Sustainability: Moving from compliance to leadership

Sustainability's future is embedded in operations. A combination of metrics and information technologies will transform sustainability from an outside-in initiative to just the normal way of doing business.

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Introduction

Sustainability is often considered nice to do when convenient, but it can actually reward both the top line and the bottom line. Consider these results from three companies that embed sustainability practices throughout their operations.

The Dow Chemical Company, which created a Sustainable Chemistry Index, increased its sales of sustainable chemistry products between 2009 and 2010, rising from 3.4 percent to 4.3 percent of all revenue. By 2015, it expects such sales to be 10 percent of revenue.

SAP, which established 400 sustainability metrics embedded in its processes, saved $250 million between 2008 and 2010 in energy costs. It expects absolute energy consumption to remain at 2000 levels through 2020, despite continuing global expansion.

Intel saved $136 million in 2010 from 11 employee environmental projects, and the company includes environmental performance goals throughout its operations, extending to its global value chain.

Dow, SAP, and Intel share a common understanding of how to advance on sustainability over the long term: It is not a separate function or activity but a core value embedded in the company. The environmental and social impact of products and operations is integrated with how the enterprise creates economic value. Through strategy and systems that provide useful information and meaningful incentives, each part of the business understands how it contributes to the company’s long-term success.

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—David Kepler, Dow

“We’ve matured to the point where sustainability is systematized in our business management and our operational execution,” says David Kepler, executive vice president of business services, chief sustainability officer, and chief information officer at Dow.

At companies like these, sustainability is part and parcel of how the enterprise conducts itself. They embed sustainability processes, practices, and metrics throughout their operations, and they use technology to present information not collected before to influence business decisions and individual behavior. “We are
using software to create transparency,” says Peter Graf, chief sustainability officer at SAP. “We set targets for sustainability goals and make the progress visible to encourage awareness and personal accountability.”

This issue of the Technology Forecast explores how sustainability can become an integral part of doing business and contribute to corporate reputation and financial results. This first article examines sustainability as an embedded enterprise value, driven by metrics and the technology to collect and share them. The second article, “Closing the loop on sustainability information,” looks at software available now to collect and distribute data to help employees make decisions that weigh the environmental, social, and economic impacts on the long-term ability to sustain the business. The third article, “The CIO’s next leadership opportunity: Sustainability,” examines steps the IT executive can take to move the enterprise forward.

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**Sustainability: The emerging context of business operations**

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You can think of sustainability as a feel-good issue that you can support when it’s convenient to do so. Or you can think of it as the emerging context in which businesses must operate as customers engage more with the concept of being green, as competitors adopt sustainability practices for business advantage, and as governments regulate behavior to reduce pollution and ensure long-term stocks of raw materials, or to seek more positive relationships between society and industry.

In PwC’s 14th Annual Global CEO Survey (2011), CEOs saw big opportunities in making their enterprises responsive to social expectations. Whether they primarily sell to businesses, government, or consumers, half of the CEOs anticipated changes to their business strategies because customers are factoring environmental and social responsibility practices into purchasing decisions. (See Figure 1.)

**Figure 1**

CEOs see big opportunities to make their companies more responsive to society’s expectations:

- 53% who rely on businesses as a significant source of revenue
- 51% who rely on governments as a significant source of revenue
- 49% who rely on consumers as a significant source of revenue

Failure to broadly adopt sustainable business practices will tarnish corporate reputations, which happened in the 1990s when the extensive use of child labor by apparel and other manufacturers hurt their reputations.

The lack of genuine sustainability practices will cause scarcity of essential materials (through pollution, depletion, and waste), from foodstuffs to fuels, from wood to water. This scarcity will raise the costs of inputs and limit the product and service options available. Failure to act now presents risks to the future growth and long-term viability of businesses.

Conversely, the adoption of real sustainability practices will burnish corporate reputations and, most importantly, allow continued economic and business success for the long term.

