GREEN INFORMATION TECHNOLOGY: A STRATEGY TO BECOME SOCIALLY RESPONSIBLE SOFTWARE ORGANIZATION

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Abstract

Current trends show that for retaining competitive advantage, organizations are actively getting involved in corporate social responsibility (CSR). One of the major attentions of corporate social responsibility (CSR) is on developing an information technology (IT) framework which would enhance environmental friendly practices like recycling of paper, proper disposal of information technology instruments and products. The forces behind green IT framework are the push for reducing carbon footprints by international organizations and the realization by major software organizations on the detrimental effect of their operations on the environment. The green IT framework supports the concepts of the use of renewable energy, proper disposal of IT equipments, adopting of green technologies and greening of data centres. The proposed research is focused on the various green initiatives that have been adopted by various software organizations in an effort to reduce carbon footprint and, whether they are actually implementing these initiatives in their organizations. The research will content-analyze the different software organizations and will present a comparative analysis of the state of green information technology framework. Data collected was analyzed using SPSS. The analysis showed that many software organizations have been involved in one of the green information technology initiatives. It is also observed that the organizations involved in more initiatives are considered to be socially responsible which is being reflected in their core strategy and mission statement.

Keywords: Corporate Social Responsibility, Carbon footprints, Cloud Computing, Grid Technology, Green Information Technology Framework, Green Technologies, Virtualization.

1. Introduction

To be 'socially responsible' is the current buzz word in the business domain and is being implemented by all types of organizations from fast food giants like Burger King to Oil giants like Shell and British Petroleum. The ways in which the company presents itself as a socially responsible corporation are through philanthropic programs, sponsorships, volunteerism, code of ethics, quality programs, health and safety programs and environmental programs (McWilliams and Siegel, 2001; Porter and Kramer, 2002). These are a part of green movement which is also the current trend of today's organization where the emphasis is on protecting the environment (McWilliams and Siegel, 2001).

The green movement has become the part of corporate social responsibility of many organization and they are now targeting to become a socially responsible corporation (Watts and Holmes, 2004). It was generally believed that only those organizations need to incorporate social responsible initiatives that do maximum damage to the environment and these damages are visible and measurable i.e. tangible. However, software firms do damage the environment intangibly through their data centre as they consume lots of energy for their data servers and information technology equipments to function (EPA, 2007). Information technology devices consume lots of energy and they have green house emissions. For example, power adaptors wastes significant amounts of energy. Apart from that it is very hazardous and difficult to dispose of information technology equipments as they fill the landforms and emits poisonous gas to the atmosphere. To address such issues, terms like green information technology (IT) or sustainable information technology have become very popular. These terms have become a part of corporate social responsibility and software organizations are actively engaged in implementing sustainable information technology to become a green organization.

Organizations are investing in green IT initiative to help them become a more responsible organization towards the environment. Many software organizations have build a sustainable or green information technology framework in an effort to reduce carbon footprints. Carbon footprint is the "*measure of the amount of greenhouse gases, measured in units of carbon dioxide, produced by human activities*" (Walser, 2010). A carbon footprint can be measured for an individual and also for an organization. The reason for sudden interest by the organizations to reduce the carbon footprint is the 'green regulation' which is formulated by international environmental agencies. The 'green' regulation like Restriction of Hazardous Substances (RoHS) and Waste Electrical and Electronic Equipment (WEEE) were formulated by European Union in an effort to

become more environmental friendly. These regulations address the increasing electronic and electrical waste by restricting the use of toxic substances and flame-retardants by the manufacturers of electrical and electronic equipment to a particular level. This regulation also addresses the recycling programs for the manufacturer's products.

Leading software organizations like IBM, Cisco, Dell HP and Fujistu are actively participating in reducing carbon footprints. For example, Dell in the conference on green IT panel that was held in Copenhagen highlighted their steps towards attaining the target of reducing carbon footprints. According to them; "Dell has adopted a three-pronged strategy to maintain carbon neutrality". They have taken steps to save on energy consumption by "facility upgrades, power management strategies and IT efficiency solutions" and they have committed to reduce the green house gas emissions by 40 percent (GreenITPanel, 2009).

