Creating Sustainable Value [and Executive Commentary]
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Academy of Management Executive, 2003, Vol. 17, No. 2

Creating sustainable value

Stuart L. Hart and Mark B. Milstein

Executive Overview

Just as the creation of shareholder value requires performance on multiple dimensions, the global challenges associated with sustainable development are also multifaceted, involving economic, social, and environmental concerns. Indeed, these challenges have implications for virtually every aspect of a firm's strategy and business model. Yet, most managers frame sustainable development not as a multidimensional opportunity, but rather as a one-dimensional nuisance, involving regulations, added cost, and liability. This approach leaves firms ill-equipped to deal with the issue in a strategic manner. Accordingly, we develop a sustainable-value framework that links the challenges of global sustainability to the creation of shareholder value by the firm. Specifically, we show how the global challenges associated with sustainable development, viewed through the appropriate set of business lenses, can help to identify strategies and practices that contribute to a more sustainable world while simultaneously driving shareholder value; this we define as the creation of sustainable value by the firm.

"Sustainability is as foreign a concept to managers in capitalist societies as profits are to managers in the former Soviet Union."

—William Ruckelshaus
First EPA Administrator

With the fall of communism over a decade ago, capitalism has emerged as the dominant economic ideology in the world. Unfortunately, the results produced by ten years of global capitalism have not been uniformly positive.[1] Saturation in the developed markets, a widening gap between rich and poor, growing levels of environmental degradation, and concern that the developing world may be losing control over its own destiny have combined to create drag on the global economy.[2] The terrorist attacks in the U.S. on September 11, 2001 made it clear that the world is inextricably interconnected and that poverty, hopelessness, and perceived exploitation in one part of the world will not remain geographically isolated.[3] Increasingly, global capitalism is being challenged to include more of the world in its bounty and protect the natural systems and cultures upon which the global economy depends.[4]

The idea of sustainability has come to represent these rising expectations for social and environmental performance. Global sustainability has been defined as the ability to "meet the needs of the present without compromising the ability of future generations to meet their needs."[5] Similarly, sustainable development "is a process of achieving human development . . . in an inclusive, connected, equitable, prudent, and secure manner."[6] A sustainable enterprise, therefore, is one that contributes to sustainable development by delivering simultaneously economic, social, and environmental benefits—the so-called triple bottom line.[7]

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Beyond this broad consensus on terminology, however, there remains disagreement among managers regarding the specific meaning of and motivation for enterprise-level sustainability.[8] For some managers, it is a moral mandate; for others, a legal requirement. For still others, sustainability is perceived as a cost of doing business—a necessary evil to maintain legitimacy and right to operate. A few firms have begun to frame sustainability as a business opportunity, offering avenues for lowering cost and risk, or even growing revenues and market share through innovation.[9]

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For most firms, the pursuit of enterprise sustainability remains difficult to reconcile with the objective of increasing shareholder value. Indeed, some have even advocated that creating a more sustainable world will require firms to sacrifice profits and shareholder value in favor of the public good.[10] By starting with legal or moral arguments for firm actions, however, managers inevitably underestimate the strategic business opportunities associated with this important issue. To avoid this problem, managers need to directly link enterprise sustainability to the creation of shareholder value. The global challenges associated with sustainability, viewed through the appropriate set of business lenses, can help to identify strategies and practices that contribute to a more sustainable world and, simultaneously, drive shareholder value; this we define as the creation of sustainable value for the firm.

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This article develops the strategic logic for the pursuit of sustainable value. We begin by specifying a multidimensional model of shareholder value creation. Next, we describe the emerging challenges associated with global sustainability. Finally, we demonstrate how, through appropriate business strategies and practices, the above challenges are being converted by companies into initiatives to increase shareholder value. We close with some thoughts about how to create truly sustainable value.

Shareholder Value Is a Multidimensional Construct

Figure 1 illustrates the basic components for our shareholder-value framework. The model is built using two well-known dimensions that are a source of creative tension for firms. The vertical axis in the model reflects the firm's need to manage today's business while simultaneously creating tomorrow's technology and markets. This dimension captures the tension experienced by the need to realize short-term results while also generating expectations for future growth.[11] The horizontal axis reflects the firm's need to grow and protect internal organizational skills and capabilities while simultaneously infusing the firm with new perspectives and knowledge from the outside. This dimension reflects the tension experienced by the need to buffer the technical core so that it may operate without distraction, while at the same time remaining open to fresh perspectives and new, disruptive models and technologies.[12]

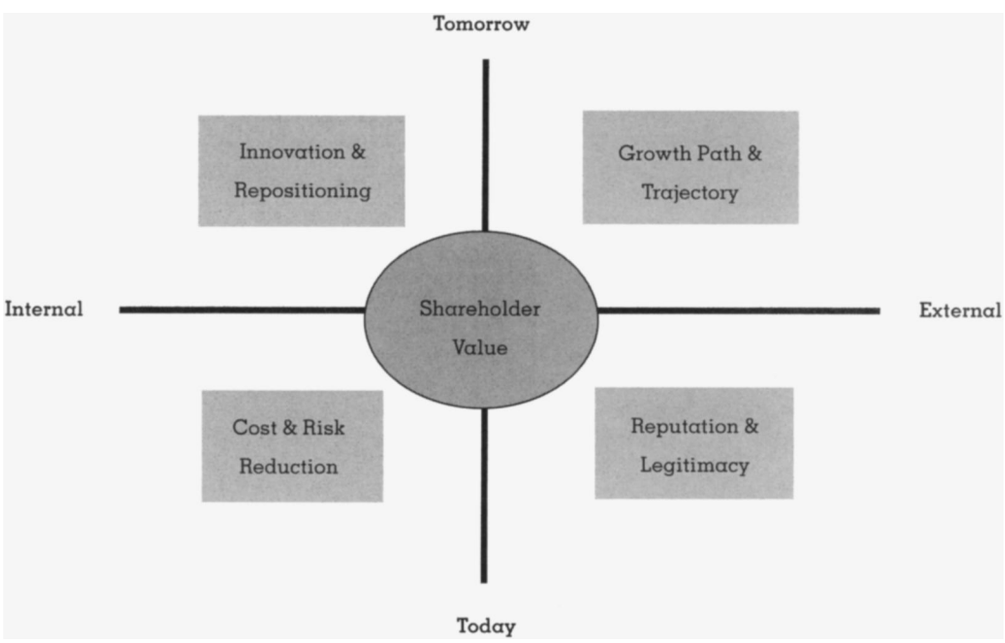

FIGURE 1
Key Dimensions of Shareholder Value

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Juxtaposing these two dimensions produces a matrix with four distinct dimensions of performance crucial to generating shareholder value. The lower-left quadrant focuses on those aspects of performance that are primarily internal and near-term in nature: cost and risk reduction. Quarterly earnings growth and reduction in exposure to liabilities and other potential losses are important drivers of wealth creation. Clearly, unless the firm can operate efficiently and reduce its risk commensurate with returns, shareholder value will be eroded.

