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Elaborating On Is Implementation For Stakeholder Sustainability Reporting: A Multi-Stage Approach

Daphne M. Simmonds
MSU Denver, dsimmondsjam@gmail.com

Kenya Desulme
Siemens, kikdesulme@gmail.com

IMPLEMENTING IS FOR STAKEHOLDER SUSTAINABILITY REPORTING: A MULTI-STAGE APPROACH

TREO Paper

DAPHNE SIMMONDS, PhD, dsimmond@msudenver.edu, Metropolitan State University of Denver
KENYA DÉSULMÉ, MS (Accounting), kikdesulme@gmail.com, Siemens, Tarrytown, NY, USA

Abstract

In 2022, IBM reported conservation of 9.8 million MWh of energy, which saved $661 million and avoided 4.6 million metric tons of CO2 emissions between 1990 and 2020. This signals the company's ability to documents its awareness of, and response to, environmental sustainability. Organizations have transformed their operations to consider sustainability issues. However, although sustainability reporting is challenging, reports increase their legitimacy, competitiveness, and market share. They are also used by stakeholders like Dow Jones and Morgan Stanley Capital International to calculate sustainability scores which global investors use to define investment portfolios. In this study, we use Zmud and Apple's 1989 multi-stage model to examine the implementation process of IS used for sustainability reporting. Our study contributes an elaborated sustainability IS implementation mode. The model presents the key factors, outcomes and stakeholders involved in the process and provides guidance for organizations implementing IS for sustainability reporting and/or sustainability initiatives.

Keywords: Natural Environment, Sustainability Reporting, Multi-staged IS Implementation, Stakeholders.

1 Introduction

Many organizations, aware of their contributions to global warming, acidification and other environmental threats, have sought to transform their operations (Dyllick and Hockerts, 2002). To do so, they develop initiatives that address these important issues (Høgevold, 2011). They then publish sustainability reports that disclose the success of the initiatives (Fowler and Hope, 2007) to demonstrate their commitment to their stakeholders. However, providing disclosures imposes a burden on organizations. These disclosures require that the organizations engage in significant sustainability initiatives which are often costly, and also capture copious and high-quality related data. These data are then analyzed and made available to various stakeholders, often in varied formats.

For those organizations that do engage in sustainability initiatives, information systems (IS) play a major role in reducing the burden of providing the disclosures. For example, one aspect of the disclosure challenge is data capture and analysis. Enterprise-wide IS such as ERP systems are known to be successful with respect to gathering data across multiple processes (Simmonds, Tadesse and Murthy, 2018). Additionally, for other data not captured by the ERP systems, process-specific IS such as those used in logistics and facility management systems have been effective at supplementing ERP data (Brown, Dillard and Marshall, 2005; Dillard, Ruchala and Yuthas, 2005; Høgevold, 2011; Simmonds and Bhattacherjee, 2015). Another challenging aspect of the disclosure process is communicating to

stakeholders. For this, the Internet has served as an effective medium for publishing sustainability reports (Sustainability Report | ExxonMobil, accessed Nov 23, 2023).

Reporting is challenging, and investment in both sustainability and IS are costly. Nevertheless, the initiatives benefit the natural environment, and the disclosures often result in benefits for the reporting organizations. For example, stakeholder satisfaction with disclosures may result in actions that increase the legitimacy, competitiveness, and market share of reporting organizations (Bansal and Roth, 2000). Disclosures are also used by monitoring agencies such as Dow Jones and Morgan Stanley Capital International (MSCI) to evaluate organizations to provide sustainability scores which are used by global investors in defining investment portfolios ABCs of ESG Frameworks and Ratings - ESG Navigator (accessed Feb 24, 2024). They are also used to qualify organizations for inclusion in prestigious sustainability indices such as the Dow Jones Sustainability Index (Robinson, Kleffner and Bertels, 2011). Organizations are therefore reporting to their stakeholders and implementing IS to do so.

In this study, we focus on those IS that are used for capturing and analyzing sustainability data and developing corporate sustainability reports. In particular, we examine the implementation process to identify the key stakeholders, factors and outcomes involved as the system is being deployed in the organization. Our search of the literature revealed that investigations of IS used for sustainability have focused on two types of systems. The first deliver IT services more sustainably – for example, virtualized servers (Seidel, Recker and vom Brocke, 2013; Ko, Clark and Ko, 2011), and the second monitor and control the impact of other organization processes to reduce their environmental impact (Simmonds and Bhattacherjee, 2013; Chen *et al.*, 2020). Among those studies, the focus has either been on factors that influence the adoption stage, or on indicators of end-of-process system success (Molla, 2013; Loeser *et al.*, 2017; Kuo and Dick, 2010). We found no studies that focus on multiple implementation process stages nor specifically on sustainability reporting systems.

We draw on Zmud and Apple's (1989) implementation stage theory to delineate the IS implementation process as we examine four cases of IS implemented to provide sustainability reports. We also draw on the Technology, Organization, Environment (TOE) framework (Tornatzky, Fleischer and Chakrabarti, 1990). Both will guide us as we seek to answer the following questions:

1. What critical factors influence IS implementation at each phase during the process?
2. Who are the key stakeholders influencing the process at each stage?
3. What outcomes are observed during the process at each phase?
4. What key end-of-process outcomes define system success for implementing organizations?

This research contributes to the sparse body of empirical research at the intersection of IS and sustainability. We also provide guidance for implementors of IS for sustainability reporting as well as for those considering implementing environmental sustainability initiatives. We hope the study will encourage organizations that have not already done so to consider implementing sustainability initiatives, and those that have implemented such initiatives to formalize their processes. Finally, we hope that our study will prompt policy makers, regulatory bodies and monitoring agencies to recommend and promote guidelines reporting frameworks so organizations that do not report have guidance on how to do so.

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