Using fuzzy AHP in selecting and prioritizing sustainable supplier on CSR for Taiwan’s electronics industry

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Abstract

With the emerging consciousness of corporate social responsibility (CSR) in supply chain, various standards or codes of conduct associated with the environmental and social aspects have been incorporated for evaluating suppliers. So, it appears to be an urgent need for research to develop an integrated and comprehensive frame related to the considerations of environmental and social aspects to systematically manage the supplier with respect to the competence of CSR in electronics industry. The study focuses on the sustainable supplier selection and assessment for Taiwanese information and electronics industry based on the literature reviews and industry expert input, a survey questionnaire was developed including environmental, social, and economy aspects. The research uses Fuzzy Analytic Hierarchy Process (Fuzzy AHP) method to prioritize and rank the various performance evaluation criteria for the sustainable supplier selection and evaluation in the Taiwanese electronics industry.
industry. The research results indicate a sustainable Taiwanese electronics firms not only can access their suppliers’ economic performance, but also shall require their suppliers to acknowledge and implement the CSR and sustainable development.

**Keywords:** Corporate Social Responsibility, Electronics Industry, Sustainable Supplier, Fuzzy Analytic Hierarchy Process

### 1. Introduction

Globalization and outsourcing have increased the complexity of supply chains, the concepts of sustainability and sustainable development have emerged as humanity has become more cognizant of its increasing impact on the world (Hutchins, and Sutherland, 2008). Therefore, with the emerging consciousness of corporate social responsibility (CSR) in supply chain, various standards or codes of conduct associated with the environmental and social aspects have been incorporated for evaluating suppliers. To be effective in terms of CSR, companies need all firms in their own supply chain to act in a socially responsible manner (Roberts, 2003; Enderle, 2004). When supply chain relationships involved developing countries, companies are obligated to take responsibility for the well-being and performance of small upstream producers that work in those countries (Wolters, 2003). In the 1990s, Nike Corporation was associated with the child labor practices of its contract manufacturers in East Asia, putting the American sportswear company in a precarious situation and resulting in declining sales (Wokutch, 2001). As a consequently, Consumers and non-government organizations (NGOs) criticized apparel company Nike regarding sweatshop issues at its overseas suppliers, so that Nike Corporation initially declined social responsibility for its supply chain parents but later shifted its stance under increased public pressure (Zadek, 2004). As noted above, companies obviously need to hold more responsible of environmental and social issues for their suppliers in mitigating risk. In terms of the benefit of promoting CSR in the supply chain, the purchasing function can be used to transfer them to suppliers, so generating a chain effect by which quick and deep social and environmental changes can be caused if a company adopted social and/or environmental standards (Green et. al., 1996; Preuss, 2002).

Maloni and Brown (2006) indicated that industry special issues of CSR should be explored and constructed due to one model of supply chain CSR does not fit all. Researches related to establishment of general