The lower-right quadrant also focuses on performance dimensions that are near-term in nature but extends to include salient stakeholders external to the firm—suppliers and customers in the immediate value chain, as well as regulators, communities, NGOs, and the media. Without appropriate inclusion of these stakeholder interests, the firm's right to operate may be called into question. Creative inclusion of these stakeholder interests can foster a differentiated position for the firm, leading to the enhanced reputation and legitimacy crucial to the preservation and growth of shareholder value.

Shifting to the upper-left quadrant of the model, the firm must not only perform efficiently in today's businesses but should also be constantly mindful of generating the products and services of the future. Internally, this means developing or acquiring the skills, competencies, and technologies that reposition the firm for future growth. Without such a focus on innovation, it will be difficult for the firm to create the new product and service flow needed to ensure that it prospers well into the future. The creation of shareholder value thus depends upon the firm's ability to creatively destroy its current capabilities in favor of the innovations of tomorrow.

Finally, the upper-right quadrant focuses on the external dimensions associated with future performance. Credible expectations for future growth are key to the generation of shareholder value; this depends upon the firm's ability to articulate a clear vision of what its future growth path and trajectory will be. A convincing growth trajectory requires either that the firm offer new products to existing customers or tap into previously unserved markets. The growth trajectory provides guidance and direction for new technology and product development.

Firms must perform well simultaneously in all four quadrants of the model on a continuous basis if they are to maximize shareholder value over time.[13] Performing within only one or two quadrants is a prescription for suboptimal performance and even failure. Firms like Kodak and Xerox, which failed to adequately invest in digital technology, illustrate how overemphasis on today's business (to the exclusion of tomorrow's technology and markets) may generate wealth for a time but will eventually erode shareholder value as competitors enter with superior products and services.[14] Similarly, the recent experience of many Internet companies stands as testimony to how preoccupation with tomorrow's business (to the exclusion of performing today) may be exciting and challenging, but short-lived.[15] Finally, companies such as Monsanto, which failed to adequately address stakeholder concerns over genetically modified food, demonstrate that overemphasis on the internal aspects of the firm may enable short-term execution but will ultimately blind the firm to the external perspectives that are so important to legitimacy and competitive imagination.[16]

Just as the creation of shareholder value requires performance on multiple dimensions, sustainable development is also a multidimensional challenge. Yet, most managers frame sustainability not as a multidimensional opportunity, but rather as a one-dimensional nuisance.[17] Nevertheless, the multiple challenges associated with global sustainability, seen through the appropriate business lenses, can help to identify strategies and practices which improve performance in all four quadrants of the shareholder-value framework. This, in turn, facilitates the creation of sustainable value for the firm.

Most managers frame sustainability not as a multidimensional opportunity, but rather as a one-dimensional nuisance.

Global Drivers of Sustainability

There are four sets of drivers related to global sustainability. A first set of drivers relates to increasing industrialization and its associated material consumption, pollution, and waste generation. Industrial activity has grown to the point where it may now be having irreversible effects on the global environment, including impacts on climate, biodiversity, and ecosystem function.[18] While industrialization has produced tremendous economic benefits, it has also generated significant pollution burdens and continues to consume virgin materials, resources, and fossil fuels at an increasing rate.[19] Resource efficiency and pollution prevention are therefore crucial to sustainable development.

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A second set of drivers relates to the proliferation and interconnection of civil society stakeholders. As the power of national governments has eroded in the wake of global trade regimes, non-governmental organizations (NGOs) and other civil society groups have stepped into the breach, assuming the role of monitor and in some cases enforcer of social and environmental standards.[20] At the same time, the spread of the Internet and information technology has enabled these groups to communicate with each other in ways that were unimaginable even a decade ago. Internet-connected coalitions of NGOs are making it increasingly difficult for governments, corporations, or any large institutions to operate in secrecy.[21] Sustainable development thus challenges firms to operate in a transparent, responsive manner due to a very well-informed, active stakeholder base.

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A third set of drivers relates to emerging technologies that may provide potent, disruptive solutions that could render the basis of many of today's energy- and material-intensive industries obsolete.[22] Genomics, biomimicry, nanotechnology, information technology, and renewable energy all hold the potential to drastically reduce the human footprint on the planet, making the problems of rapid industrialization all but obsolete.[23] For example, bio- and nanotechnology create products and services at the molecular level, holding the potential to eliminate the concept of waste and pollution.[24] Similarly, biomimicry represents an attempt to emulate nature's processes to create novel products and services without having to rely on brute force to hammer out goods from large stocks of virgin raw materials.[25] Information technology and renewable energy are distributed in character, meaning that they can be applied in the most remote and small-scale settings imaginable, eliminating the need for centralized infrastructure and wireline distribution, both of which are environmentally destructive.[26] Distributed technologies thus hold the potential to meet the needs of the billions of rural poor (who have thus far been largely ignored by global business) in a way that dramatically reduces environmental impact.[27] Innovation and technological change are thus key to the pursuit of sustainable development.

Finally, a fourth set of drivers relates to the increases in population, poverty, and inequity associated with globalization. While it took thousands of years for the human population to reach 1 billion, that number has swollen to over 6 billion in just the past two generations.[28] Such rapid population growth has resulted in massive migration from rural areas to cities and growing inequities in income. Today, for example, over 4 billion people survive on less than $1500 per year, the minimum income needed to avoid serious deprivation.[29] The combination of rising population and growing inequity is increasingly recognized as a prescription for accelerating social decay, political chaos, and terrorism.[30] Social development and wealth creation on a massive scale, especially among the world's poorest 4 billion, therefore appear to be essential to sustainable development.[31] However, such development must follow a fundamentally different course if it is not to result in ecological meltdown.[32]

In short, global sustainability is a complex, multi-dimensional concept that cannot be addressed by any single corporate action. Creating sustainable value thus requires that firms address each of the four broad sets of drivers. First, firms can create value by reducing the level of material consumption and pollution associated with rapid industrialization. Second, firms can create value by operating at greater levels of transparency and responsiveness, as driven by civil society. Third, firms can create value through the development of new, disruptive technologies that hold the potential to greatly shrink the size of the human footprint on the planet. Finally, firms can create value by meeting the needs of those at the bottom of the world income pyramid in a way that facilitates inclusive wealth creation and distribution.

Connecting the Dots: The Sustainable Value Framework[33]

If viewed through the appropriate set of business lenses, it becomes clear how the sustainability drivers discussed above present opportunities for firms to improve all four dimensions of shareholder value. As illustrated in Figure 2 (and described in more detail below), each driver of sustainability, and its associated business strategies and practices, corresponds to a particular dimension of shareholder value. Thinking through the full range of challenges and opportunities is the first step managers can take toward the creation of sustainable value for the corporation.

