

Sustainability and its Impact on the Corporate Agenda


accenture

High performance. Delivered.



World Business Council for
Sustainable Development

By Eric M. Lowitt,
Andrew J. Hoffman,
Judith Walls and
Anna M. Caffrey

• Consulting • Technology • Outsourcing

“Over the past five years, we’ve seen sustainability steadily move from the periphery to the heart of business. Companies have adopted sustainability practices for a host of reasons depending on the industries and geographies in which they operate.”





Dear Reader

Over the past five years, we've seen sustainability steadily move from the periphery to the heart of business. Companies have adopted sustainability practices for a host of reasons depending on the industries and geographies in which they operate.

Their practices—which focus on maximizing the positive and minimizing the negative effects on social, environmental and economic issues—contribute to a global movement committed to building a better world. Society clearly benefits from their actions. So do employees and shareholders. As many companies have learned, embedding sustainability practices across the organization translates into critical performance benefits such as revenue growth, cost reductions, better risk management and stronger brand positioning.

Today's economic downturn, driven in large part by the frozen global credit markets, has placed an immediate premium on liquidity. As a result, companies are casting a critical eye towards all investments and initiatives, including those focused on sustainability. Increasingly, sustainability programs are in the cross-hairs. Some are halted completely. Others are scaled back. Others are delayed.

Based on our experience and research, Accenture believes that now is precisely the time for companies to focus and accelerate—not reduce—their sustainability investments and initiatives. Why? The key drivers of sustainability are independent of the present economic context. They are not going away. The growing scarcity of natural resources continues. So do consumer preferences for sustainable products and services. In addition, employees are more aware of sustainability issues vis-à-vis the strategy and actions of their companies. They want to work for companies that are making a difference. In capital markets, we see not only more references to sustainability indexes, but also investments in sustainable technologies—demonstrating that investors still consider sustainability a wise investment option.

Finally, regulatory bodies at national, regional and global levels are not backing off. In fact, there seems to be an almost unanimous recognition among regulatory agencies of the need to increase pressure on these issues.

To maintain or restore the trust of investors and markets, regulators, employees and customers, companies should not be perceived as shying away from their sustainability objectives because of current economic conditions. Evidence suggests that companies can achieve high performance because of, not despite, their attention to sustainability. This is as true in bad economic times as in good because sustainability initiatives are generally economically sound. This is most visible in environmental programs that reduce emissions and, at the same time, shrink operating costs.

We believe that companies that maintain—or strengthen—their sustainability initiatives will be better placed to face this challenging economy and better positioned for high performance once the economy rebounds.

Gaining a better awareness of sustainability's challenges—and their associated implications—is a critical first step toward crafting and executing the required solutions. We have developed *Sustainability and its Impact on the Corporate Agenda* as a tool to provide executives with a baseline understanding of what sustainability could mean for their business. Specifically, it explores three critical aspects of sustainability:

- The key concepts of sustainability and how each emerged
- The role that sustainability plays amid the global market shifts currently underway
- The ways that sustainability might evolve over time

We hope that you find this a useful tool to help guide you and your organization toward a sustainable future.

Yours sincerely,



Bruno Berthon
Accenture Global Sustainability
Practice Lead

January 2009

“Based on our experience and research, Accenture believes that now is precisely the time.”

World Business Council for Sustainable Development

The World Business Council for Sustainable Development (WBCSD) is pleased to support Accenture in releasing *Sustainability and its Impact on the Corporate Agenda*. Accenture is one of over 200 global corporations among our members who have identified the business benefits derived from sustainable development. This rigorously documented new work by Accenture adds very substantially to that body of knowledge.

It is my view that the need for responsible business engagement in the big issues of our time has never been more urgent. The current financial crisis is the result of short-term and unsustainable business models. Our experience is that industries that have put sustainability issues at the heart of their business strategy offer some valuable lessons for the financial sector. Different industries at different times have had to understand how sustainability issues such as constraints on carbon, water and ecosystems, or social impacts impact their profitability.

The companies in our membership are innovative and well managed partly because of their commitment to sustainable development.

They are also the front runners in understanding the business benefits derived from innovative energy and environmental approaches. This means they are focusing on action, rather than continuing to debate the science of climate change. The financial crisis means that we must now develop business models for growth driven by a low carbon economy.

It is also important to remember that the current global financial crisis will affect the people on low incomes most severely. The WBCSD business leaders in our membership also seek raise to awareness of the benefits of doing inclusive business in developing countries which represent valuable new markets.

This sustainability thought leadership is being released at a critical time for global business, a time when innovation, optimism and leadership courage are demanded by society at large. One of the defining mantras of the World Business Council for Sustainable Development is to remind our stakeholders that business cannot succeed in societies that fail.

There is no future for a successful business if the societies that surround it are not working. The leading global businesses that are our members understand this. The companies that continue to demonstrate thoughtful responses to society's needs, and are planning for a changing future, will be among those that will still be operating successfully many years from now.

It is in this light I commend this valuable new work to the reader.



Bjorn Stigson
President
World Business Council for Sustainable Development

January 2009

“Business cannot succeed in societies that fail.”

Sustainability—the goal of sustaining economic growth while maintaining natural ecosystems while assuring the equitable distribution of goods and services—is an increasingly urgent agenda item for business. Indeed, more and more corporations are publishing annual sustainability reports, creating new positions such as the chief sustainability officer, developing new products with labels like “green,” “fairtrade” and “organic,” and gathering for conferences on the topic.

According to one 2005 survey, 87 percent of *Fortune* 1000 CEOs believe sustainability is important to a company's profits, while 89 percent believe sustainability will be a significant issue in the next three years.¹

But what, specifically, does sustainability entail and how is it affecting global markets? And where is sustainability poised to head next? This report answers these questions. It is divided into three sections.

The first section reviews sustainability's concepts and how they emerged. The second section looks at sustainability's role in a series of global market shifts that are currently under way. The third section provides a peek at the ways in which sustainability might evolve over time.

1. Survey findings from 2005 survey conducted by PriceWaterhouseCoopers.

I. History and concepts



Sustainability aims for two things: first, an ongoing and stable resource base that does not deplete, and may even expand, natural resources or ecosystems and, second, an ongoing and stable social system that creates or preserves just standards of living and security for all. It is a change process in which resources, investments and technology address both present and future needs.²

The concept of sustainability is not new. According to the International Institute for Sustainable Development, the term first originated in 1962 with "the gradual merging of the environmental movement and the post-World War II international development community."³ 1962 was "the seminal year in which people began to understand how closely linked the environment and development truly are," the institute states. This was also the year that Rachel Carson published *Silent Spring*, a book that jolted the public into higher levels of concern over threats to the environment.

Since the early sixties, there have been three major areas of concern about business's impact on the environment and society.⁴ The first wave of concerns was regulatory and led to the formation of the U.S. Environmental Protection Agency in 1970. The second wave, appearing around 1990, was strategic in nature: that is, investors, insurance companies and consumers began putting pressure on corporations to address environmental issues. The third wave, which we're still experiencing, began in the late 1990s and is focused on how to merge environmental and social issues with global economic issues. The third wave is strengthening, and we have yet to see the full effects on markets and global economies.

In this section on history and concepts, we'll look at past and present aspirations by sustainability advocates, the financial and economic models now being used to support and develop sustainability initiatives, and the metrics companies are applying to assess these efforts.

2. Gro Harlem Brundtland, *Our Common Future: Report of the World Commission on Environment and Development* (General Assembly of the United Nations, 1987).

3. International Institute for Sustainable Development, <http://www.iisd.org/rio+5/timeline/sdtimeline.htm> (accessed January 28, 2009).

4. Andrew Hoffman, *From Heresy to Dogma: An Institutional History of Corporate Environmentalism* (Stanford, California: Stanford Business Books, 2001).

The aspiration: the Brundtland Commission

The Brundtland Commission is generally credited with defining sustainable development: development that "meets the needs of the present without compromising the ability of future generations to meet their own needs."⁵ Named after its chairman, Gro Harlem Brundtland, and convened in 1983 by the United Nations, the commission was created to address growing concerns "about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development."⁶ It was an independent body, linked to but outside the control of governments and the UN. Its three main objectives were to:

- Reexamine critical environmental and development issues and formulate realistic proposals for dealing with them.
- Propose new forms of international cooperation on these issues and influence policies and events in the direction of needed changes.
- Increase people's understanding and commitment to action.

In 1987, the Brundtland Commission published *Our Common Future*, a report on sustainability sponsored by the United Nations World Commission on Environment and Development. The report provided the momentum for the 1992 Earth Summit/UNCED and Agenda 21, the Rio Declaration and the Commission on Sustainable Development.

The report also called for a new development path, one that worked toward human progress not just for a few global players for a few years but for the entire planet into the distant future. The Brundtland Commission helped make sustainable development a goal for both developed and developing nations.⁷ It urged countries, governments and corporations to consider the ecological dimensions of policy along with economic, trade, energy, agricultural and other dimensions. *Our Common Future* placed environmental issues firmly on the development agenda, linking them as a single issue.

5. Report of the World Commission on Environment and Development, United Nations 42/187, December 11, 1987, <http://www.un.org/documents/ga/res/42/ares42-187.htm> (accessed January 21, 2009).

6. Ibid.

7. Gro Harlem Brundtland, *Our Common Future: Report of the World Commission on Environment and Development* (General Assembly of the United Nations, 1987).

The model: the triple bottom line

Many people felt the Brundtland Commission's definition of sustainable development didn't translate into a usable business metric. That concern led John Elkington to introduce the notion of the Triple Bottom Line (TBL) in his 1994 book *Cannibals with Forks*. Sustainable companies, he argued, should have three bottom lines: what he calls "the 3 E's" (Equity, Environment and Economy), or "the 3 P's" (People, Planet and Profit). And business as a whole, he said, will need to undergo seven "revolutions" in critical areas:

- Markets
- Values
- Transparency
- Life cycle technology
- Partnerships
- Time
- Corporate governance

Markets

Elkington argues that markets will play a critical role in the shift toward sustainability—that a new form of capitalism, called "sustainable capitalism," will emerge where the line between business and government is blurring and where more predictable and government-driven markets will give way to less predictable and business-driven markets. As this change occurs, sustainability will cease to be a new cost burden for businesses but rather an opportunity for them to grow, provided they are willing and able to embrace sustainability at their core. The scale and importance of these emerging opportunities, combined with the pace of globalization, will result in markets that are more fluid and competitive than ever before.

