

Technology Consulting

# Green IT: beyond the data center

How IT can contribute to the environmental agenda across and beyond the business

By Stephen Nunn



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## A new environment for IT

As a chief information officer (CIO), you are under pressure from many quarters. Just look around the boardroom table. The CEO wants you to deliver higher shareholder value. The CFO is demanding higher returns on IT investments. The COO is looking to you to create operations that are lower-cost and more effective. And all of them want you to help drive the organization towards high performance.

Now a further pressure has been added to the mix. Amid intensifying scrutiny of your company's environmental impact, your IT function has found itself in the front line of the battle against climate change. As a major—perhaps *the* major—high-profile consumer of energy in the organization, IT is being asked to demonstrate its commitment to reducing carbon emissions. And everyone is watching for your response, from the CEO to investors, and from employees to green lobby groups.

Put simply, IT needs to go green—and to prove it. As a CIO, if you haven't been asked to do this already, then you soon will be. When that question comes, you want to have the right answers ready.

### Greening the data-center...

What should those answers be? To find out, let's start by examining the tone and focus of the current debate around green IT.

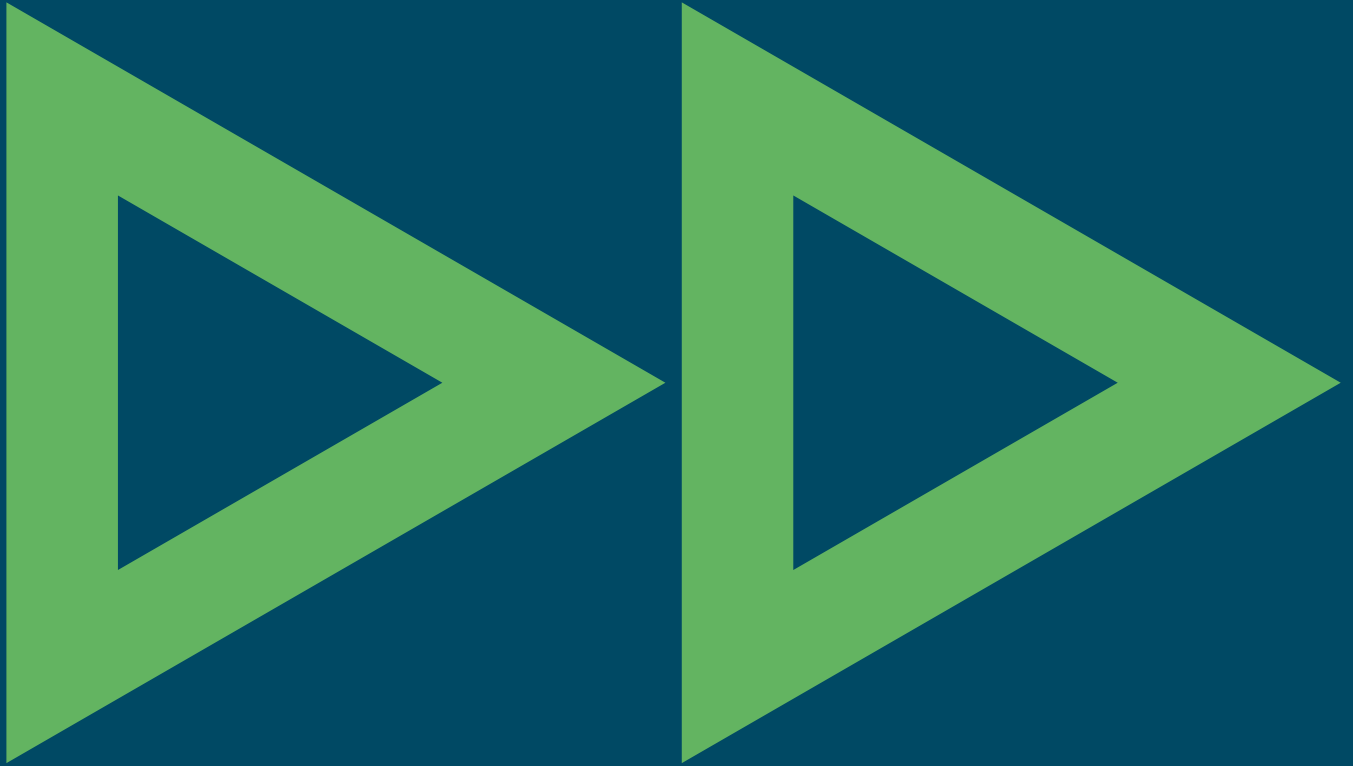
To date, the agenda has largely been set by IT hardware suppliers, who have not been slow to seize the opportunity presented by this new pressure on the CIO. For them, the debate is around running IT assets and services in a more energy-efficient way. And they will be happy to supply new equipment to enable the CIO to do this.