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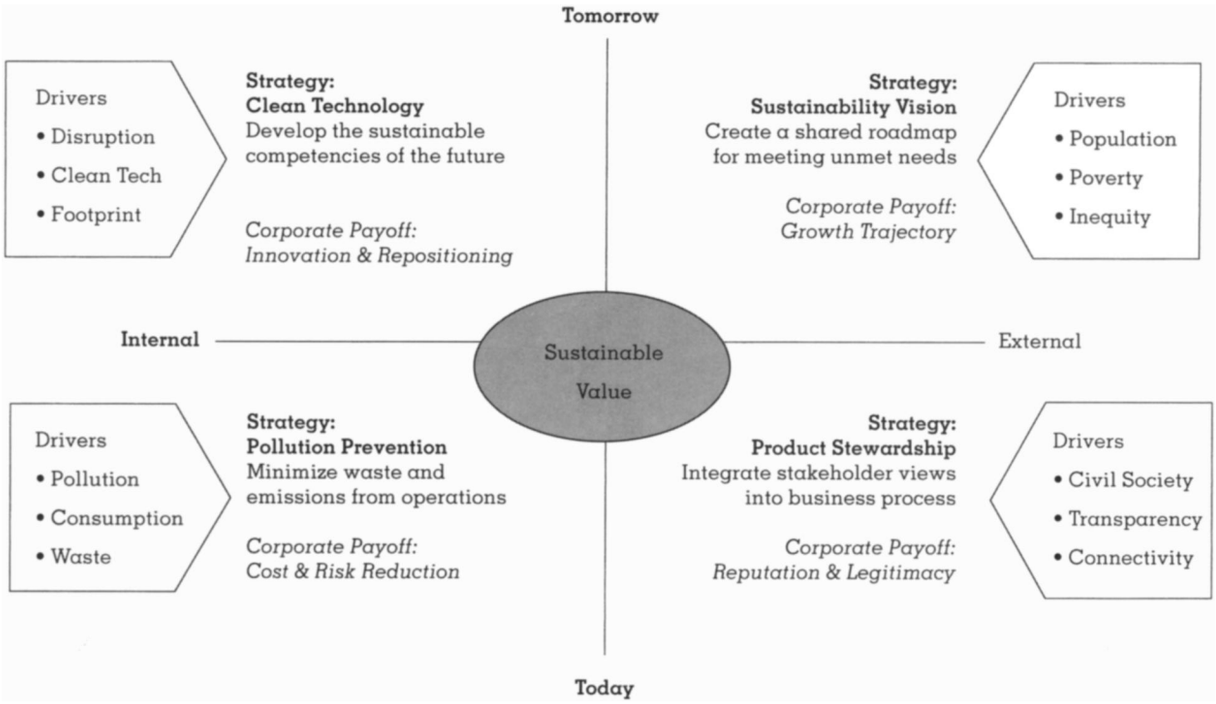

FIGURE 2
Sustainable Value Framework

Growing Profits and Reducing Risk Through Pollution Prevention

The problems of material consumption, waste, and pollution associated with industrialization present an opportunity for firms to lower cost and risk through the development of skills and capabilities in pollution prevention and eco-efficiency.[34] Pollution prevention is focused on improving the environmental efficiency of today's products and processes—that is, reducing waste and emissions from current operations. Less waste means better utilization of inputs, resulting in lower costs for raw materials and waste disposal. Effective pollution prevention requires extensive employee involvement, along with well-developed capabilities in continuous improvement and quality management.[35] By deriving more saleable product or service per pound of input, pollution prevention can lead to lower costs and reduced risk. Environmental management systems (e.g., ISO 14000) built on total quality principles provide guidance for the development of systematic processes geared toward removing waste and lowering risk throughout a firm's operations.[36]

Programs that reduce waste and emissions through eco-efficiency have been widely adopted by firms over the past decade and include such notable cases as Dow Chemical's Waste Reduction Always Pays (WRAP) and Chevron's Save Money and Reduce Toxics (SMART). Additionally, pollution-prevention programs have proliferated at the industry level and receive a great deal of attention from regulatory bodies both in the United States as well as Europe as potential alternatives to command-and-control regulation.[37] The well-publicized results of pioneering programs like 3M's Pollution Prevention Pays (3P) illustrate the direct, bottom-line benefits that can be realized through pollution prevention.[38] Indeed, between 1975 and 1990, 3M reduced its total pollution by over 530,000 tons (a 50 per cent reduction in total emissions) and, according to company sources, saved over $500 million through lower raw material, compliance, disposal, and liability costs. In 1990, 3M embarked on 3P+ which sought to reduce the remaining waste and emissions by 90 per cent with the ultimate goal being zero pollution.[39]

Extensive empirical work has also now made it evident that, with the appropriate set of skills and capabilities (e.g., employee involvement, continuous improvement), firms pursuing pollution-prevention and waste-reduction strategies actually do reduce cost and increase profits.[40] Pollution prevention thus provides managers with the clearest, fastest way to increase shareholder value by growing the bottom line for existing businesses through reductions in cost and liability.

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Enhancing Reputation and Legitimacy Through Product Stewardship

Whereas pollution prevention focuses on internal operations, product stewardship extends beyond organizational boundaries to include the entire product life cycle—from raw material access, through production processes, to product use and disposal of spent products.[41] Product stewardship thus involves integrating the voice of the stakeholder into business processes through extensive interaction with external parties such as suppliers, customers, regulators, communities, non-governmental organizations, and the media. As such, it offers a way to both lower environmental impacts across the value chain and enhance legitimacy and reputation by involving stakeholders in the conduct of on-going operations.[42] By constructively engaging stakeholders, firms increase external confidence in their intentions and activities, helping to enhance corporate reputation and catalyze the spread of more sustainable practices within the business system at large.[43]

By constructively engaging stakeholders, firms increase external confidence in their intentions and activities.