Values

Companies need to take a number of different actions to best position themselves for sustainability's growth opportunities. In particular, they must adjust their values and beliefs to embrace two of the components of sustainability's triple bottom line: environment and equity. This change in corporate mindset is critical as more people and institutions speak on behalf of the environment and society at large.

As Elkington says, every company needs to shift from "hard" economic bottom-line values to "softer" triple-bottom-line values that reflect its views on the environment and social issues and that recognize the impact of its actions.

Transparency

The same people and institutions speaking on behalf of the environment and society are also demanding more information from businesses. As companies continue to expand into new countries and regions, the public is demanding more data and ultimately more accountability. Businesses will need to respond with greater transparency as they are exposed to more scrutiny.

Life cycle technology

It's no longer acceptable for products to be seen as having a terminal life span. The same public that is demanding transparency is also demanding that companies extend the life of their products and materials. This new expectation will lead companies to find new ways to make and recycle products, which can both lower costs and lower demand for resources.

Partnerships

The TBL and its associated values, demands and inherent resource limitations represent uncharted territory for companies. Many environmental and social advocates are nontraditional market players—primarily nongovernmental organizations (NGOs). Companies need guides to find and make their way through this new territory—and not just to survive, but potentially thrive, in this new landscape. NGOs aren't the only organizations with which companies will need to partner.

They'll also need to partner with their competitors to bring about changes in their industries. Elkington says that "co-opetition"⁸—partnering for the greater good while also competing to outperform these partners—provides an effective sustainability model.

Time

Elkington claims that time is becoming "wider"—in other words, more activity and productivity are being packed into every minute of every day. Elkington also argues that time is getting longer—that is, the need for sustainability is forcing companies to develop longer time horizons. Yet most companies suffer from a myopic view of their financial performance, one that's built to appease the short-term demands of shareholders. Companies need to move past this myopic view—of looking at time as primarily wide, not long—to adopt an investment mind-set that allows them to manage for both the short term and the long term.

Corporate governance

According to Elkington, the public is not asking more of just companies but of their governing bodies as well. Environmental and social advocates are asking about the purpose and role of businesses and who should have a say in how they're run. As with companies generally, the greater the transparency among governing bodies, the greater the chances for genuinely sustainable capitalism.

8. Adam Brandenburger and Barry Nalebuff, *Co-opetition: A Revolution Mindset That Combines Competition and Cooperation: The Game Theory Strategy That's Changing the Game of Business* (New York: Doubleday, 1997).

The metrics: the Global Reporting Initiative

Cannibals with Forks placed business front and center in the sustainability movement and established performance indicators for attending to environmental and societal needs. Once companies had a model of sustainability, the next logical step was to establish ways to measure, manage and report on sustainability initiatives. While several reporting schemes have been developed, the most prominent set of metrics was created by the Global Reporting Initiative (GRI) and based on the TBL. Today, more than 1,000 companies in more than 60 countries publish annual sustainability reports based on the protocol established by the GRI Guidelines. NGOs, public agencies and industry groups also use the GRI Guidelines.

The GRI was formed in 1997 by the US-based Coalition for Environmentally Responsible Economies (CERES) and the Tellus Institute, with the support of the United Nations Environment Program (UNEP). It released an "exposure draft" version of the Sustainability Reporting Guidelines in 1999 and the first full version in 2000.

The second version (G2) was released at the World Summit for Sustainable Development in Johannesburg in 2002. The organization and the guidelines were referred to in the Plan of Implementation signed by all attending member states. Later that year, the GRI became a permanent institution, with its Secretariat in Amsterdam. Although the organization is independent, it remains a collaborating center of UNEP and works in cooperation with the United Nations Global Compact.⁹

The current set of guidelines, known as G3, was published in 2006. It includes 79 performance indicators on issues related to economics (9 performance indicators), the environment (30), human rights (9), labor (14), product responsibility (9) and society (8). It also includes a series of disclosure requirements related to the profile of the company.

9. United Nations Environment Program, <http://www.unep.fr/scp/gri/>, (accessed January 21, 2009)

Criticisms of sustainable development and the triple bottom line

Both opponents and advocates of sustainability have criticized calls for sustainable development and use of the TBL. The harshest critics believe that sustainable development and the TBL misappropriate the purpose of the corporation and are contrary to the true intentions of capitalism. *The Economist*, for example, published a cover story in January 2005 that derided sustainability and corporate social responsibility as misguided concepts driven by people with little knowledge—or a downright fear—of capitalism. And as some companies have begun taking constructive actions to address environmental degradation, others have openly objected. When General Electric announced plans for its first “Citizenship Report” in 2005, for instance, the *Wall Street Journal* published an article saying that environmentalists had made their “biggest catch yet” and pondered whether capitalists were “abandoning capitalism.”¹⁰

Some sustainability advocates argue that the concept as it is presently conceived does not go far enough or obscures the real issues it is intended to resolve. They argue that it is nothing but a label for actions or strategies that are actually being driven by the standard social, economic and institutional mechanisms.¹¹ They see the TBL more as a reporting framework and less as an effective management tool; it serves more as a lag indicator than a lead indicator, they contend. Despite the efforts of the GRI, some sustainability advocates also say that its guidelines are incomplete and still lack generally accepted metrics for all three bottom lines. Many companies are developing their own metrics or not reporting on the TBL. What’s more, critics say, it’s not clear how the three bottom lines should be prioritized. Many companies see the triple bottom line mostly as an economic model rather than an environmental or equity-based model.

Finally, some people question how the 3 E’s can be aggregated into a single usable metric for making strategic go/no-go decisions. Companies live and die on singular metrics like net present value and internal rate of return, yet there is no comparable metric for sustainability.

Two professors of ethics and philosophy, Wayne Norman and Chris MacDonald, captured the general criticism among many sustainability advocates, saying “The TBL paradigm is an unhelpful addition to current discussions of corporate social responsibility...the rhetoric is badly misleading and may in fact provide a smokescreen behind which firms can avoid truly effective social and environmental reporting and performance.”¹² The main concern is that economic growth remains the primary goal of development planning, while sustainability is diminished as a reluctant constraint.¹³

10. Alan Murray, “Will ‘Social Responsibility’ Harm Business?” *Wall Street Journal*, May 18, 2005.

11. Michael Jacobs, *The Green Economy: Environment, Sustainable Development and the Politics of the Future* (Vancouver: University of British Columbia Press, 1993).

12. Wayne Norman and Chris MacDonald, “Getting to the Bottom of the ‘Triple Bottom Line,’” *Business Ethics Quarterly* 14, no. 2 (2003): 243–262.

13. Michael Colby, “Environmental Management in Development: The Evolution of Paradigms,” *Ecological Economics* 3 (1991): 193–213.

II. Sustainability's mounting pressures

While the debate over sustainability continues, companies find themselves under mounting pressure for change. The list of companies facing demands for greater environmental and social action is growing, for example: Shell and authoritarian regimes in Nigeria; Nike and labor conditions in China; Pfizer and AIDS in Africa; Coca-Cola and water scarcity in India; Exxon Mobil and development in Chad; Caterpillar and the Israeli-Palestinian conflict. Even the broader institutions of the economy are under stress as protesters challenge the World Trade Organization, International Monetary Fund, G8 and World Bank meetings in Seattle, Genoa, Prague and elsewhere.

Clearly, the issue of sustainability is not going away. Companies must understand the global shift it is creating and develop appropriate levels of response. To begin, one must understand the core of the environmental and social issues at play.

The core problems

The past century has witnessed unprecedented economic growth and human prosperity. World population increased by a factor of four, global per capita income tripled and average life expectancy increased by almost two-thirds.^{14,15,16} In the United States alone, life expectancy rose from 47.3 to 77.3 between the years 1900 and 2002.¹⁷ But these advances have been accompanied by serious environmental and social problems that both the Brundtland Commission and the TBL are seeking to redress. (See Figure 1. Key environmental and social equity problems.)

14. William Thomas, "Business and the Journey Towards Sustainable Development: Reflections on Progress since Rio," *Environmental Law Reporter*, June, 2002.

15. World Business Council on Sustainable Development, *Exploring Sustainable Development: WBCSD Global Scenarios* (London: World Business Council on Sustainable Development, 1997).

16. World Resources Institute, *World Resources* (Oxford: Oxford University Press, 1994).

17. National Center for Health Statistics, *Health, United States, 2004* (Washington, DC: Department of Health and Human Services, 2004).

Figure 1. Key environmental and social equity problems.

Environment

The Millennium Ecosystem Assessment (MEA), a 2005 study commissioned by the United Nations and involving more than 1,360 experts worldwide, concluded that humans have changed the Earth's ecosystems over the past 50 years "more rapidly and extensively than in any comparable period of time in human history."¹⁸ Of the 24 global ecosystems that were analyzed, 60 percent were found to be degraded or used unsustainably. Clearly, the economic development we have enjoyed over the past century has come at a high environmental cost, one that will be borne by future generations.

The environmental issues of most concern include:

- Climate change
- Water scarcity
- Biodiversity loss and species extinction
- Fisheries overexploitation
- Ecosystem destruction
- Toxic pollutants
- Deforestation
- Nutrient overloading and nitrogen fixing
- Land use changes and urban sprawl.

Social equity

According to the United Nations, the richest 20 percent of the world's population consume 86 percent of all goods and services, while the poorest 20 percent consume just 1.3 percent. In fact, the richest three people in the world have assets that exceed the combined gross domestic product of the 48 least developed countries. Of the 4.4 billion people in the developing world, almost 60 percent lack access to safe sewers, 33 percent do not have access to clean water, 25 percent lack adequate housing and 30 percent have no modern health services.¹⁹ The World Health Organization reports that more than 40 million people worldwide are living with HIV/AIDS. In sub-Saharan Africa, nearly 70 percent of adults and 80 percent of children live with HIV/AIDS. Clearly, the economic development of the past century has not been shared equitably among all people of the world.

The social issues of most concern include:

- Population growth
- Poverty
- Widening income disparity between rich and poor
- Access to food, water and housing
- Health care and pandemics
- Employment and fair wages.

18. Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Synthesis Report* (Washington, DC: Island Press, 2005).

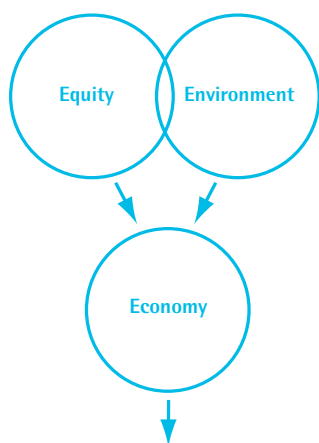
19. Barbara Crossette, "Kofi Annan's Astonishing Facts," *New York Times*, September 27, 1998.

The third wave

Environmental degradation and social inequity have been present for decades. So why are these problems now requiring a business response? Environmental and social issues have grown to such a magnitude and combined to create such a force for change within global markets that it's now impossible to overlook these problems. The heightened response from both individuals and markets represents the "third wave" of sustainability. (See Figure 2. The Third Wave.)

The strength of the third wave is largely dependent on the link and interaction between environmental and social issues. The ecosystem, for instance, directly affects humans' health and social relations. It provides services such as nutrient recycling, soil formation and primary production; is a source of food, fresh water, wood, fiber and fuel; it regulates climate, flood, disease and water purification. In 1997, a group of 13 economists, ecologists and geographers estimated the value of these services somewhere between \$16 trillion and \$54 trillion per year, with a likely figure of at least \$33 trillion.²⁰ But the MEA warns that human-induced degradation could grow significantly worse in the next 50 years and diminish the benefits future generations stand to gain from these ecosystem services.

Figure 2. The third wave



- National security
- Terrorism
- Economic competitiveness
- Resource prices
- Religious morality
- Economic, environmental and social trade-offs

Set of Market Shifts

Environmental and social issues are no longer strictly the domain of special interests.²¹ Sustainability issues are merging with broader concerns.

National security

A 2007 report by the Military Advisory Board warns that "projected climate change poses a serious threat to America's national security...climate change acts as a threat multiplier for instability in some of the most volatile regions of the world."²²

Terrorism

Defense analyst Thomas Barnett argues that the markets and economic connectivity of the world's poor is the only way to reduce the global threat of terrorism and extremism.²³ Poverty threatens free markets with violence. A recent special report by the BBC highlights the impact of the current food crisis on civil unrest in many developing countries that are net importers of food.

Economic competitiveness

Syndicated columnist Thomas Friedman sees climate change as a call to the United States to maintain its economic competitiveness by developing the next generation of technologies for creating and conserving energy. He points to GE, which had to develop its wind energy business in Europe given the lack of carbon regulations that result in a market price for carbon in the United States. Friedman argues that green is "geo-strategic, geo-economic, capitalistic and patriotic" and that it will help the United States address the issues of "jobs, temperature and terrorism."²⁴

Resource prices

The increased demand for resources is affecting previously "free" ecosystem services. The MEA warns that "higher operating costs or reduced operating flexibility should be expected due to diminished or degraded resources (such as fresh water) or increased regulation."²⁵ Today's skyrocketing oil prices are a case in point, and many see water prices as the next to rise.

20. Robert Costanza, Ralph d'Arge, Rudolph de Groot, Stephen Farber, Monica Grasso, Bruce Hannon, Karin Limburg, Shahid Naeem, Robert O'Neill, Jose Paruelo, Robert Raskin, Paul Sutton, and Marjan van den Belt, "The Value of the World's Ecosystem Services and Natural Capital," *Nature*, May 1997, 253–260.

21. Andrew Hoffman, "Consensus Builds to Create Limits on Carbon Emissions. Urgency on Climate Change Stirs Firms to Demand Change," *The Detroit News*, November 14, 2007.

22. CNA Corporation, *National Security and the Threat of Climate Change* (Alexandria, Virginia, 2007).

Religious morality

Preferring to call themselves "caring creationists" rather than "environmentalists" —which they see as synonymous with "liberal" —a new segment of Evangelical Christians are calling for action on climate change to protect God's creation. In 2006, more than 100 prominent pastors, theologians and college presidents signed an "Evangelical Climate Initiative" calling for action on the issue. In May 2007, more than 20 religious groups signed an open letter urging US leaders to limit greenhouse gas (GHG) emissions and invest in renewable energy sources.

Even the Vatican is getting on board. In April 2007, it hosted a conference on climate change that acknowledged the seriousness of the issue, which is already causing suffering to the poor. And more recently, the Holy See has announced plans to install solar cells on the roofs of Vatican buildings and will work toward carbon neutrality.

Economic, environmental and social trade-offs

The addition of social and environmental considerations to standard measures of economic development makes balancing competing interests challenging. Solutions to one of the legs of the triple bottom line may create tensions with another. For example, many solutions to climate change, such as biofuels or nuclear power, put stresses on water resources. Similarly, some solutions, like the development of biofuels from food stocks (such as corn), have increased the prices of many staple foods.

23. Thomas Barnett, *The Pentagon's New Map* (New York: Berkley Books, 2003).

24. Thomas Friedman, "The Power of Green: What Does America Need to Regain Its Global Stature?" *New York Times Magazine*, April 15, 2007.

25. Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Opportunities and Challenges for Business and Industry* (Washington, DC: Island Press, 2005).

Riding the third wave

This broad set of concerns is creating new challenges and expectations for companies as they enter new regions. Local groups are now starting to evaluate companies in terms of the net benefit they provide to the community. Pharmaceutical companies, for example, can no longer claim standard patent rights for AIDS drugs in Africa. The humanitarian crisis trumps the economic imperative. Drug companies are building AIDS treatment centers for local communities and helping to distribute tax dollars in some of Africa's most unstable countries.

As the power and influence of corporations grows, many sustainability experts believe that government alone can no longer meet the challenges society presents. The welfare of society, they say, depends on companies' contributions. Businesses are vehicles of productivity, innovation and research, employment, large-scale investment and human capital development. This fact sweeps aside debates over "shareholder" or "stakeholder" models of the corporation that some see as artificial and counterproductive.²⁶ Social and environmental issues are fundamental to business because they affect the long-term viability of the firm. Indeed, they generate value-creating opportunities that allow firms to grow. As the MEA

says, projects that use "innovation and technology to minimize the damage to ecosystems and to mitigate impacts already occurring are creating significant new business opportunities for those who are aware and prepared."²⁷

The social and environmental global trends, such as climate change, population growth and aging, wealth accumulation and distribution, nutrition, health and education, are affecting what the World Business Council for Sustainable Development (WBCSD) calls "tomorrow's markets," yielding new opportunities in areas such as alternative energy, water, food, shelter and health care.²⁸ For instance, the growing population of young people in many developing nations presents new labor and consumer markets; conversely, the shrinking population of young people in many developed nations is causing some markets to dwindle. An expanding middle- and low-income consumer market in developing nations is driving innovation, new business models and business growth, and multinationals and smaller local companies are developing "base of the pyramid" (BoP) models in response.²⁹ BoP strategies alleviate the social problems prevalent in the developing world by using innovative and value-adding strategies to encourage local economic development.

Essentially, sustainable companies use local products, take responsibility for their effects on the natural world, do not rely on nonrenewable capital, have dignified production and labor processes, produce durable long-term goods that will not harm future generations and try to educate consumers to be more sustainability-oriented.³⁰ What's more, they fit with their external market environment and make strides to respond to market demands.

26. Ian Davis, "The Biggest Contract," *The Economist*, May 26, 2005.

27. Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Opportunities and Challenges for Business and Industry* (Washington, DC: Island Press, 2005).

28. Don Doering, et al., *Tomorrow's Markets: Global Trends and Their Implications for Business* (Geneva, Switzerland: World Business Council for Sustainable Development, 2002).

29. C.K. Prahalad, *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits* (Philadelphia: Wharton School Publishing, 2004)

30. Paul Hawken, *The Ecology of Commerce* (New York: HarperCollins, 1993).

Components of sustainability's set of market shifts

The social contract of businesses exceeds what is defined as "corporate social responsibility." It is more than just a dialogue with stakeholders, production of glossy reports and setting and communicating well-intended corporate policy. Social and environmental issues must be rooted in strategy formulation and execution efforts; it must be committed to and sponsored by the highest levels of the organization so that change initiatives have the financial, human and social capital needed to succeed.

These issues must be discussed throughout a company's hierarchy so that the company has the proper market-sensing capabilities in place to effectively anticipate sustainability's emerging trends and be prepared to meet the challenges and grab the opportunities that arise as a result of meeting these trends.³¹ By actively managing and consciously shaping the debate on social and environmental issues, businesses tie the meeting of societal needs directly to creation of shareholder value.

So in the end, sustainability becomes an umbrella term that encompasses a series of market shifts; each appears aimed at a market correction to accommodate inequities in the distribution of resources and the destruction of the natural environment.

These market shifts are best understood within the context of three market-based activities: the value demanded by consumers and talent, the value delivered by companies and their supply chains, and the value that is graded by the financial markets and non-governmental organizations, or NGOs. The shifts in these three market-based activities, strengthened by two moderating forces, are influencing the competitive structure of many industries. (See Figure 3. Sustainability's Market Shifts are Effecting the Value Exchanged within Markets.)

Figure 3. Sustainability's Market Shifts are Effecting the Value Exchanged within Markets

Value demanded

- Consumer values and behaviors are being influenced by sustainability
- Talent is beginning to assess companies' sustainability strategies in employment decisions

Value delivered

- Companies are thinking about supply chains differently
- Companies are developing self-regulation mechanisms

Value graded

- Financial markets and shareholders are seeing risks and opportunities in sustainability
- NGOs are rising in power to effect change within markets

31. Ian Davis, "The biggest contract," *The Economist*, May 26, 2005, 69-71.



Three sets of market shifts

Value demanded

Companies are being pressured by new constituencies (such as NGOs and other less structured forms of social pressure) that are making new forms of demands on companies to perform new tasks today. Concerns over the myriad social and environmental issues are seen as critical to a company's license to operate, both in local communities and worldwide. At the same time, consumers are becoming more aware of sustainability's myriad issues; many consumers are adjusting their values and beliefs to reflect this heightened awareness.

