Global Sustainability and the Creative Destruction of Industries

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Managers should consider three economies — consumer, emerging, and survival — when evaluating new business opportunities.

More than fifty years ago, economist Joseph Schumpeter described the dynamic pattern in which innovative upstarts unseat established firms through a process he called “creative destruction.” While most twentieth century economists have focused on competition under conditions of static equilibrium, Schumpeter insisted that disequilibrium was the driving force of capitalism. The theme of creative destruction has received growing attention ever since.¹

There is now little doubt that the economy is driven by firms that are able to capitalize on the “new combinations” described by Schumpeter: Coal Age technologies gave way to Oil Age technologies that are now giving way to Information Age technologies. With each change, the technological and economic infrastructure of society experiences dramatic transformation, with new institutions, enterprises, and geographic patterns of development created. During periods of dramatic change, incumbent firms have not been successful in building the capabilities needed to secure a position in the new competitive landscape, for example, manufacturers of horse carriages, sailing ships, vacuum tubes, steam locomotives, and propeller engines.

Not surprisingly, the notion of creative destruction makes many managers uncom-
fertile — and it should. Frequently, incumbent firms have either discounted the significance of an emergent technology or have reacted to changes by becoming more committed to existing products and markets. Incumbents that survive episodes of creative destruction do so because they display more foresight than their peers; they invest and form partnerships to acquire new competencies and experiment in new, untested markets. They are not held hostage by their current technology or market position.

Foresight is the key to survival. Managers able to perceive trends and weak signals where others see only noise or chaos can capitalize on the changing nature of the market to reposition their firms before new entrants become a serious threat. Armed with the proper tools and frame of mind, managers of incumbents can be as foresighted as the CEO of the hottest new IPO. Foresight, however, requires managers to strip away many assumptions so that they can view the world through new lenses.

In this article, we argue that the emerging challenge of global sustainability is a catalyst for a new round of creative destruction that offers unprecedented opportunities. Today’s corporations can seize the opportunity for sustainable development, but they must look beyond continuous, incremental improvements. We propose a framework to help managers see the business world through different lenses, so that sustainable opportunities are more apparent. Finally, we suggest new metrics to help managers evaluate their organizations’ current performance and realize new, sustainable business opportunities.

**Continuous Improvement versus Creative Destruction**

Waves of scientific and technological discovery or major periods of socioeconomic change drive episodes of creative destruction. We are now in the early stages of such a revolution, the transformation toward sustainable development. Most large corporations developed in an era of abundant raw materials, cheap energy, and limitless sinks for waste disposal. During the past few decades, however, it has become increasingly clear that many technologies developed during this period contribute to the destruction of the very ecological systems on which the economy depends: the specters of toxic contamination, depleted forests and fisheries, eroded soils, loss of biodiversity, global climate change, burgeoning population
growth, and a widening gap between rich and poor are explicit signals that managers must rethink the social and environmental impact of their technologies, products, and processes. In the absence of dramatic change, we are destined to devolve into a world of environmental degradation, social upheaval, and mass migration.

**Greening = Continuous Improvement**

Most efforts in “greening” and “environmental management” serve only to improve incrementally the performance of existing products and processes (see Figure 1). Industry-based collaboration in pollution prevention and product stewardship solidifies incumbents’ competitive positions by rewriting the rules of the game in their favor. In this sense, collaboration among competitors serves to perpetuate the current industry structure. As a result, “greening” fosters continuous improvement rather than reinvention or fundamental innovation. In the long run, however, the dynamics of creative destruction will work against firms that rely only on incremental improvements and fail to change the fundamental manner in which they provide products, processes, and services.

An example of incremental improvement is the Chemical Manufacturers Association’s (CMA)
Responsible Care program, which helped rescue the industry from near oblivion but has not led its members to revolutionize practices. Following the Bhopal disaster in 1984 (in which 3,000 residents of Bhopal, India, died as a result of a toxic chemical explosion at a Union Carbide plant), leading chemical companies (for example, Dow, DuPont, and Monsanto) pressed for self-regulation in the face of public hostility and calls for stricter regulatory measures that threatened industry survival. In 1988, the CMA adopted Responsible Care — a statement of environmental principles and codes of management practices that included provisions for pollution prevention, product stewardship, and community involvement. To strengthen the program, the principles and codes were made obligatory for CMA member companies, which comprised 90 percent of the chemical capacity in the United States; noncompliance was grounds for expulsion from CMA. Since 1988, Responsible Care has transformed the chemical industry’s environmental behavior and helped to change the public’s perception of the industry from shameless polluter to more responsible actor.

