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Information Technology

The business case for a greener IT agenda

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As one of the organization's hungriest consumers of energy, IT has unusual leverage to effect green change on an enterprise scale. Here are five moves that IT leaders should be making now.

If you had the chance today to launch a new company—a start-up opportunity that could quickly scale up to dozens, perhaps hundreds, of employees in a year or two—would you do it the way it's always been done, with employees converging on central offices each day and a big server farm whirring away in a back room?

Not if you wanted your organization to be a paragon of greenness.

Instead, you might opt for a decentralized and largely virtual model, with staff working flexibly, often from home. You'd probably use energy-efficient buildings, perhaps powered in part by solar energy and with infrastructure that turns lights off automati-

cally when nobody is using them. You'd be accessing more of your IT needs remotely and sharing IT assets widely.

As a result, you'd have one of the smallest carbon footprints around—certainly a nice-to-have when it comes to burnishing your brand or trying to woo young, eco-minded prospective hires. And you'd be well prepared for the day, not long from now, when your impact on the environment will be an essential element of competitiveness.

We're not there yet—nowhere near, in fact. But the pressure is building to push businesses in much greener directions—and to look creatively beyond the usual polemic about payback that continues to curb many

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a manager's well-meaning environmental urges.

What's especially interesting is the role that corporate IT leadership can play. Certainly, surging energy costs and rising volumes of data together make it easier for CIOs to justify spending on so-called green data centers. But that's not the extent of IT's potential. Working with a wide swath of Fortune 500 companies over many years, Accenture has observed that IT is often perfectly placed to initiate and even spur on the environmental agenda across the organization.

It's early days yet, but IT executives at some farsighted companies are already beginning to think and act in those terms without losing any of their fiscal pragmatism. They're starting to think about IT's impact beyond the data center.

Green tide rising

It's almost impossible to open a newspaper or magazine these days without reading about the consequences of concern about the environment: electric cars or carbon-credit trading schemes or green business summit conferences. Climate change is increasingly difficult to contest: Statistics and reports from the National Aeronautics and Space Administration in the United States and from the United Nations' Intergovernmental Panel on Climate Change confirm that global temperatures are now rising faster than ever before.

The facts are rapidly making themselves felt in corporate boardrooms. The environment has become a fixture on the agenda at the World Economic Forum in Davos, within sight of Switzerland's retreating glaciers. In the United Kingdom, the Confederation of British Industry, the country's leading employers' body, has pledged that its members will "develop new products and

services that will enable all households in the UK to cut their [carbon] emissions in half by 2020." Many Fortune 500 companies wear their green credentials with pride—some to the point where they are criticized for "greenwashing" (see sidebar, page 3). And many are dabbling in carbon offsets—a few selling but most buying their way to environmentally acceptable standards.

Some leading companies have invested hugely in rebranding around an environmental stance, as BP did in 2000 with its "Beyond Petroleum" tagline. Others have launched vast enterprisewide ventures, as General Electric Co. did recently with its "Ecomagination" initiative. One of GE's four Ecomagination commitments, the company says, is to "grow revenues from products that will provide significant advantages to customers to at least \$20 billion in 2010." At many companies, sustainability reports—printed on recycled paper with soy ink, of course—have joined annual reports as a means of helping stakeholders gauge a company's performance.

But how green has the IT organization really gone? The short answer: a little. To date, the agenda has largely been set by IT hardware suppliers looking to seize the opportunity presented by the new pressures on the CIO. For these suppliers, the debate is about running IT assets and services in more energy-efficient ways, and they are only too happy to sell the new equipment to enable this.

This agenda has had two results. One is that the whole discussion around IT's ability to drive energy savings has focused primarily on data center operations. The other is an upsurge in the marketing of IT hardware and systems that consume less energy while delivering the same processing capacity.

In our view, this emphasis is not wrong; it's just incomplete. It risks missing some major opportunities, because the real environmental agenda for the CIO can be—and certainly should be—far broader.

CIO as eco-champion

Why IT? What makes the CIO a likely or a credible champion of the green cause?

The first answer is economic. For almost all services businesses and even some areas of light manufacturing, IT operations are responsible for the bulk of an organization's energy consumption—and that share is climbing all the time. In effect, demand for IT's services is growing faster than the efficiency of the underlying technology. While IT can address supply-side issues, it is also in a position to manage demand.

