



GREEN IT: AN EMERGING VALUE DRIVEN FORCE BEHIND SUSTAINABLE BUSINESS GROWTH (AN EMPIRICAL STUDY)

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ABSTRACT

In general, a sustainable business is a business that participates in environmentally friendly or green activities to ensure that all processes, products, and manufacturing activities adequately address current environmental concerns while maintaining a profit. A major initiative of sustainable businesses is to eliminate or decrease the environmental harm caused by the production and consumption of their goods. Since a particular organization relies on a mosaic of Information Technology (IT) tools to run its business. Therefore, today, Green IT can be viewed as the practice of maximizing the efficient use of computing resources to minimize environmental impact. Green IT is about addressing sustainability challenges through innovation, differentiation, driving efficiencies and creating new avenues for growth thereby providing new opportunities for a business enterprise to innovate and spur sustainable business growth.

KEYWORDS: Business, Environment, Green IT, Growth, Sustainability

INTRODUCTION

Since its inception, the Information Technology (IT) industry has focused on the development and deployment of IT equipment and services that was capable of meeting the ever-growing demands of business customers. Therefore, the emphasis has been on processing power and systems spending. Less attention was afforded to infrastructure issues which include energy consumption, cooling, and space for data centers, since they were assumed to be always available and affordable.

Over the last several years business enterprises in developed countries operate in a more complicated, and more regulated, environment. Numerous laws and regulations govern their activities, and make their directors accountable to a broader range of stakeholders. Sustainable development extends the stakeholder group even further, by including future generations and natural resources. The link between energy use and carbon generation and the desire to lessen both has given rise to the green IT label. In addition to corporate self interest, government regulations will increasingly drive the adoption of green computing and sustainable IT investment and practices. The new administration in the United States has stated intentions to endorse a "green energy economy" which will likely cap carbon emissions; increase energy costs, and holds companies more accountable for their impact on the environment. Although the term "green computing" and its alternative "green IT" have recently become widely popular and taken on increased importance, their conceptual origin is almost two decades old. However, it is in the last decade where green computing has gained traction. The rapid growth of Internet-based business computing, often metaphorically referred to as "cloud" computing, and the costs of energy to run the IT infrastructure are the key

drivers of green computing. Today, Green IT can be viewed as the practice of maximizing the efficient use of computing resources to minimize environmental impact. This includes the goals of controlling and reducing a product's environmental footprint by minimizing the use of hazardous materials, energy, water, and other scarce resources, as well as minimizing waste from manufacturing and throughout the supply chain. Green IT also refers to the practice of using computing resources more efficiently while maintaining or increasing overall performance. Sustainable IT services require the integration of green computing practices such as power management, virtualization, improving cooling technology, recycling, electronic waste disposal, and optimization of the IT infrastructure to meet sustainability requirements.

WHAT IS GREEN IT?

Green IT stands for Green Information Technology. Information Technology is essentially the design, implementation and management of computers that both individuals and businesses use. In a nutshell, "Green" IT is composed of two things: (1). Minimizing the negative impact of information technology use on the environment. (2). Using information technology to help solve environmental issues. Green IT refers to two things which are in themselves changing rapidly. The first is our understanding of what is Green and what isn't. The second is Information Technology, which is extending its scope, techniques and social and geographical presence on a daily basis. Green IT is a collection of strategic and tactical initiatives that directly reduces the carbon footprint of an organization's computing operation... However, Green IT is not just focused on reducing the impact of the ICT

industry. It is also focused on using the services of ICT to help reduce the organization's overall carbon footprint.

WHAT IS GREEN BUSINESS?

Green Business, is an enterprise to be that has minimal negative impact on the global or local environment, community, society, or economy—a business that strives to meet the triple bottom line. Often, sustainable businesses have progressive environmental and human rights policies. In general, business is described as green if it matches the following four criteria:

1. It incorporates principles of sustainability into each of its business decisions.
2. It supplies environmentally friendly products or services that replaces demand for nongreen products and/or services.
3. It is greener than traditional competition.
4. It has made an enduring commitment to environmental principles in its business operations.

RESEARCH METHODOLOGY

Keeping in mind the key objectives of the study, an effort has been made to complete the research purely based on secondary data. Secondary data has been collected using various sources including newspapers; journals; professional magazines; research papers; and even various websites.

Empirical Data: Business sustainability through Green IT by Leading MNC's

MICROSOFT

Microsoft Corporation is a multinational computer technology corporation that develops, manufactures, licenses, and supports a wide range of software products for computing devices.

