IMPACT OF GREEN IT INITIATIVES ON GLOBAL WARMING DISQUIET

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ABSTRACT

Green computing or green it refers to computing that supports our environment and causes no harm to our environment. It is "the study and practice of designing ,manufacturing ,using and disposing of computers servers and associated subsystems – such as monitors, printers and storage devices, communication and networking systems – effectively and efficiently with minimal or no impact on environment. Green IT puts strenuous effort in achieving economic viability (having the ability to grow, expand and develop) and improved system performance and use, while continuing without changing our social and ethical responsibilities. Thus green IT includes the dimensions of supporting our environment, the economics of energy efficiency, and the total cost of ownership, which includes the cost of disposal and recycling. It is the study and practice of using computing resources efficiently.

INTRODUCTION

With the increasing perception that man made green house gas emissions are important factors for global warming , enterprises , government and society now at large have an important matter to be solved: finding a solution to environmental issues and selecting environmentally sound practices. Greening our products , applications and services is both an economical and environmental imperative which cannot be avoided as well as our social responsibility. Therefore a large number of IT vendors and users are moving towards green IT thereby helping in building a green society and economy.

The objectives of Green computing are similar to Green chemistry; reduce the use of unsafe materials, maximize energy efficiency during products lifetime and to encourage recyclability and biodegradability of products which are not operating and functioning or no longer in use and factory waste.

Green computing researchers look at the key issues and topics related to energy efficiency and promoting environmentally friendly technologies. This includes energy

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efficient use of computers, design of algorithms and systems for environmentally friendly computer technologies and wide range of relates topics.

OBJECTIVES

- To reduce CO_2 emissions.
- Utilization of energy efficient systems or components.
- Application of technology from purchasing phase to disposition phase of IT equipments
- To identify the opportunities to assist Green IT initiatives.
- To support corporate Go Green objectives and targets. .

ISSUES

1. From various researches we have come to a conclusion that the way we are causing damage to our environment is not repairable and unsupported by our environment that in turn causing a great damage to our environment.

2. Rise in energy prices and taxes imposed by the government on carbon production are adding more to the cost of doing business. As a result it is making many business practices unsustainable.

3. And now it is becoming very important for all businesses to act in a more responsible manner to support the environment in a healthy way and following their legal and moral obligations to improve their brand as well as their corporate image.

4. Many companies are competing against each other in 'Green' market and they all must avoid the financial punishments which are imposed on them by the government for the carbon production.

5. IT has important part to play in the present situation. With the increased move towards mega data centers alongside the huge growth in power hungry blade technologies and with a shift to distributed power architectures, the main function of IT is to bear an increased demand in energy and also the cost of this energy.

IMPACT OF GREEN IT

1. Increase in energy prices and damage to our environment are becoming important issues politically and economically.
2. These issues will increase the cost of living and along with the increase in cost of doing business.
3. It will become necessary for businesses to actively take part in green initiatives, which may lead towards massive and expensive change.

4. Due to effect on the environment and cost issues we will not be using the dirtiest forms of energy and we have to depend on gas which is economically unstable and its supply is also insecure and finally an unreliable source of energy.

5. If we depend on nuclear energy which is unpopular source of energy and expensive as well, it may lead to massive growth of intrusive alternate energy infrastructure including huge wind farms.

6. Solving the problem of rise in energy cost and damage caused to environment is extremely painful and costly, and those who are supposed to be responsible for such problems are expected to shoulder the biggest burden of cost and blame.
7. It may even be impossible to reduce carbon emissions to avoid environmental disaster.
8. Some believe that IT is an important area where major energy savings can be made.

POWER CONSUMPTION HISTORY AND FUTURE

Many motor cars and car engines are not suited for today's environment as they were designed when the oil prices were low and the design of cars was made keeping in mind the performance , space and comfort .Each and every car model was made an enhanced version of its previous model. But now-a-days fuel economy and environmental friendliness are important issues than speed and horsepower.

The situation is similar in IT industry where the importance is given to storage capacity and processing power and ignoring power consumption.

As the manufacturers competed to produce faster processors, smaller and smaller transistors emerged as a result. Due to increased power consumption and rise in temperature there was need for cooling fans. Modern IT products provide its users with more computing power per unit of energy and less energy consumption. Users are taking and using increased power offered by new modern systems. New softwares are consuming more and more power destructively. Some softwares even require constant access to hard drive, taking away more and more power. With the advent of new smaller and faster chips manufactures have produced stackable and rackable servers which consume a lot of energy and increase the temperature, which in turn requires cooling fans.

Despite the server virtualization and consolidation in some companies business demand for IT services is increasing. Many companies are still expanding their data centers while number of server in such companies is increasing manually by 18 %.

The demand for energy actually slowed down from 4.4% to 2.7 %, international energy agency has predicted that the energy requirement in 2030 will be increased 60% than energy required today.

STRATEGIES FOR CHANGE

The main goal of IT is to make businesses more productive, efficient at low cost.
Businesses will have to learn to save electricity in the same way as green computing is used to save money. This will demand a change in the policies and behavior of the information technology users. We need to follow power based IT optimization techniques to cope up with increase in the cost of energy and infrastructure. This will also help to protect our environment. The main goal behind the improved IT policies should be to cover the areas like architecture, hardware, software and all the processes that are used in day to day activities to support the workflow of companies. To achieve this new infrastructure should be adapted, revised decision making processes are required irrespective of centralized or distributed architecture. On the other hand some of the companies will adopt power saving modes when the device is not used or to switch of printers, monitors etc at night. Some companies may use more efficient hardware such as using LCD instead of CRT monitors. New dual core processors are faster and use less energy, new dual core processors promise to consume only one third of the energy consumed by its previous models, and offering up to 80% better performance. Other IT users may have to investigate the use of DC power.

