UWEBC
BEST PRACTICE REPORT

GREEN IT

OPPORTUNITIES AND LEADING PRACTICES EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY: GREEN IT & SUSTAINABILITY

ACCORDING TO THE UNITED NATIONS' 1987 REPORT THAT COINED THE TERM, SUSTAINABILITY MEANS TO "MEET THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS."

In 1987, sustainability was an esoteric concept, discussed and debated mostly in academic circles. The end of cheap energy and the growing concern about global climate change have expanded awareness of and concern for sustainability worldwide—among information technology (IT) customers, clients and end-users.

IT operations are prodigious consumers of energy. Business offices are second only to the transportation impacts of commuting employees in the emission of greenhouse gases (GHG). Likewise, in business environments, the IT function is often the top producer of toxic waste, primarily in the form of obsolete electronic equipment. Efforts in IT to make businesses, and the societies in which they operate, more sustainable is often called "Green IT." These efforts include both the reduction of the impact of IT functions and IT programs to make other business operations more sustainable, such as substituting teleconferencing for business travel.

In many cases, unsustainable practices are the result of exploiting externalities, reaping the benefits of some system while others pay the costs. The cost of fossil fuels, for example, is based on the costs of extracting, transporting, and refining oil

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and coal. But the cost of environmental pollution, securing oil fields and supply lines by armed force, and GHG emissions are externalities—paid by others or left as debt or degradation for future generations.

As we move toward more sustainable systems, then, we must consider ever larger systems. W here does this clean water come from? What is the final disposition of these old computers? These are the kinds of questions Green IT asks.

Frameworks for sustainability

A number of frameworks have been developed to understand global systems. For example, climate change is widely studied in terms of CO2 equivalents, or CO2e. Flaring methane to make CO2 and water increases the CO2 concentration in the atmosphere, but reduces CO2e because methane is a much more potent global warming gas than CO2. Many climate scientists agree that the maximum sustainable concentration of GHG in the atmosphere is 350 parts per million CO2e. Yet the GHG

The Four System Conditions Reworded as The Four Principles of Sustainability

In a sustainable society, nature is not subject to increasing …	**To become a sustainable society, we must …**
1. Concentrations of substances extracted from the earth's crust	1. Eliminate our contribution to the progressive buildup of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)
2. Concentrations of substances produced by society	2. Eliminate our contribution to the progressive buildup of chemicals and compounds produced by society (for example, dioxins, PCBs, and DDT)
3. Degradation by physical means	3. Eliminate our contribution to the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat)
4. Conditions that systemically undermine capacity to meet human needs	4. Eliminate our contribution to conditions that undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on)

concentration in the atmosphere is not a complete system. If we set objectives based only on CO2e, we risk employing solutions that make other things worse, such as polluting the fresh water we need or allowing dangerous, untreated nuclear waste to build up in the environment.

A more complete framework is The Natural Step, which is cast as four system conditions and four corresponding principles of sustainability (http://www.thenaturalstep.org/~natural/the-system-conditions):

Note that all the system conditions are important, so the measures taken to follow one sustainability principle must not violate any of the system conditions. This requires choosing measures with great care to avoid negative side effects.

Metrics for sustainability

Metrics devised to measure progress in sustainability in one area must be convertible to metrics for other areas, if only to determine how to spend available resources to the best effect.

Financial assessment of sustainability measures has the advantage that businesses have in place elaborate systems for tracking and comparing financial effects. Even the most obscure effect can be measured financially as the cost of mitigating or preventing the effect or the opportunity cost of avoiding it. Assessing effects on a triple bottom line (financial, social and environmental) allows the impact sustainability measures on all parts of the global system so costs are not externalized. The current political environment makes this easier, as regulators are searching for external social and environmental costs and structuring regulations to internalize them. Examples include health and safety regulations to prevent job injuries and cap-and-trade or carbon tax regimes to harness the market to speed the switch to renewable energy.

In developed countries, many consumers and business procurement teams have embraced sustainability and strongly prefer to deal with "green" vendors, both to reward good behavior and to lower their own impacts on global systems. These preferences, when exploited by effective marketing and public relations campaigns, can boost revenues and profits

enough to pay for sustainability measures. Indeed, it is tempting for companies to skip the implementation step, and hype minor or non-existent green practices to customers or the public, a technique known as "greenwashing."

A recent survey conducted by Forrester found that just 20% of U.S. corporations currently have a Green IT plan; another 25% are developing one. Many CIOs could potentially enhance their companies' competitive advantage in the future with a successful Green IT program today. Conversely, continued inaction by CIOs could create a competitive disadvantage for their businesses.

The approach taken here is most useful for organizations just beginning to move toward sustainable practices. We have suggested measures that generally improve social or environmental sustainability the most for the least cost—or even pay for themselves when energy or health care savings are considered. For maximum benefit on the triple bottom line, Green IT initiatives should be part of corporate- and community-wide efforts that inspire and motivate all of an organization's stakeholders.

GREEN IT FRAMEWORKS

Working Practices	• Internal Web-Based services eliminate need for paper • Service architecture defines applications and the services they provide • Organization allows (and encourages) employees to telecommute
Procurement	• Procurement process requires suppliers to provide Green Credentials • Utilizes local suppliers, reducing the overall number of suppliers • Maintains a complete list of IT infrastructure components
Corporate Citizenship	• Strategic commitment to reduce CO2 emissions • Measure the amount of waste material we generate • Recycles or distributes IT materials for re-use
Office Environment	• Program to reduce the power desktops require • Discourages staff from using printers and photocopiers • Wireless network rather than a wired one
Data Center	• Virtualization within the computer environment • Knows what data is stored and manages data retention • Rationalization of the number and size of data center facilities

Source: Accenture