There are many actions firms can take to increase shareholder value through product stewardship. Cause-related marketing efforts appeal to consumers' desires to associate their actions (purchases) with products that have positive social and environmental benefits.[44] Life-cycle management extends the value chain beyond traditional firm boundaries by including costs and benefits of products from raw materials to production and ultimately to disposal by consumers.[45] Through industrial ecology, firms can even convert the wastes from one operation into the inputs to another.[46]In 1997, for example, Collins & Aikman Floorcoverings became the first carpet manufacturer to develop the capability to convert old carpet and post-industrial PVC waste into new carpet backing for a new product line. Called ER3 (which stands for Environmentally Redesigned, Restructured, and Reused), this product has been central to the company's growing reputation for environmentally sustainable products and has helped to fuel gains in market share against competitors.[47]

Companies such as Weyerhaeuser and Shell have increased the use of stakeholder engagement through town hall-style meetings, Internet-based comment boxes, and other tools designed to provide venues for stakeholders to voice their opinions about a firm's operations. In Europe, a strong regulatory environment coupled with a very active NGO community has led firms to pursue more collaborative approaches in addressing business issues. Together with industry, European governments are moving forward with leading legislation concerning take-back laws for electrical, electronic, and appliances manufacturers.[48]

The company Nike serves as a recent, salient example of the value of product stewardship. Faced with growing backlash in the late 1990s regarding its labor and environmental practices, the company turned to product-stewardship strategies to recover its reputation and preserve its right to operate. The company enacted a worldwide monitoring program for all contract factories, using both internal and third-party auditors such as PriceWaterhouseCoopers. Nike also became a charter member of the Fair Labor Association (FLA), a non-profit group that evolved out of an anti-sweatshop coalition of unions, human rights groups, and businesses. Additionally, Nike helped found the Global Alliance, a partnership among the International Youth Foundation, the MacArthur Foundation, and the World Bank dedicated to improving workers' lives in emerging economies.[49]

Aside from taking action on the labor (social) front, Nike also took action environmentally. Footwear designers started evaluating their new prototypes against a product-stewardship scorecard, using life-cycle analysis. Nike also launched the Reuse a Shoe Project to downcycle old, unwanted footwear. Nike retailers collected shoes and shipped them back to the company where they ground and separated the materials. Through partnerships with sports surfacing companies, the outsole rubber and midsole foam were turned into artificial athletic surfaces. Profits from this business generated income for the Nike Foundation and the funding of sport surface donations.[50]

As the Nike case makes clear, firms use product stewardship to demonstrate that stakeholder voices and opinions matter and can affect company behavior. Like pollution prevention, product stewardship is centered on improving existing products and services. As a consequence, changes are immediate and value is realized quickly in the form of improved community relations, legitimacy, and brand reputation.

Accelerating Innovation and Repositioning Through Clean Technology

Clean technology refers not to the incremental improvement associated with pollution prevention,

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but to innovations that leapfrog standard routines and knowledge.[51] The rapid emergence of disruptive technologies such as genomics, biomimicry, information technology, nanotechnology, and renewable energy present the opportunity for firms—especially those heavily dependent upon fossil fuels, natural resources, and toxic materials—to reposition their internal competencies around more sustainable technologies.[52] Thus, rather than simply seeking to reduce the negative impacts of their operations, firms strive to solve social and environmental problems through the internal development or acquisition of new capabilities that address the sustainability challenge directly.[53] The sustainable competencies that emerge from the search for clean technologies are central to a firm's efforts to reposition its internal skill set for the development and exploitation of future markets.

A growing number of firms have begun to develop the next generation of clean technology to drive future economic growth. BP and Shell are ramping up investments in solar, wind, and other renewable technologies that might ultimately replace their core petroleum businesses. In the automotive sector, Toyota and Honda have already entered the market with hybrid power systems in their vehicles, which dramatically increase fuel efficiency. They also launched a market experiment in fuel cell vehicles in Japan at the end of 2002. Also in 2002, General Motors launched the AUTOnomy project—a bold $1 billion initiative to reinvent the automobile around hydrogen fuel cell technology. While many automakers have fuel cell initiatives, most see the expensive combination of a fuel cell with a big electric motor as a simple replacement for the engine, which makes such vehicles economically uncompetitive compared to current technology. GM, in contrast, has taken a clean-sheet approach, not only to vehicle design but also to the entire manufacturing system. By radically simplifying the design around a fuel cell which doubles as the vehicle's chassis, GM hopes to compensate for the higher cost of the fuel cell by drastically reducing sourcing and production costs. While many carmakers talk of a transition to alternative power taking 20–30 years, GM, Toyota, and Honda are committed to making it a commercial reality within a decade.[54]

In addition, firms such as General Electric, Honeywell, and United Technologies are investing in technologies that would lead to the development of small-scale, widely distributed energy systems that could make centralized coal-fired and nuclear power plants obsolete. Finally, firms such as Cargill and Dow are exploring the development of biologically based polymers to enable renewable feedstocks such as corn to replace petrochemical inputs in the manufacturing of plastics. Each of these cases is notable for the willingness of firms to disrupt the very core technologies upon which their businesses currently depend.

DuPont is an example of a large corporation with a well-developed clean-technology strategy. In the late 1800s, DuPont transformed itself from a manufacturer of gunpowder and explosives into a chemical company, focused on the production of synthetic materials using petroleum feedstocks. This strategy produced nearly a century of success with such well-known blockbuster products as Nylon, Lycra, Teflon, Corian, and Kevlar.

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In the late 1990s, DuPont embarked on its second major transformation—from an energy-intensive petrochemical company to a renewable-resource company focused on sustainable growth.[55] To realize this transformation, the company has pursued an aggressive strategy of acquisition, divestiture, and internal technology development. Over the past decade, for example, DuPont has invested in excess of $15 billion in biotechnology, including the acquisition of Pioneer Hi-Bred, a major player in the agricultural biotech business. It has also divested resource- and energy-intensive businesses such as its oil subsidiary (Conoco) in the 1990s and, most recently, its core Nylon and Lycra businesses in 2003.

In an effort to shrink its footprint dramatically, the company has set bold targets for 2010—to reduce greenhouse gas emissions by two-thirds while holding total energy use flat, and to increase its use of renewable resources to 10 per cent of global energy needs. To hit such ambitious targets while continuing to grow as a company, DuPont must fundamentally reorient its technology base toward biology (e.g., genomics and biomimicry), renewable energy (e.g., fuel cells) and information (i.e., knowledge-intensive rather than resource-intensive products). To accelerate this process, DuPont is creating a venture fund focused on sustainable technology development and innovations aimed at the developing world.

Bold strategies in clean technology continue to be less common among large, established corporations than are activities in pollution prevention or product stewardship. Payoffs from such invest-

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ments take time and are determined more by trial and error than internal hurdle rates. Entrenched corporate mindsets and standard operating procedures suppress the creation of structures that can catalyze innovation. The risks associated with such investments stand in stark contrast to the risk-reducing efforts associated with the pollution-prevention programs discussed above. Firms that invest in clean-technology solutions tend to pursue more novel approaches to long-term challenges and create organizational environments supportive of the innovation process. Future economic growth will be driven by those firms that are able to develop disruptive technologies that address society's needs. The evidence is increasingly clear that firms that fail to lead the development and commercialization of such technologies are unlikely to be a part of tomorrow's economy.[56]

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Crystallizing the Firm's Growth Path and Trajectory Through a Sustainability Vision

The growing gap between rich and poor, and the unmet needs of those at the bottom of the economic pyramid, present opportunities for firms to define a compelling trajectory for future growth.[57] The realization of a more inclusive form of capitalism characterized by two-way dialogue and collaboration with stakeholders previously overlooked or ignored by firms (e.g., radical environmentalists, shantytown dwellers, the rural poor in developing countries) can help to open up new pathways for growth in previously unserved markets.[58] Thus, a sustainability vision that facilitates competitive imagination by creating a shared roadmap for tomorrow's business provides guidance to employees in terms of organizational priorities, technology development, resource allocation, and business model design.

