

## The Sustainability Imperative

by **David A. Lubin** and **Daniel C. Esty**

Most executives know that how they respond to the challenge of sustainability will profoundly affect the competitiveness—and perhaps even the survival—of their organizations. Yet most are flailing around, launching a hodgepodge of initiatives without any overarching vision or plan. That's not because they don't see sustainability as a strategic issue. Rather, it's because they think they're facing an unprecedented journey for which there is no road map.

But there *is* a road map. Our research into the forces that have shaped the competitive landscape in recent decades reveals that “business megatrends” have features and trajectories in common. Sustainability is an emerging megatrend, and thus its course is to some extent predictable. Understanding how firms won in prior megatrends can help executives craft the strategies and systems they'll need to gain advantage in this one.

The concept of megatrends is not new, of course. Businessman and author John Naisbitt popularized the term in his **1982 best seller of the same name**, referring to incipient societal and economic shifts such as globalization, the rise of the information society, and the move from hierarchical organizations to networks.

Our focus is on business megatrends, which force fundamental and persistent shifts in how companies compete. Such transformations arise from technological innovation or from new ways of doing business, and many factors can launch or magnify the process of change. Business megatrends may emerge from or be accelerated by financial crises, shifts in the social realities that define the marketplace, or the threat of conflict over resources. The geopolitics of the Cold War, for example, drove the innovations that launched both the space race and rapid developments in the field of microelectronics—ultimately unleashing the information technology megatrend. Electrification, the rise of mass production, and globalization were also megatrends, as was the quality movement of the 1970s and 1980s. The common thread among them is that they presented inescapable strategic imperatives for corporate leaders.

Why do we think sustainability qualifies as an emerging megatrend? Over the past 10 years, environmental issues have steadily encroached on businesses' capacity to create value for customers, shareholders, and other stakeholders. Globalized workforces and supply chains have created environmental pressures and attendant business liabilities. The rise of new world powers, notably China and India, has intensified competition for natural resources (especially oil) and added a geopolitical dimension to sustainability. “Externalities” such as carbon dioxide emissions and water use are fast becoming material—meaning that investors consider them central to a firm's performance and stakeholders expect companies to share information about them.

These forces are magnified by escalating public and governmental concern about climate change, industrial pollution, food safety, and natural resource depletion, among other issues. Consumers in many countries are seeking out sustainable products and services or leaning on companies to improve the sustainability of traditional ones. Governments are interceding with unprecedented levels of new regulation—from the recent **SEC ruling that climate risk is material to investors** to the **EPA's mandate that greenhouse gases be regulated as a pollutant**.

Further fueling this megatrend, thousands of companies are placing strategic bets on innovation in energy efficiency, renewable power, resource productivity, and pollution control. (See the sidebar “Fueling the Megatrend.”) What this all adds up to is that managers can no longer afford to ignore sustainability as a central factor in their companies' long-term competitiveness.

 Fueling the Megatrend (Located at the end of this article)

## Learning from the Past: Quality and IT

Megatrends require businesses to adapt and innovate or be swept aside. So what can businesses learn from previous megatrends? Consider the quality movement. The quality revolution was about innovation in the core set of tools and methods that companies used to manage much of what they do. Quality as a central element of strategy, rather than a tactical tool,

smashed previous cost versus fitness-for-use barriers, which meant the table stakes were dramatically raised for all companies. The information technology revolution was about tangible technology breakthroughs that fundamentally altered business capabilities and redefined how companies do much of what they do. Digital technologies deeply penetrated corporations in the 1980s and 1990s, and the trend accelerated as IT made its way into the daily lives of workers and consumers with the advent of desktop computing and the internet.

In both the IT and quality business megatrends—as in others we’ve studied—the market leaders evolved through four principal stages of value creation: First, they focused on reducing cost, risks, and waste and delivering proof-of-value. Second, they redesigned selected products, processes, or business functions to optimize their performance—in essence, progressing from doing old things in new ways to doing new things in new ways. Third, they drove revenue growth by integrating innovative approaches into their core strategies. Fourth, they differentiated their value propositions through new business models that used these innovations to enhance corporate culture, brand leadership, and other intangibles to secure durable competitive advantage.