Apart from the regulations that have pushed for green IT, it has become the 'in' thing for the organization to gain competitive advantage. With the consumers become eco-conscious, the organizations are realizing the importance of becoming green to capture the market share. To become green, the organizations are implementing all sorts of environmental friendly practices and are reporting it in their corporate social responsibility report. However, social responsibility has come under lots of debate as some feel that the companies are not doing enough or window dressing to show their transparency. Some argue that organizations implement CSR initiatives under political and legal pressures and hence they are just window dressing with basic initiatives. They also argue that these initiatives are unnecessarily highlighted through advertisements and promotions by software organizations which will help them to brand themselves as socially responsible organization. Hence, this study will provide guidelines for the practitioner as well as manager towards an actual green information technology framework.

But the questions that are left to answer are whether all the software organizations are becoming socially responsible? If yes, are they doing the same thing as their counterparts or are they doing something different? For the purpose of this research, we are focusing on four initiatives of green information technology: renewable energy, and use of green technologies and disposal of information technology equipment. These initiatives are an effort by the organizations to reduce carbon footprints. The question that needs to be answered is that the extent of involvement of each software organizations for implementing the initiatives. Are

they involved positively in all the green initiatives or just one or few and whether these initiatives are contributing in any ways to reducing the harmful effect on the environment? Above all, the main intention is to see whether all the organizations who are claiming to be 'socially responsible' organization are actually doing anything to save the environment or they are just pulling a curtain of deception to the consumers at large.

Towards these objectives, the main objective of this research is to see the different types of initiatives the software organizations have taken towards green information technology and which initiatives are most popular. 25 software organizations were targeted across the worlds. Data was collected by content analyzing the corporate social responsibility of each organization. SPSS was used to do the analysis. It was observed that only 9 organizations have implemented more than two initiatives. The rest have either implemented one initiative or none at all. This reflects that most of the organizations have jumped the bandwagon to be socially responsible, yet they have not done anything concrete to target it.

2. Literature Review

The concept of corporate social responsibility is defined as "the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" (Watts and Holme, 2000). The concerns for the environment due to waste emissions in the form of carbon monoxide that is responsible for global warming, land and water pollution due to toxic waste emission and high consumption of energy that is depleting our natural resources have made the companies more aware of the environment . The environmental protection has become the key feature of corporate social responsibility where the emphasis is to protect the natural resources.

Study has shown that the socially responsible corporate have an affect in the market share irrespective of age, size and type of industry (Crystal and Scherer, 1993; Sharma and Vredenburg, (1998)). The evidence of CSR is reflected in corporate codes of conduct, reporting, clean technology agreements and social investment initiatives (UNEP, 1998, Elkington 2001). Organizations in different sector are building their brand image of corporate social responsibility by promoting voluntary initiatives (VI) in their corporate agenda (Utting, 2000). Software firms through their data centre have high energy consumption (EPA, 2007). Apart from that, their products like computer, printers, scanners, and compact discs etc consume lots of electricity and are difficult to

dispose. In United States alone, 2 in 10 consumers disposed desktop computer in 2003 (Greenerchoice, 2008). This when calculated globally amounts to a huge disposal to the landfills and these wastes are more hazardous to the environment and health. Gartner has predicted that the organization expenditure on IT budgets on energy consumption would increase two to three times within the next five years by 2011(Pillar Data, 2010). To address these issues, the software firms are involved in environmental friendly practices and developing a green information technology framework.

Green information technology (IT) is a term that is used when the organization is involved in reduced energy consumption by their products (hardware and software) and reduced software and hardware wastage in their system. Using green information technology infrastructure will help the organization to reduce the IT complexity which in turn will lower the costs, improve the quality of service and performance. It will help the organization to record and report green savings. The green infrastructure will help the organizations to prepare for future legislation and regulation that will benefit the organization, employees and the environment. It will also enable to promote recyclability and decrease hazardous wastes that affect the climate and natural resources. It is also one of the ways for enterprises to spend less on their IT budgets related to energy, paper and equipment waste.