But how do businesses make sustainability part and parcel of how they operate, how they source, how they manufacture, how they distribute, and how they service? Addressing sustainability will require a behavior shift.
“A lot of companies still think of sustainability as: ‘I have my business plan. How do I layer sustainability thinking on top of that?’” Kepler says. “Our view is that sustainable development is a combination of how you achieve economic value, along with how you integrate the environmental and social impact into strategy and operations.” This prompts the need to internalize the concerns around environmental and social impact, which if kept external result in an approach where sustainability becomes a separate activity, layered on top of existing operations.

Dow created a new metric called the Sustainable Chemistry Index (SCI), which aggregates the economic performance of sales with the environmental and social impact, and is regularly measured and reported. This measure integrates the life cycle analysis and impact of products with business thinking and decisions, so ongoing actions result in a more sustainable manufacturer and solution provider. For example, business unit leaders include a review of their SCI performance as part of the business strategy review.

Similarly, SAP established 400 sustainability key performance indicators (KPIs) and embedded them in existing processes to create visibility of sustainability performance. “Every employee can go to the portal and see the computing stats, review the energy consumption trends in buildings, and discover printing data for every printer,” Graf says.

The next step is to provide feedback on individual actions. “We are also looking at a project to see if we can break down our overall footprint on an individual basis,” Graf says. “Such visibility changes behavior.”

Among its methods, Intel links individual compensation to environmental performance, promotes employee sustainability groups, funds innovative environmental projects, and rewards employees who deliver significant sustainable impact. “A key role and challenge for the Intel IT sustainability program office is to start embedding sustainability-oriented decision making, activities, and best practices throughout our daily business activities, so we can transition sustainability from a program to a mindset,” says Chris Peters, IT director of the Industry Engagement Group at Intel.

Managing the commons: Extending to industry value chains

Sustainability is embedded when every part of the business makes decisions that intelligently weigh the economic, environmental, and social impacts on the long-term ability to sustain the business.

The sustainability efforts of any one entity can have a limited impact and can put a business at a disadvantage if others in the value chain, upstream or downstream, do not act. Often the actual impact of any individual sustainability behavior is unclear, beyond those activities that have a direct cost, such as the purchase of paper and electricity.

The good news is that awareness of sustainability issues, coupled with customer pressure and government regulation, is causing entire business networks—value chains and crossindustry groups—to act together to adapt their processes to support sustainability. This joint action is becoming increasingly possible as standards emerge to measure and value the sustainability attributes involved, such as energy efficiency, carbon emissions, water usage, resource renewability, labor practices, trade practices, and social impacts.

These standards—and the underlying metrics—set the stage for understanding the impact of sustainability attributes, which means that individual businesses can make decisions that have a known impact across the ecosystem. For example, in 2007 Nike created the Considered Apparel Index to score the environmental attributes of its apparel. In 2010, it released a web interface to this index, called the Environmental Apparel Design Tool, which designers use early in the product creation process to inform design and development decisions and to reduce the environmental impacts related to materials, manufacturing waste, and garment treatments. The tool allows suppliers to understand Nike’s approach to scoring apparel products for sustainability while providing feedback to Nike.

“A key part of the strategy is transparency,” says Tom Sedory, IT director of strategy and sustainability at Nike. “Our efforts have to be visible to the industry to let others see, evaluate, use, and develop further.”
The journey to embed sustainability in business

Few people would argue against protecting the environment or responsible citizenship. But few businesses make decisions with environmental and social impact as a routine concern. “Sustainability should be embedded as a natural extension to the existing processes,” suggests Jon Chorley, chief sustainability officer of Oracle Corporation. “It needs to transform from a project-based orientation to an operations orientation.”

To achieve an operations orientation, PwC believes that companies will move through a maturity path along a continuum that spans compliance, obligation, efficiency, and leadership. In the process, they will embed sustainability in operations. (See Figure 2.)

Figure 2
The sustainability maturity path: as organizations embed sustainable practices in operations, they move along the continuum from compliance to obligation to efficiency to leadership. Information technology is an enabler of this journey.

The must do: Complying with regulations

Compliance with government regulations is a key external driver and the legally required must-do task. Regulations large and small will constrain decisions and options. Some are indirect, such as recent US federal regulations mandating greater light bulb efficiency that alter the products available for purchase. Others are quite direct, such as the carbon cap-and-trade schemes deployed in Europe, California, and Australia, and China’s recent tightening of permissible emissions by commercial vehicles.