## The quality story.

The economic downturn of the late 1970s, coupled with the 1979 oil shock, drove a dramatic shift in consumer preferences toward efficiency. Many industries were transformed, perhaps none more dramatically than the automotive sector. Of course, the seeds of change had been planted earlier. In the years after World War II, Japan had rebuilt its industrial infrastructure on a model of high-volume, low-cost factories that mass-produced goods of questionable durability and quality. “Made in Japan” was not considered a brand asset. By the mid 1970s, however, Japanese government and business leaders had seized upon the ideas of Edwards Deming and others who stressed quality as a core value. This incremental, process-oriented approach to systematic improvement fit well with Japanese executives’ views on how to drive change to compete effectively in the global market. Leading firms including Toyota and Honda embraced Total Quality Management (TQM) methods, fundamentally shifting their value propositions. Quality methods called into question the assumptions managers had relied on for decades, namely that high quality and affordability were mutually exclusive.

The focus on quality—initially adopted as a means of reducing defects—delivered a greater advantage to companies that took a holistic view and drove changes across their business operations. The famed **Toyota Way** applied quality methods to every stage of value creation from concept to customer—and ultimately to intangibles such as brand, reputation, and corporate culture. The reputational harm Toyota is experiencing thanks to the recent recalls underscores how important quality continues to be to the firm’s central value proposition. Toyota’s current troubles also highlight the need for firms to align core elements of strategy. In this case, the dissonance between its long-term quality strategy and a more recent topline growth strategy has seriously undermined Toyota’s model for value creation.

Rey Moore, the former chief quality officer at Motorola, describes a similar evolutionary process at the communications giant. Like most firms, Motorola first used quality methods to improve fault and error detection and thus reduce cost, waste, and risk. As those methods proved valuable, the company began to redesign manufacturing processes and product development functions to proactively reduce risks of product failures, functional inadequacies, and other inefficiencies rather than simply detect them. As quality’s potential business impact grew, Motorola developed **Six Sigma methods** and a standardized tool kit including items like Pareto charts and root-cause analysis models to take quality to scale. Eventually, quality became a defining attribute of Motorola’s brand and culture and a source of competitive advantage. The same story unfolded at firms in all industry sectors as leading companies rode the quality wave to enhanced growth and profitability—delivering a clear quality premium for their shareholders.

📖 Capturing the Eco-Premium (Located at the end of this article)

## The IT story.

When the recession of 1982 hit, pressure mounted at many companies to increase productivity, particularly by using emerging information technology innovations to drive cost savings. The early returns on these efforts were mixed. As with quality, skeptics described IT as a black hole into which firms poured money with little return. But some corporate leaders saw that the strategic application of IT could drive growth and provide decisive advantage. American Airlines, a classic example, captured more than 40% of all U.S. airline transactions thanks to its innovative Sabre reservations system.

A lesser known case is American Hospital Supply’s deployment of a revolutionary online purchasing system, which allowed hospitals to order medical supplies electronically, reducing costs, time, and errors for both the company and its customers.

Over the next decade, the Analytic Systems Automatic Purchasing system—better known as ASAP—transformed how AHS delivered value to its customers.

Building on its success improving efficiency and reducing inventory risk, the firm developed service innovations that enabled it to deliver any product from any manufacturer at any time from any desktop computer to any hospital supply room. In the process, AHS amassed an extensive product and price database that gave AHS a clear advantage over less nimble competitors. Finally, AHS used IT to evolve its business model. The company, which had been a single-source materials provider to its hospital clients, began taking over their inventory management and procurement processes. This IT-driven innovation established the AHS brand as the leader in its business with a competitive edge based originally on price and later on service and helped the company grow earnings from \$42 million in 1974 to \$237 million in 1984.

The IT and quality megatrends show us that firms seeking to gain advantage in sustainability will have to solve two problems simultaneously: formulating a vision for value creation and executing on it. In other words, they must rethink what they do in order to capture this evolving source of value; and they must recast how they operate, expanding their capacity to execute with new management structures, methods, executive roles, and processes tailored to sustainability's demands.

## Getting the Vision Right

Just as winners in previous megatrends outperformed competitors by following a staged evolution in strategy, so too must companies hoping to lead (or even compete) in the emerging sustainability wave. The idea that mastering sustainability should follow a multistage approach is already apparent. In 2006, one of us (Esty) with coauthor Andrew Winston described such a strategy in **Green to Gold**. The framework has since been extended, notably by Ram Nidumolu, C.K. Prahalad, and M.R. Rangaswami in their article “**Why Sustainability Is Now the Key Driver of Innovation**” (**HBR September 2009**). As was the case in the IT and quality megatrends, pioneering companies in sustainability often start by focusing on risk and cost reduction and over time develop strategies for increasing value creation, ultimately including intangibles such as brand and culture. Let's examine the four stages of value creation.

