particular phase of the product life cycle may change. For example, a manufacturer may retain ownership of its product through the use phase via leasing agreements. Value is increasingly created and measured by the function provided, and for the manufacturer, the product, rather than being an end in itself, increasingly becomes a means of delivering this function.

Table 1. Examples of Product-Based Services¹²

Provider and Service	Description
Castrol Industrial North America: chemical-management services	Manages chemical procurement, delivery, inspection, inventory, storage, labeling, and disposal for industrial customers. Seeks process-efficiency improvements. Compensation can be based on cost savings delivered, not volume sold.
Xerox: document services	Integrates document storage and reproduction technology—Xerox’s traditional manufacturing strength—with customer’s business systems to produce automated, just-in-time, customized document production.
Call-a-Car Netherlands and Zipcar: mobility services	On-demand car rental. A fleet of cars is owned by a membership organization, with subscribers paying fixed costs and per-kilometer or per-hour fees. Cars are reserved “on demand” via a central reservation point.
Interface and DuPont: furnishing services	Customers lease installed modular carpet, which Interface undertook to maintain to a given appearance standard with selective rotation or replacement (with recycling) of worn tiles. DuPont, in addition to leasing carpets, also provides a series of carpet-related services throughout the carpet’s life cycle.

USE AND ENGAGEMENT

Today’s consumers are “in the driver’s seat,” as personal choices have a huge impact on sustainability. But consumers do not always have actionable information; make the best choices; or use products and services in the best way in terms of sustainability, or in terms of delivering the basic value they seek. Business has many opportunities to engage consumers to increase overall awareness with regard to their consumption choices and behavior. Products, services, policies, programs, and communications that reflect user characteristics, needs, and skills can serve to improve, support, and sustain behavior.

While consumer use and engagement are separate segments of the value chain cycle, we do not view them as linear steps in a process. Rather, engagement entails going beyond marketing the product to talking to consumers about how they use the product, as a way to inform product design (and redesign) and production. It is also an opportunity to explore the link between sustainability and communication strategies as a way to deepen consumer engagement.

In Nudge: Improving Decisions About Health, Wealth, and Happiness, the authors argue that a lack of feedback on activities like pollution ensures the continuation of harmful decision-making. They maintain that improved information can strongly motivate consumers to behave in ways that are better for both themselves and others. For example, energy efficiency seems to make rational economic sense—the less energy used, the more money saved. Yet new research shows that competition with neighbors, rather than cost savings, can drive people to turn down their thermostats, install insulation, or simply switch off the lights when they leave a room. Another study conducted by one utility company showed that the average person will reduce their energy consumption by 8 percent if a smiley face is included on their electrical bill to reinforce the behavior.

Consumer Choice and Action

When providing information to consumers, companies can communicate to provide choice and enable behavior. The type of communication falls into the four focus areas described in the table below.¹³

Table 2. Types of Information Communicated

FOCUS		DESCRIPTION
Consumer Choice	Product attribute	Information about social and environmental attributes of products
	Operational performance	Information about social and environmental performance of corporate operations
Consumer Action	Product use	Information on how to reduce impacts during product use
	End-of-life	Information about extending product life cycle and/or end-of-life actions consumers can take

Retailers, which interface with both consumers and products, are uniquely positioned to influence consumption choices. Retailers such as Marks and Spencer and Walmart are driving sustainable production in their upstream supply chains through environmentally oriented purchasing agreements. However, there is a tremendous opportunity for retailers to take the lead in driving sustainable behavior in consumers. In addition to providing information about the environmental and social impacts of production, retailers are well positioned to educate consumers on use phase and end-of-product-life disposal.

A recent study looking at retailers' use of modern information technologies to communicate directly with consumers identified the leading vehicles being used, including:¹⁴

- » Internet: This is used as an information provider (including information “behind” the label, such as producer profiles and production methods) and for schemes that enable consumers to trace the supply chains of individual products.
- » Interactive screens: This includes information kiosks that offer tag scanning to provide supply chain information and production methods, advanced “personal shopping assistants” or devices that attach to carts to deliver information on products’ sustainability attributes, and televisions that offer the potential for short brand ads and store information.
- » Mobile technology: In Europe and Japan, codes using the Quick Response technology are affixed to products or packages, offering customers access to product information via wireless-internet-enabled mobile phones.
- » Customer club cards: These cards are being used to reward customers with “loyalty points” based on desirable behaviors such as using their own reusable shopping bags. Organizations like Recycle Bank have formed to create new incentives for consumers with respect to their choices and behaviors.

