Chapter 6
Moving Forward a Parsimonious Model of Eco-Innovation:
Results From a Content Analysis

Yudi Fernando
Universiti Sains Malaysia, Malaysia

Wen Xin Wah
Universiti Sains Malaysia, Malaysia

ABSTRACT

Complexity of sustainability issue in operations management leads this study to determine a parsimonious model of eco-innovation. Most of research findings have been emphasized on the effect of innovation on company's economic benefits. However, there is inadequate study in respect to eco-innovation and impact to business and environmental sustainability. This is causing a lack of study on this topic. The paper focuses on determinants of drivers of eco-innovation and seeks the impact to the outcome of sustainable business performance. Content analysis is used in order to explain phenomena of eco-innovation in operations management and categorize the determinants of drivers. The unit of analysis of this study is driver or factor of eco-innovation which commonly uses in entire articles. The scope of review encompassed articles published during 1994 to 2012. Results indicate that a parsimonious model of eco-innovation was consisted of five drivers. More comprehensive and robust findings could be obtained by testing this model and broadening the scope of study.

1. INTRODUCTION

With the rapid growth of the global economy, the expansion of economic activity has exaggerated worldwide environmental problems such as global warming and resource scarcity. The issues on the environment and resources have aroused common concerns that resulted in key bottlenecks of sustainable development (Ar, 2012). Consequently, it can be observed that there is an increasing trend on firms taking responsible measures to curtail with environmental issues (Frenken and Faber, 2009; OECD, 2009). In

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response, companies tend to shift from conventional ways of production method to green practices such as eco-innovations (Laperche and Uzunidis, 2012; Ekins, 2010; Tyl, Millet and Vallet, 2010).

This study attempts to provide insights towards the parsimonious model of eco-innovation by adapting five measurement constructs in green business. The principle of parsimony brings the concept of the simplest possible model should be chosen. There are many researches discussed the complexity measurement of eco-innovation, therefore, previous studies found that lack of consensus on how to measure eco-innovation. This study is adopting the simplest assumption in the formulation of a concept to identify the relative important dimensions of eco-innovation.

For today business practices, it is vital to know how firms can create and add value (environmental and monetary) to their products and services through innovation (EC, 2010). Firms can meet sustainable business performance in the aspect of economic, social and environment through eco-innovation (Olson et al., 2010; Pujari, 2006). For that reason, to show the contribution of a business to the sustainable development, this study conceptualizes the extent of eco-innovation by adapting five dimensions companies. It is also crucial to create and increase the awareness of eco-innovation among the business world. There are direct and indirect benefits for firms practice eco-innovation (Kemp & Foxon, 2007). The direct benefits for the innovator comprise of operational advantages such as saving cost from greater resource productivity and better logistics. Meanwhile, the indirect benefits for company include better image, better relationships with customer, suppliers and authorities, greater worker satisfaction, and health and safety benefits. Furthermore, knowledge and innovation can improve products and services; consequently, it improves customer satisfaction (Cobb, 2011).

Previous researchers have similar consensus on the definition of eco-innovation (OECD, 2009; Horbach, Rammer & Rennings, 2012; Carrillo, Río, & Könnölä, 2010). Unfortunately, the overwhelming majority of research has been concerned with the issues of innovation with respect to economic competitiveness rather than environmental sustainability (Steward, Wang and Tsoi, 2008). Besides, one of the literature gaps is that most researches focus on what could be termed "singular" innovations of individual products, processes or practices (Steward et al, 2008), but is lack of study examine the shift of unsustainable socio-technical activities to more sustainable ones. The indicators of eco-innovation are based on the digital "product information" sources and "new announcement" databases (Steward et al., 2008). In the other hand, Kemp and Horbach (2008) found that eco-innovations may be measured on the basis of exports data, sales data and world market shares of eco-innovations that sold as goods or services.

Not only to fulfil the immediate needs and wants of the markets and society, companies are also focusing the future requirements (Seurig, Sarkis, Muller and Rao, 2008; Linton et al., 2007). Eco-innovation has been linked to business strategy which enhances capabilities and reduces negative impact to the environment during production process, generally accepted by industry and scholars (Del Rio, Carrillo-Hermosilla, Könnölä & Bleda, 2011). Therefore, firms are operating eco-innovation to obtain the ultimate goal of sustainable business performance. Firms who have invested in eco-innovation aim to be more eco-efficient than competitors, either in the overall environmental performance of the company or in the environmental impact of the given product (Anderson, 2008). Besides reduction in negative environmental impacts, eco-innovation also have been introduced for other impact such as increase resource productivity (economic) (OECD, 2009) and to enhance the understanding of global environmental change and it's relation to economic and social systems (Rennings, 2000). The objective of this study is to develop a parsimonious model of eco-innovation from the identification of key drivers. This paper is structured as follows: Section 2 explains definitions of eco-innovation and gives an overview literature on eco-innovation.