Most energy suppliers provide AC power since it is easy to transport over long distances, although most pc's and servers run on DC so that AC current from utility has to be converted to DC before it reaches the hardware with inevitable losses of energy in conversion.

Some companies may move from distributed architecture to thin client server architecture. Virtualization and server consolidation can allow users to do more with less, allowing one large server to replace smaller machines this will reduce the power required and overall heat produced. By simplifying the number of servers we can simplifying the IT infrastructure and reduce power and cooling requirement. The US environmental energy protection agency STAR Programme is already promoting energy efficient infrastructure and policies.

FACTORS BEHIND IMPLEMENTATION

Six key benefits come up when respondents explain why they adopt Green IT initiatives. In order of popularity they are as follows:-

1. Less use of electricity
2. Decreased consumables use
3. Increased feature and functionality for the businesses
4. Decreased investment
5. Meeting customer's demands and realizing credit from local government

6. Controlling costs is most important factor moving towards the implementation of initiatives:-decreased use of electricity and other consumables. And the mostly used initiatives provide less use of electricity and consumables and are the important reasons of implementation

BENEFITS OF GEEEN IT

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Many companies have implemented Green IT and are actually appreciating the benefits from Green IT. The benefits acknowledged by 68% of the companies are its increased features and functionality. These functionalities include increased storage capacity and meeting employee demand for environmental actions.65% of companies realized a major benefit that adopting Green IT is a positive sign for companies.

BENEFITS OF RECYCLING

Recycling of IT equipment does not only depend on business case with cost savings but also on the environmental responsibilities and regulatory pressures. The most important factor for recycling of IT equipments is to decrease the waste sent to landfills. A close secondary consideration is ensuring equipment is discarded responsibly at the end of life. Space to store old equipments is also an issue : many IT departments are running out of closets and crannies to store old equipments.

A picture of success for those who recycle

More than 80% of the organizations are happy that they are recycling their IT equipments and not sending them to dump. Moreover these organizations get a big nod from customers for developing a recycling mandate. After facing some hard questions from customers, director of IT services from a corporate firm said:-"we get to show back to our clients that these things aren't ending up in landfills, we are either reusing the equipment or recycling which is a responsible thing to do"

GREEN PERSONALITIES

After acknowledging the survey results through conversations with IT and business decision makers we have come across four predominant Green IT personalities. These personalities come from two areas. The first area is concerned with Green attitude and intentions, the second concerns from implemented Green IT initiatives. The four personalities are

- Green advocates
- Smart spenders
- Green observers
- Green seekers

Read the following lines to understand which personality your business comes under.

- Does your business have aggressive environmental goals and policies?
- Are environmental realities built into the way your firm does business?
- Do you have several IT initiatives already underway?

If yes then your business is likely to be a green advocate.

- Is senior management at your firm mainly focused on cost control?
- Has IT has taken advantage of Green IT initiatives that decrease IT's operational costs and lessen investments in your infrastructure?
- Is environment typically a secondary consideration?

If yes your business is likely a smart spender.

- Have you ever been tasked to investigate ways to improve the organizations environmental standing while keeping cost in mind.
- Has senior management recently established goal
- Have you undertaken some Green initiatives but you are not sure which is best suited to your Green environment?

If yes then your business is likely to be a Green seeker

- Your management hasn't made environmental mandate a priority?
- You don't have formalized recycling policies

If yes then your business is likely to be a Green observer

APPLICATIONS

- Manufacturing of computer parts can be minimized making manufacturing process more energy efficient.

- If we replace petroleum filled plastics with bio plastics which require less oil and energy to produce than traditional plastics with the goal of keeping the bio plastics computers cool so that the electronics won't melt.
- The number of landfills can be decreased by regularly updating the device and repairing in time.
- Decreasing the number of dumping the devices will not only control the landfills but also save energy and material used for a new device.
- Power consuming screens can be replaced by OLED'S (organic light emitting diodes).
- Making recycling of computers more effective by recycling individual parts.
- The primary goal of Green IT is to reduce the big pile of e-waste. For example a simple move of replacing fluorescents bulbs with energy efficient lights which reduce the number of bulbs dumped
- Green IT saves money as the Green IT products use less energy and in turn the companies have to pay less for electricity.

CONCLUSION

Businesses around the globe found out that going Green is not only beneficial for planet but also for their bottom lines. The companies have reported significant money savings when following Green IT initiatives. Many governments are pressurizing businesses for action on environment, by regulatory regimes and international treaties. This report demonstrates that IT departments around the globe are trying their level best to protect our environment.

Several issues are forcing the IT departments to go Green. In the server room for example six out of every 10 businesses will run out of storage capacity within 12 months. In such cases virtualization and consolidations techniques will be of great help.

Green initiatives have a goal of saving money, energy and in many cases realizing new business capabilities. Telecommuting for example can provide its employees with more flexible working environment and reducing their office space. In the future corporate environmental responsibility will become norm rather than exception from stakeholders and government continues. CEO's will be calling on IT departments to do their part in reducing the organizations overall footprints.

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