Point-of-Purchase Opportunities

Effective point-of-purchase sustainability communication is becoming a core component of marketing and communications for leading retailers. Even amid significant price pressures—and evidence that consumers spend 20 seconds or less making decisions about purchases of the most familiar products—this kind

Start-up company GoodGuide provides information on the health, environmental, and social impacts of consumer products. The company sifts through data related to these attributes for everyday products and the companies that manufacture them, and distills the information into a simple 10-point rating system accessible on goodguide.com and a bar-code-scanning iPhone app.

Engagement can be Inspiring

At the Sustainable Brands 2010 conference, one panel on consumer engagement highlighted the benefits of innovation to spur change in consumer behavior. One panelist noted that business needs to spark “joy not fear” in consumers (for example, the Wii Fit has inspired people to exercise for fun), harness the power of setting joint goals with consumers (as Bank of America has done with its “Change for Change” program), and create a crowd of like-minded early adopters that can put pressure on others to join in more sustainable behavior (as the prime minister of Japan has done by wearing short sleeves, spurring a fashion show with CEOs taking of their jackets to encourage people to do the same so they could lower their dependence on air-conditioning).

of communication is a cost-effective tool for engaging consumers and driving sales.

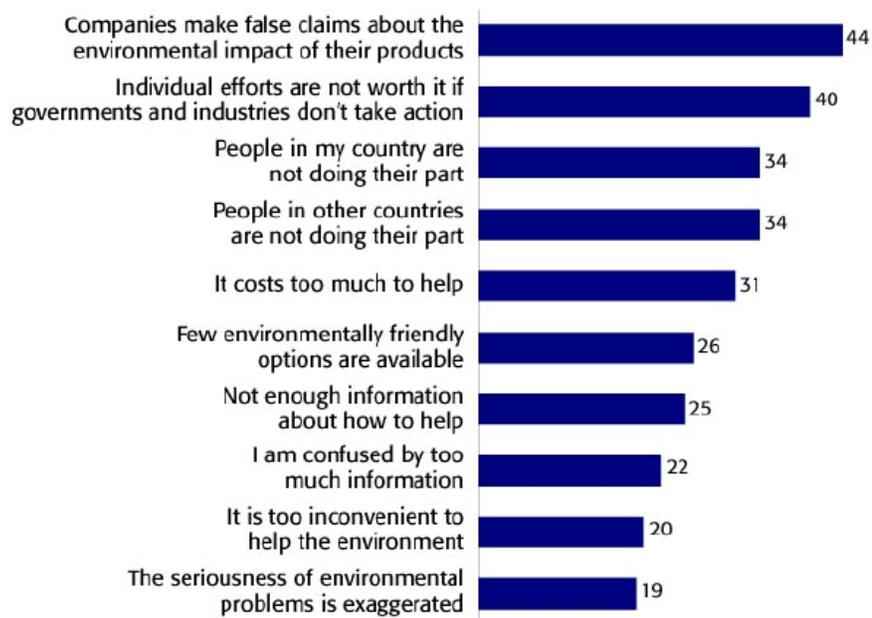
Innovations in sustainability communication at the point of purchase include:¹⁵

- » A focus on linking product sustainability to strong product performance
- » Simplified point-of-purchase messaging, with supporting messages, data, and in-depth stories available online
- » Increasing sophistication in the use of assurance to back up claims about operational and/or product sustainability

Recent efforts such as the GoodGuide, the Sustainability Consortium, and the Consumer Goods Forum are aiming to align metrics and consumer engagement to stimulate demand for sustainable products and services, and catalyze consumer behaviors that deliver better outcomes for them and for the environment. According to a National Geographic Society/GlobeScan survey of 17,000 people in 17 countries, environmentally friendly behavior among consumers in 10 out of 17 countries has increased over the past year, with consumers in Brazil, India, and China scoring the highest. In addition, GlobeScan’s analysis reveals that the top two perceptions from Chart 1 below actually *suppress* behaviors that support sustainable consumption. According to the study’s authors, “consumers are sending a message that they want ‘less talk and more action’ from business and government, or at least action before talk.”¹⁶

This means that factors such as lack of information, high prices, or lack of available options—which, in the recent past, may have been barriers to environmentally friendly behavior—are no longer the reasons consumers decide not to take action. For companies, this presents an opportunity to capture market share by providing credible information about the environmental attributes of their products.

