

## Green Information Technology Adoption: A Systematic Literature Review

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### Abstract

To tackle the current environmental problems, the adoption of Green IT is considered as a reasonable effort for organizations which can improve their economic performance. To investigate the previous studies that have been done on Green IT, a Systematic Literature Review (SLR) was undertaken to identify, evaluate and interpret all the existing research studies related to the specific research topic, phenomenon of interest, or study area. The data was collected from the primary studies published during the year 2010 to 2019 in the form of the conference, journals, and other online sources. A total of 135 primary studies were included based on the defined inclusion, exclusion, and quality criteria. This research summarises and organizes the existing literature published related to Green IT based on the defined keywords and research question. This will provide a roadmap to guide future studies on Green IT and highlight directions for the successful implementation of Green IT in organizations.

Keywords: Green IT, Sustainability, Systematic literature review, Organizations, Adoption.

### 1. Introduction

The Green IT concept is affected by and intertwined with the concepts of sustainability, ecological sustainability, information systems, and information technology. In order to understand how IT contributes to environmental sustainability, it would be better to first elaborate on their related concepts. Then, the terms Green IT and Green IS are conceptualized. According to Mulvihill and Milann (2007), the concept of sustainability is considered as complex and not entirely understood or established. The definition of sustainable development is the improvement that performs the requirements of the present world, without compromising the capability of the next generations to fulfill their requirements (Brundtland, 1987). Economic sustainability, which is the generation of profits, is followed by many firms, especially the larger firms. To improve the competitiveness, market share and profitability, some firms concentrate solely on economic sustainability, which can lead to only short-term success. In order to have long-term success, the sustainability of the economic, social and environmental capital should be considered by organizations (Dyllick and Hockerts, 2002).

The Triple Bottom Line (TBL) refers to balancing of social responsibility and environmental obligations with the economic profitability which is considered the main goal of organizations (Elkington, 1997). Indeed, the long-term profitability and continuing existence of organizations are best aided by balancing them with environmental and social aims (Porter and Kramer, 2006; Hart, Milstein and Ruckelshaus, 2003). Fig. 1 shows the TBL perspective of sustainability, which has been adopted to consider organizational sustainability to include the natural, social, environmental and economic performance components (Elkington, 2004).

However, some organizations still focus on economic sustainability, which is a single bottom line measure (Chen, Watson, and Karahanna, 2009; Unhelkar, 2012; Chen et al., 2008). Organizations are expected to engage in business undertakings with sustainable approaches beyond mere economic interests, in order to gain long term sustainability (Fadhilah and Ramayah, 2012).

Thus, the IT-based environmental greening is considered as a partial solution to this issue and the adoption of Green IT is an important step for these organizations (Lei and Ngai, 2014). Green Information Technology (IT) is defined