It can be difficult to assess the direct value for complying with regulations beyond avoiding civil penalties. But the economic and other impacts used to justify the regulations can be helpful in setting a common valuation for various sustainability activities, which then can create direct enterprise value. While compliance alone has been an adequate corporate response in the past, social attitudes toward sustainable practices will have more impact in the future. Just being compliant will not be enough, because regulations will be slow to catch up to market expectations and competitive reality.

The obligated to do: License to operate

Dealing with stakeholders’ perceptions of corporate obligation to act is the second stage of maturity. It is typically associated with the large-scale impacts of industry and what to do about them. Larger enterprises attract the highest expectations, or obligations, to act.
“When multinationals have broad footprints across the world and operate in as many countries as they do, expectations are associated with the companies that are beyond just making a profit for their shareholders back in some other part of the world,” says Gary Niekerk, director of global citizenship at Intel. (See the sidebar, Sustainability and industry leadership.)

“Energy [and other resource] management will likely become the basis for organizational and national competitiveness, with financial and market advantages accruing to those that systematically and strategically optimize their use of energy and resources.”
—Pat House, C3

Even if their practices are not much different from others or not under their direct control, industry leaders are expected to “do the right thing” or risk reputational damage and lost business if they don’t. Many original equipment manufacturers (OEMs) and brands that have a large impact on the market have been a subject of criticism for the labor or manufacturing practices of their suppliers. Enterprises that have taken appropriate actions have benefited from bolstering their reputations. Meeting the obligation by promoting sustainable methods becomes a source of differentiation from competitors. In meeting the obligations, companies can turn environmental and social challenges into new business opportunities. By seizing these opportunities, they shape the world and advance toward leadership.

The smart to do: Efficient use of resources

Efficiency has been a key internal driver for sustainable practices and is the lowhanging fruit when moving beyond compliance and obligation. Waste of resources is costly. Reuse and reduction of waste reduces cost and creates new revenue streams. Efficiency in all forms reduces costs, and so it is no surprise that many organizations have promoted sustainability efforts that result in reduced direct costs.

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Common examples include reduced energy usage in the data center, reduced water usage in manufacturing and office facilities, reduced paper usage in the office, and reduced material usage in packaging. These efficiencies reduce costs while also aiding sustainability through the reduced use of resources. Dow, for example, has saved $9.8 billion since 1994 from energy-efficiency efforts that required an investment of less than $2 billion.

Such efficiencies make sense with or without a sustainability impact, but pairing their contributions to the bottom line with their environmental and social impact creates an even greater incentive to support sustainability.

Leadership: Embedding sustainability

The fourth and most mature stage of becoming a sustainable business is market leadership. Sustainability leaders embed real, measurable, ongoing commitments to sustainability practices as a strategic differentiator, going beyond the immediate benefits of compliance, obligations, and efficiency. Sustainability is embedded when every part of the business makes decisions that intelligently weigh the economic, environmental, and social impacts on the long-term ability to sustain the business.

When embedded, sustainability actually becomes a key driver of innovation and growth. “We’ve evolved our use of the term corporate responsibility. We now talk about it as sustainable business and innovation, and it is a key to how we think about driving long-term growth,” Nike’s Sedory says.

In the 2011 PwC survey, 64 percent of the CEOs said that environmentally friendly products and services are an important part of their innovation strategy. (See Figure 3.) When linked to business strategy, sustainability becomes a core enterprise value. By becoming embedded in operations, sustainability objectives can become a part of long-standing measures of enterprise performance, such as profitability, innovation, growth, and industry leadership.
Of the CEOs surveyed, 64 percent see environmentally friendly products and services as an important part of their overall innovation strategy.

The leadership opportunity is not limited to enterprises, but extends to countries. “Energy [and other resource] management will likely become the basis for organizational and national competitiveness, with financial and market advantages accruing to those that systematically and strategically optimize their use of energy and resources,” predicts Pat House, senior vice president of strategy at C3.

