



Exploring the interoperability of innovation capability and corporate sustainability[☆]



Wen-Hsiang Lai^{*}, Chiu-Ching Lin, Ting-Chu Wang

Feng Chia University, Taiwan

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ABSTRACT

The purpose of this study is to explore ways of improving the interoperability of innovation service and corporate sustainability by strategic corporate social responsibility (SCSR), as pursued through interactions among enterprises, knowledge sharing external to enterprises and leading guidance from managers. Moreover, creating SCSR on the deployment of R&D and innovation service provides the impetus for firms to pursue sustainability. This study evaluates the relationship among variables from the perspective of organizational structure, organization strategy, R&D talent, R&D technology, uncertainty in environment, stakeholders in environment, corporate innovation capability, corporate sustainability and SCSR. This study finds that the SCSR from corporate innovation service has a significant influence on the performance of corporate sustainability. Furthermore, the variables of organizational structure and R&D talent do not have a significant impact on corporate innovation service in high-technology industries.

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1. Introduction

Over the last decade, a company's role in achieving sustainable development is important, especially in today's fast-changing environment. Firms are facing fierce competition and need to continuously improve their ability to develop and maintain a competitive advantage. Most high-tech firms rely heavily on pursuing sustainable R&D and innovation capabilities (du Plessis, 2007; Johnson, Hays, Center, & Daley, 2004). Therefore, developing a firm's sustainability is critical for firms after they pursue improvements in firm technology and innovation.

Because of the turbulent nature of the business environment, relying solely on firm's own abilities is difficult to maintain a competitive advantage in the market. Pursuing advanced technology and innovation in the industry is essential for firms to pursue corporate sustainability. To be a sustainable enterprise or sustainable development enterprise, firms must live harmoniously with the environment and commit to environmental development. Porter and Kramer (2002) suggest that real strategic public welfare strengthens a firm's competitiveness while social welfare also benefits. Porter and Kramer's (2002) suggestion illustrates that corporate social responsibility (CSR) is one of the

most important factors for corporate sustainability. The impact of CSR is contingent on combinations of complex antecedent conditions and several alternative paths (Skarmeas, Leonidou, & Saridakis, 2014). Although some studies (Dahlsrud, 2008; Werther & Chandler, 2011) examine the relationship between environment, CSR and corporate sustainability, few studies discuss the influence of CSR on the relationships of innovation and corporate sustainability. Furthermore, Porter and Kramer (2006) state that firms usually only consider CSR in generic ways instead of in ways appropriate for their future strategies. This situation certainly decreases the interoperability of the firm's innovation and corporate sustainability. This study aims to explore the role of strategic corporate social responsibility (SCSR) in the relationships of innovation and corporate sustainability.

2. Literature review

World Conservation Strategy (WCS) first codified the term "sustainable development" in 1980 in the document incorporating "the concept of sustainability beyond renewable resource systems" (Lele, 1991). Rao (2000) defines the concept of sustainable development as interdisciplinary when describing industries. Sustainability and sustainable development are synonymous and interchangeable when describing industries. Sustainability is a business opportunity, an investment in the future, and a pathway to innovation and creative thinking (Hontou, Diakoulaki, & Papagiannakis, 2007). Therefore, the relationships between organizational innovation capability and corporate sustainability play an important role for firms to establish their competitive advantages (van Kleef & Roome, 2007).

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^{*} Corresponding author at: Graduate Institute of Management of Technology, Feng Chia University, No. 100, Wenhwa Rd., Seatwen, 40724 Taichung, Taiwan. Tel.: +886 4 24517250x2400.

E-mail address: whlai@fcu.edu.tw (W.-H. Lai).

2.1. Corporate innovation capability

Hansen, Große-Dunker, and Reichwald (2009) consider that sustainability-oriented innovations are tools to address sustainability issues and to tap into new customer segments and markets. Hilke (2010) states that firms with sustainability in their orientation and innovation processes show evidence of value creation, such as the development value of products new to the market (radical innovations) and cooperation value with stakeholders. This study hypothesizes that corporate innovation capability can positively influence the firm's sustainability.

Innovation is one of the key drivers of corporate success (Cardozo, McLaughlin, Harmon, Reynolds, & Miller, 1993). Hage (1999) identifies three primary determinants of organizational innovation capability: a complex division of labor, an organic structure, and the adoption of a high-risk strategy. John and Doty (1996) indicate that unique organizational strategy and structure are also necessary for organizational innovation capability. Porter (1991) suggests that environmental regulation may positively influence the performance of domestic firms relative to their foreign competitors by stimulating domestic innovation. For these reasons, environment is also a factor influencing the corporate innovation capability.