While successful in reestablishing the legitimacy of an industry under tremendous public pressure, Responsible Care has failed to address the fundamental underlying problems associated with the chemical industry; many of its products and processes are highly toxic, resource intensive, and continue to place enormous pressures on air and water resources. As an industry-level collaborative process, the Responsible Care program has fostered incremental improvement by forcing laggard chemical firms to mimic the leaders in terms of environmental management. This has left the leading firms such as Dow and DuPont in a stronger competitive position by helping to shore up support for their right to operate but, ironically, has reduced the likelihood of fundamental innovation by chemical industry incumbents.¹

Global Sustainability = Creative Destruction

If we reflect on the commonly held definition that sustainable development is the ability of the current generation to meet its needs without compromising the ability of future generations to meet theirs, we can see how most existing products and processes fail to meet this criterion.² Growing data suggest that today’s extractive and material-intensive industries (for example, mining, energy, chemicals, forest products, agriculture, and transportation) are not environmentally sustainable.³ If the entire world were as materially intensive as North America, it would take three planet Earths to support the material requirements of the current world population.⁴ The challenge of global sustainability should thus be viewed as a major discontinuity with the power to radically transform the structure of many industries.

Visionary companies have an opportunity to drive the redefinition and redesign of their industries toward sustainability.⁵ Material- and energy-intensive industries will find global sustainability to be a competency-destroying challenge that calls for radical repositioning and new competency development. Information- and service-intensive industries will find global sustainability to be a competency-enhancing challenge that offers significant potential for substitution and leapfrogging over existing unsustainable technologies. Overall, innovators and entrepreneurs will view sustainable development as one of the biggest business opportunities in the history of commerce.⁶

Even in the chemical industry, the early stages of creative destruction can be discerned. Some chemical companies have begun to reposition themselves. Leaders such as Monsanto and DuPont are questioning whether the industry can remain committed to using petroleum feedstocks and toxic materials (unsustainable). They are betting that they can realize higher performance by shifting to biologically-derived, more benign materials (potentially sustainable).

During the past decade, demergers, spin-offs, acquisitions, and significant new technology developments have structurally transformed the chemical industry. DuPont recently divested Conoco to focus on products with higher service and information content. Monsanto, Hoechst, and Rhône-Poulenc have spun off their chemical businesses to concentrate on life sciences, food, pharmaceuticals, and biotechnology. ICI, Sandoz, and Ciba-Geigy have refocused on chemicals by spinning off their life sciences and biotechnology investments (for example, the creation of Zeneca and Novartis). Dow and DuPont are ramping up significant investments in biotechnology. Other firms, such as Novo Nordisk, the fast-growing Danish pharmaceutical and biotechnology company, and Empresas La Moderna, an emerging life sciences powerhouse, are exploring “green chemistry” and finding biological substitutes for synthetic chemicals.

Led by Monsanto’s transformation to life sciences, several companies are pursuing sustainable develop-
ment strategies related to agriculture. Dow has initiated development of “green” pesticides using tracer technology or fermentation-based substitutes for existing chlorinated chemical pesticides. DuPont’s Agricultural Products business has committed to developing less toxic, low-use-rate agricultural chemicals in a program in which biological products substitute for current material- and toxic-intensive crop-protection chemicals.

Almost every energy- and material-intensive industry from oil to automobiles is experiencing similar changes. In ways that are not yet completely clear, the challenge of global sustainability has begun to drive the process of creative destruction. Yet many managers resist or discount sustainable development as a business driver, arguing that its ill-defined, contestable nature renders any action premature. However, strategy is concerned with taking action under conditions of uncertainty or even ambiguity. Managers need the foresight to see opportunity where they now see only chaos or rhetoric. In the next section, we describe new lenses with which managers can identify business opportunities driven by transformation to global sustainability.