Sustainability Initiatives

Microsoft made a company-wide change as it switched to compostable utensils and dishware. This change helped remove 20.3 million pieces of cutlery and 18.5 million plates and bowls, and 22.1 million cups from the landfill. Campus waste was reduced by 50% in its US operations. Renewable energy is something the company is placing focus as 25% of the company's total energy use is renewable. Microsoft participates in the LEED buildings program meaning new buildings consume 20% less energy than existing buildings. Microsoft values the concept of commuting as there is a bus program. This reduces employee traffic by nearly 800 vehicles per day and 10 million car miles each year. The buses conveniently stops in residential neighborhoods all across the greater Seattle area. The company also supplies all employees, even vendors and contractors with coupons and passes to public transportation options to reinforce the seriousness of this initiative.

Reduce, manage, and Rethink

Summarizes three key categories the company places emphasis. Microsoft *reduces* IT energy consumption and carbon emissions. The company has incorporated power management features in its Windows Vista software to reduce energy by as much as 30%. The upgrade of Windows 7 allows consumers to further reduce power

consumption and lead to lower energy costs. The creation of Microsoft Virtualization can reduce energy usages by as much as 90%. This method allows numerous operating systems to run on a single server. Microsoft encourages consumers to *manage* energy and the resulting carbon footprint. Microsoft Dynamics AX, one of the company's ERP software products can help businesses collect pertinent information to understand their company's environmental impact. Microsoft reminds its users to *rethink* business practices to positively impact the environment. The company has created Microsoft Unified Communications. This product helps streamline communications between people in organizations whether in the same building or across the country. It also provides basic features like email, voicemail, instant messenger, audio, video and web conferencing. This product is designed to decrease the need for expensive travel. The company even has two Sustainability Calculators where a company can estimate their carbon footprint and measure the possible savings if they adopt more eco-friendly IT solutions.

DELL INC.

Dell Inc. is a multinational IT corporation based in Round Rock, Texas, USA. Dell develops, sells and supports computers and related products and services worldwide.

Sustainability Initiatives

Dell is committed towards making its operations and products sustainable. They have been actively involved in corporate social responsibilities and are looking at ways to achieve sustainability. The IT Asset Recycling allows people to dispose their used equipment in a way that meets local regulatory guidelines. The IT Asset Resale allows people to resell their equipment to Dell, thus enabling Dell to recycle the equipment. Dell has designed new technologies that will dramatically reduce energy consumption, save costs and help achieve a low-carbon economy. Products like Latitude E-Series laptops and OptiPlex desktops prioritize energy efficiency and reduction or elimination of harmful materials like brominated flame retardant/polyvinyl chloride and mercury. In addition to designing next-generation energy-efficient technology, Dell has streamlined their transportation network to reduce transit times and minimize freight. As a U.S. Environmental Protection Agency (EPA) SmartWay partner, Dell favors business with carriers that demonstrate a commitment to reducing their GHG impacts. By minimizing packaging material wherever feasible, Dell reduces waste and transportation impacts. Dell is also taking significant measures to reduce their greenhouse gas (GHG) emissions. They're committed to integrating non-fossil, renewable power into their operations. In the past couple of years, Dell has increased the amount of renewable electricity purchased from power providers.

INTEL CORPORATION

Intel Corporation is the inventor of the x86 series of microprocessors, the processors found in most personal computers. The company is the world's largest semiconductor chip maker, based on revenue. Intel was founded on July 18, 1968, as Integrated Electronics

Corporation (though a common misconception is that "Intel" is from the word intelligence) and is based in Santa Clara, California, USA. Intel also makes motherboard chipsets, network interface controllers and integrated circuits, flash memory, graphic chips, and devices related to communications and computing

Sustainability Overview

Intel is the single largest purchaser of renewable energy certificates in the U.S. By helping companies optimize their operations, increase their productivity, and use fewer resources to enable better products and disruptive new business models, Intel technology is making business more environmentally friendly. Intel is using technology to design processors which emit lesser carbon dioxide. They are also actively trying to reduce e-waste by sponsoring computer recycling days, as well as partnering with manufacturers, retailers, etc. Intel is using power-efficient servers and energy-saving design to create energy-efficient data centers. Intel has taken a leadership position in environmental projects. They drive global standards for products and manufacturing that ensure energy-efficient performance. They are also working with several other organizations, customers, and businesses to find and lead industry-wide environmental initiatives. These programs help minimize the footprint of the computing industry and encourage environmentally responsible computing and business practices.