The Grameen Bank in Bangladesh is perhaps the best known example of how a sustainability vision can open up a completely new pathway for business growth.[59] Over twenty years ago, Muhammad Yunas, an economics professor at the time, conceived the idea of a bank focused on offering micro-credit loans to the poorest of the poor. Most bankers assumed that laziness or lack of competence were the reasons that so many lived in abject poverty. As a result, they focused their attention on more affluent customers. But Yunas discovered that the poor were, for the most part, energetic, motivated, and knew exactly what they needed to move themselves forward—gaining access to small amounts of credit to launch or expand small enterprises—and built his enterprise to serve this need. By the late 1990s, Grameen Bank was providing microcredit services in more than 40,000 villages, better than half the total number in Bangladesh. The competitive imagination of Grameen Bank has led to a global explosion of institutional interest in microlending over the past decade, including recent entry into this domain by financial giants such as Citigroup.

Increasingly, MNCs are recognizing that listening to the voices of the poor and disenfranchised can be a source of creativity and innovation. For example, Hindustan Lever Ltd. (HLL), a subsidiary of Unilever PLC, has pioneered market development among the rural poor in India. Through product development dedicated specifically to the unique needs of the rural poor, HLL has been able to apply top-class science and technology to bring affordable shampoos and soaps to this large new market.[60] Today, better than half of HLL's revenues come from customers at the bottom of the pyramid. Even more importantly, using the approach to product development, marketing, and distribution pioneered in rural India, Unilever has been able to leverage a rapidly growing and profitable business to other parts of the developing world such as Brazil.[61]

Recognizing that information poverty may be the single biggest roadblock to sustainable development, Hewlett-Packard has begun to focus attention on the needs of the isolated and disconnected through their World e-Inclusion initiative. As part of their strategy, HP has created an R&D laboratory in rural India with the express purpose of coming to understand the particular needs of the rural poor. They have quickly realized that this is not unoccupied space: local companies such as N-Logue and Tarahaat are also developing information technology and business models focused on this enormous potential market. Through shared access (e.g., Internet kiosks), wireless infrastructure, and R&D focused on cost reduction, these companies are dramatically reducing the cost of being connected.[62]

Despite the success of organizations such as Grameen and Unilever, however, most companies continue to mistakenly assume that poor markets possess no value opportunities and have yet to try to understand the possibilities of serving the markets they are used to ignoring. Firms that do take

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the time appear to recognize that those at the bottom of the pyramid lack attention and capital, not ingenuity and aspiration.[63] Companies like Johnson & Johnson, Dow, DuPont, Coca-Cola, and Procter & Gamble are beginning to take steps to understand how best to leverage their skills and resources to meet the basic nutritional, energy, housing, and communications needs of the world's poorest.[64] Those steps include interacting with a broad range of stakeholders previously assumed to have nothing to offer a multinational corporation (e.g., local NGOs, disenfranchised dwellers of shanty towns, rural villagers, etc.) to highlight what unmet needs exist and how their organization's skills and capabilities might be wielded to meet them. In turn, this understanding can become a catalyst for the development of innovative technologies, products, and services that meet those needs and drive growth at multiple levels within the economy.[65] Thus, firms that take the time to create a compelling sustainability vision have the potential to unlock future markets of immense scale and scope.

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Toward Sustainable Value

At this point it should be clear that the challenge of global sustainability is complex, multidimensional, and emergent in character. Firms are challenged to minimize waste from current operations (pollution prevention), while simultaneously reorienting their competency portfolios toward more sustainable technologies and skill sets (clean technology). Firms are also challenged to engage in extensive interaction and dialogue with external stakeholders, regarding both current offerings (product stewardship) as well as how they might develop economically sound solutions to social and environmental problems for the future (sustainability vision).

Taken together, as a portfolio, such strategies and practices hold the potential to reduce cost and risk; enhance reputation and legitimacy; accelerate innovation and repositioning; and crystallize growth path and trajectory—all of which are crucial to the creation of shareholder value. The challenge for the firm is to decide which actions and initiatives to pursue and how best to manage them. Accordingly, we recommend the following specific steps in the pursuit of sustainable value: diagnosis (taking stock of the company portfolio), opportunity assessment (strengths and weaknesses in capability), and implementation (the design of projects and experiments).
Each is explored in more depth below.

Diagnosis

The sustainable-value framework can be used as a simple but important diagnostic tool. By assessing a company's (or SBU's) activity in each of the four quadrants of the framework, managers can assess the degree of portfolio balance. Extreme portfolio imbalance suggests missed opportunities—and vulnerability. Our research suggests that few incumbent firms seem to recognize—let alone exploit—the full range of sustainable business opportunities available.[66] Most focus their time and attention only on the bottom half of the matrix—short-term solutions tied to existing products and stakeholder groups.

Indeed, programs in pollution prevention and product stewardship are well institutionalized within most MNCs today and have saved hundreds of millions of dollars over the past decade. U.S.-based companies have been especially focused on the efficiency gains and cost savings associated with pollution prevention. Highly publicized crises at companies such as Monsanto and Nike, who failed to successfully engage the views of stakeholders, have also caused growing numbers of firms to explore strategies for product stewardship. European companies have been particularly proactive in this regard, actively pursuing strategies for stakeholder dialogue, extended producer responsibility, and more inclusive forms of corporate governance.

Opportunity Assessment

Relatively few established companies, however, have begun to exploit the opportunities associated with the upper half of the model—the portion focused on building new capabilities and markets. Indeed, most clean technologies today are being developed and commercialized by small, often under-capitalized, new ventures—not by the MNCs that possess the financial resources for doing so successfully. Similarly, most business experiments at the bottom of the economic pyramid have been initiated by NGOs or small local firms while the emerging market plays of MNCs have been limited largely to the elites or emerging middle classes in the developing world.[67] Given that pursuit of clean technology and markets at the bottom of the pyra-

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mid is disruptive in character, perhaps we should not be surprised that large incumbent firms have not actively blazed these trails or that entrepreneurs have been likely to seek opportunities to leapfrog existing competitors and claim underserved market space.