New Lenses on the Global Market

Managers, particularly in large, transnational corporations, are accustomed to viewing the global market as one entity. They focus almost exclusively on markets that have achieved a certain measure of affluence. They evaluate business opportunities by global sales potential, which facilitates selling products and services worldwide with minimal changes. They consider markets to be of value only to the extent that consumers have purchasing power comparable to consumers in the United States, Western Europe, or Japan. Capturing the opportunities of sustainability-driven creative destruction, however, will require managers to radically expand their notion of global markets.

Within any country or region, even the United States, there are three types of markets or economies — developed, emerging, and surviving. To better understand sustainability-driven creative destruction, managers must evaluate business opportunities based on the three types.

- In the developed, consumer economy, nearly 1 billion global customers have the purchasing power to afford anything they desire. The infrastructure enables the rapid manufacturing and distribution of products and services, and consumption occurs at high levels.

- In the emerging economy (roughly 2 billion people), basic consumer needs are met; customers have minimal purchasing power. There is little extravagance, but no desperation. Rapid industrialization and urban migration are increasing the demand for additional products and services for this large, rapidly growing market.

- In the survival economy (roughly half of humanity or 3 billion customers), members are largely rural and poor with unnoticed, unmet basic needs. There is no infrastructure, and few companies have dared to invest in what they perceive as a risky, long-term proposition.

Each economy requires different strategies to achieve sustainable development. To compete in the consumer economy, managers must focus on reducing the life cycle (cradle to grave) impacts of products through technological innovation. That is, managers should seek to reduce the “ecological footprint” of their firms’ activities by reinventing their products and processes. To meet the long-term needs of the emerging economy, managers must avoid a collision between rapidly growing demand for products and the physical basis for supply or waste disposal. That is, managers must change the outdated practices and technologies from the consumer economy. Finally, in the survival economy, managers must recognize and exploit the inherent opportunity presented by a massive group of potential consumers whose basic needs remain unfulfilled. Next we discuss each strategy in detail.

Consumer Economy: Reducing Corporate Footprint

Approximately eighty metric tons of materials are used to produce, distribute, operate, and dispose of the products and services that each American consumes every year. The typical American consumes seventeen times more than his or her Mexican counterpart and hundreds of times more than the average Ethiopian. Western Europeans, Japanese, and other highly affluent consumers are not far behind.

In the consumer economy, many of the resource- and energy-intensive industries serving people’s needs — chemicals, automobiles, oil, and mining, to name a few — leave very large corporate footprints. Product systems with large footprints are usually based on mature technologies. As technologies mature, they
The auto industry is ripe for creative destruction via technologies that radically improve efficiency, reduce automotive material content, and eliminate tailpipe emissions.

reach a point at which even large additional investments in technical development yield only small gains in performance. The combination of large footprint and technological maturity forms openings for creative destruction. At this point, innovation begins to appear as entrepreneurs with radically new technologies generate significant performance gains with comparatively modest investments. Mature technologies cause the gap between price and life-cycle cost to widen and grow, resulting in both technological and environmental forces that drive creative destruction. To identify sustainability-driven opportunities for the consumer economy, managers must ask:

- How large is the gap between price and full life-cycle costs?
- Are most of our technological advances incremental?
- Where can we remove material content from our products?
- How can our service content be dramatically increased?
- Where can our waste products be added to other processes?

In the automobile industry, the skyrocketing costs of technology and product development indicate a mature technology reaching its limits. Customers continue to press for performance improvements and new features, but gasoline-powered internal combustion engine and metal-working technologies are inherently inefficient. The automobile creates extraordinary life-cycle costs in the form of junkyards, smog, and greenhouse gas emissions. The industry is ripe for creative destruction via technologies that radically improve efficiency, reduce automotive material content, and eliminate tailpipe emissions. Designers of fuel cells, ultralight bodies, and radical new drivetrains can potentially revolutionize all aspects of the auto, from manufacturing to after-market services and disposal.

In the carpeting industry, Collins & Aikman Floorcoverings is driving a creative destruction process through a push to shrink its corporate footprint. The company has developed a patented technology to produce new carpet from old on a closed-loop basis. The process extrudes and calenders reclaimed carpet tile to produce new polyvinyl chloride (PVC)-based backing for its floor coverings. ER3, its modular carpet tile, has now become the company’s standard product, eliminating the need for virgin, petroleum-based feedstocks. In 1998, more than 8 million pounds of material were diverted from the landfill and recovered, a figure expected to triple by 1999. The company is now investing in next-generation floor coverings that will provide enhanced performance as well as a greatly reduced footprint to facilitate more sustainable building designs and flooring systems.