EBAY

eBay is headquartered in San Jose, California and was founded in 1995. The company is the largest online marketplace in the world with over 90 million users globally. In fact, every second over \$2,000 worth of merchandise is sold on eBay. eBay provides an online shopping experience that includes sale of goods and services, online payment services, and online communication offerings for individual and business use.

Company Values

eBay's company values include creating opportunities for people, caring about people, and making a difference in the world. In the context of making a difference in the world, eBay has led numerous successfully environmentally focused initiatives in the effort to make "drive sustainable commerce" in the 21st century.

Sustainability Initiatives

- a) **eBay Green Team:** eBay has created an online shopping experience that is exclusively for "green" or sustainable shoppers that can limit the impact on the environment by shopping at eBay Green Team. The products on this website must be refurbished or recycled to be considered green. eBay Green Team also has a program for customers to designate wildlife and forest areas for environmental protection. From 2007 through April 2010, eBay Green Team has protected 66,068 acres of forest through this initiative.
- b) **Give. Good. Green. Campaign:** eBay's initiative "Give. Good. Green." provides eBay's 88 million buyers and sellers with an opportunity to make sustainable product choices, join environmental impact groups, or donate toward sustainable causes. Since 2007, sustainable product sales of handbags alone have had the same effect on the environment as

planting over two million trees. The sale of used laptop computers on eBay in 2007 reduced 69,000 tons of greenhouse gases or the equivalent of saving over 467 acres of forest.

- c) **Fuel Cell Technology:** In February 2010, eBay adopted Bloom Energy's fuel cell technology for its headquarters in San Jose, California. The fuel cell technology is a completely renewable energy source that removes 15% of the company's energy usage from the public power grid.

SUN MICROSYSTEMS

Sun Microsystems is headquartered in Santa Clara, California and was founded in 1982. Sun was acquired by Oracle on January 27, 2010 and is a wholly own subsidiary that sells computers, computer software, and information technology support.

Company Values

Sun Microsystems' "Eco Responsibility" values are guided by three core principles: Innovate, Act, and Share. Sun encourages employees to "innovate" to "create products that help meet the global demand for a cleaner, safer, more sustainable environment". Sun believes in the value of action to minimize the firm's environmental impact through the core principle "act". Sun's last value, "share", promotes the sharing of information to facilitate customer, supplier, partner, and competitor eco responsibility education

Sustainability Initiatives

Sun Microsystems was the recipient of the Environmental Protection Agency's 2009 corporate "Climate Award" for its dramatic reduction in greenhouse gas emissions and overall positive impact on the environment. Sun Microsystems was able to reduced greenhouse gas emissions by 23% between 2002 and 2007 which is five years ahead of the EPA's climate leader goal of 2012. This level of environmental stewardship was made possible through two main sustainability initiatives which included "Open Work" and "IT hardware compression programs".

Open Work

Sun's flexible employee work scheduling program, "Open Work", enabled 18,000 employees (56% of the company) to work remotely for up to two days per work week. Through an environmental impact study, "Open Work" was shown to significantly reduce carbon emissions from daily commuters within the company. In addition, the program enabled the firm to reduce its property holdings by 15% in 2007.

IT Hardware Compression Program

Sun's hardware compression program was designed to reduce energy consumption by updating and consolidating IT hardware throughout its 152 hardware processing locations. Through the utilization of newer technology, Sun reduced its data center operations from 152 locations to only 14 new data centers. In the process, Sun was able to significantly reduce energy consumption and contribute greatly toward the reduction in green house gas emissions noted in the 2009 Climate Award presented to the firm by the EPA.

Water Recycling Program Sun's water recycling program yielded positive results recycling 24% of the water used by the firm or 45,192,000 gallons in 2009.

Energy Efficient Product Improvements: In FY2009, Sun introduced the “Sun Cooling Door” which is designed to insulate IT datacenters. The “Sun Cooling Door” greatly increased the cooling capacity of a datacenter and proved to be up to six times more efficient than traditional datacenter doors. Also in FY2009, Sun introduced the Sun Storage 7000 Unified Storage System product family geared toward energy savings and sustainability through the use of Flash memory vice disk memory.

Supply Chain Corporate Social Responsibility

Sun increasingly partners with social and environmentally responsible suppliers in an effort to increase sustainability. In 2009, Sun partnered with 63 CSR suppliers in 182 sites which is an increase from 2008 when Sun partnered with 59 CSR suppliers in 142 sites.