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

### ...is just the start

In our view, this focus is not wrong, just incomplete. It risks missing some major opportunities, because the real environmental agenda for the CIO can be—and certainly should be—far broader. True, the data center is one valid area of focus in IT's efforts to support the company's environmental agenda. But it is just one of many. There are also several other areas where IT can make a real and demonstrable contribution.

At its root, the shared challenge facing every member of the board is how to limit, and hopefully reduce, the organization's overall carbon footprint. The question is how much can each executive bring to the party. And as CIO, you can bring a lot more than more energy-efficient servers. Indeed, if you don't, you will be failing to pull your full potential weight.



### How green?

Over 50 percent of customers now consider the environmental record of their supplier when conducting business. And 50 percent of shareholders say they are more likely to buy shares in a company that shows environmental awareness.

## The rise and rise of demand for IT

The storage capacity needed by the average *Fortune* 1000 company doubles every 10 months—primarily driven by growth in application data.

## Green data centers: a business imperative

Even without environmental concerns, power and cooling capacity is currently the number one issue for today's data center managers. Data centers can use 100 times the electricity per square foot of a typical office building, so greener data centers are vital both to meet business demands *and* reduce environmental impact. They provide the computing capacity for larger sustainability initiatives such as online collaboration, while also offering key opportunities for savings in both costs and carbon emissions.

## A holistic agenda

Why? Well, for one thing, consider the balance between supply and demand for IT. The fact is, demand is growing faster than the efficiency of the underlying technology. So the supply-side can be only one element of a truly effective solution. You need to manage demand too.

For another, think how pervasive IT's influence across the organization has become. Today, IT can shape and ultimately determine where and how people work, how much they travel, and how they behave when they get there. All of which translates not only into how much energy they consume, but also how much other costly resources they use ranging from paper to petroleum fuels.

IT's impact can extend still further. The workplace environment, the procurement methodology and the sourcing supply chain are all within its sphere of influence. As are the

automation and efficiency of the organization's compliance with environmental regulations such as WEEE and emissions caps (where applicable).

## From CIO to eco-leader?

Taken together, these areas of influence mean the CIO has a substantial opportunity to further the energy efficiency and corporate citizenship aims of the entire corporation. He or she can do this by proposing and implementing solutions that will simultaneously achieve business and environmental benefits—thereby increasing efficiency in terms of both cost and energy, and also boosting employees' ability to do their jobs well in a way that suits them.

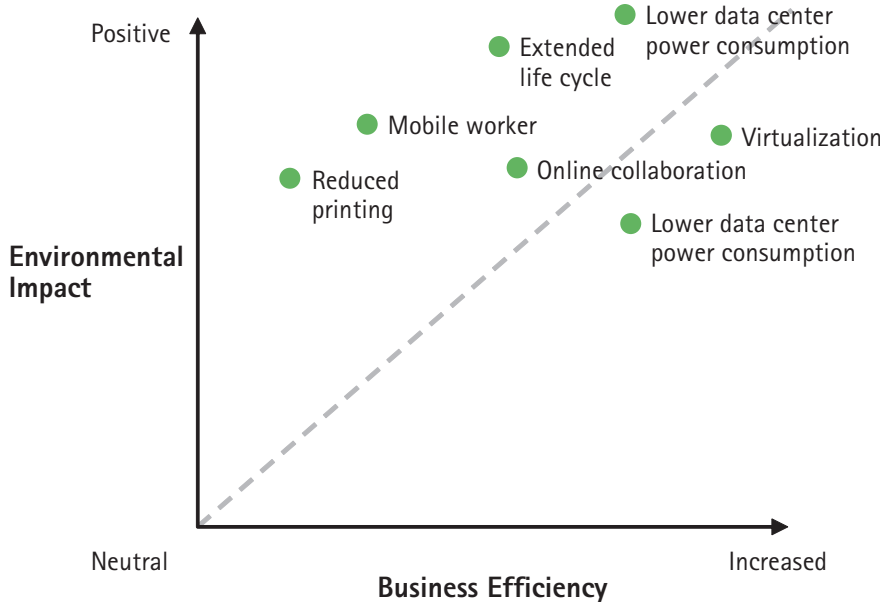
This combination of impacts—escalating the business's green credentials while simultaneously increasing process efficiency—is fundamental to ensuring the business