In the chemical industry, CFO Chad Holliday is transforming DuPont from a large-volume producer of chemicals and materials to a high value-added producer of information products and services. Holliday has commented: “The objective for our industry ought to be sustainable growth. In the next century, we are going to have to find ways to create value while decreasing our environmental footprint.”

DuPont Vice President Paul Tebo has created a tool for analyzing each business's footprint: by comparing the total pounds of materials consumed per annum with shareholder value-added (SVA) per pound, the analysis has highlighted three distinct groups (see Figure 2).

![Figure 2: Reducing Corporate Footprint at DuPont](image-url)
"Small footprint" businesses, those using fewer materials and having a high SVA per pound, are differentiated businesses that include photopolymers and electronic materials, low-use-rate agricultural chemicals, agricultural biotechnology, Lycra, Tyvek, Corian, and auto finishes. Businesses with medium footprints and medium SVA per pound are "foundation" enterprises including nylon and polyethylene. Businesses with large footprints and low SVA per pound, such as the petroleum subsidiary Conoco, represent the company's least desired enterprises.

DuPont sees the high earnings, cash flow, and intellectual content (R&D/capital) of the differentiated businesses as future models. Foundation businesses represent opportunities for improvement and repositioning. DuPont has divested large-footprint, low knowledge-intensity enterprises to fuel future growth in the differentiated businesses. During the next several years, DuPont will identify and launch entirely new businesses and is systematically reducing its corporate footprint by removing material content from its products in favor of service and information content.

In the telecommunications industry, some companies are exploring ways to make existing, resource-intensive products obsolete. Companies such as Hewlett-Packard and Lucent Technologies are substituting information for energy and material use. They view e-mail, telecommuting, teleconferencing, and Internet transactions as ways to dramatically reduce overall levels of material and energy consumption.

Emerging Economy: Avoiding Collision
While less than one-third of the world's population now lives in urban areas, during the next few decades, well over two-thirds will. In China alone, nearly 300 million people are expected to migrate to cities during the next twenty years (more than the current population of all of North America). Rapid urbanization and industrialization, together with increased demand for products and services, are placing intense pressure on ecological and social systems. Technologies that previously fueled the development of the consumer economy will be inadequate for meeting those future demands without exceeding nature's capacity for replenishment.

Avoiding a collision between rapidly growing demand and a stable or diminishing stock of material supply will be the biggest challenge in emerging economies.

Sustainable development of the emerging economy will depend on firms' ability to meet rapidly growing demands without repeating wasteful, outdated practices.

To identify sustainability-driven opportunities, managers must ask:

- Is it environmentally feasible to double or triple the size of our industry?
- What factors prevent our industry from such growth?
- Can we meet growing consumer needs without depleting the natural systems on which we depend?
- Can we use emerging economies to develop "leapfrog" technologies?
- How can we meet growing needs without exacerbating urban problems?

Nearly 2 billion people have joined the ranks of the emerging economy during the past twenty years. The recent financial crises in Asia and Latin America, however, highlight the fact that past growth has been premised on the unsustainable exploitation of natural and human resources. In many emerging economies, development has resulted in large-scale pollution — dead rivers, mountains of garbage, noxious air, and cesspools of toxic waste. The problem seriously jeopardizes public health and prospects for future development.

Nevertheless, demand for products and services continues to rise. In meeting growing demands, however, firms have replicated the same strategies, products, and processes that were successful in the consumer economy. Given the scale and speed of development in the emerging economy, however, a repeat performance of the consumer economy is almost certain to lead to environmental meltdown. Sustainable development of the emerging economy will depend on firms' ability to meet rapidly growing demands without repeating wasteful, outdated practices. Because of the high rate of manufacturing growth in the emerging economy, the capital stock in manufacturing is being replaced rapidly. In Asia, for example, the equipment stock of manufacturing plants doubles every six years. Thus, firms can leapfrog to clean (closed-loop, zero discharge) manufacturing technologies. Technological
leapfrogging will be essential if economic development continues at the rates required to keep people out of poverty.