“Technology is accelerating the use of sustainability as a driver of growth, particularly information technology, as it allows greater monitoring, independent verification, transparency, and accuracy of resource usage and its impact.”
—Alan McGill, PwC

Compliance is an “outside-in” approach in regard to where the goals are established and how individual stakeholders relate to the topic. Engaging with sustainability to meet obligations, then for efficiency, and ultimately for market leadership transcribes a path that converts outside concerns into inside engagement. It becomes a meaningful component of every business decision.

The crucial role of information in embedding sustainability

IT is playing an important role in the transition from compliance to market leadership. “Technology is accelerating the use of sustainability as a driver of growth, particularly information technology, as it allows greater monitoring, independent verification, transparency, and accuracy of resource usage and its impact,” says Alan McGill, a partner in PwC UK’s Sustainability & Climate Change practice.

Sustainability has emerged as a key social issue due to one broadly accepted reality: environmental resources once believed to be limitless are increasingly seen as limited. Any limited resource needs to be managed for efficient use. “We used to live in a world where energy was cheap and information was expensive. Now, information is a resource that is becoming limitless, and energy and other environmental resources are becoming constrained,” says SAP’s Graf.

In an increasingly digitized world, the sustainability journey is about using the limitless nature of information to become better at managing constrained resources. “Information technology transforms energy usage into something that is manageable,” says Amit Chatterjee, founder and board member of Hara Software. IT is accustomed to managing the flow of materials in enterprise resource planning, supply chain management, and other systems. What has been missing is the flow of sustainability-specific information about those materials across the full value chain.
As resource availability is reducing, the data about resources is increasing. Sustainability provides the context for using data and information technology to advance on efficiency and innovation. Over the long term, the role of IT is to provide information to help strike the balance between the availability of resources and the demand for resources. (See Figure 4.) Achieving such balance has the potential to eliminate volatility in the supply or prices of necessary resources, avoid the unintended consequences of business operations, and address many of the grand challenges facing the world today.

Closing the loop with information

Many enterprises have started to look at the life cycle of their products and services and track the environmental and social impact by taking a cradle-to-cradle or cradle-to-grave view of them—the closed-loop resource system shown in Figure 5. Coupled with this system is the life cycle of information—from its collection to analysis for setting targets, to changes in business practices, and to reporting on performance—making up the closed-loop information system. When these two closed-loop systems—resource and information—conceptually interact, they become the basis for embedding sustainability in operations. The integration of operational information with sustainability impact enables employees to make decisions that weigh the environmental, social, and economic concerns with the longterm ability to sustain the business. Figure 6 shows how adopting the closedloop framework makes advancement on a sustainability maturity path possible.

Figure 5
The coupling of two closed-loop systems—one on resources and the other on information—provides a framework for embedding sustainability.
On this path, the role of information spans the following key objectives to demonstrate readiness for embedding sustainability.

**Figure 6**
The closed-loop systems enable the sustainability maturity journey.

**Synthesize: Define and collect information**

“Sustainability should be embedded as a natural extension to the existing processes. It needs to transform from a project-based orientation to an
operations orientation.”
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Much sustainability activity today is driven by the need to reduce the environmental footprint. While there is an economic basis to do so, the underlying metrics are unlikely to be adequate for a future in which sustainability is strategic and drives the top line and the bottom line. Industry-specific metrics are needed to integrate economic, environmental, and social dimensions across the life cycle of products and services. For example, Nike defined the Considered Apparel Index, the Outdoor Industry Association defined the Eco Index, and Dow defined the Sustainable Chemistry Index.

“Sustainable chemistry is a high-level way to look at life cycle management, the attributes of your business model, and the products you make, and then to evaluate its level of sustainability,” Kepler says. “SCI touches all parts of our business. It looks at all [environmental, social, and profit impact] of them collectively and shows where you have an impact and where you can make changes,” he adds. At Dow, SCI has become a basis for assessing the sustainability performance of products, processes, business units, business models, and individuals. (See Table 1.)

**Table 1**
Dow’s Sustainable Chemistry Index blends the following eight factors to determine products that have sustainable chemistry advantages.