Chart 1. What Discourages Environmentally Friendly Consumer Behavior?



For additional guidance on communicating the environmental attributes of products, see BSR and Forum for the Future’s report “[Eco-Promising](#):

Designing Chemicals in a New Way

The Green Chemistry and Commerce Council is an open business-to-business forum for participants to share information and experiences relating to advancing green chemistry and design for environment in commerce and with regard to sustainable supply chain management. More than 11 industries are involved in three working groups: advancing design for environment and green chemistry, tools for chemical assessment, and drivers for innovation and safer products.

RecycleBank rewards people for recycling at home. The company works with waste disposal companies to track the recycling habits of households, using technologies like radio frequency identification monitoring chips placed on bins and hauling trucks. The company then signs partnerships with large retailers like Coca-Cola and Whole Foods, which provide discounts to consumers based on how many credits they've accumulated through their recycling habits. Companies like Coke benefit because they get access to the recycled goods, such as bottles, which they can then use in their own operations.

[Communicating the Environmental Credentials of Your Products and Services.](#)¹⁷

The report provides insights to help companies communicate in a way that allows consumers to make more sustainable product choices and embrace greener lifestyles.

END-OF-USE

At the end of their use, many products are discarded and end up in landfills. Today, there are better forms of waste management, such as waste reduction, product reuse, and recycling, but there is a long way to go. The huge amount of waste generated by society today is nothing more than inefficient product design, materials selection and manufacturing, and service-delivery systems. These inefficiencies equate to lost capital and revenue for companies, as a tremendous investment of money and resources is required to extract raw materials, process them, turn them into manufactured products, and then deliver them to the consumer. These investments often are lost as the embedded energy and product materials are used and then buried or incinerated.

Extending as far as possible the productive life of these materials and the embedded energy required to make them generates a much greater return on investment. Implementing the process and operational improvements needed to eliminate waste creates greater efficiency, which in turn increases productivity.

Waste Management Starts with Product Design

Waste is anything that does not create value, and companies can think through how and for what function the product is being used, and therefore incorporate waste prevention into the design phase of products.

Design for environment—also referred to as “DfE”—is an engineering perspective that optimizes the environmental characteristics of a product, process, or facility. Most DfE programs focus on:

- » Energy efficiency: reducing the energy needed to manufacture and use products
- » Materials innovation: reducing the amount of materials used in products and developing materials that have less environmental impact and more value at end-of-use
- » Design for recyclability: design products that are easier to upgrade and/or recycle

Waste Equals Food

Total quality management means zero defects. Just-in-time manufacturing means zero inventories. Today, leading companies are striving for zero emissions, which means that all materials currently ending up in landfills or incinerators are returned “upstream” to the materials and production cycle as feedstock for new products or services, or they are created to naturally decompose and be reintegrated into nature without environmental impacts. In closed-loop systems, the same materials are constantly cycling, mirroring the natural closed-loop production in living plant cells.

Eighty miles west of Copenhagen, local Danish businesses have cultivated an “industrial ecosystem” in Kalundborg, one of the best-known examples of industrial ecology and closed-loop systems. About a dozen industries cooperate in exploiting “wastes” from neighboring factories in an open-loop that is steadily closing in as they learn how to recycle each other's effluent.

It works like this: A coal-fired electric power plant supplies an oil refinery with waste heat from its steam turbines (previously released into a nearby fjord). The oil company removes polluting sulfur from gas released by the refining process, and that gas can then be burned by the power plant, saving 30,000 tons of coal

The Green Products Innovation Institute Inc. was formed in California to help establish standards for product safety. The institute will help California regulators enforce a state law that requires manufacturers to find safer ways to make consumer products. It will also help manufacturers come up with safer alternatives to harmful materials and keep a database of the chemistry of certain materials. The institute's work is based on the "cradle-to-cradle" principles, set out by architect and designer William McDonough and chemist Michael Braungart, which prescribe ways that products can be redesigned to become recyclable nutrients rather than potential pollutants.

per year. The removed sulfur is sold to a nearby sulfuric acid plant. The power plant also precipitates pollutants from its coal smoke in the form of calcium sulfate, which is consumed as a substitute for gypsum by a sheetrock company. Ash removed from the same smoke goes to a cement factory. Other surplus steam from the power plant warms a biotech pharmaceutical plant and 3,500 homes, as well as a seawater trout farm. High-nutrient sludge from both the fish farm and the pharmaceutical factory's fermentation vats are used to fertilize local farms.