The second answer is more diffuse. Think how pervasive IT's influence has

become. Today, using remote access technology, personal communications tools and a widening range of software options to enable collaboration, IT can shape and help determine where and how people work, how much they travel and how they behave when they get to their destinations. All of which translates not only into how much energy they consume but also how much they use of other costly resources, from paper to minerals.

IT's impact can extend still further. The workplace environment, the procurement methodology and the supply chain are all within its sphere of influence—as are the automation and efficiency of the organization's compliance with such environmental regulations as applicable carbon emissions caps and the European Union's Waste Electrical and Electronic Equipment directive.

Taken together, these areas of influence mean CIOs have a substantial

Too green to be true?

Environmental activists have been crying "Greenwash!" ever since companies began publicizing their Earth-friendly efforts.

Ads and other promotional efforts for hybrid cars have come under attack from groups including the Natural Resources Defense Council, the Rainforest Action Network and the Union of Concerned Scientists—particularly when some of the targeted automakers also sell large vehicles or support lower national fuel economy standards. This past January, a major energy conglomerate abandoned its sponsorship of a wildlife photography exhibit under fierce pressure from eco-protesters. Greenwash watchdog sites abound on the Internet, and a Greenwashing Index has been attracting substantial media attention.

The lesson for business leaders? There's no hiding place if your environmental story seems too good to be true—or if it's seen as a smoke screen for other, less environmentally friendly, activities, such as excessive energy consumption or the encroachment on habitat of endangered species.

If the reputation issues are taxing for frontline executives who are used to the glare of the public spotlight, they are downright daunting for green IT proponents. The key for them will be to collaborate early and often with the communications teams that manage the company's brand. They might also walk a mile in a greenwash watcher's sandals.

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opportunity to further the energy efficiency and corporate citizenship aims of the entire company. They can do this by proposing and implementing solutions that will simultaneously produce business and environmental benefits, increasing efficiency in terms of both cost and energy and boosting employees' ability to do their jobs well in responsible ways that also fit their lifestyles. (We estimate that at least two-thirds of the green initiatives IT could launch today would also be deemed to have an economic payoff.)

Five focal points

One note of reason: This does not mean recasting the CIO as a kind of green-caped crusader—a role that would be neither credible nor practical. But it does mean that CIOs and their leadership teams can begin to step up to their potential for influencing the company's green agenda. Accenture has identified five areas where this can happen.

1. Don't let up on the data center

Since poorly configured data centers can use 100 times the electricity per square foot of a typical office building, it's easy to see why this is the natural starting point for IT's green initiatives. There is a long way to go: Last year's report from the Environmental Protection Agency indicated that data centers now consume about 1.5 percent of the electricity used in the United States. Annual data center electricity use doubled from 2000 through 2006 and could nearly double again by 2011.

Many Fortune 500 companies are already making big strides to reduce electricity consumption. Two quick examples: Hewlett-Packard Development Co. is installing its "smart cooling" technology in data centers worldwide, notably in a large facility in Bangalore. And telecom giant BT, whose data centers are Europe's largest, absorbing close to 0.7 percent of Britain's total power output,

has cut its power use there by more than 60 percent in recent years. Payback on the investment took less than 18 months.

One approach is to refresh rather than rebuild. Building out a new data center can cost about \$1,000 per square foot and take years, while using strategies such as virtualization, standardization, orchestration and automation to extend the lifespan of a data center requires only a fraction of that cost.

Shared-services practices can lead to server consolidation, and application renewal can help boost system efficiency. At the same time, optimization of where and why processing takes place can also help to tackle energy inefficiency, while smart scheduling of computer usage to create "follow-the-sun" processing models may reduce energy consumption and costs even further.

Part of the challenge is to properly monitor energy use over a range of duty cycles. With the development of virtualization, it is even more important to be able to collect and analyze information about power consumption. Distributing storage and processing cycles without considering the power issues can actually accelerate system crashes, some experts point out.

Accenture Technology Labs is one of several organizations working on the measurement challenge. The Labs have devised an online calculator that aggregates the kilowatt-hour consumption of all the machines in a data center and helps predict how that consumption could change under different energy-saving configurations. The calculator draws on a database of case studies as well as detailed performance data to assess various solutions—for example, water cooling, server virtualization, multicore processors and free cooling (see sidebar, page 5).

Cisco Systems aims to use the enterprise data network as a kind of electricity meter. Its plans call for gathering data on factors such as power consumption and operating temperature from server and storage equipment vendors—information that Cisco could use not only to help manage energy consumption at a data center but also to allocate and bill for electricity costs according to a department's usage.