FINDINGS OF THE STUDY

- Green IT explores the elements of sustainable IT strategy and relevant regulations in a corporate social responsibility framework.
- Green IT encourages environmental excellence to become an important part of sustainable and strategic business thinking.
- The environmental objectives need to be more incorporated into the policies and processes of a business in order to become a business sustainable. It does not mean that new management methods need to be invented. Rather, it requires a new environmental orientation and extensive refinements to systems, practices and procedures.
- Many leading IT business organizations, like TCS, Dell, Intel etc. build healthy relationships with environmental stakeholders - including governments, the scientific community, educational institutions, public interest groups and the general public - to promote the development and communication of innovative solutions to industry environmental problems.

CONCLUSION

From a broader perspective, however, it is clear that the interest of any business to become sustainable is to operate within a healthy environment and economy. It is equally plain that, on a global basis, growing and sustainable economies in the developing countries will provide the best opportunities for expanding markets. To some, sustainable development and environmental stewardship are synonymous. In the short term, sound environmental performance is probably a reasonable objective for most businesses, with sustainable development as a longer term goal. Through Green IT, sustainable IT strategies are driving business sustainability beyond just energy use and product considerations. Due to the immediate impact on business value, it is likely that green IT will remain focused for some time on reducing costs while improving the performance of energy-hungry data centers and desktop computers.

REFERENCES

1. Kotler, Philip. *“Marketing Management – The Millennium Edition”* Prentice Hall of India Private Limited, New Delhi.

2. *“Towards a green future”* (2009, September 23). The Tribune – Jobs & Careers, Chandigarh.
3. Baverstam, Oscar, Larsson, Maria. *“Strategic Green Marketing – A Comparative Study of how green marketing affects corporate strategy within business to business”*. Bachelor Thesis, Department of Business Administration and Social Sciences, Lulea University of Technology.
4. Korten, D., *“When Corporations Rule the World”*. Berrett – Koehler Publishers, San Francisco.
5. *“Green Marketing”* (2010, March 29). Journal: Business Practices.
6. *“Now, green – collar jobs”* (2008, June 11). The Tribune – Jobs & Careers, Chandigarh.
7. Baroudi, Hill, Reinhold, and Senxian (2009) *Green IT for Dummies*.
8. Climate Savers Computing Initiative (2010) Retrieved from <http://www.climatesaverscomputing.org/>
9. Energy Star Program (2010) Retrieved from <http://www.energystar.gov/>
10. Klatt, S. 2003. Recycling Personal Computers. In Kuehr, R. and Williams, E (Eds.). *Computers and the Environment: Understanding and Managing Their Impacts*. London: Kluwer Academic Publishers.
11. Microsoft: Green IT taking the first step (2010) Retrieved from http://www.microsoft.com/environment/our_commitment/articles/green_guide.aspx
12. Recycle-it America (2010) Retrieved from <http://www.recycleitamerica.com/>
13. San Murugesan, “Harnessing Green IT: Principles and Practices,” IEEE IT Professional, January-February 2008, pp 24-33.
14. Srivastava, M (2007) *Chemistry for Green Environment*.
15. The Green Grid (2010) Retrieved from http://www.uh.edu/infotech/news/story.php?story_id=130.
16. Ryan, John C. & Durning, Alan T. *Stuff: The Secret Lives of Everyday Things*. 1997
17. United States Environmental Protection Agency (US EPA). 2005. *Energy Star Computers*. [Online].
18. United States Department of Energy. 2005. *Energy Use of Some Typical Home Appliances*. [Online].
19. Williams, E. 2003. Environmental Impacts in the Production of Personal Computers. In Kuehr, R. and Williams, *Computers and the Environment*:

- Understanding and Managing Their Impacts*. London: Kluwer Academic Publishers.
20. <http://www.accc.gov.au/content/index.phtml/tag/green-marketing/> Accessed on September 10,20102.
 21. <http://www.download-it.org/learning-resources.php?promoCode=&partnerID-&content=story&storyID=1377/> Accessed on September10, 2012
 22. <http://www.tomorrowbetterthantoday.com/> Accessed on September11, 2012
 23. “*Snack-maker aims for green consumers with carbon labels*” (2007 March). Financial times.
 24. <http://www.investopedia.com/terms/g/green-marketing.asp#ixzz2DskHvuiuo>
 25. www.google.com
 26. <http://www.eere.energy.gov/consumerinfo/factsheets/ec7.html>. Accessed on March 14, 2005.
 27. [http://en.wikipedia.org/wiki/](http://en.wikipedia.org/wiki/Green_computing) Green computing, accessed during May- July 2008.
 28. [http://www.csi-india.org/](http://www.csi-india.org/green-computing) green-computing, accessed during May- July 2008.
 29. <http://www.theglobalwarmingstatistics.org/globalwarming-essays>.