Nokia: Cultivating New Social Practices

Nokia's design research team conducts ethnographic research throughout the world, focusing on emerging behavior related to mobile technologies. The team has pioneered a different approach to ethnographic research in an ongoing project called Nokia Open Labs. Instead of recruiting users anonymously in a given community, the Open Labs team takes participatory design out into the open as an active form of community engagement. The team uses posters, events, and prizes to attract a large cross section of the community, thereby creating a network of influence and community consensus around the idea of exploring new possibilities and embracing new futures. Yes, one of the objectives of these activities is to inform the design of Nokia's products and services. But that may take years to realize. In the meantime, Nokia achieves a more immediate and direct impact in the community through a change in mindset, creating fertile ground for new social practices to emerge—in this case around mobile technologies.

“We are more and more often confronted with long-term problems for which the outcomes are highly uncertain. Making sense in a complex world requires that we separate out straightforward problems that can be solved through exchange of best practice, complicated ones where good practice helps, complex problems where practices are emerging, and problems borne out of chaotic systems where novel practices are needed. If we want to address seriously the sustainability of our consumption and production, we need to recognize uncertainties about the future, go beyond the short time scales of current policies, and change our current preoccupation with working on many separate issues. We need to develop policies that reflect the complexity of the systems we are dealing with, so that we can address the needs of today’s disenfranchised, as well as those of future generations.”

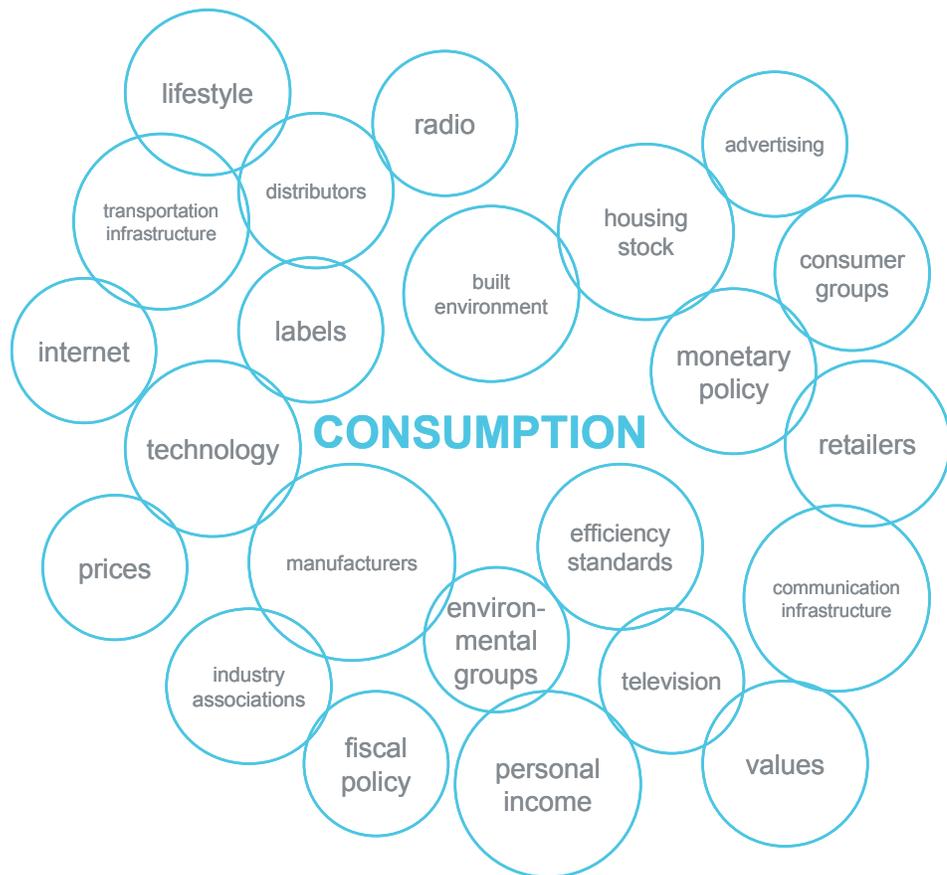
—University College London Professor Jacqueline McGlade (and current executive director of the European Environment Agency), in a speech made at conference “Time for Action: Toward Sustainable Consumption and Production in Europe” (September 27, 2007)

The Systems View of Consumption

The global economy is almost five times the size it was half a century ago. If it continues to grow at the same rate, by the year 2100, the economy will be 80 times the size it was 50 years ago.¹⁸ As the economy expands, so do the implications of this growth on natural resources. Technological breakthroughs will provide some breathing space in terms of addressing environmental concerns such as increasing water scarcity or the accumulation of toxins in the environment, but they may also stimulate additional resource demands.