The organizations are actively engaged in implementing green initiatives to become corporate sustainable. To get the brand image of being social organizations, they are engaging in activities that make them a green organization. For example, IBM has strategied itself as providing technologies and services for "smarter planet". These organizations are designing their IT framework based on the different Green initiatives and hence their framework represents Green IT. The different initiatives that will help the software organizations to move towards green IT framework are:

- Use of renewable energy or alternative energy to address its energy consumption
- Proper disposal of IT equipment, cartridges, batteries which are proving to be hazardous to the environment
- Maintaining green Data Centres where, energy consumption is reduced through various initiatives.
- Use of green technologies like technologies that support work from home, reduction in the use of paper etc.
- Reducing the use of paper i.e. encouraging paperless environment

These initiatives are an effort by the organizations to reduce carbon footprints. The carbon footprints can be reduced designing energy efficient components like power adapters, processors, cooling components and specialized software. For example power adaptors wastes significant amounts of energy. Currently, power adaptors with a rating of 70% efficiency waste 30 Watts of electricity which is a huge amount. Hence, the manufacturers are sending higher efficiency adaptors with 80% to 90% efficiency ratings. This helps to reduce wastage of electricity. The cost incurred in designing energy efficient networking components is high which has resulted in slow improvements.

The environmental agency, Environmental Protection Agency (EPA) has made it mandatory for all organizations to use EnergyStar equipments as the IT devices consume lots of energy and emit greenhouse gas that increases the carbon footprints. Using EnergyStar certified equipments will help to reduce energy consumption and green house gas emission that will help to reduce global warming. In 2006 alone, there was a $14 billion saving in energy costs because of this standard. From lighting alone, the bulbs with energy star logo helps to energy costs by 75%, maintenance costs 2 to 5 times longer than fluorescent lighting, and the reduces cooling costs.

Apart from the push through regulations from the government agencies, there are other ways in which an organization can reduce carbon footprints. Some organizations are actively participating in reforestation where they are actively planting trees in areas where the proportions of trees are low. Some organizations are encouraging employee to use car pooling, energy efficient vehicles and have launched car-sharing programs (Ellision, 2010). Organizations are enhancing their insulation in ceiling, walls, floors and window to increase the insulation that will indirectly help to reduce the energy consumption of cooling systems.

The first step of this research was to find out the various green initiatives that have been taken up across various organizations in general. This was done through literature review and then the green initiatives were categorized and labelled so that the main initiatives can be isolated. Over the preliminary examination, we have been able to categorize and operationalize green initiatives into four groups: green data centres, use of green technologies, recycling efforts and use of renewable energy in their buildings.

2.1. Renewable Energy

The energy generated from natural resources like sun, tides, wind are known as renewable energy. Examples include solar energy, wind energy, tidal energy and biofuels energy and hydrogen derived from the renewable resources. Renewable energy is generated from natural processes and it is continuously being replenished naturally. In its various forms, it derives directly from the sun, or from heat generated deep within the earth (REN, 2010, pg 9). Solar energy derived from sunlight, is the most popularly used form of renewable energy in the organizations. Wind energy derived from wind, is also gaining popularity especially in Europe as a renewable energy. Other forms of renewable energy are biofuel power which is derived from lifeless biological material, tidal power which is derived from tidal waves of ocean and seas and geothermal energy is derived from the earth's core.

2.2. Disposal of IT Equipments

The software companies use products like computer, printers, scanners, and compact discs etc which consume lots of electricity and are very difficult to dispose. As was seen in United States alone, 2 in 10 consumers disposed desktop computer in 2003. This when calculated globally amounts to a huge disposal to the various landfill. Also, the waste incurred in this category is more hazardous to the environment and health as when left exposed to sunlight and water, the equipments release toxic gas to the atmosphere. These equipments should be disposed to regional companies where the data has to be wiped out first before disposing it. These equipment should either be resold or send them for recycling.

2.3. Green Data Centres

Virtualization, server consolidation, WAN optimization, cloud computing and grid computing are the few ways in which an organization can achieve greener network and hence greener data centres. Virtualization is defined as a process of abstracting various computing resources like multiple operating system and application images and consolidating it with a single physical server (Searchnetworking, 2011). Network virtualization consolidates all servers and services in the network and put them in single pool of resources. This can be rearranged and redeployed to meet real time demands of the users. It is seen that for a single network virtualization, organizations can save about 7,000 kilowatts hours of electricity and around four tons of carbon dioxide emissions every year. This will result in decrease in power demand and thus reduction in the use of natural resources and emission of greenhouse gas.

Server consolidation is "an approach to the efficient usage of computer server resources in order to reduce the total number of servers or server locations that an organization requires" (Searchdatacenter, 2011). Server consolidation saves on power bill, reduction in energy required for cooling and functioning of the servers. IBM has consolidated 3900 servers on 30 Linux mainframes that have helped to reduce the power consumption by 80 percent. Through server consolidation, organizations can save in software and support.