### Stage 1: Do old things in new ways.

Firms focus on outperforming competitors on regulatory compliance and environment-related cost and risk management. In doing so, they develop proof cases for the value of eco-efficiency. At its inception 30 years ago, **3M's Pollution Prevention Pays** was just this kind of initiative. As of 2005, PPP had reduced 3M pollutants by more than 2.6 billion pounds and saved the company more than \$1 billion. It also laid the foundation for the nearly completed **Environmental Targets 2005–2010** program, which will reduce expenses related to energy usage, emissions, and waste by another 20%.

### Stage 2: Do new things in new ways.

Firms engage in widespread redesign of products, processes, and whole systems to optimize natural resource efficiencies and risk management across their value chains. **DuPont's “zero waste” commitment**, for instance, increased the company's prioritization of eco-efficiency across their operations. Its decision to shed businesses with big eco-footprints, such as carpets and nylon, was based on an analysis that the business and environmental risks would outweigh their potential contribution to future earnings.

### Stage 3: Transform core business.

As the vision expands further, sustainability innovations become the source of new revenues and growth. Dow's sweeping **2015 Sustainability Goals**, designed to drive innovation across its many lines of business, yielded new products or technology breakthroughs in areas from solar roof shingles to hybrid batteries. The core business, which had traditionally relied on commodity chemicals, has shifted toward advanced materials and high-tech energy opportunities.

### Stage 4: New business model creation and differentiation.

At the highest level, firms exploit the megatrend as a source of differentiation in business model, brand, employee engagement, and other intangibles, fundamentally repositioning the company and redefining its strategy for competitive advantage. **GE's ecomagination initiative**, poised to deliver \$25 billion in revenues in 2010, enabled CEO Jeff Immelt not just to reposition the company as an energy and environmental solutions provider but to build a green aura into the GE brand.

## Getting Execution Right

Gaining advantage in a megatrend is not just about vision—it's also about execution in five critical areas: leadership, methods, strategy, management, and reporting. In each area, companies must transition from tactical, ad hoc, and siloed approaches to strategic, systematic, and integrated ones.

📖 Advice for First Movers (Located at the end of this article)

## Leadership.

When CIOs first came on the scene, the role was ill-defined and narrowly focused. A limited set of problems was seen as suitable for IT solutions. Now CIOs play undisputed strategic roles with implications for all functions and business units. Strategic sustainability initiatives need similar C-level leadership. While many companies now have chief sustainability officers, the role varies tremendously from firm to firm. CEOs must make a commitment to institutionalizing this new executive position and allocating the necessary resources and responsibilities.

The CSO will be essential to moving companies through the sustainability stages. Like the CIO, a chief sustainability officer helps the CEO and executive team visualize goals and professionalize the process of aligning vision with business strategy. That means redefining performance expectations, specifying accountability, tracking results, and rewarding success. As best practices bubble up in individual units, the CSO is responsible for ensuring that they're disseminated widely and that the skills needed to execute are available.

Many firms are now accustomed to working with partners and suppliers in formulating their vision and goals, but a CSO must broaden and deepen those links as companies are increasingly held responsible for their entire value chain and product life cycle. Sustainability leadership must put a premium on developing shared goals with a broad set of stakeholders—customers, interest groups, and even competitors and adversaries. Coca-Cola, for instance, has worked intensively with its bottling partners to “light weight” its packaging, cutting greenhouse gas emissions and generating savings in the tens of millions of dollars. It has also made a commitment, in cooperation with its bottlers and the World Wildlife Fund, among other NGOs, to “water neutrality”—an initiative that will reduce its strategic risk and environmental impact by replenishing watersheds to the full extent of the water it extracts. In response to urging by Greenpeace, Coca-Cola announced in December 2009 that all its **new vending machines and coolers would be HFC-free by 2015**, reducing the equipment's greenhouse gas emissions by 99%.

## Methods for assessing value.

With a sustainability vision in place, the executive team must marshal specialized capabilities for weighing options and quantifying benefits and risks. Just as the quality and IT megatrends ushered in new skill sets and fresh perspectives, the sustainability megatrend will require firms to update traditional business tools—business-case analysis, trend spotting, scenario planning, risk modeling, and even cost accounting—to encompass the specialized requirements of environmental sustainability.