Yet, it need not be this way. Just as particular competencies predispose some companies to be more effective than others in implementing pollution prevention and product stewardship (e.g., quality management, continuous improvement, boundary-spanning capability), some MNCs will be better positioned than others to pursue clean technologies and bottom-of-the-pyramid markets—those with demonstrated ability in acquiring new skills, working with unconventional partners, incubating disruptive innovations, shedding obsolete businesses, and creatively destroying existing product portfolios, to name just a few. Incumbent firms with these skill sets possess a potentially powerful first-mover advantage compared to those firms more oriented toward defending base businesses.

Implementation

To make this opportunity a reality, however, it is necessary to organize the range of possible activities into discrete projects and business experiments. Given the nascent nature of clean technology and bottom-of-the-pyramid markets, many small experiments are far preferable to a single big investment. These initiatives must be evaluated for funding using a separate set of criteria and metrics, since they will almost never meet the short-term revenue and profitability targets associated with projects designed to expand existing businesses.

We recommend using a real-options approach, rather than the more conventional discounted-cash-flow logic.[68] Real-options thinking introduces the logic of the private equity market into the firm, with an expected payoff in the 5–7 year time frame, rather than the excessively short-term logic associated with conventional capital budgeting or the excessively long-term logic associated with traditional R&D.[69] We also recommend creating a separate pool of investment capital to fund these initiatives and a separate organizational entity to house the business experiments aimed at opening up new markets. Without this early protection, the logic of short-term performance in today's business will almost certainly guarantee failure.[70] Only a small percentage of the projects and business experiments have to succeed to more than justify the investment in terms of new capability development and revenue growth.

Sustainable Value: A Huge Opportunity

The opportunity to create sustainable value—shareholder wealth that simultaneously drives us toward a more sustainable world—is huge, but yet to be fully exploited. The sustainable-value framework makes clear the nature and magnitude of the opportunities associated with sustainable development and connects them to dimensions of value creation for the firm. The framework's simplicity, however, should not be mistaken for ease of execution: understanding the connections is not the same thing as successfully implementing the strategies and practices involved. The tasks are very challenging and complex indeed, suggesting that only a few firms will be able to successfully carry out activities in all four quadrants simultaneously, especially those that require the greatest efforts in terms of vision, creativity, and patience.

The opportunity to create sustainable value—shareholder wealth that simultaneously drives us toward a more sustainable world—is huge.

Stagnant economic growth and stale business models present formidable challenges to corporations in the years ahead. Focusing on incremental improvements to existing products and businesses is an important step but neglects the vastly larger opportunities associated with clean technology and the underserved markets at the bottom of the economic pyramid. Indeed, addressing the full range of sustainability challenges can help to create shareholder value and may represent one of the most under-appreciated avenues for profitable growth in the future.

Endnotes

[1] See Stiglitz, J. 2002. *Globalization and its discontents.* New York: W. W. Norton.

[2] See the National Research Council. 1999. *Our common journey.* Washington, DC: National Academy Press.

[3] Soros, G. 2002. *George Soros on globalization.* New York: Public Affairs.

[4] Protests at the World Trade Organization, World Bank, World Economic Forum, G8, and other meetings in places like Seattle, Washington, DC, Davos, and Rome have become the most visible examples of the frustration felt by many who view globalization as inequitable exploitation. See, Nye, J. 2001. Globalization's democratic deficit. *Foreign Affairs,* 80(4): 2–6.

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[5] World Commission on Environment and Development. 1987. *Our common future*. Oxford: Oxford University Press, p. 8.

[6] Gladwin, T., Kennelly, J., & Krause, T. 1995. Shifting paradigms for sustainable development: Implications for management theory and research. *Academy of Management Review*, 20(4): 878–907.

[7] See Elkington, J. 1994. Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, 36(3): 90–100.

[8] We use the terms "global sustainability," "sustainable world," and "sustainable development" interchangeably to refer to the global-scale drivers of sustainability. Similarly, we use the terms "sustainable enterprise," "corporate sustainability," and "enterprise sustainability" interchangeably to refer to firm-level strategies and practices to build value by moving toward a more sustainable world.

[9] See, Holliday, C. 2001. Sustainable growth, the DuPont way. *Harvard Business Review*, 79(8): 129–132.

[10] See Friedman, M. The social responsibility of business is to increase profits. *The New York Times Magazine* 13 September 1970, for the classic argument representing this point of view.

[11] See Christensen, C. 1998. *The innovator's dilemma*. Boston, MA: Harvard Business School Press for a detailed discussion of the paradox of focusing on short- versus long-term value. The concept of "creative destruction" was first introduced by Joseph Schumpeter (1942) in *Capitalism, socialism and democracy*, New York: Harper Torchbooks. More recently, the growing importance of creative destruction to competitive success has been persuasively argued in Foster, R., & Kaplan, S. 2001. *Creative destruction*, New York: Doubleday.

[12] See Thompson, J. 1967. *Organizations in action*, New York: McGraw Hill for the classic discussion of balancing the need both to sustain and destroy the technological core underlying a firm's business model. More recently, these ideas have received growing attention in the form of work on "core rigidities" (e.g., Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13(SSI): 111–125) and "dynamic capabilities" (e.g., Teece, D., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7): 509–533).

[13] This idea is similar to the balanced scorecard (see Kaplan, R., & Norton, D. 1992. The balanced scorecard—measures that drive performance. *Harvard Business Review* 72(1): 71–79) and other tools that emphasize the need to balance a portfolio of actions to drive firm value over time.

[14] Christensen, C., op. cit.

[15] The experiences of Enron and the numerous dot-bombs of the tech wreck serve as the most recent illustrations that while it can be very glamorous to be viewed as on the cutting edge of the business world, bankruptcy provides a particularly ineffective platform from which to generate future growth.

[16] See Hamel, G., & Prahalad, C. K. 1991. Corporate imagination and expeditionary marketing. *Harvard Business Review*, 69(4): 81–92.

[17] See Rugman, A. M., & Verbeke, A. 1998. Corporate strategies and environmental regulations: An organizing framework. *Strategic Management Journal*, 19(4): 363–375, which notes that most managerial approaches to environmental issues take a very simple, static view of the problem.

[18] National Research Council, op. cit.; and Daily, G. 1997. *Nature's services: Societal dependence on natural ecosystems*. Washington, DC: Island Press.

[19] See Hawken, P., Lovins, A., & Lovins, H. 1999. *Natural capitalism: Creating the next industrial revolution*. Boston, MA: Little Brown & Company.

[20] Florini, A. (Ed.). 2000. *The third force: The rise of transnational civil society*. Washington, DC: Carnegie Endowment for International Peace.

[21] Rheingold, H. 2002. *Smart mobs: The next social revolution*. Cambridge, MA: Perseus Publishing.

[22] See, for example, Hart, S., & Milstein, M. 1999. Global sustainability and the creative destruction of industries. *Sloan Management Review*, 41(1): 23–33.

