TOWARDS PROMOTING GREEN IT CULTURE IN NIGERIA

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Abstract

Without emphasis, information technology (IT) is considered to be of immense benefit to humankind. Thus, it has been embraced with vigorous research, rapid innovations, widespread adoption and utilisation across climes, vocations and involvements. Nigeria, as part of the global community is not left out in engaging in this valuable technology. Despite the gains attributed to IT, its use and practice comes with environmental impact, hence the essence of green IT. In this paper, the green computing concept was examined. Afterwards, a brief overview of information technology in Nigeria was given. This was followed by recommended strategies on how to promote green computing consciousness in Nigeria, which include curricula enrichment, motivation and reward, awareness, policy documentation, etc.

Keywords: Green Computing, Information Technology, Electronic Waste, Environment.

1. Introduction

Technological advancements have brought about transitions in human civilisation. The industrial age of the previous era has been replaced with the information age. The world has witnessed innovations and dynamic developments in information technology (IT) making its products and services prevalent in offices, houses, institutions, etc. In fact, in contemporary times, it may be observed that there is hardly any branch of human activity where influence of IT is not felt either directly or indirectly.

Typical of any major technological breakthrough, the pros and cons of IT exist. Harnessing the potentials of IT thus becomes necessary, not only for the sake of optimising its benefits but in order to maintain a healthy ecosystem. It is pertinent to state that our actions and/or inactions contribute in defining our state of living as well as what we would bequeath to succeeding generations.

No country lives in isolation. Activities in some nations reverberate at other parts of the globe. Focusing on IT, effects of information activities ascend geometrically as dynamism in IT innovations is on the rise. IT products and services are observed to have been made available and affordable as the years have progressed since its advent. As at the year 2000, Jack Kilby, the inventor of the Integrated Circuit and a Nobel prize winner in Physics declared that powerful personal computers that sold for less than $1,000 were far more capable than the $10 million types of the 1960s [1]. It is arguably believed that the world has witnessed far more powerful and varieties of personal computers and IT devices than those that Kilby spoke of when he made his assertion. Furthermore, IT enables globalisation, local and international business transactions, information and knowledge sharing, socialisation, etc. Thus, IT has become a powerful tool vital for facilitating provision of solutions to diverse problems.

In his article, Curtis [2] predicted that ten years from then, obligations toward reducing environmental impact and power consumption will continue to be important objectives for organisations. His prediction is observed to be correct. However, the responsibility of ensuring that the environment is sustained in the presence of the observed growing IT industry must be the concern of every living being whose activity in one form or the other contributes to the state of the environment.

IT culture differs from one country to another. Parameters like density, degree of measure of diffusion, diversification of products and services, and extent of adoption that may be used to measure IT performance are not the same across countries. However, it is certain that any country where information technology is involved in carrying out both simple and complex tasks contributes in determining the effect of information technology on the environment globally. This holds for Nigeria with her peculiarities in IT practice. Thus, this paper seeks to delve into examining IT practice in Nigeria with the view to suggesting strategies by which consciousness of green IT practice in Nigeria can be promoted. The remaining part of this paper is hereby given. The concept of green computing is looked at. Next, we have a brief

overview of computing in Nigeria. This is followed by strategies for improving green computing in Nigeria.

2. The Concept of Green Computing

Green computing, also known as green information technology (Green IT) is the environmentally responsible and eco-friendly use of computers and associated resources [3]. Furthermore, it is the study and practice of designing, manufacturing, using, and disposing of computers, servers, and related subsystems—such as monitors, printers, storage devices, and networking and communications systems—efficiently and effectively with little or no impact on the environment [4]. It aims at reducing the carbon footprint generated by Information Systems businesses while enabling them save money [5]

Green computing practices became famous in 1992 when United States Environmental Protection Agency (EPA) initiated the Energy Star programme [3]. The scheme, now managed by EPA and United States Department of Energy (DOE) is a government-supported symbol for energy efficiency which offers simple, credible, and unbiased information that consumers and businesses count on to make well-informed decisions [6].

Widespread use of computers and related IT products has very bad effect on the environment [7]. Thus, green computing efforts are made by IT manufacturers and vendors [3] as well as IT departments [7]. For instance, in order to balance functionality with environmental criteria, Microsoft works with technical experts where design groups evaluate and encourage energy efficiency, design for recyclability, materials selection, post-consumer materials content, size and weight reduction, etc. [8]

3. A Brief Overview of Information Technology in Nigeria

Computing in Nigeria is observed to have developed over the years. An upsurge in IT utilisation occurred around the early 2000s when global satellite for mobile communication (GSM) phones were introduced to the Nigerian populace [9]. Subsequently, utilisation of IT products and services has increased with the increase in IT innovations. However, an ugly dimension is the importation of outdated or out-of-trend environmentally unfriendly computing products into the country. Malakata [10] asserted that West Africa (of which Nigeria is a part) has become a landing point for old computers, mobile devices and components and that Ghana, Benin, Ivory Coast, Nigeria and Liberia are said to be among the hardest-hit countries in this e-waste menace.

To keep up with developments in the IT world, Nigerians, especially the youths embrace novel technologies that are made available to them. However, due to their low purchasing power these youths usually buy devices that may not be considered to be of measurable global standard. Furthermore, out-of-life or unused electronic devices are observed not to be usually retrieved for re-use or recycle in the country.