As noted in the first section of this report, technology, physical infrastructure, public policy, and values all influence consumption patterns. They create the prevailing conditions in which we make countless decisions that both react to and shape markets and consumption options. Business is a central actor in this system, and it, too, both reacts to and defines the interplay within this complex system.

Figure 3. Multiple Drivers of Consumption



Shifting to more sustainable consumption patterns depends on transformation of this entire system. While this report deliberately focuses on opportunities for business, there are many other opportunities for business to take advantage of or support to help transform the system. What follows is not meant to be an exhaustive list, but an illustration of these opportunities for business.

"Short-termism is the result of shares being traded as they are now, for immediate profit on their value on a minute-by-minute basis. As a model of ownership, this is broken. Imagine what it would be like if all the other stakeholders had the same privilege, if you could choose your employer minute by minute, if you could change your supply chain at a moment's whim. All the other stakeholder relationships that a company is involved in have a necessary and helpful longevity that enables trust to be built up. Only the shareholder relationship fails this test. It has to be improved."

—David Sims, professor of organizational behavior at London's Cass Business School, as quoted in the *Guardian* (March 31, 2010)

Public Policy

Governments represent a key driver in promoting more efficient use of resources in order to reduce economic costs and environmental impacts, and in offering benefits to actors within the system for making more sustainable choices. State policies and instruments remove uncertainty for business and offer clarity on the ground rules for business activity. For example, efficiency standards and the U.S. Federal Trade Commission's labeling requirements are two types of regulations that allow companies to compete against performance standards rather than on the creativity of their corporate messages.

Economics and Market Models

Transforming our consumption system requires a much longer time horizon than most businesses and governments currently consider. Current accounting systems measure the volume of economic activity and fail to capture measures of human well-being and the degree to which society's goals are met through economic activity. They generally also fail to take into account full cost accounting that would place a value on natural resources that currently can be used without cost.

“SHORT TERMISM”

Businesses often struggle to meld the long-term thinking that is at the heart of sustainability strategies with the punishing short-term pressures of both financial and consumer markets. A recent survey of 400 CFOs in U.S. public and private firms showed that 78 percent admit to sacrificing long-term value to maintain short-term predictability in earnings and financial disclosures.¹⁹ Speaking to a room full of business executives earlier this year, Richard Lambert, director general of the Conference of British Industry, asserted that too much focus on the short term and too much pay for executives was turning bosses into "aliens"—a comment that sparked a debate about whether deeper changes were needed to the way the equities markets currently operate.²⁰

Unilever has taken that sentiment to heart and is no longer offering earnings guidance to the stock market. The company's CEO, Paul Polman, makes it clear that shareholders are not the first thing on his mind. "I do not work for the shareholder, to be honest; I work for the consumer, the customer," he has said. "I discovered a long time ago that if I focus on doing the right thing for the long term to improve the lives of consumers and customers all over the world, the business results will come. ... I'm not driven and I don't drive this business model by driving shareholder value. I drive this business model by focusing on the consumer and customer in a responsible way, and I know that shareholder value can come."²¹

Lambert and Polman both echo a growing sentiment among investors and the business community that the traditional focus on short-term shareholder value prevents companies from considering factors such as export potential, job creation, and customer service, let alone questions about renewable energy, investing in marginalized communities, and biodiversity—just some of the opportunities business has to create value. He argued that while short-term shareholder value predominated in corporate boardrooms, businesses could never be "a positive force for good."

ACCOUNTING FOR EXTERNALITIES

While the debate over the establishment of carbon markets has dominated discussion of accounting for externalities, there are numerous other items that are central to the establishment of a sustainable economy that currently go unmeasured.