Consumer values and behaviors

While some government policies and industry self-regulation mechanisms are designed to drive consumer values and behavior, there are areas where consumer values are driving business activity. Evidence suggests that consumers care more and more about sustainability. For example, according to the 2007 BBMG Conscious Consumer Report, 87 percent of consumers would like companies to commit to environmentally friendly practices to support fair labor and trade practices.

The same survey also showed that most US consumers are concerned about the use of pesticides, hormones or chemicals in food (70 percent), renewable energy (73 percent) and fair wages and safe working

conditions (81 percent). An overwhelming majority of US consumers feel that clean air (86 percent) and safe drinking water (90 percent) are top issues.³²

Some companies have even begun segmenting customers according to how much sustainability affects their purchasing decisions. According to the Natural Marketing Institute (NMI), one of the "hottest trends within companies and among consumers around the world" is Lifestyles of Health and Sustainability, or LOHAS.³³ LOHAS refers to a market segment that endorses and promotes a variety of products, services and corporate activities that are environmentally conscious, socially responsible and sustainable for people and the planet. Of five different market segments identified by NMI, and recently updated in 2007, LOHAS is the most sustainability-minded.

LOHAS

19 percent of US consumers (40 million US consumers)—LOHAS consumers are dedicated to personal and planetary health. Not only do they make environmentally friendly purchases, they also take action—they buy green products, support advocacy programs and are active stewards of the environment.

Naturalites

19 percent (40 million)—Focused on natural/organic consumer packaged goods with a strong health focus when it comes to foods/beverages. They are not politically committed to the environmental movement nor are they driven to eco-friendly durable goods.

Drifters

25 percent (53 million)—This segment has good intentions, but when it comes to behavior, other factors influence their decision more than the environment. Somewhat price-sensitive (and trendy), they are full of reasons why they do not make environmentally friendly choices.

Conventionals

19 percent (40 million)—This very practical segment does not have green attitudes but do have some "municipal" environmental behaviors such as recycling, energy conservation and other more mainstream behaviors.

Unconcerned

17 percent (36 million)—The environment and society are not priorities to this segment. They are not concerned and show no environmentally-responsible behavior.

32. BBMG, "BBMG Conscious Consumer Report" (2007).

33. The Natural Marketing Institute, "Understanding the LOHAS Consumer: The Rise of Ethical Consumerism" (2008).

The 2007 BBMG Conscious Consumer Report predicts that the percentages of LOHAS and Naturalites will increase. If this prediction holds true, then companies can look to LOHAS consumers to predict future purchasing trends because they're "early adoptors of many attitudinal and behavioral dynamics."³⁴ Between LOHAS, Naturalites and Conventionals, 57 percent of consumers are actively committed to buying green and to leading sustainable lifestyles.

Companies that meet the green needs of today's consumers are likely to benefit and get ahead of their "browner" competitors. Clorox, for example, has recently cut into the domain of more niche first-mover companies like Seventh Generation by introducing a new line of green cleaning products. Whirlpool, too, in anticipation of greater consumer demand for less energy-intensive products, is leveraging its core competencies to continue bringing the most energy-efficient appliances to market.³⁵ Toyota's Prius, perhaps the most successful green product in the United States, meets consumers' driving needs while also providing gas savings from its fuel-efficient hybrid engine.³⁶ A unique screen provides the driver with real-time feedback on how much fuel is being saved at any given moment.

In 2007, Toyota won 16 percent of the US market, which was over double its share 10 years ago.³⁷ Beyond the benefits to Toyota, the Prius has inspired competitors to develop hybrid cars and buses, further benefiting consumers and the environment.

Employee awareness

Sustainability is now affecting the competition for talent. Recruits in the labor pool, particularly among the younger segment, are increasingly considering either a company's posture on sustainability issues or the connection between their job and sustainability. College graduates today are much more mission-oriented than those in the past, and they are looking for companies that match their personal values.³⁸

If the company they join does not reflect their beliefs, they are more likely to push their values on the company than let the company push its values on them.³⁹

According to the 2003 Corporate Social Responsibility Monitor by GlobeScan, 70 percent of North American students surveyed said they would not apply for a job at a company deemed socially irresponsible. A 2004 Stanford survey of more than 800 Master of Business Administration graduates (MBAs) from 11 leading North American and European schools found that out of 14 employer attributes, "reputation for ethics and caring about employees" ranked in the top four; 77 percent of respondents considered ethics and caring to be as important as "intellectual challenge," which was ranked the no. 1 attribute. Moreover, 97 percent said they were willing to forgo financial benefits to work for an organization with a better reputation for corporate social responsibility and ethics.⁴⁰ And a 2007 Monster.com study found that 92 percent of students are more inclined to work for a company that is environmentally friendly.⁴¹

Along these same lines, a 2003 Stanford University study entitled "Corporate Social Responsibility Reputation Effects on MBA Job Choice" found that MBA graduates would sacrifice an average of \$13,700 in salary to work for a socially responsible company.⁴² The extent to which company's environmental strategy influenced students' employment decisions varied across regions, but in general, American students were less inclined than European and Asian students to turn down an offer from a company with a bad environmental record.⁴³

Some MBAs are looking for a sustainable job as well as a sustainable company. According to a 2008 study by the Aspen Institute's Center for Business Education, 25 percent of MBAs are seeking a job with the potential to make a contribution to society, up from 15 percent in 2002.⁴⁴ Monster.com found that 80 percent of students interested in a job that positively affects the environment.⁴⁵

What does this portend for the future? Firms may need to become more ethically and socially responsible in order to attract candidates. Human resources and career experts already have been telling corporations that ethics is important to the best and brightest job hunters of the future. Indeed, a poll of career transition and career management professionals in 26 countries found that 82 percent believe that corporate leadership ethics is of critical importance to job seekers. According to a recent global survey by consulting firm DBM, ethics is fast becoming a major factor in the competition for top talent.

Those companies that excel on sustainability issues will soon find they have more applicants than their counterparts. Patagonia, for example, claims to have 5,000 applicants for each opening, due in large part to its strong environmental and social mission. Jeffrey Immelt, GE's CEO, stated at the 2008 *Wall Street Journal* ECO:nomics Conference that GE's position on environmental issues has "helped recruiting immensely." The company's ability to recruit "has never been higher."

Good sustainability practices also have the benefit of increasing retention. Novo Nordisk, a Danish pharmaceuticals company, has seen its turnover rate drop to 5 percent, half the industry average since it initiated its "Values in Action" program as a way to infuse sustainability principles into its strategy.⁴⁶ Interestingly, an analysis by the Pew Center on Global Climate Change also found that companies' greenhouse gas reductions motivated their employees and drove innovation.⁴⁷

34. Ibid.

35. Andrew Hoffman, *Getting Ahead of the Curve: Corporate Strategies That Address Climate Change* (Arlington, VA: The Pew Center on Global Climate Change, 2006).

36. Jacqueline Ottman, "The Five Simple Rules of Green Marketing," *Sustainable Life Media*, June 2007.

37. Chuck Salter, "Fast 50: The World's Most Innovative Companies," *Fast Company*, March 2008.

38. Paul Ray and Sherry Ruth Anderson, *The Cultural Creatives* (New York: Harmony Books, 2000).

39. Debra Meyerson, and Maureen Scully, "Tempered Radicalism and the Politics of Ambivalence and Change," *Organization Science* 6, no. 5 (1995): 585-601.

40. David Montgomery and Catherine Ramus, *Corporate Social Responsibility Reputation Effects on MBA Job Choice*, May, 2003.

41. Based on July 2007 survey of 4,700+ MonsterTRAK job seekers, http://media.monster.com/monstertrak/GreenCareers_092407.pdf (accessed July 29, 2008).

42. David Montgomery and Catherine Ramus, *Corporate Social Responsibility Reputation Effects on MBA Job Choice*, May, 2003.

43. Ibid.

44. Bronk, K., "The Do-Good Disconnect," *BusinessWeek.com*, April 22, 2008.

45. Based on July 2007 survey of 4,700+ MonsterTRAK job seekers, http://media.monster.com/monstertrak/GreenCareers_092407.pdf (accessed July 29, 2008).

46. Novo Nordisk, *Annual Report* (Bagsvaerd, Denmark: 1999).

47. Michael Margolick and Doug Russell, *Solutions: Corporate Greenhouse Gas Reductions* (Washington, DC: Pew Center on Global Climate Change, 2001).

Value delivered

The products and services that companies deliver as well as the processes by which they are delivered are redefined, expanded and altered. Market participants ranging from consumers to NGOs are demanding that companies evaluate the impact of the activities within their supply and value chains on sustainability. Companies are now viewing inefficient use of resources, energy and emissions as forms of economic inefficiency in production and representing every bit as much a loss of value as did inefficient processes, tasks and activities in the 1990s. Production processes that do not attend to the needs of a company's workers will also face increasing scrutiny.

The future success of companies will be determined by their ability to recycle raw materials and resources, close the production process loop and maintain stewardship over the entire life cycle of a product, as well as provide for the welfare of the workforce and the community. Companies are being asked to perform these tasks with greater levels of transparency and openness to community concerns and interests. Finally, these changes are putting pressure on board members to monitor the sustainability efforts of the companies they oversee.

Shifting supply chains

Companies and consumers are realizing that when they buy products, they are also buying the supply chains that go with them. Since between 50 and 70 percent of a product's value is derived from its supply chain, companies cannot disconnect their products from those products that came before or after.⁴⁸ Companies are finding that they are both responsible to and for other companies up and down their value chains. Activists hold large multinationals responsible for the actions of their franchisees or suppliers. A smaller company may find itself having to abide by the new sustainability requirements of a major purchaser such as Wal-Mart.

Not surprisingly, more and more companies, particularly large multinationals, are paying attention to their supply chains in order to

reduce costs, attain sustainability goals and improve brands or reputation. Currently, just over one-third (36 percent) of companies surveyed have a formal strategy for supply chains and 48 percent of them reward their suppliers for good sustainability practices. And emphasis on supply chains is increasing, as seen by the companies that joined the Carbon Disclosure's Project Supply Chain Leadership Collaboration, which aims to standardize ways to measure the carbon footprint of supply chains.⁴⁹

A report by the Aberdeen Group compared green supply chain strategies of "best-in-class" companies with other companies and found that leading companies, as a result of "greening" their supply chains, have decreased logistic and transport costs, energy costs, costs of operations and facilities, and supply costs.⁵⁰ The same report says that leading companies have common characteristics, like technology solutions that enable supply chain improvements and track results; practices that help identify an executive to take a leadership role with respect to sustainability within the supply chain responsibility and communicate their progress; and systems that clearly document the benefits of green initiatives.