is sustainable in every sense. Delivering all this will not just benefit the organization as a whole by driving it towards high performance and building traction with investors, employees, recruits, customers, suppliers and regulators. It will also boost the standing of IT in the organization by repositioning the CIO as a corporate leader in the business's green agenda and in the wider efforts to reduce negative environmental impacts.

All this can be achieved today. The first step is to think holistically about what IT can contribute across the business.

# Leveraging IT's environmental influence

Figure 1: The correlation between green initiatives and efficiency



By using every available lever in the IT function to help reduce energy consumption, the CIO can open the way to a wide array of benefits for the business, both tangible and intangible. In order to pursue these benefits in a systematic and effective way, the CIO first needs a set of guiding principles. These principles can be used to assess each IT transformation initiative in terms of its ability to support the organization's environmental agenda and objectives.

In our experience, all 'green IT' initiatives should be focused on delivering a benefit aligned to one or more of the following three principles: **Reduce, Reuse, Recycle.**

The benefits of applying these three principles across the IT transformation program can include:

- Reduced energy costs both through lower usage and more efficient operations of equipment.

- Streamlined IT processes to reduce cost inefficiencies and decrease environmental impact.
- Increased collaboration and more efficient interaction with suppliers and customers, reducing the carbon footprint on both sides of the relationship.
- A more mobile and agile workforce enabled for flexible and remote working, further reducing carbon emissions from unnecessary travel.
- Greater corporate citizenship credentials and increased brand value through a demonstrable commitment to environmentally aware operations.

The benefits generated through these advances can have the collective effect of moving the entire organization towards a greener business model, and a more agile one. As Figure 1 shows, there is a direct correlation between many 'green' initiatives in an organization and its overall level of process efficiency.

## Five key areas to focus

However, if IT's ability to promote and support the organization's green agenda is as far-reaching as we suggest, this raises a further challenge for the CIO: how to focus and target efforts to exert this influence in the most effective areas.

Accenture has highlighted five key areas where IT can have the most rapid and demonstrable impact on energy consumption—and thereby on the corporation's green agenda.

### 1. End user working practices

The CIO can play a pivotal role in driving forward employee/customer behavior change. IT's most obvious potential contribution is to enable people to work remotely by providing 'thin client' and web-enabled business services. In some cases, this may help to avoid the emission of millions of

tonnes of carbon from transport by enabling employees to work from home or other locations. Furthermore, web enablement creates process efficiencies and reduces paper usage. People can also be encouraged to conserve energy through their behavior, such as turning off computers after use (rather than leaving them on standby), recycling waste, and only printing documents when absolutely necessary. Smart logistics—using as little packaging as possible, and organizing shipping and couriers on a consignment, rather than individual order, basis—can make a further contribution to saving emissions.

However, it is important to stress that transforming users' behavior requires more than just changes in technology. For example, there is little point in changing default printer settings for employees if they are simply going to override them. Initiatives such as switching off laptops when appropriate or printing as little as possible can save substantial amounts of energy and other resources, but the full potential benefits can only be realized by undertaking the necessary infrastructure change and then proactively educating people to take advantage of it.

## 2. Office environment and equipment

More energy-efficient office equipment such as multi-function and double-sided printing devices can create significant savings in consumables such as paper and toner, as well as cutting energy consumption. Efficient cooling and heating systems, including using underground water for cooling, can also make a contribution, as can ensuring that office equipment, computers and lights turn off automatically when not in use and at night. Using IP 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.