Beneficial externalities may not be reflected in measures of economic activity. Ecosystem goods and services include many positive economic benefits that are excluded from current markets and from social, political, and investment decision-making. These benefits should be counted and evaluated, particularly when these ecological goods and services are diminished or destroyed. The UN Environment Programme's upcoming report, "The Economics of Ecosystems and Biodiversity,"²² proposes a consistent and comprehensive assessment of the impact of economic activity on ecosystems and the services they provide such as nutrient cycling, climate regulation, and water provisioning. This, in turn, would significantly improve future prospects for such landscapes and the species they support, including humans, based on the premise that what is measured is improved.

Significant costs also go unmeasured. The California economy loses about US\$28 billion annually due to premature deaths and illness linked to ozone and particulates released from hundreds of locations around the state. About US\$25 billion of these costs are connected to smog-related deaths, work and school absences, emergency room visits, asthma attacks, and other respiratory illnesses.²³ In spite of this, California's gross state product in 2008—a total of about US \$1.85 trillion²⁴—does not include these losses.

Clearly, measures of economic activity do not properly account for all the costs of production, distribution, and additional life cycle phases of goods and services production. Negative externalities (activities that generate harm without compensation) like pollution are ignored or silently passed on to other communities (or generations). For us to properly understand the full social and economic costs of a product or service, these costs and benefits need to be exposed and valued in monetary terms. Economic policy and technology decision-making must reflect that knowledge if we as a species are to survive on this planet.

RETHINKING GDP

In 2009, French President Nicolas Sarkozy suggested that a population's well-being should be measured along with its financial output to create a complete picture of the country's economic performance. Addressing the French national statistics agency on the adequacy of GDP in measuring a country's economic well-being, he requested that the agency give greater consideration to factors such as human health, quality of life, and the environment.

Sarkozy's suggestion echoes a rising chorus of researchers and economists who point out that while GDP measures all final goods and services produced in a country in a given period, it includes many items that do not help actual citizens' well-being, such as waste production and pollution. It also does not account for the real value of human and natural capital and a broad range of its services. More countries are publishing or developing national well-being accounts as a way to capture noneconomic dimensions such as health, education, a clean environment, and safe streets.

Cities around the world such as Kaohsiung City in Taiwan, Mexico City, Paris, Philadelphia, and Thane in India have introduced or plan to introduce bike-sharing programs that provide bicycles to the public for free or at little cost in order to encourage bicycling as another viable form of public transportation, to reduce traffic congestion, and enhance the livability of cities.



Concluding Thoughts

For the purpose of stimulating dialogue, we have offered here key leverage points for business to address the sustainable consumption challenge. We believe business has a unique opportunity today to develop economies that deliver more economic value and better human outcomes while significantly reducing environmental impacts.

But there is a danger in thinking that all we have to do is design better substitutes for the products we already consume, and then convince people to buy them. We need not only to do things differently, we need to do different things. We need to transform the systems around us, and this may be the mother of all innovation challenges for companies.²⁵

Join the Initiative

In June 2010, BSR convened a group of individuals representing agriculture, apparel, food, retail, personal care, and beauty companies to understand what tools and resources companies need to leverage opportunities to address consumption. Companies interested in helping shape and drive corporate approaches to sustainable consumption should contact BSR for information on how to get involved at lhwang@bsr.org.

The sheer scope of the challenge requires a broad-based approach. BSR is well-positioned to help companies make significant progress on sustainable consumption, and we have designated this as a core topic across all our activities, including member gatherings, consulting, research, our annual Conference, and our publications and communications channels. It is our hope that this report and our workshops can begin to define and catalyze the business opportunities for companies, to create unusual insights and inevitable surprises along the transition to a more sustainable economy.

Appendix: Ongoing Efforts

Many international and local initiatives have been in place for years to address the challenge of sustainable consumption. Some efforts are focused on production, while others focus on consumer behavior. Governments are also involved in this effort, in some cases setting long-term plans for phasing in various efforts related to production and incentives. The following tables highlight some ongoing initiatives.