These company leaders are moving from a "cradle-to-grave" mentality to a "cradle-to-cradle" mentality.⁵¹ Applying the notion that "waste equals food," they are going beyond current linear approaches to industrial infrastructure and thinking in more complex and interconnected ways.⁵² If you consider, for instance, that 90 percent of the materials extracted to make durable goods in the United States become waste almost immediately, the notion of "reduce, reuse and recycle" is no longer enough to offset this surprisingly high level of inefficiency.⁵³ By rethinking the specifics of their supply chains, however, some companies have succeeded in releasing fewer pounds of waste, meeting the complexities of market demand, producing fewer dangerous materials and using less valuable materials, all while increasing profits.

Cradle-to-cradle production is perhaps best seen in industrial ecology, or industrial symbiosis—the exchange of by-products, wastes and energy among a group of firms that are geographically co-located. One of the most famous examples is the Kalundborg industrial park in Denmark, which began in the 1970s and has since grown into a complex system of companies that exchange sulfur, waste heat, steam, sludge and fly ash.⁵⁴ Industrial symbiosis represents an opportunity for innovation at several levels: between firms within the same sector, between firms along a supply chain, between firms and regulatory bodies and other interest groups, and between firms and their customers. These "spaces of innovation" provide many opportunities to develop competitive advantage.⁵⁵ Such thinking challenges companies to reconceptualize even the most benign products. It encourages companies to consider simple questions such as, "What is waste?" "What is our feedstock?" and "What do our customers really want?"

Corporate self-regulation mechanisms

Not wishing to wait for government regulation to set the rules, more companies and industries are establishing their own environmental or social guidelines. Self-regulation helps companies preempt government mandates. It also drives innovation through more indirect incentive-based approaches to anticipated regulations. These programs force the laggards within a sector to come up to the standards set by the collective.

Self-governing mechanisms come in many forms. They can be initiated by companies, nonprofit organizations or other interest groups. Some are inter- or intra-industry agreements; others cross sectors to include suppliers, buyers and private-public partnerships. Member organizations might benefit in reputation and branding, or from having access to the latest information and standards.

48. Daniel Mahler, "The Sustainable Supply Chain," Supply Chain Management Review, November 1, 2007.

49. See Carbon Disclosure Project website for more information: http://www.cdproject.net/scle_home.asp.

50. Robert Shecterle and Jhana Senxian, Building a Green Supply Chain: Social Responsibility for Fun and Profit, Aberdeen Group, 2008.

51. William McDonough and Michael Braungart, Cradle to Cradle: Remaking the Way We Make Things (New York: North Point Press, 2002).

52. Paul Hawken, The Ecology of Commerce (New York: HarperCollins, 1993).

53. William McDonough and Michael Braungart, Cradle to Cradle: Remaking the Way We Make Things (New York: North Point Press, 2002).

54. Nicholas Gertler and John Ehrenfeld, "A down-to-earth approach to clean production," Technology Review, February 12, 1996.

55. Ken Green and Sally Randles, Industrial Ecology and Spaces of Innovation (Northampton, MA: Edward Elgar Publishers, 2006).

Adoption of best environmental practices can also give companies early-mover and cost advantages and help them to differentiate themselves from competitors.⁵⁶

Most programs set standards to which all members must abide. For example, the world's largest self-governing corporate citizenship initiative is the 2000 UN Global Compact, a framework for businesses committed to 10 principles related to human rights, labor standards, forced labor, child labor, discrimination, environmental responsibility and anticorruption. The initiative has more than 5,200 participants, including more than 4,000 businesses in 120 countries. Similarly, the Equator Principles requires its 60 participating banks (accounting for as much as 78 percent of all project finance in 2003) to assess projects for their social and environmental impact before making lending decisions.

The Responsible Care program, another self-regulated program in the chemicals industry, requires its 128 global companies in 53 countries to improve health, safety and environmental performance and communicate with stakeholders about products and processes (covering nearly 90 percent of all global chemical production).

Some programs are more targeted in their approach and involve direct alliances with NGOs. For example, Unilever, one of the world's largest buyers of seafood, partnered in 1999 with the World Wildlife Fund to establish the Marine Stewardship Council (MSC). The goal of the MSC is to harness consumer purchasing power to generate change and promote environmentally responsible stewardship by reversing the continuing decline in the world's fisheries. As of 2007, the MSC involved 22 fisheries and 857 labeled seafood products sold in 34 countries. Thirty-eight retailers, 49 manufacturers and 14 food service companies use the MSC brand, and more than 300 suppliers participate in the program. It is estimated that more than 7 percent of the world's edible wild-capture fisheries are now participating in the program.

The Forest Stewardship Council (FSC) is a similar initiative. Established in 1993, its 738 members promote standards for sustainable forest management in more than 57 countries, representing about 20 percent of wood sold in the United States. But universal acceptance is hampered by the presence of competing standards such as the Sustainable Forestry Initiative (SFI), which has 219 participants.

A slightly different kind of initiative is showcased in the U.S. Climate Action Partnership (USCAP). Rather than pushing its internal members to adopt new standards, its 32 business members are pushing the federal government to enact legislation that requires significant reductions of greenhouse gas emissions.⁵⁷

The U.S. Green Building Council, yet another self-regulation initiative, has become a certification agency in itself. With more than 15,000 member organizations, the council certifies sustainable buildings, homes, hospitals, schools and neighborhoods according to a green building rating system known as LEED (Leadership in Energy and Environmental Design), emphasizing five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality.

The LEED certification system is changing the norms and metrics of success within the building industry. There are some 50 standards around the world, and that number is expected to grow.

Corporate governance

Because of its overarching influence on companies, nearly every aspect of sustainability is rooted in corporate governance. Additionally, companies are facing increasing pressure from shareholders, stakeholders and governments to take responsibility for sustainability-related action.

Boards have a vested interest in the case of sustainability because if companies fail to comply with regulations, board directors may be held personally responsible for the resulting fines and penalties. The Investors and Business for U.S. Climate Action group, for instance, called on the U.S. Securities and Exchange Commission to issue guidelines on climate change risk disclosure as part of the "material disclosure" section of Sarbanes-Oxley Act. Legal risks for companies and directors are growing and have become a concern for insurers. Lawsuits already have been filed against power, coal, oil, refining and motor vehicle companies over CO₂ emissions.⁵⁸

Interest groups such as the Carbon Disclosure Project and the Investor Network on Climate Risk are adding to the pressure on boards. Such groups draw on sustainability indices and independent rating agencies in support of their cause. Activist investors are turning to proxy resolutions and the media in order to spur action on sustainability. And in Europe, long-term investors such as pension and insurance funds are required to disclose socially responsible investments.⁵⁹

Even when companies actively address sustainability to mitigate their own risks, they must often bear substantial capital costs—investments that require board approval because of their long-term, uncertain impacts. Reporting on sustainability, setting up dedicated systems, adopting certification schemes, changing products and processes, allocating oversight to the board and connecting with external stakeholders and shareholders are all a part of corporate governance.⁶⁰ To monitor managers and create incentives to meet sustainability goals, boards often establish dedicated committees and pay policies.⁶¹

56. Petra Christmann, "Effects of 'Best Practices' of Environmental Management on Cost Advantage: The Role of Complementary Assets," *Academy of Management Journal* 43, no. 4 (2000): 663–680.

57. Odell, A.M., "Top Five Socially Responsible Investing News Stories of 2007," *Sustainability Investment News*, January 8, 2008, www.socialfunds.com/news/article.cgi/2446.html (accessed May 1, 2008).

58. Andrew Hoffman and John Woody, *Climate Change: What's Your Business Strategy?* (Boston: Harvard Business School Press, 2008).

59. Eurosif (2003). *Socially responsible investment among European institutional investors*. European Sustainable and Responsible Investment Forum.

60. Grant Ledgerwood, *Greening the boardroom: corporate governance and business sustainability* (Sheffield: Greenleaf Publishing, 1997).

61. Pascual Berrone and Luis Gomez-Mejia, "Do firms compensate their CEOs for environmental performance? An empirical analysis of U.S. polluting industries," *Academy of Management Journal*, 2006.

Value graded



Wall Street metrics such as return on investment, return on assets and earnings before interest, taxes, depreciation and amortization are no longer the sole metrics of a firm's value. More and more Wall Street analysts are adding analyses of company's sustainability efforts to their stock recommendations. And Wall Street analysts are no longer the sole arbiters of a company's value and prospects. Social and environmental metrics are working their way into corporate analyses conducted by non-traditional constituents (such as NGOs and specialized rating services) as well.

Recognition by financial markets and shareholders of sustainability's risks and opportunities

In addition to forming the Equator Principles, Citigroup, Morgan Stanley and J.P. Morgan established the "Carbon Principles" in February 2008. These banks, in consultation with several power companies and NGOs, established "a process for understanding carbon risk around power sector investments needed to meet future economic growth and the needs of consumers for reliable and affordable energy."⁶²

Bank of America, which also recently adopted the Carbon Principles, has gone one step further, establishing an internal price of carbon per ton, reported to be between \$20 and \$40, which the bank is using to determine whether to underwrite debt for coal-fired power plants.⁶³ Financial markets, investors and shareholders are beginning to consider the issue of sustainability in their capital asset decisions.

The underwriting process isn't the only aspect of the financial markets that has changed in response to sustainability. Institutional shareholders are joining forces to put pressure on companies to disclose information about their sustainability efforts. About 280 institutional investors, representing more than \$57 trillion, have become members of the Carbon Disclosure Project (CDP) since 2000. The CDP urges companies to annually publish data about their carbon emissions. This united front seems to be working: in 2007, more than 1,300 companies formally disclosed data and other information related to climate change. Similarly, CERES has been working since 1989 to integrate sustainability into capital markets.