[23] To be sure, there are many new problems that these technologies may create, making their ultimate contribution to sustainability more unknowable; witness the problems Monsanto encountered in pursuing its agricultural biotechnology strategy in the mid to late 1990s.

[24] Drexler, E. 1986. *Engines of creation*. Garden City, NY: Anchor Press.

[25] See Benyus, J. 1997. *Biomimicry: Innovation inspired by nature*. New York: Morrow.

[26] Christensen, C., Craig, T., & Hart, S. 2001. The great disruption. *Foreign Affairs*, 80(2): 80–95.

[27] Coyle, D. 2001. *Paradoxes of prosperity*. New York: Texere Publishing.

[28] See World Bank. 2000. *World development report: Attacking poverty*. New York: Oxford University Press.

[29] Easterly, W. 2001. *The elusive quest for growth*. Cambridge, MA: MIT Press.

[30] National Research Council, op. cit. See also Hammond, A. 1998. *Which world? Scenarios for the 21st century*, Washington, DC: Island Press.

[31] See Prahalad, C. K., & Hart, S. 2002. The fortune at the bottom of the pyramid. *Strategy + Business*, Issue 26: 54–67.

[32] Von Dieren, W. (Ed.). 1995. *Taking nature into account*. New York: Copernicus.

[33] The four strategies developed in this section were first articulated in: Hart, S. 1997. Beyond greening: Strategies for a sustainable world. *Harvard Business Review*, 75(1): 66–76. We would also like to thank our colleagues at the Sustainable Enterprise Academy—in particular, Brian Kelly, David Wheeler, Bryan Smith, John Ehrenfeld, Chris Galea, Art Hanson, David Bell, Nigel Roome, Jim Leslie and Pat Delbridge—for helping us to clarify our thinking regarding how the drivers of sustainability, viewed through the proper set of business lenses, influence shareholder value.

[34] The most comprehensive treatment of eco-efficiency was done by the World Business Council for Sustainable Development in: DeSimone, L., & Popoff, F. 1997. *Eco-efficiency: The business link to sustainable development*. Cambridge: MIT Press. See also James, P., & Bennett, M. 1994. *Environment-related performance measurement in business: From emissions to profit and sustainability?* Ashridge Management Group Publication.

[35] Hart, S. 1995. A natural resource-based view of the firm. *Academy of Management Review*, 20(4): 986–1014.

[36] Darnall, N. 2002. *Why firms signal green: Environmental management system certification in the United States*. Unpublished Ph.D. dissertation, University of North Carolina, Chapel Hill.

[37] See Marcus, A. 2002. *Reinventing environmental regulation*. Washington, DC: RFF Press. For more information on European pollution prevention programs, see European Integrated Pollution Prevention and Control Bureau (*http://eippcb.jrc.es/*), the UK government's Enviro Wise Programme (*http://www.envirowise.gov.uk/*), and the Implementation and Enforcement of Environmental Law (IMPEL) at *http://europa.eu.int/comm/environment/impel/index.htm*). U.S. pollution-prevention programs are documented by the U.S. Environmental Protection Agency (*http://www.epa.gov/epahome/p2pgram.htm*).

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[38] For more information on these and other programs, see Smart, B. 1992. *Beyond compliance: A new industry view of the environment*. Washington, DC: World Resources Institute.

[39] 3M Company, 1992. *Pollution prevention pays*, videotape.

[40] See, for example, Christmann, P. 1998. Effects of 'best practices' of environmental management on cost advantage: The role of complementary assets. *Academy of Management Journal*, 43(4): 663–680; and Sharma, S., & Vredenburg, H. 1998. Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strategic Management Journal*, 19(8): 729–753.

[41] Through early adoption of extended producer responsibility requirements, European governments and firms have pioneered efforts in product stewardship. See, for example, Roome, N., & Hinnells, M. 1993. Environmental factors in the management of new product development. *Business Strategy and the Environment*, 2(1): 12–27; Welford, R. 1995. *Environmental strategy and sustainable development*. London: Routledge; and Steger, U. 1996. Managerial issues in closing the loop. *Business Strategy and the Environment*, 5(4): 252–268.

[42] Wheeler, D., & Sillanpaa, M. 1997. *The stakeholder corporation*. London: Pittman Publishing.

[43] Elkington, J. 1998. *Cannibals with forks*. Gabriola Island: New Society Publishing.

[44] Hoeffler, S., & Keller, K. 2002. Building brand equity through corporate societal marketing. *Journal of Public Policy and Marketing*, 21(1): 78–89.

[45] Fiksel, J. 1995. *Design for environment: Creating eco-efficient products and processes*. New York: McGraw-Hill.

[46] For a leading example of industrial ecology, refer to Graedel, T., & Allenby, B. 1995. *Industrial ecology*. Englewood Cliffs: Prentice Hall.

[47] Buffington, J., Hart, S., and Milstein, M. 2002. *Tandus 2010: Race to sustainability*. Center for Sustainable Enterprise, University of North Carolina, Chapel Hill.

[48] See *Proposal For a Directive of the European Parliament and of the Council on Waste Electrical and Electronic Equipment and on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment*, COM #(2000)347 available at *http://europa.eu.int/comm/environment/docum/00347_en.htm*.

[49] McDonald, H., London, T., & Hart, S. 2002. *Expanding the playing field: Nike's World Shoe project*. Washington, DC: World Resources Institute.

[50] Ibid.

[51] See, for example, Vergragt, P., & van Grootveld, G. 1994. Sustainable technology development in the Netherlands: The first phase of the Dutch STD programme. *Journal of Cleaner Production*, 2(3/4): 133–139; Fussler, C. 1996. *Driving eco-innovation*. London: Pittman Publishing; and von Weizsacker, E., Lovins, A., & Lovins, H. 1997. *Factor four*. London: Earthscan Publishing.

[52] See Hart, S., & Milstein, M., op. cit.

[53] McDonough, W., & Braungart, M. 2002. *Cradle to cradle*. New York: North Point Press.

[54] Baum, D. 2002. GM's billion-dollar bet. *Wired.com*. *www.wired.com/wired/archive/10.08/fuelcellcars.html*).

[55] Holliday, C., op. cit.

[56] Hamel, G. 2000. *Leading the revolution*. Boston: Harvard Business School Press; Foster, R., & Kaplan, S., op. cit; and Christensen, C., Craig, T., & Hart, S., op. cit.

[57] See von Dieren, W., op. cit.; Prahalad, C. K., & Hart, S., op. cit.; and Prahalad, C. K., & Hammond, A. 2002. Serving the world's poor, profitably. *Harvard Business Review*, 80(9): 4–11.

[58] Hart, S., & Sharma, S. 2002. Radical transactiveness and competitive imagination. Presented at the Academy of Management Annual Meeting, Denver, CO, August 2002.