Table 1. Efforts Focused on Business

Title	Description	Participants	More information
World Economic Forum's (WEF) Driving Sustainable Consumption	This initiative has been running since 2008, bringing together a cross-industry group of companies and a network of experts in the field. The initiative aims to develop practical ideas and new forms of collaboration to place sustainability at the heart of business models.	Managed by WEF and Project Board of Industry Partners: Agility, Autodesk, Best Buy Co., Deutsche Post DHL, Edelman, Kraft Foods, Nestlé, Nike Inc. (chair), Novozymes, Publicis Group, SAP, SAS, SC Johnson & Son Inc., Sealed Air Corp., Unilever	www.weforum.org/en/initiatives/DrivingSustainableConsumption/index.htm
Sustainable Consumption Institute (SCI)	Established with funding from Tesco, the institute conducts multidisciplinary research on major national and international issues associated with sustainability and encouraging consumers to adopt more sustainable lifestyles. Research is focused on four themes: sustainable consumer behavior and lifestyle, sustainable production and distribution, climate change and carbon, and making development more sustainable.	The SCI is governed by two bodies, a strategic management board and an operations board. Both consist of representatives from Tesco and the University of Manchester.	www.sci.manchester.ac.uk/
WRAP	WRAP works in England, Scotland, Wales, and Northern Ireland to help businesses and individuals reap the benefits of reducing waste, developing sustainable products, and using resources in an efficient way. The group's four priority areas are packaging, food waste, collection systems, and quality of materials.	WRAP partners with local authorities, agriculture and horticulture, construction, recycling industry, and retail supply chain.	www.wrap.org.uk/
North American Sustainable Consumption Alliance	In early 2001, the University of Massachusetts Lowell approached key promoters of sustainable consumption initiatives in North America to gauge their interest in developing a sustainable consumption network in North America. This strategic partnership of people and organizations who are working to promote more sustainable consumption patterns in Mexico, Canada, and the United States has as its mission to facilitate information exchange, communication, and outreach and collaborative action around sustainable consumption.	The group includes a wide range of NGOs, international organizations, universities, and public agencies.	http://nasca.icspac.net/about/whatis.aspx
Sustainable Consumption Roundtable	This was a joint initiative from the National Consumer Council and Sustainable Development Commission, charged with producing practical advice to the U.K. government for actions and policies to create a shift to more sustainable lifestyles.		www.sd-commission.org.uk/pages/sustainable-consumption.html

Table 2. Regulatory Efforts

Title	Description	Participants	More information
UN Marrakech Process	<p>This global process supports the elaboration of a 10-Year Framework of Programs on sustainable consumption and production, as called for by the WSSD Johannesburg Plan of Action. The goals are to:</p> <ul style="list-style-type: none"> » Assist countries in their efforts to green their economies. » Help corporations develop greener business models. » Encourage consumers to adopt more sustainable lifestyles. 	The UNEP and the UN Department of Economic and Social Affairs (UN DESA) are the lead agencies of this global process.	http://esa.un.org/marrakechprocess/
African Roundtable on Sustainable Consumption and Production	This regional nongovernmental, nonprofit organization has an overall objective to facilitate the development of national and regional capacities for sustainable consumption and production and to promote the effective implementation of the concepts and tools of sustainable consumption and production in African countries.	The group's participants include the directors of clean production programs from Ethiopia.	www.arscp.org/
Sustainable Consumption and Production Database	The Sustainable Consumption and Production database provides a basis for reviewing international cooperation mechanisms on sustainable consumption and production. It can also serve as a source of information on such mechanisms and activities for the use of national and regional initiatives seeking international cooperation. It identifies the organizations active in each area and the nature of their activities, and indicates sources of further information.	Participants are from the UNEP and UN DESA.	http://webapps01.un.org/dsd/scp/public/Welcome.do
Centre on Sustainable Consumption and Production	The Centre provides scientific support to activities undertaken by UNEP and other organizations in the field of sustainable consumption and production. In this respect the Centre supports the integration of environmental, social and cultural concerns into decision making at the level of national governments, regional and local authorities, the private sector, and consumer groups.	The Centre is a collaboration between the UNEP and Wuppertal Institute, and is supported by the Business and Employment Support Agency-Wuppertal, the German Federal Ministry for Economic Cooperation and Development, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the North Rhine-Westphalian Ministry for Environment, Agriculture and Consumer Protection.	www.scp-centre.org/

For an inventory of policies, activities, and instruments at the European Community level, see “Sustainable Consumption and Production in the European Union,” which is available online http://ec.europa.eu/environment/wssd/documents/scp_eu.pdf.