<table>
<thead>
<tr>
<th>1. Renewable/recycled content</th>
<th>5. Social need</th>
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<tbody>
<tr>
<td>2. Resource management</td>
<td>6. Manufacturing/transportation</td>
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<tr>
<td>3. Life cycle benefit</td>
<td>7. Product application</td>
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</tbody>
</table>

Source: [http://www.dow.com/sustainability/goals/chemistry.htm](http://www.dow.com/sustainability/goals/chemistry.htm)

**Engage: Information at the point of action**

Sustainability performance depends on individual actions taken by all employees. Raising awareness to drive employee engagement is essential to embed sustainability values. IT plays an important role here. “When you’re developing and reporting and really working on being transparent, a whole new internal conversation occurs around all the indicators. It raises awareness and forces companies to look at how they’re performing,” says Ryan Whisnant, director of sustainability at SunGard.

Many people use e-mail signatures that promote awareness for reducing printing and paper usage. It would be more powerful if every time somebody goes to print, a pop-up says, “This print is going to cost $x. Do you really want to do that?” Most printers are not set up to provide that prompt, but policy-based tools can allow this process-level sustainability reinforcement. By bringing the information about the environmental impact to the point of action, individual action will more frequently be the sustainable choice.

“Acting sustainably—at a corporate and individual level—becomes the new normal if we can understand and control the impacts of our choices upstream and downstream on stakeholders we may never meet, as well as the ‘boomerang’ benefit on us at the point of action.”
—Nic Delaye, PwC

SAP uses information this way. “When employees book a flight, we will tell them what the carbon footprint of that flight will be. Employees are empowered to take this additional information into consideration when making a decision to travel,” Graf says. SAP has embarked on a project to break down its total environmental footprint to the individual level. Such visibility changes behavior, because individuals can compare against location or enterprise averages. “All these approaches are positively influencing behavior,” Graf notes.

This type of embedding can go much further when the metrics and desired sustainability impact results are known across the value chain. “Acting sustainably—at a corporate and individual level—becomes the new
normal if we can understand and control the impacts of our choices upstream and downstream on stakeholders we may never meet, as well as the 'boomerang' benefit on us at the point of action," says Nic Delaye, director in PwC's Sustainable Business Solutions practice. For example, Nike's Environmental Apparel Design Tool is used by designers to surface information about the environmental impacts of material, dye, and related choices in the value chain.

**Integrate: Modeling the unintended consequences**

Environmental and social considerations were historically seen as external factors, and most enterprises did not understand or model them. As a result, questions about footprint, end-of-life of products, and other considerations were never raised. “Such questions usually are not asked until after the product is developed and it’s successful, and the result at times is unintended consequences on society or the environment,” Dow’s Kepler says. “Frankly, they’re unintended many times because you didn’t sit down and model market adoption impacts up front.”

By having a model of the relationships among the various dimensions during the creation of products and business initiatives, many unintended consequences can be avoided or planned for. IT has a large role to play in such modeling.

“*We are also looking at a project to see if we can break down our overall footprint on an individual basis. Such visibility changes behavior.*”

—Peter Graf, SAP

In some cases, that means working with existing enterprise applications and data sources and applying them to financial, manufacturing, and other business processes. For example, the evaluation process for building a new campus could include energy-efficiency ratings, green tax incentives, off-gassing ratings, improved employee productivity and retention, reduced employee health costs, and sustainable-source warranties in materials used. The building industry has standard metrics and warranties in these cases. As standards evolve for, say, measuring toxicity impact, water usage, and carbon emissions, those factors could be added to existing processes and information systems as part of the evaluation criteria used within a business and across its value chain.

Such modeling and visibility should not be limited to the enterprise. They must extend to the value chain. When resources are tagged with sustainability-related information, it’s possible to know much more about the relative performance of value chain partners. “Buyers of goods and services can place demands on their suppliers and can actually know whether those demands are being met in ways they could never do before,” Delaye says. Such visibility is essential, because when enterprises create sustainability targets, they often make assumptions about the performance they can get from value chain partners.