It directs the Investor Network on Climate Risk (INCR), a group of more than 60 leading institutional investors with collective assets of \$5 trillion. The INCR is using this massive shareholder pressure to force companies to address sustainability.

Individual sustainability investors are a growing segment as well. An increasing number of financial services firms, including Fortis Bank, have introduced financial instruments that invest in sustainable companies to attract individual investors, and several organizations have created financial indexes comprised of companies that are seen as leaders in sustainability. KLD, Sustainable Asset Management and Innovest are three of the largest such indices.

62. Citigroup press release, <http://www.citigroup.com/citigroup/press/2008/080204a.htm> (accessed May 5, 2008).

63. Wall Street Journal Environmental Capital blog, <http://blogs.wsj.com/environmentalcapital/2008/02/13/bank-of-america-puts-a-price-on-carbon/> (accessed May 5, 2008).

Focusing on the financial risks of climate change, Innovest has created the "carbon beta" to systematically link climate-related risks and opportunities. Using proprietary data, it incorporates three broad factors in corporate finance decisions: the cost of a company's carbon exposure as a percentage of revenues, the company's geographic risk exposure and company-specific factors such as energy intensity and technological trajectory.⁶⁴

More and more mainstream investment firms are pursuing similar initiatives. For example, Goldman Sachs introduced the "Sustain List" in 2007, a list of the companies, in various industries, that are both attractive financial investments and leaders in sustainability. In other examples, two of the world's largest financial markets have launched sustainability-focused stock indices: the Dow Jones Sustainability Indexes were launched in 1999, and the FTSE4Good Index was launched in 2001. Both indices conduct periodic reviews of companies to determine whether the companies currently meet the sustainability standards put forth by each index.

The increased pressure by the financial markets is causing companies' cost of capital to increase. Some companies, primarily those focused on developing new coal-fired power plants, are finding it more difficult to raise capital as investment banks such as Bank of America begin to factor in an assumption for the price of carbon. This kind of increased scrutiny is also putting more pressure on management teams and making them more accountable for their sustainability efforts.

The rising power of NGOs

In step with the public's increased awareness and interest in sustainability, NGOs are more successful than ever at mobilizing public opinion on environmental issues and holding large corporations responsible for their impact on society and the environment. Some NGOs may picket a company's facility or file lawsuits; others may meet with a company's management team to work out solutions; still others may work with legislators, investors, banks or even clerics to call attention to the company's treatment of sustainability. NGOs comprise a diverse network of organizations that are multifaceted in their influence and engagement styles. As companies struggle to meet the

demands of today's socially conscious stakeholders, it is often wise to work with NGOs rather than view them as foes. NGOs can help corporations understand their effects on local and global communities and help them implement genuine long-term changes.

As noted, some NGOs actively engage businesses to help them find solutions to difficult environmental and social problems. For example, moving beyond its early style represented by their informal slogan "Sue the bastards," the Environmental Defense Fund (EDF) now has a formal motto: "Finding the ways that work." EDF has partnered with some of the largest corporations in the world, including FedEx, UPS, SC Johnson, Starbucks and McDonald's, resulting in some of the most innovative and high-impact corporate partnerships today. In fact, the attractiveness of NGO-corporate alliances has grown to such proportions that the demand now appears to exceed the supply. Gwen Ruta, the vice president of corporate partnerships at the Environmental Defense Fund recently shared with us that "Eighteen months ago, I was happy when anyone returned my calls—now I hardly have time to return all of theirs."

NGOs are uniquely positioned to help corporations because they are not suppliers, consultants, clients or regulators but rather are entities that bring a variety of intangible assets to the table. They often have local knowledge and the trust of the local community that companies lack. NGOs know how to mobilize people and build networks, and understand which issues matter to communities. They are a tool for breaking into untapped markets and serve as a catalyst for new business opportunities and highly visible positive change in communities. The benefits of a business-NGO partnership can endure longer than charity donations from corporations to non-profit organizations or even the best-intentioned transactional relationships with NGOs.

Companies committed to embracing sustainability "seldom operate solo in the social and environmental realm"; they commit to partnerships to "address problems, reach new markets and develop local communities."⁶⁵ Companies that use partnerships correctly don't just leverage these alliances to improve community relationships; they use them "to create new markets by fusing their citizenship and business agendas."⁶⁶

64. Deutsch, C., "Wall St. Develops the Tools to Invest in Climate Change," *New York Times*, May 24, 2006.

65. Bradley Googins and Philip Mirvis, *Stages of Corporate Citizenship: A Developmental Framework* (Chestnut Hill, MA: Center for Corporate Citizenship at Boston College, 2006).

66. *Ibid*

Three amplifying forces

In recent years, three powerful forces have amplified the salience of sustainability to business: globalization, climate change and information technology. As companies expand their global footprint, they become more deeply entangled in a complex web of competing economic, legal, cultural and environmental claims. The search for price advantages and new markets carries with it the risk that global businesses will have to assume responsibility for complaints regarding unfair labor practices, environmental degradation and so on.

Fears over climate change have contributed to the public's sense that corporations, especially in certain industries, must work with governments and nongovernmental organizations to heavily reduce their carbon usage through conservation, cap-and-trade regulations and the creation of innovative products.

Finally, information technology makes available vast resources of information on the state of the planet, economic development and business success. Individuals can also easily join with like-minded people and groups to support new regulations and to pressure business to change.

As the concept of sustainability continues to develop in light of these forces, companies will have to rethink strategies and processes and how they are providing value to customers, employees and other stakeholders.

Globalization

Coverage of globalization's progression and implications is ubiquitous. For brevity, we'll focus our comments on globalization's role as an amplifier of sustainability's salience. We live in a shrinking world where global sourcing brings corporate interests into ever-increasing contact with peoples and issues around the world. This contact makes vivid the disparities between rich and poor, between developed and developing countries.⁶⁷

Consider for example the recent anti-Coca-Cola campaigns on college campuses around the country are being driven largely by one man, Amit Srivastava, from his laptop computer in Southern California (for more on how information technology is amplifying the salience of sustainability, see the Information Technology section below). Using the Web, he is mobilizing college students to pressure their

administrators to ban Coke products from their campuses because of the multinational's drawdown of water aquifers in India.⁷⁰ This nontraditional form of pressure has led Coca-Cola to do something it would never have previously agreed to do: open its overseas facilities to an independent, transparent, third-party environmental audit. In fact, the company has recently begun changing its water-management practices globally, and it is now regularly integrating concerns for sustainability into its operating decisions.

Climate change

Perhaps no other issue has galvanized attention and debate in the domain of sustainability as much as climate change. Regulations are being developed that will alter the price of carbon at all levels of the local and global economies, and more regulations are on the horizon.⁶⁹ These new rules will affect fossil-fuel-based energy and resource pricing and availability, creating a ripple effect throughout a company's entire value chain.

While the United States has not ratified the Kyoto Treaty, much is happening at other levels of the US economy. In July 2007, more than 600 mayors representing more than 59 million Americans signed the U.S. Mayors Climate Protection Agreement. Forty-seven states have some form of climate-related policies: emissions inventories, renewable portfolio standards, climate action registries or mandatory cap-and-trade systems.⁷⁰ And federal level action appears very likely. In 2007, the U.S. Supreme Court authorized the EPA to regulate carbon dioxide under the Clean Air Act, and both Barack Obama and John McCain have gone on record supporting a climate change bill. In many areas outside of the United States, carbon regulation already exists. Consider the European Union's Emissions Trading Scheme, for example. In addition, discussions are already under way for a post-Kyoto 2012 international framework in which the United States will likely participate.

These developments suggest a large market shift, one that will create both winners and losers. A report by Sir Nicholas Stern, former chief economist for the World Bank, puts the annual worldwide costs of reducing GHG emissions to 500 to 550 parts per million at around 1 percent of global GDP. But the Stern report goes on to point out that

if we do nothing, "the overall costs and risks of climate change will be equivalent to losing at least 5 percent of global GDP each year. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20 percent of GDP or more."⁷¹

These uncertainties are spurring financial markets, investors and shareholders to consider climate change as part of their capital asset decisions. Some major insurers (and reinsurers) have expressed growing concern about the physical, financial and disclosure risks posed by climate change; many are considering these issues in directors' and officers' insurance coverage.⁷²

Companies must consider how climate change both alters their core competencies and creates new business opportunities. A company might ask itself, for example, whether cutting GHG emissions could reduce costs and exposure to various business risks.⁷³ DuPont has identified the most promising growth markets in the use of biomass feedstock that can be used to create new bio-based materials such as polymers, fuels and chemicals, applied biosurfaces and biomedical materials.

The company hopes to have 25 percent of its revenue come from such non-depletable resources; as of 2007, it was two-thirds of the way toward meeting that goal.

Information technology

In making information much more available across a wider range of constituencies, information technology alters the relationships among players such that previously weak or dispersed groups are able to change the power dynamics within a market. The antiglobalization protests in Seattle, Prague and elsewhere were made possible by the connectivity of the Web.

Social media is another aspect of information technology that is changing the face of business. It includes "online applications, platforms and media which aim to facilitate interaction, collaboration and the sharing of content" and refers to

67. Andrew Hoffman, "The Real Thing: Coca-Cola learns a tough lesson about corporate sustainability," September 5, 2006.

68. Stecklow, S., "How a Global Web of Activists Gives Coke Problems in India," Wall Street Journal, June 7, 2005.

69. Andrew Hoffman, and John Woody, *Climate Change: What's Your Business Strategy?* (Boston: Harvard Business School Press, 2008).



the online community of message boards, chat rooms, blogs, widgets, social networking sites, podcasts, video and photo-sharing sites and really simple syndication (RSS) or Web feeds—sites that aggregate online content from a variety of sources). Social media is very much a worldwide phenomenon; 2008 global surveys indicate that most of today's Internet users are producing online content and participating in this media platform. Over a three-year period, social media has seen enormous growth. For instance, the penetration rate of video clips was 83 percent as of early 2008, compared with 31 percent in 2006.

