Chapter 1.6

Strategies for Greening Enterprise IT:
Creating Business Value and Contributing to Environmental Sustainability

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ABSTRACT

IT is both a solution and a problem to environmental sustainability. Though IT significantly benefits us in many different ways and helps to address environmental problems we face, it, on its own, can harm the environment if not managed properly. IT contributes to environmental problems in a few different ways, which most people don't realize. IT systems and their use can be made more energy efficient and environmentally sustainable, and businesses and individuals are obliged to minimize or eliminate where possible the harmful environmental impacts of IT to help create a more sustainable environment. This chapter outlines strategic approaches for greening enterprise IT and offers recommendations that will help an enterprise define its green IT strategy and create practical guidelines for its implementation. To provide motivation for greening enterprise IT, beginning with a brief overview of environmental impacts of enterprise IT, this chapter discusses why greening enterprise IT is a necessity, not an option.

INTRODUCTION

Information technology (IT) has permeated all types of businesses – small to large – in significant ways, yielding substantial benefits to them and their stakeholders. The adoption of advances in IT – smart mobile phones, netbooks, wireless broadband, 3G and 4G communications and cloud

computing - by businesses and their customers will continue offering them novelty and convenience and improving operational effectiveness and efficiency. As highlighted later in this chapter, IT can also be used in several ways to help to address environmental problems we face and to improve environmental sustainability. But IT is also contributor to environmental problems confronting us - a downside of widespread adoption and use of IT, is potential harmful effects it can have on the environment if not managed properly.

IT contributes to environmental problems in a few different ways, which most people don't realize (Murugesan 2007). Computers and other IT infrastructure consume significant amounts of electricity, placing burden on our electric grids and contributing to greenhouse gas emissions. Business IT is a big energy consumer drawing about four percent of world energy use - 600 billions watts of power – and that amount is expected to double in the next five years. With energy prices soaring, regulations demanding lower energy consumption, electric supply dwindling (Samson 2007, Miller 2008), and environmental concerns mounting, the need to reducing energy consumption by enterprise IT – datacenters, PCs, servers, printers, and communication equipments - is clear. Additionally, IT hardware poses severe environmental problems both during its production and its disposal as highlighted later in this chapter.

But IT systems and their use can be made more efficient and environmentally sustainable. Businesses and individuals are obliged to minimize or eliminate where possible the environmental impact of IT to help create a more sustainable environment.

IT systems, when used in a strategic manner addressing its environmental impacts, can lead to much reduced carbon emissions across entire business operations and add value. CIOs, IT managers, and developers as well as businesses and individuals that use IT are all called upon to use IT in ways that make business practices, its infrastructure, products, services, operations and

applications environmentally sustainable. They can use IT for building environmental sustainability in three different ways (Murugesan 2007):

1. **Greening IT systems and usage.** On its own, IT can become greener and environmentally sound.
2. **Using IT to support environmental sustainability.** By coordinating supply chains (Shrivatsava 2007), making buildings and vehicles more energy efficient, and offering innovative modeling, simulation, and decision support tools, IT can support, assist, and leverage other environmental initiatives. IT can also enable workers to telecommute and videoconference instead of requiring them to travel for work or meetings thereby reducing fuel consumption and the travel-induced environmental pollution.
3. **Using IT to create green awareness**. As an effective information dissemination medium and as a platform for collaboration, IT can assist in creating environmental sustainability awareness and in learning about sustainable development as well as promoting best practices.

The key focus of chapter is on how all enterprises (both IT and non-IT) can make their IT systems as well as the use of their IT systems greener. Topics such as environmentally-friendly design and manufacturing of computers and peripherals are beyond the scope of this chapter.

Green IT

As outlined in the previous chapters, green computing or green IT refers to environmentally sustainable computing or IT. It is "the study and practice of designing, manufacturing, using, and disposing of computers, servers, and associated subsystems—such as monitors, printers, storage devices, and networking and communications systems—efficiently and effectively with minimal

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