**The emerging practice of embedding with financial metrics**

Much of the information for sustainability is nonfinancial, such as tons of greenhouse gas emissions, gallons of water used, tons of waste disposed, and so on. However, it’s possible to translate this information into financial metrics. This appliedvaluation concept is familiar to all businesses. After all, money is a set of metrics and shared valuations for the basket of economic activities—goods, services, labor, intellectual property, goodwill, and so on. And financial metrics are the most fundamental measurement used across business decisions and processes.

Existing financials usually do not include the cost of inefficiency, the cost of environmental damage, and the present and future value of the environment and its resources that businesses and people use to sustain themselves. However, metrics are beginning to emerge that include these effects, opening the door to more programmatic sustainability decisions. The most complete accounting for these assets also incorporates people, culture, social infrastructure (such as education), and the macroeconomic impacts of enterprise behavior.

“Taking the nonfinancial drivers of sustainability that are critically important to a business and putting a valuation on them in economic terms means that people will understand the impact of sustainability concerns
on their business much better,” says PwC’s McGill. “The organization will be better positioned to know where the risks and opportunities for innovation are and where they should focus their scarce resources and avoid potential disruptions to business.” (See the sidebar, “Environmental and social P&L account.”)

Athletic apparel manufacturer PUMA has taken this approach to embedding sustainability, using emerging modeling and valuation methods to develop an environmental profit and loss statement. PUMA released the first environmental profit and loss statement in May 2011.³

In many ways, emerging sustainability developments are redefining the notion of externalities and the definition of cost. “Once this is done, it’s possible to use cost as an honest measure that also includes considerations for sustainability,” forecasts Chorley of Oracle.

**Conclusion**

Behind most sustainability initiatives today are ways of thinking that separate a company’s core business and its impact on the world. But businesses with mature sustainability practices do not view them as a department or center in the organization. Rather, sustainability practices are dimensions embedded in all decisions and processes, part of the entire business—just as financial considerations and performance metrics are. Yes, there should be sustainability experts in the company—just as there are experts in finance, HR, sales, product design, and sourcing—but as long as sustainability is considered a separate, standalone activity, it won’t meaningfully occur.

Sustainability at the core is an information challenge. Synthesizing, engaging, and integrating sustainability information provide the context for how sustainability concerns will influence enterprise strategy. “Good sustainability data will allow managers to see their businesses and value chains in a whole new way. This is the future of strategy,” suggests Andrew Winston, founder of Winston Eco-Strategies.

The true indicator of success is that sustainability behavior becomes second nature. By embedding sustainability dimensions into products, services, and business processes—from performance reviews to sourcing decisions—companies can more quickly get that second-nature result.

Second nature will be extremely important as sustainability becomes a major strategic concern in the next decade. As organizations engage with sustainability, their journey will take them from a focus on compliance to a demonstration of leadership using sustainability as a way to drive innovation and growth.

As businesses mature in their sustainability efforts—from compliance to obligation, then efficiency, and ultimately to market leadership—they will travel a path that converts outside concerns into inside engagement, transforming existing processes to make sustainability a core activity. Sustainability will stop being a separate concern and will become embedded in ongoing business operations and strategic priorities.

> “Good sustainability data will allow managers to see their businesses and value chains in a whole new way. This is the future of strategy.”
> —Andrew Winston, Winston Eco-Strategies

IT is playing an important role. By making visible the consumption and impact of environmental and social resources in products, services, and business operations, IT accelerates the use of sustainability as a driver of growth.

Ultimately, embedding sustainability means tagging resources with sustainability-related information and providing information at the point of action to drive sustainable choices and behavior. That information at the local facility, enterprise, and value chain can send the relevant sustainability information or “pricing” signal throughout the organization and its suppliers, and steer the business toward more sustainable choices or outcomes.

Such embedded information available to people and made part of business processes will lead to making sustainability practices, well, sustainable.
By sustainability, PwC means the processes by which enterprises manage their economic, environmental, and social obligations and the opportunities to create long-term competitive advantage and growth. These are also often referred to as people, planet, and profit in popular media. Although particular examples and illustrations may speak to only one of these three elements, the term encompasses all of them.

Sustainable chemistry is Dow’s cradle-to-cradle concept that encompasses a life cycle view of the company’s products and processes with the objective of minimizing footprint by using resources more efficiently and reducing impact on the environment.