

Development of a Green ICT Model for Sustainable Enterprise Strategy

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Abstract

Enterprise energy consumption is expected to increase enterprise costs and CO₂ emissions. Presently ICT is seen as an enabler to resolve high energy, cost issues and bring greater efficiency. This is referred as Green ICT which involves energy conservation and cost reduction of ICT usage. Various countries have already applied Green ICT initiatives to reduce CO₂ emissions. Greening ICT strategies in enterprise can decrease these negative impacts. Thus Green ICT aimed at influencing not only technology but also competitive strategy and even the legitimacy of some business strategic options in enterprise. Current findings suggest that although ICT Professionals are already concerns about climate change and power consumption of ICT, there is still a lack of a model that can reduce the time taken to implement Green strategies in enhancing business value in enterprise. Therefore this paper utilized secondary research by reviewing literature on Green ICT and developed a Green ICT model for sustainable enterprise strategy, aimed at reducing time taken to initiate and diffuse Green strategies for enhancing business value in enterprise. The research implication for future studies involves the evaluation of the Green ICT Model. The evaluation will be done using Structural Equation Modelling (SEM) to test the hypothesis derived from the literatures and to check the correlation among the independent, control and dependent variables in this research paper.

Keywords: Green ICT, Sustainability, Enterprise, IT Strategy

1. Introduction

Green information and communications technology (Green ICT) is an emergent research related with the growing concern of enterprise environmental impact in the 21st century. Sustainability is becoming an imperative domain in ICT aimed at safeguarding our future. Green ICT offers the promise for ICT scholars and researcher to make a significant contribution to reduce CO₂ emissions and mitigating the effects of global climate change and other environmental problems (Mohammad et al., 2015; Jan et al., 2013). In enterprise, ICT mainly comprises all facilities buildings and rooms which contain communication networks enterprise servers, cooling power facilities and equipment for providing data services such as data handling and storage, website hosting, intranet, Internet, telecommunication and computer network (Stan et al., 2010).

Green ICT considers all the mechanical, electrical and computer systems in enterprises mainly geared towards energy efficiency and minimal environmental impact (Stan et al., 2010). The constant growth of information and communications technologies (ICT) has resulted to harmful effects on the environment; Green ICT can have the potential to reduce global CO₂ emissions by 15%. Going Green in enterprise directs results to reduce energy use and

pollution. ICT is faced with issues such as the consumption electricity for ICT operation and the problem of disposing of outdated & obsolete hardware, however sustainable ICT approaches can reduce these environmental problems (Jan et al., 2013; Mohammad et al., 2014). Presently ICT can be seen as one of the causes of environmental problems and ICT also can be seen as part of the solution to solving environmental problems (Alemayehu et al., 2009). On the problem side, each stage of the ICT lifecycle from development to operation and disposal has environmental implications. Approximations indicate that ICT account for 2% of global CO₂ emissions, which is comparable to the volume the aviation industry generates.

In Asia, the electricity consumption of enterprise servers, ICT cooling and power equipment utilize a substantial amount of electricity mostly in the commercial sector. Therefore, it is important to address enterprise energy efficiency in order to confirm that the related impacts, such as economic and environmental expenses are mitigated. Green ICT has emerged as a new domain that addresses environmental issues; it studies, develops and promotes techniques for improving energy proficiency and decreases waste in the full life cycle of IT infrastructure from initial production, through distribution, usage, maintenance, recycling and disposal in an economically responsible way. Green ICT also proposes medium to