WAN or Wireless Area Network is a term that describes the external network connectivity provided to a business or an organization. The standard WAN had a high cost, low bandwidth and high latency connection and reflects the non-local network connections. The WAN connectivity with other internet traffic overloads the different applications due to which work is delayed. This results in high energy consumptions. With WAN optimization, the organizations can prioritize their traffic and enforce various regulations that will help the organization to maintain 'green' network.

Grid computing combines "computer resources from multiple administrative domains to reach common goal" (Berstis, 2010). The resources of multiple computers in a network can be used to solve a single problem that generally will involve the access of large amounts of data or many processing cycles. With the help of a middleware, all these data or processing cycles are brought together in a virtual organization (VO) to solve the problem and then disappear. The research center CERN has pushed for this technology as it offers speeds 10,000 times faster than traditional broadband and is being considered to be the replacement for the Internet. Many organizations like IBM, Microsoft, Cisco, Intel are all implementing grid computing systems to reduce the energy consumption that during processing of data. They are also offering solutions to their clients and small businesses to benefit from grid computing.

Cloud computing has emerged from grid computing and is one of the major area of research in IBM. This is the only software company that has realized the full benefit of cloud computing and have implemented in their information technology infrastructure and are providing servicing in this domain. Other service providers include Microsoft, Google, Amazon, Skytap and Salesforce and HP. These service providers offer their customers rental of resources, via the Internet. The customers do not own the physical infrastructure and hence they access the resources from the servers of the service providers.

2.4. Green Technologies

Green technologies are those technologies that help to conserve natural environment and resources and help to reduce the negative impact on humans and other living organisms. Green technology is also known as environmental technology and through these technologies sustainable development is achieved. These technologies help us to do recycling, water purification, waste management, renewable energy and sewage treatment. Some technologies help to reduce the consumption of energy while others help to reduce the amount of waste in terms of paper, toxic emissions produced by human activities.

Telecommuting; is known as telework, work from home, e-commuting and e-work. The basic concept is that the employees are given flexibility to work from home with the help of communication technologies. Tools like virtual private network (VPN), video conferencing, conference calling, and voice over IP (VOIP) enable the long distance employees to work from home. This helps to reduce on time spent in commuting from home to office and vice versa, thus improving their efficiency.

Literature review revealed organizations are implementing green IT infrastructure and are are highlighting it in the corporate social responsibility report. It is seen as a strategy by the corporate to gain competitive advantage. Hence the initiatives are implemented in their core strategy and are reflected in their vision and mission statements. These green initiatives vary from one software company to another and many analysts feel that these organizations are window dressing themselves as socially responsible organization to target the growing environmental friendly consumer base.

3. Research Methodology

To gain a fresh perspective of where the software organizations stand in implementing the green initiatives as is reflected in their advertisements and reports, this research aims to present a comparative picture of the status of green IT initiatives of various organizations. The purpose of this research is twofold. The main objective of this research is to see the different types of initiatives the software firms have taken towards green information technology. The second objective is to see whether these initiatives can make them a socially responsible organization. Towards these objectives in mind, we formulated 4 hypotheses.

H1: Organizations are considered to be more environmental friendly when they use one or more forms of renewable energy. This means that the organizations can use either solar energy, wind energy, or hydroelectric energy to reduce energy consumption

H2: Organizations are considered to be more environmental friendly when they take steps for the proper disposal of information technology equipments.

H3: Organizations are considered more environmental friendly when they use one or more green technologies. This means that the employees are encouraged to telecommute, use mobile technology, or and maintain paperless office.

H4: Organizations are considered more environmental friendly when they use one or more technology to reduce the energy consumption in their data centres. The focus here is on technologies like virtualization, grid computing, and energy efficient cooling systems.

Towards these objectives, data was collected from the content analysis of corporate social responsibility report of various software organizations. Sample was selected based on the list of software organizations that was generated by the magazine Software World (Softwareworld, 2010) and Yahoo finance. Only those companies were selected which had a high revenue generation for the year 2010 and had a large global presence (Table 1). It was preferred that software companies of different countries be taken. Some others Intel, Oracle, SAP, InfoSys, Wipro, Satyam, Apple, Accenture, CapGemini, and Adobe were added as they also had huge global presence and were a brand in itself.