The sustainability challenge in the emerging economy is particularly acute for industries that depend on renewable resources. For example, the global forest products industry must meet worldwide demand that is forecasted to grow 1 percent to 2 percent per year for the next several decades, even as the overall global supply of available timber declines. The global industry, built primarily on the rapid harvesting of standing native forests, must find an alternative approach. Recognizing this collision course, some companies, such as Weyerhaeuser, have embarked on intensive agroforestry to ensure increased fiber supplies. Their high-yield model provides higher returns while simultaneously minimizing and containing environmental impact by producing high-quality wood and fiber on fewer continuously regenerated acres.

Similarly, the agriculture industry must supply the world’s burgeoning population while water resources become more scarce, many croplands are less arable, climate is changing, and crops are more homogenized and susceptible to mass failure. The existing model of commercial agriculture that is heavily dependent on the intensive use of water, chemical pesticides, and fertilizers is experiencing diminishing returns. Some agricultural companies, such as Monsanto, focus on reinventing the agricultural system through biotechnology to design crops that are resistant to pests, require less water and fertilizer, and are more nutritious.

Some telecommunications companies have recognized the benefit of avoiding prohibitively expensive land lines. Through satellite and radio systems, they are reaching previously unserved rural areas with telecommunications comparable to those found in urban areas. Such wireless systems erase differences among regions and nations in access to information, allowing for smaller-scale economic development that reduces pressures for urbanization. Teledesic, a $9 billion venture, is working to install such a system by forging a global partnership of service providers, manufacturers, governments, and international agencies. Their global Internet aims to bring high bandwidth service to remote locations through a global network of 840 earth-orbit satellites. Transmission times comparable to those for fiber-optic connections will make the network well-suited to time-sensitive, high-data applications as refined as teleconferencing, medical imaging, and interactive multimedia.

Additionally, the company’s network will be invulnerable to natural disasters, allowing it to serve as a vital lifeline for emergency communication.

**Survival Economy: Meeting Basic Needs**

Unlike either consumer or emerging economics, the survival economy is dominated by the poverty and desperation most often found in rural villages, urban slums, and shanty towns. Nearly 3 billion people are subsistence-oriented and satisfy their basic needs directly from nature. Demographers generally agree that as the world’s population doubles during the next forty years, the bulk of that growth will occur in the survival economy. Because vibrant rural communities stem the pressures for mass migration and accompanying social, political, and environmental breakdown, stabilization of the survival economy is both key to sustainable development and an unprecedented business opportunity for visionary firms.

Companies need to focus on developing technologies, products, and services geared specifically to these unmet basic needs. Managers must understand two factors: First, significant profits can be realized by meeting the needs of the poor and disenfranchised (conventional wisdom holds that the poor do not make good customers, given their lack of money and education). Second, meeting those needs requires the application of state-of-the-art technology in fundamentally new ways (simply transplanting business models from the consumer or even the emerging economy will not work).

Managers can identify sustainability-driven opportunities by asking:

- Can our products and services meet the basic needs of the poor?
- How can we apply state-of-the-art technology to meet the most basic of human needs?
- Have we overlooked market "vacuums"?
- Are we blinded by our current business model?
- How can we build a customer base that can become more sophisticated over time?

Companies recognizing the business opportunities of the survival economy clearly understand and cater to the needs of poor customers. Although companies like Levi’s or Lee depend on wealthy consumers who
can buy their denim products in large retail stores near urban areas, in India, Arvind Mills has created an entirely new value-delivery system for blue jeans. As the world's fifth largest denim manufacturer, Arvind found Indian domestic denim sales limited because a $20 to $40 pair of jeans is neither affordable to the masses nor widely distributed. In direct response, Arvind introduced Ruf and Tuf jeans, a ready-to-make kit of components (denim, zipper, rivets, patch) priced at about $6. A network of 4,000 tailors, many in small rural towns and villages, distribute the kits extensively. Ruf and Tuf jeans are now the largest selling jeans in India, easily surpassing Levi's and other brand names from the United States and Europe.