Most current methods that companies use to track or project sustainability impacts generate inconsistent, incomplete, and imprecise data. Recognizing that if they can't measure it, they can't manage it, companies are developing better means of gauging corporate-sustainability-related costs and benefits and of benchmarking performance. Fujitsu, for instance, employs a performance assessment scorecard—its “**cost green index**”—that assesses the potential cost, productivity, and environmental impacts of eco-efficiency initiatives across the firm.

📖 Evidence of an Eco-Premium (Located at the end of this article)

Other companies are repurposing standardized tools and methods to bring a sustainability focus to all aspects of the business. For example, 3M, a longtime quality leader, is now applying lean Six Sigma methodologies originally aimed at improving operational efficiency and product quality to driving direct reductions in energy use, waste, and greenhouse gas emissions. To meet aggressive five-year sustainability targets, its Six Sigma leadership group has trained 55,000 employees in how to use these methods. As sustainability-related methods and tools mature, we expect training programs and certifications not unlike certified IT roles or black and green belts in the quality domain to emerge.

## Strategy development.

Once firms have a solid base of analytical data, they will be positioned to develop distinctive sustainability strategies. Many aspects of strategy development will remain internal, but companies will increasingly adopt open-source approaches that

engage outsiders.

Perhaps more than any other company, Wal-Mart has pursued this approach. In 2006, then-CEO Lee Scott launched **Sustainability 360**, establishing explicit goals to purchase 100% renewable energy, create zero waste, slash greenhouse gas emissions, and sell “products that sustain our resources and the environment.” To this end, Wal-Mart created a dozen **Sustainable Value Networks**, each comprising Wal-Mart team members, NGO experts, academics, government officials, and supplier representatives, all working under the direction of a Wal-Mart network captain. Each team focuses on a strategic issue targeted by the company’s sustainability agenda—such as facilities, packaging, and logistics—and tries to develop new ways of doing business that support the company’s sustainability goals. The payoffs are already showing up: One of the Sustainable Value Networks, tasked with fleet logistics, came up with a transportation strategy that improved efficiency by 38%, saving Wal-Mart more than \$200 million annually and cutting its greenhouse gas emissions by 200,000 tons per year.

## **Management integration.**

To capture the full benefits of the megatrend-driven strategy, firms must integrate sustainability objectives into day-to-day management. Leadership may come from headquarters, but responsibility for implementation lies in the field. Firms such as Dow have incorporated sustainability objectives into compensation models, reviews, and other management processes, including a requirement that all newly promoted business unit managers review their units’ sustainability plans with senior management within 90 days.

Managing sustainability strategy requires systems support as well. While many firms have invested in technology to record and report environmental events such as spills and waste disposal, others have gone much further. Wayne Balta, head of Corporate Environmental Affairs at IBM, describes his company’s environmental management system as the foundation for policy deployment, practice management, goal setting, decision making, and data capture. IBM uses the technology to embed environmental strategies into all areas of the business, from R&D to operations to end-of-life product disposal.

## **Reporting and communication.**

As public scrutiny, governmental regulation, and customer expectations intensify, companies will need to build capabilities in sustainability reporting. For example, they will need to share information on their response to emerging environmental standards, such as the EPA’s proposed greenhouse gas emissions reporting regulations, and on the financial impacts of the sustainability megatrend to employees, shareholders, and other stakeholders. Developing metrics that allow companies to measure benefits and understand costs is essential to adapting and refining their strategy, as well as communicating results. And Wall Street will increasingly demand evidence that sustainability investments are generating returns.

We see substantial room for improved sustainability communications, particularly among companies with a strong commitment to lead in this arena. Our firm has conducted evaluations of dozens of companies along 35 dimensions of sustainability management. When the assessments were based only on publicly available information and a company’s external reporting, we got scores that were almost always lower, and often significantly so, than scores developed in consultation with the company and with full inside information.

We’ve found a few companies that are leading the way toward the sort of expanded sustainability reporting that we anticipate will become standard practice. Timberland’s sustainability reports, for example, include numerous metrics on pollution and use of natural resources. The company has also broken new ground in providing product-level environmental-impact information to its customers with **labeling that resembles the Nutrition Facts labels** on food.