References

- ¹ “UN Urges Global Move to Meat and Dairy-Free Diet.” *Guardian*. June 2, 2010.
- ² Millennium Ecosystem Assessment. 2006.
- ³ WWF. 2009. “Living Planet Report 2008.” Available online at http://assets.panda.org/downloads/living_planet_report_2008.pdf. Last accessed April 18, 2010.
- ⁴ Worm, B. et al. 2006. “Impacts of Biodiversity Loss on Ocean Ecosystem Services.” *Science*, Vol. 314, No. 5800, pp. 787-790.
- ⁵ Hansen, M. et al. 2010. “Quantification of Global Gross Forest Cover Loss.” Proceedings of the National Academy of Science (PNAS). Available online at www.pnas.org/content/early/2010/04/07/0912668107. Last accessed May 2, 2010.
- ⁶ WBDSD. 2009. “Facts and Trends: Water.” Updated version, available online at www.wbcds.org/DocRoot/ID1tMGiLZ7NL9mBOL2aQ/WaterFactsAndTrends-Update.pdf. Last accessed May 2, 2010.
- ⁷ OECD. “OECD Factbook 2009: Economic, Environmental and Social Statistics.” Available online at <http://puck.sourceoecd.org/vl=11893988/cl=16/nw=1/rpsv/home.htm>. Last accessed May 6, 2010.
- ⁸ International Energy Agency. World Energy Outlook 2005.
- ⁹ “How the G.O.P. Goes Green.” *New York Times*. February 27, 2010.
- ¹⁰ For more information on product design, see the BSR and IDEO joint report, “Aligned for Sustainable Design: An A-B-C-D Approach to Making Better Products.” Available online at www.bsr.org/reports/BSR_Sustainable_Design_Report_0508.pdf.
- ¹¹ For more information on biomimicry, visit the Biomimicry Institute at www.biomimicryinstitute.org/.
- ¹² Adapted from White, A. et al. 1999. “Servicizing: The Quiet Transition to Extended Product Responsibility.” Available online at www.p2pays.org/ref/17/16433.pdf.
- ¹³ Adapted from Stratos, Inc. 2009. “Sustainability Communication at Point of Purchase.” Available online at www.stratos-sts.com/insights/sustainability-reporting-and-communication.html.
- ¹⁴ UNEP/Wuppertal Institute of Collaborating Centre on Sustainable Consumption and Production. 2007. “Communicating Sustainability Aspects of Products Using Modern Information Technologies. Executive Summary.” Available online at www.scp-centre.org/fileadmin/content/files/project/Retailers_Role_towards_SCP/Retailer_MIT_Study_ExecSum_final.pdf.
- ¹⁵ Stratos, Inc. 2009. “Sustainability Communication at Point of Purchase.” Available online at www.stratos-sts.com/insights/sustainability-reporting-and-communication.html.
- ¹⁶ National Geographic Society and GlobeScan. 2010. “Greendex 2010: Consumer Choice and the Environment—A Worldwide Tracking Survey.” Available online at http://s.ngo.com/wpf/media-live/file/GS_NGS_2010GreendexHighlights-cb1275487974.pdf.
- ¹⁷ Available online at http://www.bsr.org/reports/BSR_Eco-Promising_April_2008.pdf.
- ¹⁸ Jackson, T. 2009. “Prosperity Without Growth? The Transition to a Sustainable Economy.” Sustainable Development Commission. Available online at www.sd-commission.org.uk/publications/downloads/prosperity_without_growth_report.pdf. Last accessed May 2, 2010.
- ¹⁹ Graham, J. et al. 2005. “The Economic Implications of Corporate Financial Reporting.” *Journal of Accounting and Economics*, Vol. 30, pp. 3-73.
- ²⁰ “Unilever Boss Slams Short-Term Profit Mentality.” *Guardian*. April 5, 2010.
- ²¹ “Outsider in a Hurry to Shake Up Unilever.” *Financial Times*. April 4, 2010.
- ²² For more information, see www.teebweb.org/.
- ²³ Institute for Economics and Environmental Studies at Cal State Fullerton and Sonoma Technology Inc. 2008. “The Benefits of Meeting Federal Clean Air Standards in the South Coast and San Joaquin Valley Air Basins.” Available online at <http://business.fullerton.edu/centers/iees/>.
- ²⁴ Bureau of Economic Analysis. 2010. “State and Regional Tables.” Available online at www.bea.gov.
- ²⁵ Cramer, Aron. “Sustainable Consumption: An Idea Whose Time Has Come?” *GreenBiz.com*. January 11, 2010.