2. Let IT foster green work practices

The CIO can play a leading role in changing employee behavior, starting

with enabling people to work remotely by providing “thin client” and Web-enabled business services. The benefits can surface in ways that aren't immediately apparent. At US airline JetBlue Airways, call-center staff are highly motivated and unusually productive. A key reason: Web-based systems allow them to work from home and control their work hours. The systems match staff to call demand, ensuring that JetBlue is using no more call staff than necessary.

In the office, IT can also help reinforce policies that encourage

Gauging how green

IT leaders have plenty of reasons to avoid acting on green imperatives—from their considerable workloads to the lack of a business case to their weariness with environmental “causes.” It has also proved difficult to get going with meaningful green IT initiatives because there have been few diagnostics that effectively assess relative performance.

To help CIOs conduct this kind of diagnosis, we have developed a tool called the Accenture Green Maturity Model.¹ Now being tested with leading European businesses, the GMM consists of a series of targeted questions about the IT department's current approach, and is supported by analytics to assess the implications of the responses. The results allow the organization to benchmark its current performance and maturity in energy efficiency, to identify opportunities for quick wins, and to pinpoint and quantify areas for longer-term improvement.

The results are graded on a 0 to 5 scale, in much the same way that software capability maturity models are structured: from Level 0, which represents “Incomplete” (the organization implements but ignores process, often lacking the will to carry through the necessary effort), to Level 5, which represents “Optimizing” (quantitative process-improvement objectives are in place, continually revised to reflect changing business objectives and used as criteria in managing process improvement).

The GMM can be administered in a “lite” form—a rapid assessment, using a small subset of the tool's 300-plus questions that provides a thumbnail sketch of the organization's green maturity and a high-level view of the changes that should be made. Run in its entirety, the diagnostic dives deeply, with hundreds of questions that result in tailored recommendations and detailed comparisons against baseline maturity criteria and—when enough data have been gathered—against industry peers.

¹ For more information on this calculator, please see “Green IT: Beyond the data center”:
<http://www.accenture.com/NR/rdonlyres/D8AAB52E-D748-4387-845E-F75BF7E02534/0/AccentureViewsAndRecommendations.pdf>

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employees to conserve energy by turning off their computers after use rather than leaving them on standby, recycling waste, and printing documents only when necessary. However—and this is a big “however”—IT cannot simply enforce changes in employee behavior. There’s no point, for instance, in IT imposing companywide default printer settings if workers can (and will) simply override them.

IT first needs to map the many ways it influences work practices and then study how changes to those practices could reduce the organization’s carbon footprint. Then it must objectively weigh the risks against the rewards of doing so—the dangers to data security of supporting mobile devices, for instance—and prioritize the practices that will yield the greatest energy savings with the lowest risks.

3. Re-wire (and recycle) the office

IT can also help reduce resource consumption on the company’s premises by partnering with facilities management teams. Besides cutting the use of electricity, more energy-efficient office equipment, including multifunction and double-sided printers, can create significant savings in consumables such as paper and toner. Postponing the replacement of desktops can also help (consider that the energy used to make the average PC equals four-fifths of the energy that PC will use over its normal life).

Efficient cooling and heating systems for data centers, including using groundwater for cooling, can also make a contribution. Likewise, there are significant savings in ensuring that office equipment, computers and lights turn off automatically when not in use. Using Internet protocol links for all communications—including VoIP to replace traditional phone landlines—can reduce duplication in office cabling whose production and

installation impose costs on the business and a heavy burden on the environment.

At the same time, many IT executives are uniquely placed to lead the commitment to the responsible disposal of office equipment. That is because in the typical service firm, and even in some light manufacturing and distribution facilities, the servers, PCs, routers, storage systems and other IT hardware represent the company’s largest capital expenditure. Disposal activities can involve finding and arranging new homes for outdated gear and organizing the recycling of non-functional or obsolete equipment.

4. Purchase with green intent

Here’s an area where IT can rapidly make an enormous difference. There are two main opportunities for savings.

First, there is the CIO’s immediate influence over the IT hardware that can make up such a large slice of the company’s capital expenditure. As the most basic step, the CIO’s organization can require that all hardware purchases be accredited through Energy Star or other similar programs. It can also favor suppliers that are proactive about reducing, reusing or recycling their packaging. Going further, IT can rate suppliers on the extent to which they run their businesses in environmentally acceptable ways.

Studies show that IT departments do not yet score well on these measures. According to Forrester research, although more than four-fifths of large companies say environmental factors are important in planning their IT operations, only a quarter have written green criteria into their purchasing processes.