## **Building a Sustainability Performance System**

By joining a vision of sustainability value creation (the “what we must do”) with evolving execution capabilities (the “how we must do it”), firms develop what we call a sustainability performance system. Depending on their sophistication in both realms, and their desire to use sustainability as a competitive weapon, they’ll fall into one of four categories:

### **Losers.**

As the sustainability megatrend accelerates, firms that have put in place only modest cost, risk, and waste initiatives and whose vision and strategies are vaguely conceived or disjointed will find it increasingly difficult to protect their position. It may be too early to see clear examples of firms that have lost their competitive position based on the failure to develop and execute sustainability strategies, but the casualties from other megatrends like quality and IT abound. GM’s decline can clearly be

traced to its earlier failure to understand how quality considerations would transform the auto industry. Likewise, Kodak's dominant position in photography eroded quickly as it missed or ignored the signals that digital technologies would displace film.

## **Defenders.**

Some firms may choose a “go slow” sustainability strategy for many reasons—the peculiarities of their industry sector or business processes, their environmental exposure, or other competitive considerations. Others will be content to make investments in the early-stage objectives of cost, risk, and waste management. This defensive posture can work, provided the gap between a go-slow company's market position and that of primary competitors does not grow too large and the company has execution capabilities commensurate with the complexity of its business. Maersk, the Danish shipping company, has focused its sustainability efforts on efficiency, slashing fuel costs and cutting carbon dioxide emissions through slow-speed shipping and other initiatives. As long as others in the shipping business do not pursue a more sweeping sustainability strategy, perhaps built on more-efficient ship design, Maersk should be able to hold its position. Indeed, many companies may find that their best option is to play defense on sustainability and not try to make this the issue on which they differentiate themselves in the marketplace.

## **Dreamers.**

When vision and ambition get too far ahead of the capacity to execute, companies face another set of issues. Those that seek first-mover advantages in the later stages of sustainability differentiation without having mapped out a clear strategy and mastered the fundamentals of execution may experience the same kinds of problems that plagued some aspiring pioneers in the quality and IT megatrends. For instance, the London Stock Exchange's vision of a paperless settlement system was a bold move and one that managers believed would catapult the organization ahead of its peers. Managers optimistically ballparked the cost at £6 million and jumped in with both feet. By the time the exchange acknowledged that it lacked the management and technical capabilities to execute this leading-edge IT project, in 1993, the tab had shot past £400 million, with no end in sight.

Dreamers who try to ride the sustainability wave risk making sustainability promises they can't keep, inviting charges of greenwashing and the attendant reputational and financial harm. Some years ago, Ford Motor Company suffered from Bill Ford's attempts to green his business before his management team was ready. His unfulfilled commitments to improve SUV fuel economy and make Ford a leader in hybrid vehicles brought the wrath of environmental groups. His successor, Alan Mullaly, has moved Ford forward with new models that feature advanced materials, smart systems, and high efficiency, enabling the automaker to withstand the current downturn better than domestic competitors and positioning Ford for success.

## **Winners.**

Although the sustainability landscape continues to shift, some early winners have emerged. GE's financial services business has lagged badly, but its ecomagination product line has generated tens of billions of dollars in revenues and positioned the company as a leader in rapidly growing market segments such as energy infrastructure and high-efficiency appliances, jet engines, and locomotives. The ecomagination marketing campaign has also had a halo effect, helping GE transform its reputation from environmental bad actor to sustainability front-runner. Similarly, Clorox's Greenworks line of eco-friendly cleaning products has reframed the public's perception of the company—and generated billions of dollars of sales. Clorox's acquisition of Burt's Bees, a leader in natural personal care products, further convinced environmental stakeholders that the company's shift in strategy was both sincere and significant.

 Making a Sustainability Winner (Located at the end of this article)

Soon companies will have a clear sense of what it means to manage sustainability as a business megatrend. Best practices will emerge, and sustainability scorecards will allow companies to track cost and risk reduction as well as evaluate value-creation activities. As environmental data become richer and more accurate, companies will be able to chart their impacts in financial terms—making it easier for market analysts to identify the firms positioned to deliver an eco-premium. In this new world, the sustainability strategy imperative will be systematized and integrated into the day-to-day practices of firms of all sizes in all industries. Like the IT and quality megatrends, sustainability will touch every function, every business line, every employee. On the way to this future, firms with a clear vision and the execution capabilities to navigate the megatrend will come out ahead. Those that don't will be left by the wayside.

