



The Antecedents and Consequences of Green Innovative Competence: The Case of the Electrical and Electronic Industries on Taiwan

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ABSTRACT

The purpose of this paper is to discuss the importance of green innovative competence in the electrical and electronic industries in Taiwan. Data from 225 companies in the industries were collected. Thus paper suggests that if companies put more effort on strategic orientation (including market orientation and technology orientation) and integral competence they will enhance green innovative competence which in turn leads to corporate performance. Additionally, integral competence is an essential element if companies restructure their strategies along with green innovation.

KEYWORDS : Green Innovative Competence, Strategic Orientation, Integral Competence, Corporate Performance

Introduction

Facing with environmental protection requirements raised by the European Union, North America, Japan, and so forth, in response to environmental issues, it shows that the international advanced countries have demanded from the industry not only a need for compliance with safety and sanitation regulations, but also a further conformance to the requirements of environmentally friendly for products. Where the EU's environmental regulations such as the Waste Electronics and Electrical Equipment (WEEE) and Restriction of Hazardous Substances (RoHS), always assess the green innovative ability of manufacturers of electrical and electronic exports, and have brought the issues including disabling specific substances, green design, alternative products and technology, customers' new needs as well as increasingly stringent verification procedures.

In the global industrial supply chain system, Taiwan has mainly played a role of Original Equipment Manufacturer or Original Design Manufacturer (OEM / ODM). It can be seen through the international trends that the future requirements for green products and related peripherals will become more and more stringent and will certainly have a significant impact on Taiwan's industry. Companies are adjusting the appropriate strategic orientation in order to continue to pursue both performance and green innovation. Companies started to collaborate with upstream and downstream manufacturers, which had been deemed as a hostile in the past, for the purpose of obtaining benefits and advantages from supply chain integration, and this establishment of partnership will become a strong support for the company. Therefore, how a company's strategic orientation should respond to this green trend obviously becomes very important.

Review of related literature

Green Innovative Competence

Survival of a company needs sufficient innovation and abundant human resources to be able to strengthen innovation. Throughout the process of innovation, existing resources are incorporated and through a series of innovative activities of individuals, groups and organizations to construct a specific core competency and create a company's sustainable competitive advantage. With the international attention on environmental issues, companies also began to adopt green and sustainable thinking into the innovation process. Porter & van der Linde (1995) emphasized that increasing "resource productivity" with "technological innovation" may offset the environmental expenses, any manufacturer first to throw itself into innovation, its green products can additionally achieve a higher price and open up a new segmentation of the market, and may even further promote its environmental technologies and services.

Strategic Orientation

While noticing consumers' demand, strategic orientation also focused on the market environment and competitor's ability, which were influential forces on customers, to respond within a short term to the rapid changes of markets (Kohli & Jaworski, 1990). Unlike the "customer pull" market-oriented concept, technology-oriented concept is the philosophy in reaction to "technology push", it assumes that customers would prefer technically superior products and services. A technology-oriented company advocates support for Research and Development (R & D), access to new technologies and applications of the latest technology (Gatignon & Xuereb, 1997). Thus, either market-oriented or technology-oriented is a strategic orientation to which need to be paid attention by all companies.

Integral Competence

Due to intense competition coupled with the rapid changes in external environments, companies can no longer see themselves as independent individuals. Supply chain integration can improve the overall supply chain network processes within the company and between companies, so that cost, quality or efficiency of various aspects can be greatly improved. This has prompted companies to commit to establish their own supply chain system through the effective integration with supply chain partners and the response to customers' needs within the shortest time (Koufteros et al., 2005). The integration model of supply chain is the same as the concept of concurrent engineering applying to the development of green product innovation, inviting suppliers to participate in green innovation activities on product development stage, and establishing a good network relationship with suppliers, thereby obtaining opinion feedback, these all contribute to the green management implementation (Huang & Wu, 2010).

Objectives of the Study

- To explore the relationship between strategic orientation and green innovative competence.
- To explore the relationship between green innovative competence and corporate performance.
- To explore the relationship between integral competence and green innovative competence.
- To explore the effect of the relationship between the integral competence on a strategic orientation and green innovative competence.

Data collection of the Study

This study's research objects were electrical and electronic industries with a capital of more than NT\$ 5 million in Taiwan, and requested such companies' directors of new product developments or project management departments to answer questionnaires. This study

adopted a random sample, sent a total of 760 questionnaires, 225 valid questionnaires with an effective response rate of 29.6%.

Conclusion

As the international market's increasingly stringent product specifications for production and the rise of consumers' environmental awareness, companies should rethink business strategy and the practices of green innovation development in order to promptly respond to the market demand and fluctuation. The following are the suggestions of this study:

1. Relationship between Strategic Orientation and Green Innovative Competence

There is a high degree of correlation between a company's strategic orientation (including market-oriented and technology-oriented) and its green innovative capability. If a company could pay more attention to consumer demand and new technology research and development when implementing the policy direction related to green issues, it will assist the company enhance its green innovation capability.

2. Relationship between Green Innovative Competence and Corporate Performance

The higher the degree of green innovative capability is, the better the company's performance will be. Development of innovative technology could promote companies' innovation of products and processes, input costs decreases, leading to an enhancement of competitive benefits and corporate image.

3. Relationship between Integral Competence and Green Innovative Competence

The higher the degree of company integral capability is, the higher the company's green innovative capability would be. If a company could view the internal and external integration including the integration of customers, suppliers' products integration and supplier process integration, it is bound to be able to develop a green innovation model, and thus enhance the competitive advantage.

4. Relationship between the Integral Competence on Strategic Orientation and Green Innovative Competence

The degree of strategic orientation influence on green innovative capability would be higher if it is through adjustment of integral capability. If a company's strategic orientation incorporates with functions of various departments and solves environmental issues with innovative technology, in addition to avoid environmental protests or punishments, it could also enhance the corporate image, and could even develop new market opportunities.

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