More than half of all people online have joined a social network and uploaded photos, nearly a quarter have uploaded videos and almost three-quarters have read a blog.⁷⁴

Social media, particularly blogs, has an enormous impact on company products and brands. There are now more than

184 million bloggers worldwide, and 34 percent of them post opinions about products and brands—that adds up to more than 62 million consumers. Indeed, when people visit blogs, 26 percent of the time they do so to get opinions on products and brands; what's more, 32 percent of people who read blogs say they trust them as a source. And 36 percent of Internet users say they feel more "positive" about companies that have blogs.⁷⁵

The online world has brought members of the global community into direct contact with corporations and with one another. Consumers have been known to "e-mail carpet bomb" executives for bad customer service or being stuck on planes. They can educate themselves much more easily, as information is readily available to anyone who knows how to search for it online. (Consumers, for instance, can find out about toxic chemicals in their area by going to sites like

www.scorecard.org.) Video technology contributes an added dimension of emotion to experiences, beyond what's possible with text. Internet users can easily view a disastrous oil spill, not just read about it in the news.

In essence, companies must answer to a growing community of external auditors—a fact that has made transparency difficult to avoid.⁷⁶ Social media and the Internet make it easy for the truth to come out. Remember the embarrassing video posted on YouTube of cable technicians caught sleeping on a customer's couch?⁷⁷ Companies will find it harder to spin messages or cover things up. Leading firms such as Oracle and HP have already built online communities to solicit customer involvement.⁷⁸

70. Barry Rabe, *Greenhouse and Statehouse: The Evolving State Government Role in Climate Change* (Arlington, VA: Pew Center on Global Climate Change, 2002).

71. Sir Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, England: Cambridge University Press, 2007).

72. Andrew Hoffman, *Carbon Strategies: How Leading Companies Are Reducing Their Climate Change Footprint* (Ann Arbor, MI: University of Michigan Press, 2006).

73. Andrew Hoffman, "Climate Change Strategy: The Business Logic Behind Voluntary Greenhouse Gas Reductions," *California Management Review* 47, no. 3 (2005): 21–46.

74. Universal McCann, *Power to the People: Social Media Tracker—Wave.3*, March 2008 (accessed May 7, 2008, on www.universalmccann.com/Assets/wave_3_20080403093750.pdf).

75. *Ibid.*

76. Charlene Li, Jeremiah Owyang, Peter Kim, Josh Bernoff and Scott Wright (2008) *Top Social Computing Predictions for 2008*, Forrester, January 15, 2008.

77. Brian Haven, *Marketing's New Key Metric: Engagement*, Forrester, August 8, 2007.

78. Brad Bortner, Ellen Daley and April Lawson, *Top Market Researcher Predictions for 2008*, Forrester, December 31, 2007.

Potential changes to strategy and competitive structure

Expanding corporate control

All of these market shifts place new expectations on the corporation.

Shareholder value is still important, but companies' range of constituencies and concerns is broadening. Executives who do not recognize this increased breadth of stakeholders will be ill-equipped to deal with sustainability. Greater attention to transparency, time horizons, community engagement, employee values and the local and global communities will require shifts in corporate governance models.

The solutions to the world's social and environmental issues are increasingly being placed on business's shoulders. A GlobeScan survey showed that in 2001, most people believed that corporations must lead the way in sustainable development.⁷⁹ The same survey showed that the public thinks large global companies hold the key to improving the lives of people in poor countries (though most respondents in Africa thought international bodies were still more important).

Navigating the sustainability terrain will be challenging. Most companies are unfamiliar with the new set of expectations being placed on them, and constituents are less trusting of companies' intentions. Fifty-two percent of GlobeScan's survey respondents placed "not much trust" or "no trust" in global companies, and 55 percent said the same for national governments, compared with 61 percent who place "a lot of trust" or "some trust" in NGOs. The majority of respondents also said that they would respect companies that partnered with NGOs, national governments or the United Nations.⁸⁰

Elkington describes how companies must undergo a metamorphosis in order to address sustainability challenges.⁸¹ The entire organizational system, not just various functions and technologies, must transform itself, he says. Business leaders must have strong visions for change, good political and commercial timing, stamina to pursue agendas and a host of other traits that would make them "citizen CEOs."

Central to this overhaul is a change in the nature of competition itself. Indeed, a strong reputation for effective sustainability strategies may be an essential corporate attribute in the competition for customers, employees, investors, governments, NGOs and the media. High sustainability rankings in publications like *Fortune*, *BusinessWeek* and the *Financial Times* are apt to give companies a distinct edge.

Environmental issues, in particular, are altering key questions about competition. Consider the auto industry. Automobile emissions can be reduced in one of two ways: by altering the engine design or by altering the formulation of gasoline. Which of these two methods is better has been debated since the 1960s, when auto companies were required to install catalytic converters and oil companies were required to remove lead from gasoline formulations. In 1999, automobile makers infuriated oil refiners by asking the US government to cut gasoline-sulfur levels to near zero to help them achieve future emission standards. The tension between carmakers and oil refiners continues today with the introduction of flex-fuel vehicles.

It's no wonder: a change like this can cost industries significant amounts of money in research and product costs.

With the introduction of the zero-emissions automobile, we may see another, more intriguing, reconfiguration of competition. The zero-emission car will be run by computers, servomotors and switching equipment, so the question becomes, "Is it a car with highly technical electronic equipment, or is it a computer on wheels?" The difference is significant in terms of which companies possess the complementary assets and core competencies to develop it. Amory Lovins of the Rocky Mountain Institute believes that it's more accurate to think of the electric car—what he calls the "hypercar"—as a computer on wheels.

Therefore, he says, it is not the big three automakers that will develop these cars but companies like Siemens, Hewlett-Packard and Motorola. They possess the competencies to develop the hypercar's sophisticated circuitry, and they have access to sales outlets through the growing marketplace on the Internet. One can already buy a Dell computer over the Internet. And because companies like Saturn have already begun standardizing their sales, it's not hard to imagine that you could choose your car as well as its color, style and options through the Web and have it delivered right to your door.⁸²

This kind of competitive shift also occurred when the supply of lumber decreased in the mid-1990s due to efforts to protect the endangered spotted owl.

79. GlobeScan, Research Findings (accessed May 9, 2008 on www.globescan.com).

80. Ibid.

81. John Elkington, *The Chrysalis Economy: How Citizen CEOs and Corporations Can Fuse Values and Value Creation* (New York: John Wiley & Sons, 2001).

82. Andrew Hoffman, *Competitive Environmental Strategy: A Guide to the Changing Business Landscape* (Washington, DC: Island Press, 2000).



When the stumpage prices for several species of saw timber from national forests increased and steel prices remained relatively stable, the economics between building a house with steel versus wood became more competitive. Attempting to capitalize on this economic opportunity, the steel industry sponsored an advertising campaign on steel's environmental benefits, referring to it as the world's most recycled material.⁸³ With the environment as the new battleground, the lumber industry has found a strong new competitor in the steel industry.

Competition is also changing around social issues. As companies enter global markets, they are finding that their positioning on issues like living wages, health care, community engagement and environmental standards are gaining prominence alongside taxes paid and jobs created. Companies now find themselves providing health care for workers as well as local community and building community centers, sewage treatment facilities, and housing and water

distribution systems in order to be seen as positive contributors to society. Exxon Mobil recently made an unusual agreement with the government of Chad to pay 80 percent of tax revenues from its pipeline operation into an escrow account managed by the World Bank for schools, clinics, roads and other basic needs. While the deal was renegotiated in July 2006 after the government reneged, a major multinational acknowledging the social and environmental impact of its private investment (the project will double Chad's per capita GDP in two years) and trying to benefit the people in its host country sets a powerful precedent for other companies.

This kind of redefinition of the competitive landscape is not just affecting international operations. In the weeks following Hurricane Katrina, companies found themselves under close scrutiny for how they handled their workers and the community. CVS, the largest pharmacy chain in the United States, ignored the economic incentives to close its devastated shops and leave

the area. Instead, it set up mobile pharmacies, gave away thousands of medications to people without prescriptions or even identification, flew in employees from Florida, Michigan and Illinois, kept stores open 24-hours-a-day to meet demand, and set up a hotline to locate and help evacuated employees.⁸⁴

The sustainability challenge requires companies to adopt new strategies, engage new constituents, use new skills and tactics and seek new goals that are not just economic but also social and environmental. Rising to this challenge requires seeing the sustainability-related market shifts and understanding their implications for your business, developing and executing an effective strategy that addresses these market shifts, and creating an organization that can make the necessary changes while still outperforming the competition.

83. Ibid.

84. Andrew Hoffman, "The Real Thing: Coca-Cola Learns a Tough Lesson About Corporate Sustainability," *Grist*, September 5, 2006.

III. Looking to sustainability's future

The biggest sustainability challenges we face at present are rooted in environmental and social issues. Six major environmental challenges include climate change, water scarcity, habitat change, loss of biodiversity/invasive species, overexploitation of oceans and nutrient overloading. Four key social challenges are resolving regional conflicts, developing aid and trade regimes to promote development in poor regions, resolving health care and pension issues in the developed world, and balancing the risks and rewards of new technologies.

In order to address these challenges or reverse them, the Millennium Ecosystem Assessment has identified five areas in which changes need to be implemented: institutions and governance, economics and incentives, social and behavioral, technological and knowledge. Each of these has implications for how businesses are affected.

Institutions and governance

Because sustainability issues are global, more coordination is needed among international economic and social institutions, and multilateral agreements need to be in place for environmental issues. In addition, greater transparency

and accountability is required both of governments and the private sector. Stakeholders must also be included in the process.

Sustainability is poised to affect change through a variety of new market shifts as the number and type of institutions participating in the process continues to expand. There are at least four new market shifts that Accenture believes could play out.

Negative Becomes the New Neutral:

Today, companies are focused on setting and achieving goals of neutrality, such as carbon neutrality and water neutrality. As a critical mass of companies achieve such goals, companies seeking ways to be distinctive could pursue a set of new goals—carbon negative or water negative. For example, BASF is communicating its belief that the carbon its products help its consumers avoid is greater than the carbon that is emitted in the process of delivering these products. As a result, BASF claims to be carbon negative.

All for One, A Carbon Price for All:

The EU ETS (Emissions Trading Scheme) has established a market that sets a price for carbon. Observers believe that a similar market system will be established

in the United States once a new presidential administration takes office. Savvy companies will find ways to work within these two systems to invest and operate wherever the carbon price is lower; this, in turn, may impact the efficacy of carbon policies. A way to eliminate this potential situation is by linking the geographical carbon markets so that one carbon price emerges that would apply where carbon regulations are in force.