## 3. Office infrastructure/ data center

This focus reflects the current mainstream agenda around many of the green IT initiatives. Effective strategies such as virtualization, standardization, orchestration and automation can enable the data center infrastructure to deliver the same level of processing with a smaller footprint. These methods are often applied with an 'intelligent systems refresh' approach, enabling IT to shrink the carbon footprint of its hardware infrastructure, even as demand for IT processing continues to rise. Server consolidation and application renewal can extend the life of existing systems and limit investment in new equipment. In this context, the traditional mainframe has emerged as a relatively efficient model, owing to its high level of re-use. 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 moon' processing models may reduce energy consumption and costs even further.

## 4. Procurement

This is potentially 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 life cycle, from acquisition, via usage, to disposal. Are suppliers running their business in an environmentally responsible way? Are customers recycling our packaging—or should we be using less packaging anyway? Are we doing enough to recycle equipment and packaging ourselves? A supplier whose equipment and/or packaging are reusable or energy-efficient might be chosen over an ostensibly cheaper one that performs less well on these measures.

## 5. Corporate citizenship

Environmental risk, responsibility, reputation and compliance are now pivotal areas of focus in an organization's overall efforts to act, and be regarded, as a good corporate citizen. By taking a central and proactive role in executing the green agenda, IT also positions itself to help build responsibility internally across the workforce, and communicate it externally to the wider community of stakeholders. Investors and analysts, for example, now take a keen interest in companies' environmental performance—and by pursuing initiatives of the kind outlined above, the CIO can help ensure they have a positive story to tell. Employees also value working for a responsible business.

### The real cost of cheap servers

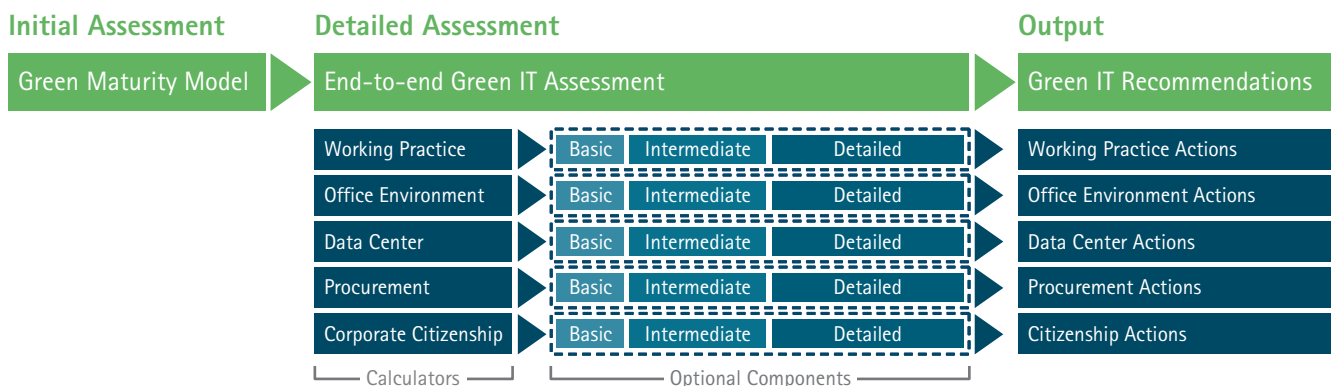
Data center energy consumption worldwide has doubled since 2000, with an abundance of cheap commodity servers driving the installed server base up from 14.1 million to 27.3 million worldwide between 2000 and 2005. With energy costs continuing to rise, Moore's law addresses the space constraints, leaving power and cooling as the limiting factors.

### Responsible recruitment

Seventy-five percent of MBA students from top schools are willing to accept a 10 to 20 percent lower salary to work for a 'responsible' company.

# Scoping the opportunity: The Accenture Green Maturity Model (GMM)

Figure 2: The three-stage GMM process flow



As CIO, your first step towards implementing IT's rightful position at the heart of the environmental agenda is to scope the available opportunity. This means conducting a diagnostic across all five of the areas highlighted above, enabling IT to benchmark the organization's current performance and maturity in energy efficiency, and to identify focus areas for improvement.