[59] Counts, A. 1996. *Give us credit*. New York: Times Books.

[60] Balu, R. 2002. Strategic innovation: Hindustan Lever. *Fast Company*, 47: 120–125.

[61] Prahalad, C. K., & Hart, S., op. cit.

[62] Prahalad, C. K., & Hammond, A., op. cit.

[63] See de Soto, H. 2000. *The mystery of capital*. New York: Basic, for a discussion about the value that resides in informal economies.

[64] These companies and others including Hewlett-Packard and Ford have joined the Base of the Pyramid Learning Laboratory at the University of North Carolina's Kenan-Flagler Business School to explore ways to enter the underserved markets of the world in ways that are culturally appropriate and environmentally sustainable.

[65] Hart, S., & Christensen, C. 2002. The great leap: Driving innovation from the base of the pyramid. *Sloan Management Review*, 44(1): 51–56.

[66] Hart, S., & Milstein, M., op. cit.

[67] Hart, S., & Christensen, C., op. cit.

[68] See Amram, M., & Kulatilaka, N. 1999. *Real options*. Boston: Harvard Business School Press; and Milstein, M., & Alessandri, T. New tools for new times: Using real options to identify value in strategies for sustainable development. Presented at the Academy of Management Annual Meeting, Toronto, Canada, August 2000.

[69] Foster, R., & Kaplan, S., op. cit.

[70] Christensen, C., op. cit.

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Executive Commentary

Joseph Caggiano
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All multinational companies are parties to the debate about sustainable development—none more so than the energy industry. Accessing non-renewable energy sources like oil, gas, and coal is by definition extractive, so the resource available to future generations is inevitably reduced. On the consumption side, hydrocarbon fuels raise enormous environmental issues about the sustainability of entire—perhaps global—ecosystems. So, sustainability is by no means a foreign concept in the energy industry. We're acutely aware of it on both the raw-material and the finished-product sides of the business.

All multinational companies are parties to the debate about sustainable development—none more so than the energy industry.

That having been said, this article adds refreshing insight to the argument for incorporating sustainability into business policy and decision-making. Assuming for the moment that sustainability isn't a moral imperative or legal requirement, businesses still need to ask whether it makes good economic and competitive sense to embrace sustainable development. The significant players in the energy business have no doubt that addressing sustainability is a competitive necessity. The authors identify drivers for sustainability that are central issues for the energy industry, including resource efficiency, pollution prevention, and attentive, demanding global stakeholders. These are often headline issues for energy companies. In addition, both access agreements to hydrocarbon resources and licenses to operate have increasingly explicit sustainability requirements, ranging from pollution prevention and environmental footprint to community development.

It's not surprising, then, that three energy multinationals are among the companies cited in the article. My company has certainly evolved along the path described by the author from pollution prevention—a minimum, critical requirement in all our operations—to product stewardship along the entire life cycle. Pollution prevention and product stewardship are actually part of a larger set of practices, called Operational Excellence, that guide our operations. Safe, reliable operations are the starting point for Operational Excellence. But the practices also include environmental responsibility, product stewardship, and stakeholder involvement in the areas where we do business—all factors that contribute to sustainable value. My company takes these practices very seriously. Managers are held accountable for them. All employees are expected to apply them in their work. The highest executive levels pay personal attention to our progress.

Operational Excellence responds to one of the global drivers identified by the author—resource efficiency and pollution prevention. The authors are correct that a corporate paradigm like Operational Excellence will enhance a company's reputation. This is particularly important to energy multinationals, given how they are often portrayed. Operational Excellence also drives directly to the company's bottom line, potentially saving billions of dollars in operating costs while serving sustainability. There is no tension here between shareholder value and sustainable development.

The authors identify two additional drivers of sustainability: (1) interconnected global stakeholders, and (2) global social inequity and maldistribution of wealth. The energy industry is a case study in developing strategies to respond to these drivers. Consider stakeholders. In one sense, we're all stakeholders in the energy business—energy is the lifeblood of our societies. The way we use energy over time has the single greatest impact on the global environment and the ecosystem we live in. At the same time, no companies are more prominent in the public eye than multinational energy companies. Each price increase at the gas station, conflict over oil and gas access, or tanker accident propels the industry into the headlines and Internet forums, often with denunciations of conspiracy or malevolence. Given the stakes and level of public interest, it would be suicidal for an American energy multinational not to operate with the greatest possible transparency. My company, like many, has demanding and enforced ethical standards, including this one in our statement of values: "We welcome scrutiny and we hold ourselves accountable." Energy companies—apart from rogues like Enron—have been on a learning curve about NGOs and networked interest groups. Some companies in the industry now have working relation-

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ships with NGOs on environmental and social matters such as community development and HIV/AIDS prevention and treatment.

Beyond transparency and cooperation with vocal stakeholders, the authors point out deep issues of globalization and social disruption. Together with the environmental challenge, these issues are, to me, inescapable drivers toward sustainable development. Ultimately, of course, governments control natural resource wealth and are responsible for national development and social equity. However, it may surprise people to know that progressive companies in the energy industry recognize that resource extraction must be balanced by lasting contributions to the welfare and prosperity of host countries, particularly those in the developing world. Companies like mine are embracing principles of Corporate Social Responsibility (CSR), a concept pioneered by the European Union and sometimes used synonymously with sustainable development. In the authors' sustainable-value framework, CSR could be another driver for sustainability or a comprehensive set of responses to the drivers that they identify. Either way, CSR takes companies into new responsibilities for human rights, labor practices, community engagement, and other activities that traditionally have been the concern only of governments and civil authority. The corporate role in these activities is still controversial and in the formative stage, both from the shareholders' view and as a matter of public policy. The authors' sustainable-value framework can easily be used to frame this active discussion.

Resource efficiency, environmental stewardship, and social equity are large-scale, geopolitical drivers external to the corporation. The author also identifies a less-obvious intersection between sustainability and a corporation's internal need for renewal and innovation. Any opportunity to exploit disruptive change for competitive advantage is clearly in shareholders' interest. This article depicts sustainability as a vast field of opportunity for technology innovation, product development, and the opening of untapped markets. Any business should be excited by such prospects, even if it's not persuaded by the authors' other drivers. Here again, the energy industry is at technology thresholds around alternative fuels, transportation, and power generation. It isn't a strategy of energy multinationals to stifle these developments. The authors' disruptive-change driver adds nicely to the argument about why energy companies should embrace and lead the transformation to sustainability.

Energy multinationals are actively engaging all the drivers for sustainability discussed in this article. The idea of sustainable value ties the drivers together in a very accessible framework that broadens the meaning of shareholder value. I will refer colleagues to this article as a way to bring separate discussions about sustainable development onto the same page.

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