Antecedents and Effects of Green IS Adoptions:
Insights from Nordea

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ABSTRACT

This article develops an empirically grounded model of antecedents and effects of green information systems (IS) initiatives. The model is empirically based on an in-depth case of the Nordic financial institution. The authors' study examines the effect of several organizational factors, and characteristics of Green IS initiatives themselves on organizations' intention to adopt Green IS initiatives. Their study finds that employees' attitudes toward these initiatives affect their participation in the initiatives, as well as the success of Green IS initiatives. The adoption of the initiatives was seen to affect individual and organizational level outcomes, with positive experiences enabling employees to continue to use/ support the initiatives, and organizations also often realizing improvements in practice.

KEYWORDS

Adoption, Case Study, Green IS, Green IT, Nordea, Sustainability, Theoretical Model

INTRODUCTION

Over the last many years, organizations have found themselves increasingly pressurized to reduce their environmental impact, in an effort to stay competitive. It has been argued that green business practices, a form of sustainability even if that means basic recycling practices, can have a significant effect on organizational bottom line. Consequently, organizations have become increasingly interested in initiatives and practices supporting sustainability, including factors influencing its initiation, the process of implementation, and their impacts (Murugesan, 2008; Schryen, 2012).

However, becoming a sustainable organization is not easy. Organizations have to be engaged in "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland et al., 1987). This is a complex process that includes environmental, economic, and social dimensions (Kleindorfer et al., 2005; Porter & Kramer 2007; Hedman & Henningsson, 2011). The essence of sustainability is that these three dimensions need

to be addressed and balanced simultaneously rather than being viewed as trade-offs or with one of the dimensions being superior to the other two. It will consequently engage many stakeholders of sustainability, such as individuals, business, governments, and society (Watson et al., 2010).

The information systems (IS) discipline is increasingly paying attention to green practices in general, and Green IS initiatives in particular (Watson et al., 2010; Melville, 2010; Elliot, 2011; Schryen, 2012); IS is said to be part of the problem but also part of the solution (Seidel et al., 2013). Our review shows that previous literature has examined antecedents, adoption, and consequences of Green IS initiatives.

Notwithstanding the value of these contributions, our review identifies three gaps within these streams of research that we seek to address in this study. First, limited attention has been given to the varying nature of Green IS initiatives. Green IS initiatives span across a wide range of initiatives (Corbett 2010), ranging from the use of energy efficient hardware to product redesign. However, how the intrinsic attributes of Green IS initiatives impact adoption and effects of Green IS has been less studied.

Second, few studies have examined the process of adoption. It is known from the general IS adoption literature that how the process of implementing IS initiatives unfolds has notable effects on the outcome of initiatives (e.g., Kwon & Zmud, 1987). For example, the adoption of Green IS initiatives may not lead to benefits, and organizations may fail to implement these initiatives successfully. Therefore, a deeper understanding of the Green IS implementation process is important to grasp the effects of Green IS initiatives.

Third, the understanding of the impacts of the Green IS initiatives has been limited so far. It has been suggested that adoption of Green IS may induce both environmental and economic benefits. Furthermore, as organizations implement various types of Green IS initiatives, these Green IS initiatives may in turn change the organizations, and influence future adoption. However, our literature review reveals that there are mixed findings regarding the environmental, economic and organizational effects of Green IS initiatives adoption (e.g., for environmental outcomes, research has suggested that it can be negative, neutral, or positive effects; for economic outcomes, there can be positive or neutral). In addition, the effects on the third dimension of the triple bottom line, the social dimension, have been largely ignored in previous research. Finally, few studies have examined the recursive impacts of Green IS initiatives. In other words, a successful adoption/implementation of an initiative can have effects on future attitudes.

In this study, we address these above-mentioned voids by taking a holistic approach to Green IS adoption, from antecedents, through adoption phases, to the effects of the adoption. Our research objective is to develop an empirically based understanding of how Green IS adoption is initiated and implemented within organizations, and how it impacts the adopting organization.

With this research objective in mind, we aim to (1) explain how the nature of different Green IS initiatives relates to antecedents, adoption and effects of Green IS, (2) unearth the role of the adoption process in the triggering of different outcomes of Green IS, and (3) understand the rationale behind the mixed findings regarding the environmental, economic and organizational effects of the adoption of Green IS initiatives.

The rest of the article is organized as follows: First, we discuss the background literature. This is followed by a description of our case organization, a brief discussion of the methodology employed in this study, and our interpretation of the case study data with respect to Green IS adoption. We conclude with a discussion of the limitations and future directions and a recapitulation of the study's key contributions. Finally, the contributions and opportunities for future studies are discussed.

LITERATURE REVIEW OF GREEN IS

We follow Watson et al. (2010) and define Green IS as "an integrated and cooperating set of people, processes, software, and information technologies to support individual, organizational, or societal

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