Companies that look at poorer areas as dumping grounds for waste or outdated, dirty technologies and manufacturing facilities miss identifying market "vacuums" with minimal competition. In the energy industry, for example, solar power remains uncompetitive in the consumer economy but is an attractive business opportunity in the survival economy where centralized, grid-based systems of electrical generation are prohibitively expensive. Indeed, transmission lines cost between $20,000 and $40,000 per mile to install. This makes alternative sources such as small-scale wind-, photovoltaic-, and hydro-generators attractive for rural areas, bypassing existing grids altogether. As a consequence, British Petroleum, Shell, and Amoco Enron have all initiated significant investments in solar and renewable energy.

Firms succeed in the survival economy because their managers recognize the benefits of developing markets and building future customer bases. Korean chaebol Daewoo, realizing the limits of competing head on with U.S., Japanese, and European firms in overcrowded, technology-intensive markets of the consumer economy, is relocating much of its industrial base to Burma, Iran, Uzbekistan, Russia, China, Vietnam, Brazil, and Tatarstan where it can make long-term investments in economic infrastructure. Daewoo enters poor regions as a long-term development partner offering skills in infrastructure planning, environmental management, and manufacturing. When hard currency is scarce, the company accepts barter. Uzbekistan, for example, is paying for its half of a joint venture factory with cotton, which Daewoo's trading arm sells on the world market. By using first-mover advantage to build relationships, Daewoo is implementing a long-range growth strategy by catering to the world's poorest regions.

Establishing a foothold in the survival economy allows companies to meet basic needs in the short run and grow as those needs mature. Twenty years ago, a Bangladeshi college professor, Mohammed

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**Figure 3**

**New Metrics, Improved Payoffs**

**Drivers**

- Consumer Economy
  - Reducing Corporate Footprint

- Emerging Economy
  - Avoiding Collision

- Survival Economy
  - Meeting Basic Needs

**Metrics**

- Pounds of materials per sale
- Pounds of toxins per sale
- Greenhouse gas emissions per sale
- Public acceptance level
- Corporate reputation

- Emissions per sale
- Water use per sale
- Land conserved compared to land used
- Percentage of assets in developing countries
- Number of jobs created

- Percentage of sales to survival economy
- Breadth of product availability
- Social investment compared to wages
- Small-scale vs. large-scale applications
- Community-enhancing vs. community-degrading

**Payoffs**

- Earnings Growth
- Increased EVA/SSVA

- Sales Growth
- Stock Preference

- P/E Ratio
- Share of New Wealth
Yunus’s, wanted to improve the local people’s situation. After asking several local residents how much money it would take to better their lives, he compiled a list of forty-eight people with needs that totaled only $75; he loaned them the money, never expecting to see it again. Within three months, each person had paid him back, with interest. Eventually, Yunus formed his own bank focusing on micro-credit for the region’s poorest people. Today, the Grameen Bank provides credit to more than 3 million customers in over 35,000 Bangladeshi villages. In 1996, the bank lent more than $1 billion, with the average loan size being $15. Even more impressive, Grameen achieved a 99 percent repayment rate, higher than virtually all banks in the United States.

Yunus also realized that the bank’s efforts could be greatly enhanced through telecommunications and started a new subsidiary, Grameen Phone, to supply wireless phone service to every village in Bangladesh. While global telecom companies saw no potential in Bangladesh because poor people could not afford cellular phones, Yunus created a new business model by selling phones to local entrepreneurs on credit, who then “sold” phone service to the residents in each village. As telecommunications needs have grown more sophisticated, Yunus has extended services to include computer and Internet connections.

New Metrics
Recognizing global sustainability as a catalyst for creative destruction and framework for new business development will prove crucial to corporate survival in the twenty-first century. Along with awareness and foresight, new metrics are necessary to focus managerial attention and track progress toward sustainability. Without a clear understanding of how sustainability-driven creative destruction can improve a firm’s economic payoff, it is unlikely that senior managers will commit resources. In this section, we offer ideas for sustainability metrics tied to the three economies discussed and show how they relate to key business and financial payoffs (see Figure 3).

Consumer Economy
A company’s primary challenge in the consumer economy is to reduce its corporate footprint, or its impact on the natural environment throughout its life cycle. To identify opportunities for reducing material content, metrics capture and track the material- and energy-intensiveness of the company’s products and processes — not just those emissions required by regulations. Tracking pounds of materials used (and the toxic proportion), along with levels of greenhouse gas emissions, provides a quick, inexpensive way to benchmark the company’s footprint.

