

Green IT/IS Adoption as Corporate Ecological Responsiveness: An Academic Literature Review

Mohammad Dalvi Esfahani ^{a,*}, Azizah Abdul Rahman ^a, Nor Hidayati Zakaria ^a

^a Universiti Teknologi Malaysia, Faculty of Computing, Information Systems Department, Johor Bahru, Malaysia

* Corresponding author email address: mohammaddalvi@hotmail.com

Abstract

This paper provides an academic literature review on the adoption of Green Information Technology (IT) and Green Information Systems (IS) in organizational context. The analysis of studies has been done by a framework with two dimensions, motivation towards the adoption (strategic or idealistic/altruistic) and locus of responsibility (individual or corporate). Based on the adopted framework, the discussion focuses on the status quo of IS literature on the adoption and diffusion of Green IT/IS by organizations from the lens of corporate social responsibility (CSR) and corporate ecological responsiveness (CER). Despite the growing number of papers investigating the adoption of Green IT/IS, the analysis of the study revealed some shortcomings in the existing literature. The implications for the future studies are provided based on the findings.

Keywords: Green IT, Green IS, Adoption, Corporate ecological responsiveness, Corporate social responsibility

1. Introduction

There has been an increasing concern regarding environmental sustainability issues. Moreover, organizations and businesses are under an overwhelming pressure from their shareholders and legislatives to improve their environmental sustainability activities (Butler, 2011; Melville, 2010; Murugesan, 2008). Gärling et al. (2003) listed the environmental issues that organizations face as (1) air pollution (outdoor and indoor), (2) solid waste disposal, (3) topsoil erosion, (4) ozone layer depletion, (5) population growth, (6) marine and fresh water pollution, (7) toxic waste accumulation and disposal, (8) reduction in biodiversity, (9) wetlands destruction, (10) deforestation, and (11) climate modification. This concern regarding the environment and climate by corporations is creating an impetus and ever increasing momentum which sometimes is referred as corporate ecological responsiveness (CER). Based on Bansal and Roth (2000) CER is defined as “a set of corporate initiatives aimed at mitigating a firm’s impact on the natural environment”, in which these initiatives can include changes to the firm’s products, processes, and policies such as reducing energy consumption and waste generation, using ecological sustainable resources, and implementing an environmental management system.

Information Technologies (ITs) and Information Systems (IS) can be considered as two CER initiatives of firm’s response towards environmental sustainability.

Based on a report in 2007¹, information and communication technology (ICT) is responsible for 2% of global greenhouse gas (GHG) emission which is equal to global aviation industry (Webb, 2008). Information Technologies can affect the natural environment through two broad categories named as first order and second order effects (Molla and Abareshi, 2012). The first order is referred to negative impact of IT production, use, and disposal on the environment. This perspective considers IT as part of the problem (Dedrick, 2010; Molla and Abareshi, 2012). So, making IT product, use, and disposal more environmental friendly and greener is referred as Green IT (Dedrick, 2010; Esfahani et al., 2015; Molla, 2013; Molla and Abareshi, 2012; Ryoo and Koo, 2013). The second order effect refers to the positive impact of IT on the environment which considers IT as part of the solution. So, utilizing IT to make business processes and activities greener is known as IT for green or Green IS (Dedrick, 2010; Esfahani et al., 2015; Molla, 2013; Sarkis et al., 2013; Watson et al., 2010). In total, Green IT aims to reduce the 2% global emission from ICT, while Green IS focuses on reducing the remaining 98% by innovative utilization of IT and Information Systems (IS) in business processes which is estimated at approximately 7.8 Gt CO₂ saving in 2020 equals to 15% cut emission and £600 billion of cost saving (Webb, 2008). Though, Green IT and Green

¹ The report can be accessed through
http://www.smart2020.org/_assets/files/02_Smart2020Report.pdf