The second area of influence applies more to industries that produce and distribute goods. By collaborating

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with the company's supply chain and logistics experts, IT can help to identify processes and tools that engender "smart logistics"—maximizing freight payloads, consolidating shipments, improving supply chain visibility to minimize distances shipped, and evaluating the carbon footprints of transportation options.

This can be the broadest area for IT's involvement, and requires a holistic view all the way along the supply chain and into suppliers' and customers' operations. The focus should be on energy efficiency throughout the procurement lifecycle, from acquisition to usage and, eventually, to disposal.

5. Help elevate corporate citizenship

By interacting in environmentally friendly ways with local, regional and global communities—effectively taking its green agenda outside the company's walls—the IT department engenders goodwill and helps burnish the company's image as a responsible corporate citizen. This might mean something as simple as recycling IT assets to local charities—or helping neighboring small businesses to do so as well. Or it could be as involved as working with regional governments to introduce measures that encourage businesses and individuals to turn off PCs when they're not being used.

By taking a central and proactive role in executing the company's green agenda, IT also positions itself to help build responsible practices internally across the workforce, and to communicate those practices externally to the wider community of stakeholders. Investors and analysts, for example, now take a keen interest in companies' environmental performance; by pursuing initiatives of the kind outlined above, the CIO can help ensure that there is a positive story to tell.

Encouraging signs

It will be a while before we can point to green best practices. To date,

environmental issues have been very much a secondary concern for most business leaders, and many of them argue that going green is hard to justify economically. No wonder it's been easy for IT managers to postpone facing the issues—or even ignore them altogether. Recent polls put the green agenda low on CIOs' priority lists.

But we are starting to see some encouraging moves. There is considerable interest from CIOs in ways to objectively evaluate green positioning. At one major European media company, the IT group has formed a committee expressly to investigate the environmental opportunities, and the group's findings are being tracked and reported at the board level.

Accenture expects that such exploratory teams will soon give way to green IT task forces with specific strategic responsibilities. It is not inconceivable that some IT organizations will set up green IT program offices or dedicate senior managers to pursuing a green IT agenda, probably as part of broader cross-functional environmental efforts. Indeed, we would recommend that every CIO creates such an agenda and allocates the resources to bring it to life.

The consequences of not doing so won't be immediately evident. However, the pressures are intensifying. Fuel and energy costs continue to climb. Watchdogs such as the UK-headquartered Carbon Disclosure Project and the US-based Climate Counts are quick to jump on perceived corporate offenders, as happened to Apple just before the launch of its iPhone.

Meanwhile, regulators are turning up the heat. The European Union's carbon emissions trading system is becoming more stringent. In the United States, President Bush recently signed legislation that raises the national fuel economy

standard for cars to 35 miles per gallon by 2020 and mandates an almost fivefold increase in the use of biofuel by 2022.

Just as critically, investors are paying more attention. Already, there are indications that they are discounting the stock of companies they believe are vulnerable to the shocks of an energy- and climate-sensitive world. It's increasingly likely that shareholders will invest in companies that demonstrate environmental responsibility.

Companies that lag behind will start to hurt as more customers favor those with clean, Earth-friendly reputations. They'll hurt some more as the talent crunch bites. One survey of MBA students from the top 50 business schools found that three-quarters of the respondents said they were willing to accept a 10 percent to 20 percent lower salary to work for a "responsible" company.

The upshot: Although the green agenda will still conflict with conventional accounting views of investment returns, its broader payback will gain more and more recognition. That opens up opportunities for IT leaders to take the lead on far-reaching green IT initiatives that can create significant competitive advantage.

In fact, an innovative approach could see IT working with a business unit or department on a cost-neutral basis—helping establish energy savings on the desktop, say, and using the savings to fund the department's investments in new productivity software or to set up more employees to work remotely.

Put simply, IT needs to go green—and to prove it.

The data center is the right place to start. It's where there are obvious energy savings to be achieved, and where the investments are easiest to justify. But it is only a starting point. Since IT's corporate reach is so pervasive, IT leaders have an unusual opportunity to help shrink the organization's carbon footprint from many directions. Their efforts can also do much to boost process efficiency and performance.

It's an opportunity that should be seized now, because today's novel green concepts will be tomorrow's standard operating procedures. A few more years and the lack of such initiatives will be a clear demerit with employees, prospective hires, investors—and customers. If you, as a CIO, haven't yet been asked to develop and act on a green IT agenda, you soon will be. When that question comes, you want to have the right answers ready.

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