Some companies may need a more detailed measure, which necessitates measuring life-cycle impact. The first step is to track the amount of raw materials extracted from the earth to make the company’s products or services. Next, the company scrutinizes the manufacturing and distribution processes for additional materials used and waste generated. Finally, the company tracks the amount of waste and pollution produced as its products are consumed and later disposed. Such analyses highlight opportunities for change that can lead to the reduction, reuse, or replacement of toxic materials and high-impact activities. Full understanding of all upstream and downstream impacts can spur a dramatic rethinking of product design.

Firms should also track the public’s perception of their products and services to tap different views at multiple levels and in local communities, as well as regional, national, and international public opinion. Broad stakeholder attitudes and values, evaluated with materials-use measures, can help managers determine whether their current offerings meet or fall short of expectations. Through dematerialization, cost-reduction, product portfolio changes, and improved corporate reputation, strategies to reduce the corporate footprint should help the company achieve higher levels of earnings growth and improve shareholder value-added. Such metrics have enabled firms like DuPont to reevaluate business portfolios.

Emerging Economy
A company’s challenge in the emerging economy is to avoid the collision of rising demand for products and services with overburdened natural and social systems. In regions of rapid industrialization, dramatic reductions in emission levels are a critical metric. In
addition, strategies must lead to corporate activities that conserve water, land, and renewable resources. Tracking the rates of natural resource use and replenishment stemming from company initiatives reveals opportunities for sustainability-driven technological innovations. Metrics that capture the degree to which brownfield sites are developed instead of greenfield sites, or the degree to which a firm’s products and services encourage urban development instead of urban sprawl, can also help direct attention to sustainable business strategies.

Given the rapid rate of urban migration in the emerging economy, it is also crucial to track the rate of job creation and economic development associated with corporate investments. The percentage of corporate assets invested in the emerging economy indicates the commitment to this aim. Creating urban jobs is particularly important so that corporate activities do not further urban sprawl. As the demand for a growing range of products and services increases, the emerging economy holds tremendous growth potential compared to the relatively saturated markets of the consumer economy. Over the medium term, tapping into these opportunities should lead to increased sales growth and stock value.

**Survival Economy**

A company’s challenge in the survival economy is to meet the basic needs of the poor so that they develop a solid economic foundation and increase their quality of life. Few managers seriously consider those whose needs are not being met by their company’s current product or service portfolio. Establishing and growing the sales presence in the survival economy is an important measure of progress toward that goal (see Figure 3). Strategies that build the social infrastructure of potential markets through education, training, and increased worker wages are also important. Companies can introduce products and services on a small scale to enhance local community development and alleviate pressures for urbanization rather than engaging in large-scale, centralized projects that degrade rural communities and encourage urban migration. Creating a strong position that taps into this vast, emergent market will help position a company for meeting humanity’s future needs and demands. Over the long term, investment in the survival economy should improve the company’s price-earnings ratio and share of new wealth creation.

**Conclusion**

Schumpeter was skeptical of the ability and motivation of large, incumbent corporations to drive the process of creative destruction, but he did not dismiss them entirely. He thought that large investments in an installed asset base and misaligned managerial incentives would reduce incumbents’ motivation to make their established positions obsolete. Yet he also recognized that, paradoxically, large corporations have financial, technical, and organizational resources that cannot be matched by small, entrepreneurial new entrants. “. . . it may happen that new combinations should be carried out by the same people who control the productive or commercial process which is to be displaced by the new.”

To capture sustainable opportunities, managers must fundamentally rethink their prevailing views about strategy, technology, and markets. Focused attention through the three lenses — consumer, emerging, and survival economies — will enable them to see new business opportunities. New metrics focused on global sustainability will help managers identify the opportunities that will lead to those innovations. Managers who treat sustainable development as an opportunity will drive the creative destruction process and build the foundation to compete in the twenty-first century.

**References**

1. The importance of entrepreneurs to creative destruction was first discussed in J. Schumpeter, _The Theory of Economic Development_ (Cambridge: Harvard University Press, 1934). The thesis was later extended to include consideration of how large corporations might participate in this process in J. Schumpeter, _Capitalism, Socialism and Democracy_ (New York: Harper Torchbooks, 1942).

2. There is extensive literature on this topic, including:


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