To help CIOs conduct this diagnostic, Accenture has developed a tool called the Accenture Green Maturity Model (GMM). It consists of a series of targeted questions about IT's current approach, followed up by analytics to assess the implications of the responses.

## Objectives and process

The GMM is designed to highlight quick wins, quantifiable benefits and longer-term opportunities, thereby providing the CIO with the basis and rationale for further action. Furthermore, its explicit assessment of the potential gains helps to create

traction and credibility both internally and externally. The tool is also designed to support a focus on best practice in IT's efforts to reduce the organization's environmental impact.

The process of applying the GMM to an organization consists of three stages (see Figure 2). These are:

**Initial Assessment:** This provides a rapid assessment of an organization's green maturity and identifies, at a high level, the changes that should be made.

**Detailed Assessment:** Using the output from the initial assessment, specific assessments are carried out in areas identified as weak. Depending on the organization's requirements, various levels of analysis can be undertaken. The deeper the analysis, the lower the level of assumption in any business case proposal.

**Output:** Based on the results of the detailed assessment, recommendations for specific actions can be produced, along with a tailored road-map for implementation.

In our view, the GMM provides the ideal framework to underpin a holistic approach that will boost the perception and contribution of IT to the green agenda.

## Refresh over build

Intelligent refresh extends the lifespan of an existing data center. Building out a new data center costs US\$1,000/sq ft and takes years, while refreshing a data center requires only a fraction of this investment.

If you would like to know more about the GMM or how IT can contribute to the green agenda in your organization, please contact:

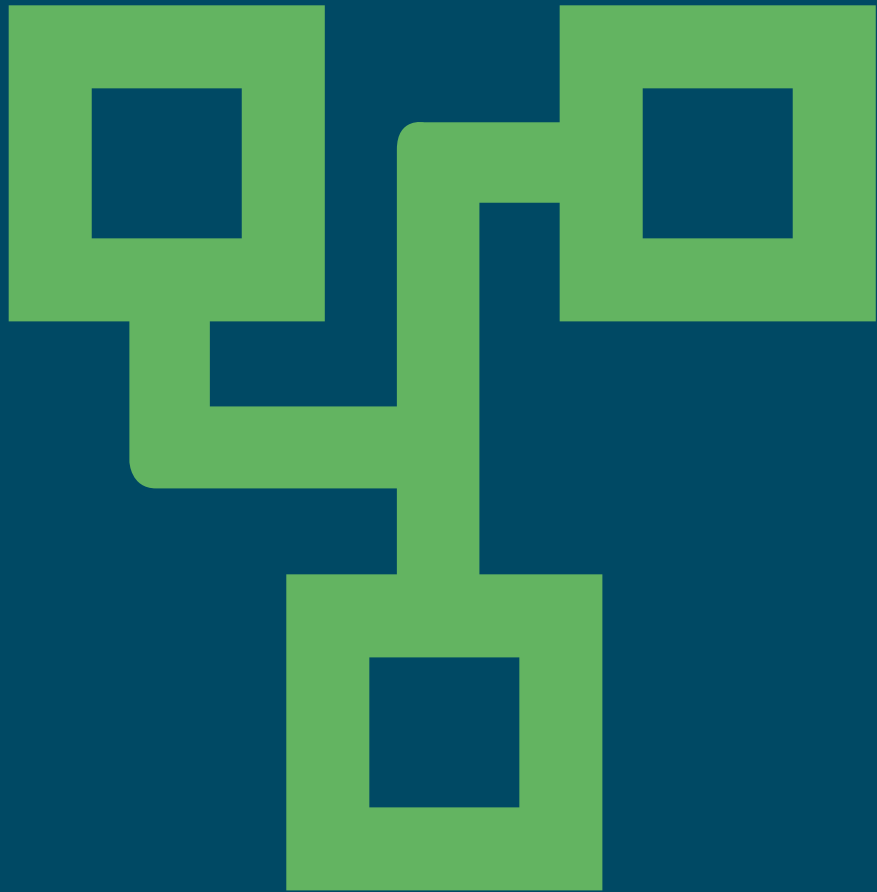
**Stephen Nunn**

Global Green IT Lead

Accenture

[stephen.nunn@accenture.com](mailto:stephen.nunn@accenture.com)

+44 20 7844 5367



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