The Triple Bottom Line Will Revert to A Single Bottom Line, with a Twist:

One of the benefits of Elkington's work on the TBL is that it calls attention to corporations' environmental and social interactions. This approach makes sense today—measuring and managing environmental and social interactions might seem like uncharted territory for many companies. As standard metrics for each type of interaction continue to emerge, we might reach a point where companies consider their environmental and social interactions as concomitant with their financial decisions, thus negating the need to think in terms of three separate but inseparable interactions.

Sustainability Will Evolve from Money Saver to Money Maker:

We suspect that more companies are considering sustainability actions that will produce energy efficiencies and/or reduce their carbon emissions. As more and more companies adopt these practices, visionary companies will seek new paths to distinction. One way they will achieve distinction, even if just in the short term, is through introducing products and services that are based on sustainable development principles.

Economics and incentives

Economic approaches towards sustainability call for a greater use of instruments and market-based approaches such as, for instance, carbon pricing and similar schemes. In addition, the Millennium Ecosystem Assessment calls for the need to eliminate subsidies that promote excessive use of the ecosystem such as agricultural subsidies.

The use of such economic instruments and incentives has numerous implications for businesses. For instance, companies in particular sectors (for example, agriculture, energy, forestry) need to anticipate future regulation on environmental and social issues and prepare for those issues. Companies may want to hedge and manage carbon pricing and track their carbon footprint. Companies operating in subsidized sectors may invest in alternative skills and technologies to redirect their business to other sectors. To improve efficiency and lower costs, companies may need to source local products to minimize transportation and associated environmental costs. In addition, management of risk and insurance is crucial.

Behavioral and social

From a behavioral and social perspective, changes are needed in aggregate consumption if we are to build a sustainable world. This requires an increase in education, communication and empowerment of groups, in particular women, young people and indigenous peoples, that depend directly on and are affected by ecosystems. In addition, issues such as HIV/AIDS and other preventable infectious diseases need to be addressed. All of these things require a change in values and demands from society and consumers.

While many of these issues pertain to consumer behavior, businesses can also adjust their behavior and social actions to be more responsible toward society. For instance, businesses can increase the

availability of green products and services, giving consumers a choice for sustainable action. In addition, they can provide detailed and reliable information about the sustainability of their products, through more rigorous eco-labeling schemes and consumer education. Companies can also play a sustainable role in reducing travel and transport through sourcing local products and increased use of information and communication technologies.

Companies gain beneficial reputation and legitimacy effects from taking action on sustainability, but they must be careful to avoid "green washing." Charitable donations are commendable, but capacity building is longer lasting—by developing a workforce, educating people and creating a market in previously under-developed regions, companies can contribute to social welfare. "Base of pyramid" business models aim to do just that. However, there are also many arguments against such models that can be viewed cynically as ways to exploit nations.

Technological

Technology plays an important role in sustainable development, but can also be harmful. The types of technology that can promote sustainability include those that increase energy efficiency, reduce greenhouse gas emissions, enable crop yields without harming water or nutrients and minimize pesticide use, and restore ecosystem services.

Given that the bulk of research and development is conducted in industry,⁸⁵ business plays an important role in technological development and innovation. Different industries will have very different priorities regarding the types of technology to develop. For instance, the power industry may need to consider development of renewable energy technologies, such as solar and wind. In turn, this affects related business, such as those that make turbines, aluminum or steel, or semiconductor technologies for photovoltaics. In researching and developing new technologies such as renewable energy, cost-benefit analyses and trade-offs need to be considered. For instance, the use of biofuels as a renewable energy source may appear beneficial to address society's growing energy needs, but is less attractive in the context of the food crisis and related social unrest occurring in many countries across the world.

Technological development for sustainability applies to many industries. The management of material use and waste flows is important to all companies

that pollute, not just the waste management industry—the solution may rely on design for the environment so that products do not become useless at the end of their life cycle, extracting raw materials in better ways or ensuring water exits production cleaner than it entered. Alternative solutions may rest on industrial ecology principles mentioned earlier. Any company that owns real estate may need to consider greening its buildings; any company that relies on transportation of its goods will want to address weight of products and packaging to reduce bulk transport and associated pollutions or eliminate the need for materials to be sourced half way across the world.

Knowledge

Knowledge refers to the building of information, skills and expertise regarding the environment and business interface. Sustainability is an area of business that requires non-market values of the ecosystem to be incorporated in research management and investment decisions. To this end, all forms of knowledge are important, including traditional and practitioner knowledge. Using knowledge in this manner enhances the human and institutional capacity to assess the consequences of sustainability decisions and their impact on human well-being.

Businesses are affected by knowledge creation for sustainability because it is a complex and interdisciplinary issue. Thus, it requires talent development through tertiary education and interdisciplinary cooperation. Locals and expert practitioners need to be engaged—in other words, companies will need to engage new sets of stakeholders, or old stakeholders more intensely. In pursuing sustainability goals, companies therefore find themselves working together with local communities, NGOs and governments that might previously have been outside the corporate radar.

In addition, companies will want to recruit and retain employees with environmental and social as well as business or industry knowledge. Recruiting such people can extend a company's sustainability reach, and contribute to innovation through which a firm may gain tacit knowledge and competitive advantage.

Sustainability is a huge imperative that continues to evolve. While sustainability's future form continues to take shape, the imperative's impact on the corporate agenda is clear and here for the foreseeable future.

85. National Science Board, Science and engineering indicators 2008, Volume 1, NSB 08-01 and Volume 2, NSB 08-01A. Arlington, VA: National Science Foundation.



Selected references

Definitions of sustainability

Don S. Doering et al., *Tomorrow's Markets: Global Trends and Their Implications for Business* (Geneva, Switzerland: World Business Council for Sustainable Development, 2002).

John Elkington, *Cannibals with Forks: The Triple Bottom Line for 21st Century Business* (Oxford: Capstone, 1998).

Stuart Hart, "Beyond Greening: Strategies for a Sustainable World," *Harvard Business Review*, January–February, 1997.

World Commission on Environment and Development, *Our Common Future* (New York: Oxford University Press, 1987).

Challenges to sustainability

Ian Davis, "The Biggest Contract," *The Economist*, May 26, 2005.

Wayne Norman and Chris MacDonald, "Getting to the Bottom of the 'Triple Bottom Line'," *Business Ethics Quarterly* 14 (2003): 1 – 13.

The state of the environment

Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Synthesis Report* (Washington DC: Island Press, 2005).

Bottom of the pyramid

Stuart Hart, *Capitalism at the Crossroads: The Unlimited Business Opportunities in Solving the World's Most Difficult Problems* (Upper Saddle River: Wharton School Publishing, 2005).

C.K. Prahalad, *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits* (Upper Saddle River: Wharton School Publishing, 2004).

Climate change

Douglas Cogan, *Corporate Governance and Climate Change: Making the Connection* (Boston: Percent Inc., 2006).

Andrew Hoffman, "Examining the Rhetoric: The Strategic Implications of Climate Change Policy," *Corporate Environmental Strategy* 9, no. 4 (2002): 329 – 337.

Andrew Hoffman and John Woody, *Climate Change: What's Your Business Strategy? (Memo to the CEO)* (Boston: Harvard Business School Press, 2008).

Andrew Hoffman, *Carbon Strategies: How Leading Companies Are Reducing Their Climate Change Footprint* (Ann Arbor, MI: University of Michigan Press, 2007).

Stephen Pacala and Robert Socolow, "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies," *Science* 305 (August, 2004): 968 – 972.

Sir Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, England: Cambridge University Press, 2007).

Future issues

Thomas Barnett, *The Pentagon's New Map* (New York: Berkley Books, 2003).

John Ehrenfeld, *Sustainability by Design: A Subversive Strategy for Transforming Our Consumer Culture* (New Haven: Yale University Press, 2008).

Paul Hawken, *The Ecology of Commerce* (New York: HarperCollins, 1993).

Paul Hawken, Amory Lovins, and Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution*, (New York: Little, Brown and Company, 1999).

James Gustave Speth, *The Coming Transformation: America, Capitalism and the Environmental Future* (New Haven: Yale University Press).

About Accenture

Accenture is a global management consulting, technology services and outsourcing company. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. With more than 187,000 people serving clients in over 120 countries, the company generated net revenues of US\$23.39 billion for the fiscal year ended Aug. 31, 2008. Its home page is www.accenture.com.

About the World Business Council for Sustainable Development

The World Business Council for Sustainable Development (WBCSD) is a unique, CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development. The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments and non-governmental and intergovernmental organizations. www.wbcsd.org

Copyright © 2009 Accenture
All rights reserved.

Accenture, its logo, and
High Performance Delivered
are trademarks of Accenture.

About the Authors

Eric M. Lowitt is a Research Fellow at the Accenture Institute for High Performance, where his research focuses on the connection between sustainability and high performance. Eric's research has contributed to highly visible articles and publications such as "The Chief Strategy Officer" (Harvard Business Review, October 2007) and *Competing on Analytics* (Harvard Business School Press, 2007).

Andrew J. Hoffman is the Holcim (United States) Professor of Sustainable Enterprise at the University of Michigan. He has published seven books and more than 70 articles/book chapters on environmental and social issues as they relate to business. Andrew's latest book, *Memo to the CEO: Climate Change. What's Your Strategy?*, was released by Harvard Business Press in April 2008.

Judith L. Walls is an Alcoa Foundation Post-Doctoral Research Fellow at the University of Michigan's Erb Institute for Global Sustainable Enterprise. Her work focuses on corporate governance and environmental strategy. In 2008, Judith published a book chapter on innovation in energy-efficient lighting. She also published a Harvard Business School case study on ecopreneurship of an NGO in 2004.

Anna M. Caffrey is a research associate at the Accenture Institute for High Performance. Her research includes a variety of topics such as sustainability, corporate governance practices, and NGO-corporate partnerships.

About the Accenture Institute for High Performance

The Accenture Institute for High Performance develops and publishes practical insights into critical management issues and global economic trends. Its worldwide team of researchers connects with Accenture's consulting, technology and outsourcing leaders to demonstrate, through original, rigorous research and analysis, how organizations become and remain high performers.