## **Fueling the Megatrend**

Venture investing in clean tech reached a nearly \$9 billion annual run rate in 2008 and shows signs of growing again after a slowdown in 2009. The flow of private-sector investment into the clean tech marketplace has been estimated at more than \$200 billion a year—with fast growth not just in the United States and Europe but in China, India, and the developing world. And G20 governments have earmarked some \$400 billion of their \$2.6 trillion in stimulus funds for clean tech and sustainability programs.

## **Capturing the Eco-Premium**

Companies that excel in sustainability make shifts in five key areas, moving from tactical, ad hoc, and siloed approaches to strategic, systematic, and integrated ones.

## Elevate Leadership

Individual departmental leadership

C-Level leadership that links sustainability strategy with initiatives and outcomes, and develops shared goals in partnership with suppliers, customers, and other stakeholders

## Systematize Methods and Models

Imprecise, inconsistently used tools that track discrete projects

Professionalized green business analysis through systematic use of specialized tools (e.g., scenario planning, risk modeling) and new certifications and standards

## Align Strategy and Deployment

Unconnected tactical programs and initiatives

Megatrend-based initiatives aligned with core business strategies and embedded in operating plans

## Integrate Management

Siloed Responsibility

Shared accountability through integrated objectives and performance evaluation

## Systematize Reporting and Communication

Ad hoc reporting using nonstandardized tools

Sustainability scorecards that enable benchmarking, best practice comparisons, and consistent internal and external communication

## Advice for First Movers

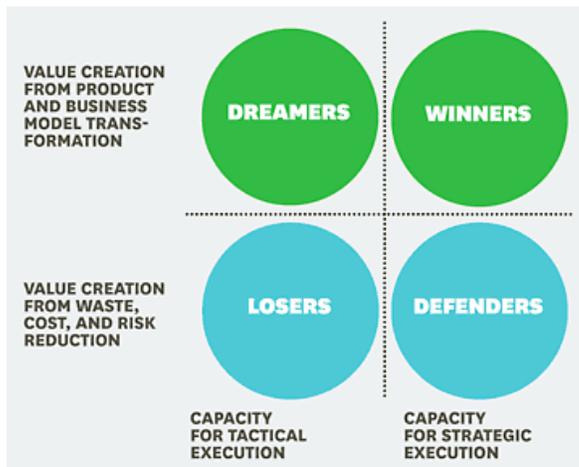
Don't rest on your green laurels. As we have seen in other business megatrends, early leaders are not guaranteed enduring competitive advantage. Continued innovation is required to stay in front of the pack. Thus, even for those who manage a megatrend well and emerge at the top of a transformed market, the premium does not last indefinitely. For example, Wang led the world into office computing but failed to keep up as mainframes gave way to desktop computers. And while American Hospital Supply gained a substantial marketplace advantage by being an early mover in advanced information management in the health care sector, the competition eventually caught up and copied AHS's IT innovations. Nevertheless, the company's leadership in the IT wave allowed it to deliver superior value to its shareholders for a decade—not a bad ride.

## Evidence of an Eco-Premium

Recent academic studies offer new data correlating strong environmental or sustainability performance with superior financial returns. Notably, Julie Fox Gorte's analysis of a 2009 Mercer research survey examining several dozen studies found that firms with better social and environmental performance tend to have lower costs of capital associated with lower risk. The evidence is thus mounting that improved environmental risk management helps firms reduce volatility in shareholder value and earnings performance. We see this potential boost in shareholder value tied to the successful execution of sustainability strategy—what we call an eco-premium—as a further signal of the emerging megatrend's strength.

## Making a Sustainability Winner

Companies seeking competitive advantage from sustainability must match innovative green product offerings and business models with strategic execution. Even those seeking to defend their position through eco-efficiency must climb the execution curve.



---

**David A. Lubin** ([davea.lubin@gmail.com](mailto:davea.lubin@gmail.com)) is the chairman of the Sustainability Network, an Esty Environmental Partners service in partnership with IBM, and cofounder of the Palladium Group.

**Daniel C. Esty** ([daniel.esty@yale.edu](mailto:daniel.esty@yale.edu)) is the Hillhouse Professor of Environmental Law and Policy at Yale University and the chairman of Esty Environmental Partners.

---