Chapter 12
Constructing Green IT Alignment Framework: Car Manufacturer Case

Leelien Ken Huang
Feng Chia University, Taiwan

ABSTRACT

Using contingency theory (CT) of fit as a foundation for this research, we report the development of the notion of ‘green IT alignment framework’ and its determinants. This is followed by an analysis of the relationship between capability areas (i.e., contextual factors) and green IT alignment while the company pursues GREEN. Data were collected from a case study where a car manufacturer is our research setting—considered as suitable for this type of research. The author found that a total of 18 capability areas over three domains of technical, organizational, and environmental are a premise for green IT alignment. Such capability areas are considered as new and interdependent of traditional strategic alignment capabilities. The results of this research demonstrate an appropriate green IT alignment framework that is trust worthy to construct for understanding the factors of IT-business fit while pursuing GREEN. Implications are discussed.

1. INTRODUCTION

With intensive public discussions and widespread coverage in the media, the impact of global warming on the environment has been the foremost issue to governments, non-government organizations, and consumers (Enkvist, Naucler, & Oppenheim, 2008; Friedman, 2007; Kuo & Dick 2009). Stronger national (or international) commitment to reduce greenhouse gas (GHG) emissions and achieve other environmental goals creates pressure for finding ways to achieve greater efficient use of energy and other resources while sustaining economic growth (Dedrick, 2010). This environmental issue has shifted from being solely the concern of scientists and/or environmentalists to being recognized by business executives now concerned with impact on shareholder value (Bonini, Hintz, & Mendonca, 2007). The notion of “GREEN” (i.e., environmental considerations [e.g., environment friendly products/services, etc.])

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has therefore become important to sustainability (i.e., company success) in terms of business strategy (Elkington, 1998; Enkvist & Vanzoukout, 2008; Price Water House Coopers & SAM, 2008) and social responsibility (Kuo & Dick, 2009).

To achieve sustainability, the notion of ‘green information technology (IT)’ has emerged and is considered as reducing the direct environmental impact of designing, manufacturing, using, and disposing of computer, servers, and associated sub-systems (Murugesan, 2008). For example, recycling electronic wastes can be a priority for many companies (Herat & Bahadir, 2007). Energy efficiency in hardware and data centres also receives great attention, given the potential to reduce carbon emissions and lower energy costs (Forrest, Kaplan, & Kindler, 2008). However, researchers argue that the scope of green IT mentioned above is too narrow (Dedrick, 2010). A broader scope includes the use of IT to improve sustainability across the economy (Watson, 2008). For example, improving efficiency in industries such as transportation, manufacturing, and energy sectors, where they or their products are the major sources of GHG emissions. A broad view of green IT to drive business innovation, productivity, and thus company growth in terms of environmental considerations, can also be a potential source of solutions to improve a company’s overall performance (Ghose, Hasan, & Spedding, 2008).

In the literature, green IT toward sustainability has become a significant issue in the narrow sense, whereas less attention has been paid in the broad view (Dedrick, 2010). That is, conceptual and anecdotal evidence indicates that green IT is linked to energy and cost efficiency; it is mainly discussed in terms of equipment utilization (e.g., hardware, networking, applications, etc.) rather than organizational (strategic) impact of IT while pursuing GREEN. This is supported by a recent survey by Forrester (2009), which indicates that the top motivation for adopting green IT practices is still reducing costs. Because broad-viewed green IT involves business innovative practices that enhance the recognition of organizational situations (Ghose, Hasan, & Spedding, 2008; Swanson & Ramiller, 2004), and it is a company’s adaptation to the external dynamics with the use of IT (Huang, 2009), a strategic nature is embedded. In particular, broad-viewed green IT considers IT organizational impact, which is a typical alignment issue where IT must support business and vice versa while the company pursues GREEN toward sustainability (Dedrick, 2010; Loeser, Erek, Limbach, & Zarnekow, 2013; Molla, 2009). This means ‘green IT alignment’.

Our research focuses on broad-viewed green IT and conceptualizes ‘green IT alignment’ as equivalent to the traditional strategic alignment that has appeared as the top concern for IT practitioners and business executives (Luftman et al., 2005). The impact of strategic alignment between IT function, IT infrastructure, organizational infrastructure, and business planning processes on company performance has been widely studied (Sabherwal & Chan, 2001; Sabherwal, Hirschheim, & Gole, 2003; Tallon, Kraemer, & Gurbaxani, 2000). With the concept of GREEN, strategic alignment practices should consider how a company responds (or adapts) to the business market with the use of IT underlying increased public environmental concern (Molla, 2009).

Although green IT alignment can be referred to as traditional strategic alignment, it requires new organizational capabilities (Molla & Cooper, 2009). Therefore, a traditional step-by-step strategic alignment framework may not be a reliable guide for practitioners. Green IT alignment needs to start with a clear assessment of those capabilities (or factors) that can help identify the company’s position, intended state, and IT progress in supporting the business in its pursuit for GREEN. This requires a framework that not only accounts for factors that allow (or inhibit) the diffusion (spread and usage) of IT that supports the business, but also explicitly considers the role played by different key stakeholders (e.g., IT, business, etc.). Unfortunately, the current green IT alignment framework is unclear (Molla & Cooper, 2009). As a result, there is a lack of understanding and guidance to help assess the extent to which how
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