Moreover, power supply from the national grid is inadequate. Since IT products are electronic and require power, alternative power supplies are sought for. The most common alternative power source is premium motor spirit (PMS) or diesel powered generating sets. The preferred solar power source is available but with some limitations – it is expensive to install and maintain, it is observed to be a new technology that requires improvement. Also, inverters are good power supporters, but they are also expensive to install and maintain.

4. Strategies for Improving Green Computing in Nigeria

In order to enhance green computing in Nigeria, the following recommendations are given below.

4.1 Review of Curricula

One of the observed reasons for instituting formal education is to transfer skills, knowledge and aptitudes considered necessary and important for personal development of citizens with the expectation of resulting to national progress. To achieve this, curricula are made available at various levels of education. The nature of children is such that they are inclined to learn towards equipping themselves with whatever they need in order to be able to fit into their immediate environment. Whatever they learn at the childhood stage of development could linger for life and is expected to be a foundation on which to build upon as they progress in life. Although educating children on computing is necessary in today's world, it is imperative that green computing should be a part of IT education they receive. It is thus necessary that the basic education curriculum should carry clearly specified green computing concepts and practices that these children are desired to imbibe. Furthermore, teaching of green IT should advance with advancement in level of education up to the tertiary education stage.

4.2 Motivation and Reward

The influence of IT in our contemporary lives has expanded the scope of and need for green IT. The concern is not just on computing devices like desktops, laptops, smartphones and tablets but on some other electronic products. For instance, European Union (EU) Waste Electrical and Electronic Equipment (WEEE) Directive specified electronic waste to include large and small household appliances, IT and telecommunications equipment, consumer equipment and photovoltaic panels, monitoring and control tools, electrical and electronic devices (except large-scale stationary tools), toys, leisure and sports equipment, etc. [11]

In this information age, electronic waste will continually be generated. What behoves us is to find means of containing the waste as they come up. Ogwuegbu [12] advocated that anybody who submits an electronic waste at a collection centre (location where electronic waste is to be collected) should be rewarded. The reward could occur in various forms. First, a gift could be offered. Second, the waste could be purchased. Third, an upgrade of the submitted waste product could be offered to the individual or organisation submitting the waste but with the payment of some additional amount of money at the collection centre.

In addition, awards at various categories should be put in place to encourage establishments and individuals towards promoting green IT practice and research.

4.3 Awareness

Ignorance could be considered as part of the bane of green computing. Ogwuegbu [12] supported the creation of awareness on the dangers of wrong electronic waste handling. However, awareness should cover all areas of interest in green computing starting from conception till expiration of a product or service.

Furthermore, knowledge evolves. This makes it necessary for mandatory periodic trainings, seminars and workshops on latest trends in green computing at various levels of expertise or professionalism. Moreover, practitioners who deal with products with embedded IT components should be exposed on how to harness the components bearing in mind environmental sustainability.

It is necessary to ascertain the safety of recycling activities in Nigeria with the view to improving on them and sealing off any recycling site that does not comply with laid down safety standards. Training and post-training follow-up is observed to be required here for success to be expected.

4.4 Information Availability

Information is required in order to weigh matters involving computing in a particular society. Information can only be made available if the various information activities are effectively carried out and information is provided for consumption. This is encouraged.

4.5 Paperless Transactions

Electronic transactions already exist. However, efforts should be made to increase the tempo at which they take place taking into consideration green consciousness. Also to be put into thought are improvement of other indices that affect effective electronic practice, such as the level of literacy of the citizenry and the quality of power supply. Although software glitches may not be totally eradicated, efforts must be made to diminish their occurrence as well as other perceived drawbacks like the security of data and information. In a nutshell, if we are driving towards achieving a more paperless society the citizenry must have confidence in and should be able to engage in electronic activities.

4.6 Policy Documentation

The policy document on information technology in the country must have a section dedicated to green computing. Road map on how to enhance green computing in Nigeria should form part of the contents of this section. The various regulatory agencies saddled with the responsibility of carrying out the details of the policy document should be made to be accountable towards ensuring that green computing receives its required attention. Public and private organisations and other end-users must be made to fall in line with laid down standards and expectations. Monitoring and evaluation should be carried out by designated

officers to ensure compliance. For more effectiveness, these officers should be green IT certified.

As part of the regulations, the quality of IT products that are imported into the country or manufactured within must be ascertained. Those in use must also be of interest. However, as suggested earlier, appropriate motivation and rewards must be put in place to encourage retrieval and replacement of out-of-use devices with newer ones. Dumping of electronic waste in any form must be vehemently frowned at and defaulters traced and penalised. In addition, computing devices must be built to include a feature whereby they are automatically turned off after specific periods of inactivity.

4.7 Eco-Friendly Initiatives

These should be encouraged and pursued. Apart from the Energy Star programme earlier mentioned, other eco-friendly initiatives also exist. An example is the Electronic Product Environmental Assessment Tool (EPEAT). This is a free and trusted resource for environmental product ratings that enables the selection of high-performance electronics that meet an organisation's IT and sustainability aspirations [13].

Nigeria should formulate her own initiatives as well as partner with countries that already have robust thriving ones.

5. Conclusion

Government regulation, no matter how well-intentioned is only a fraction of an overall green computing philosophy [14]. Everybody within the information technology atmosphere in Nigeria is a stakeholder in the IT eco-sustainability project. In this paper, some strategies have been highlighted which if carried out is expected to improve green computing practice in Nigeria. We must therefore, individually and collectively take up the responsibility in ensuring a greener environment for ourselves and the succeeding generations.

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