The sample size for this research is 25 software organizations. Since we have selected only those organizations that are global and have high revenue, the size is restricted small. Many would argue that the sample size is small but the logic is that the chosen software companies are a trendsetter and hence anything they are doing will be done by smaller organizations.

3.1 Data Collection

Due to the specific nature of this research, content analysis will be done to examine the communication vehicle to draw inference from the various messages (Shao, 1999, 173). This form of analysis offers a realistic and a real world point of view to the research practitioners (Henning et al, 2004:102). Content analysis obtains data "by observing and analyzing the content or message" (Zikmund, 2003). The advantage of doing content analysis is that information is easily accessible and "works on one level of meaning" (Henning et al, 2004:102). This form of analysis observes the message and investigates the key words either in the newspaper article or the websites and then assigns codes to it which is later analyzed.

For the purpose of this research, the websites of different software companies will be used to collect qualitative data. The corporate social responsibility report section of each software company was evaluated and different initiatives adopted by each software organizations were examined. Data was collected by visiting the corporate social responsibility link of the organization listed in the sample. Each column was filled after carefully reading each and identifying the proper place. For example, when we visited the website of IBM corporate social responsibility page, we looked for words like 'renewable energy', 'energy consumption' or 'solar energy' or 'wind energy' and if found we filled the column of renewable energy. A table was formulated that resembled Table 2 and based on the criteria given in the hypothesis, the cell was filled.

Software organizations	Renewable energy	Proper disposal of IT equipments	Green technologies	Green data centers
IBM	Solar energy	Yes	Telecommute Mobile technology	Virtualizations, Energy efficient cooling systems

Table 2: A representation of the collected data

Since the data collected was non-quantifible, we needed to assign number so that we can perform some basic Excel or SPSS functionalities to present our hypothesis. Each construct was operationalized based on the coding rule represented in table 3 that was adopted by the researcher so that it enables them to do data analysis.

Renewable Energy	1---For their consumption: solar energy and any other form
	2---For their consumption: wind energy or solar energy
	3---For procurement and distribution
	4---For procurement only
	5—Not clearly mentioned for what purpose
Proper disposal of IT Equipments	1----Yes
	2----No
Green	1---all 3 options i.e. telecommute, mobile technology and paperless

Technologies	office 2---either of two option 3—either of one option 4---none 5—not mentioned clearly
Green data centres	1---all options like virtualizations, smart grid, energy efficient cooling system 2.---either of two option 3. either on one option 4---none 5---not mentioned clearly

Table 3: Coding of Green Initiatives

4. Data Analysis

Data collected was analyzed using SPSS software where both descriptive and inferential statistics was done. Cronabach alpha was calculated using this software to test the reliability of the instrument. The Cronbach alpha was calculated as 0.4725 which implied that the instrument measured what it is intended to measure which in our case is to see whether the organizations are positively involved in saving the environment. However, the cronbach alpha is not very high which can be contributed to our low sample size.

4.1 Descriptive statistics

Descriptive statistics in SPSS was done to analyze how many organizations were positively involved in the four initiatives that are highlighted in this research. It was observed that:

- 52 percent of the sample had no clear idea about the usage of renewable energy to meet their energy consumption need. 16 percent of the sample uses more than two sources which is predominately solar energy and wind energy. Solar energy is seen to be the most used renewable energy sources in the sample. Only one organization, Yahoo is using a combination of solar and hydroelectric energy for their energy consumption.

- 64 percent of the organizations have not taken this initiative. Only 36 percent of the sample was involved in this initiative which meant that they had defined process that explains the different ways to dispose of information technology equipments like printers, personal computers, laptops etc.

- Only 24 percent of the respondents are involved in encouraging their employee to use one or more green technologies as a CSR initiative. However, 64 percent of the respondents in the sample are not using any of the green technologies as a CSR initiative. It should be kept in mind that these technologies are being used in organizations but more as tools for effective performance rather than a tool for greening their environment.

- Only 28 percent of the sample is actually using one or more of these technologies to reduce energy consumption in their data centres. 60 percent of the sample is not using any of technologies to reduce the energy consumption in their data centre. It is observed that only a handful of organizations are doing virtualization only as an attempt to reduce energy consumption. Few organizations like Sun Microsystems and HP have done consolidations but it has still to become the most focus of all organizations.

4.2.2 Regression analysis

Regression analysis was done with renewable energy, disposal of information technology equipments, green technology and green data centre as independent variable and socially responsible organization as dependent organization. The variable, socially responsible organization was measured through their degree of involvement in green initiative. For example, if the organization was involved in all the 4 initiatives, it was marked as 1. If the organization was involved in no initiatives, it was given 5. The rest of the table was populated based on the number of initiatives the organizations are implementing.

Regression analysis was done to give an idea that when an organization is faced with 4 initiatives mentioned above, which when implemented will ensure that they are actually doing something concrete to save the environment and hence can portray themselves as socially responsible organization. The R-value of the model that was regressed was 0.98 which means that 98 percent of the data was explained by the model:

Socially responsible organization= 0.549*renewable energy+ 0.769*disposal of equipment+0.57*green technology+0.426*green data centre.

The F-value was 212.63 which are highly significant which implies that we accept that all the initiatives are required to portray it as a socially responsible organization. The more emphasis is on disposal of IT equipment as the co-efficient is the highest, the more socially responsible is the organizations.

Based on the analysis, we observed that software organizations are positively involved in reducing the carbon footprints and are highlighted in detail in their corporate social responsibility report. To test the hypothesis, we conducted the t-test and the results are shown in table 4.

Hypothesis	t-value	Status	Significance
H1	16.360	Accept	Organizations are environmental friendly when they use at least one option of renewable energy.
H2	6.663	Accept	Organizations are environmental friendly when they have proper disposal of IT Equipment
H3	8.744	Accept	Organizations are environmental friendly when they use at least one option of green technologies
H4	6.545	Accept	Organizations environmental friendly when they are using at least one technology to green data centres.

Table 4: Hypothesis testing and t-values.

It was observed that out of 25 organizations, only 9 organizations have implemented more than 2 initiatives in their organizations. The rest of the organizations have just started participating by advertising itself first. Most of them are advertising by following there competitors but in reality they have not implemented the green IT framework entirely. Considering that they have worldwide presence, they are not contributing enough to the environment through these initiatives and hence they are being very forward in assuming that they are green. Adding to this is that each software organizations are doing the green initiatives under different names. There is no uniformity in the initiatives across software organizations which will lead to problems in interpreting and analyzing the data. Also, that some organizations are doing one initiative which has been exaggerated in the report to attract the attention of environmental agencies and the consumers and satisfy the government body.

5.   Conclusion

The purpose of this research is to present the different initiatives towards green information technology framework that has been adopted by software organizations. The main aim was to formalize and categorize the various initiatives under the four groups, use of renewable energy, greening of data centres, proper disposal of IT equipments and use of green technologies. It was observed that an organization is socially responsible if it is actively participating in all the four initiatives instead of just participating in one or two initiatives.

One of the potential benefits of this study is that this will help other software companies which are willing to adopt eco-friendly practices to build a green information technology infrastructure framework. It also contributes to the literature of green information technology by presenting a framework to categorize various green initiatives. It also presents content analysis of different software organizations and hence provides a comparative view of the status of green IT framework. This research can be used as a background for future research of reducing carbon emissions through green information technology framework.

One of the limitations for this research is that this is not an empirical study. Since research in green information technology is a budding field it is difficult to quantify various variables of the constructs like data centres, recycling etc. Also, the instrument used to measure the different green initiative was not fine-tuned but was rather broad. Most of the items that were used to measure each initiative overlapped. Hence, we had a low Cronbach alpha.

This factor was further compounded by the fact that many organizations had no clarity about what they are actually doing to turn themselves green. Hence, the judgements of the researchers were used here and hence this dissertation has the probability of having the researcher bias. However, this can be ruled out by showing the data to different experts to rule out this possibility.

Many analysts feel that organizations implement CSR initiatives under political and legal pressures and hence they are just window dressing with basic initiatives. They feel that organizations brand themselves as 'socially responsible organizations' and target the growing market of eco-friendly consumers. Using this study, we can

build comparative view of various organizations and see where each organization is standing in terms of corporate social responsibility. Hence, this study provides guidelines for the analysts to see whether the organizations are moving towards an actual green information technology framework.

To conclude, it is seen that information technology also contributes towards environmental problem and hence it is very important that organizations develop framework and policies to address the problems. It is very important that these organizations focus on sustainable policies and initiatives as the move towards sustainable policies are new way of doing business by organizations and they do so by conserving resources for future use.

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