2.2. Organizational strategy and structure

Discussing organizational strategy, this study addresses the link between the development of strategy in organizations and the corporate culture (Johnson, 1992). Harrison (1972) and Martin (2002) consider a firm's internal culture as a foundation of organizational changes. Dennison and Mishra (1995) present four culture typologies, including procedural continuity, mission, participatory, and flexibility. They also propose two reference points to measure the performance of firm's sustainability in terms of strategic emphasis (inside or outside) and environmental needs (stability or flexibility). Additionally, to measure the organizational structure, the degree of vertical, horizontal and spatial differentiation indicates an organization's level of complexity (Fredrickson, 1986), and systems thinking may help decision makers to deeply understand the organization complexity (Woodside, 2006). Robbins (1990) notes that horizontal differentiation, for example, may have its origin either in a high degree of division between the roles and functions performed within the enterprise (functional specialization) or hiring professionals who hold skills that are not easy to routinize (social specialization). Horizontal differentiation can promote the invention of new methods, technologies or products (Mintzberg, 1979) because horizontal differentiation entails grouping together individuals who share a common knowledge and the development of joint projects. Decentralization fosters the incorporation of a greater number of individuals and organizational levels into the process of strategic reflection (Robbins, 1990). According to the discussion in the above articles, operational strategy and structure can positively influence corporate innovation capability. This study hypothesizes that the organization factor especially organizational strategy and structure can positively influence corporate innovation capability.

In a comprehensive review of the literature on organizational innovation capability, Hage (1999) identifies three primary determinants of organizational innovation capability, including a complex division of labor, an organic structure, and the adoption of a high-risk strategy. Of these three determinants, Hage (1999) argues that a complex division of labor is important because the division of labor encompasses the organizational learning, problem-solving, and creativity capacities of an organization. Many studies regarding organizational innovation capability address the connection between organizational structure and managerial practices in particular, as this connection relates to facilitating or inhibiting the adoption of innovations, such as new technology or organizational practices (Damanpour, 1991). However, the organizational innovation capability also encompasses

aspects of the R&D issue, such as the generation of new products and ideas (Larson & Gobeli, 1989).

2.3. Research and development (R&D)

To ensure the corporate R&D capability, the influence factors of R&D talent (von Zedtwitz, Gassmann, & Boutellier, 2003) and R&D technology (Lawson & Samson, 2001; Nelson, 1993) are keen to a firm's R&D capability. Cappelli (1999) indicates that the most common advice is to pay and treat talented employees well. Although some studies show that paying talented employees well does not have a strong effect on employee attraction or retention (Samuel & Chipunza, 2013), favorable payment for talented employees is still an important motivator to attract talented employees (Rynes, Gerhart, & Minette, 2004). Moreover, Nelson (1993) argues that career development and training at work and industry-academia cooperation can influence R&D talent's design and innovation capability. In addition to organization and R&D factors, a firm must be innovative to survive in a volatile environment (Calantone, Cavusgil, & Zhao, 2002). From the discussion above, this study hypothesizes that R&D factors especially R&D talent and R&D technology can positively influence corporate innovation capability.

2.4. Uncertainty and stakeholders in environment

Cahill (1996) states that crucial environmental factors of innovation include customer demand uncertainty, technological turbulence, and competitive uncertainty. Milliken (1990) states that firms usually do not elaborate on the uncertainty in the sense making processes of obtaining firms' SCSR. In addition to uncertainty, stakeholders are one of the environmental factors relative to corporate innovation capability (Hall & Martin, 2005; Herzig & Moon, 2013). The definition of stakeholders is "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). Nambisan (2002) argues that if a firm's key stakeholders have a positive attitude and positive perceptions on innovative product development, the firm will hold valuable insights on its future growth and evolution. Bunn, Savage, and Holloway (1986) also indicate that making market opportunities by emerging multi-sector innovations, firms need a strategy for dealing with numerous stakeholders to solve the greatest challenge involving the firm's efforts to influence and shape the market in the firm's favor. From the discussion above, this study hypothesizes that environmental factors, especially uncertainty and stakeholders can positively influence corporate innovation capability. Wheeler, Colbert, and Freeman (2003) indicate that some scholars turn their attentions from the relationships between sustainability and corporate innovation capability to the relationships between sustainability and CSR.

2.5. Strategic corporate social responsibility

Wood (1991) states that business and society have close relationships. However, some scholars question the role of business in society (Mintzberg, Simons, & Basu, 2002; Prahalad & Hart, 2002) and the importance of business to influence successful and sustainable operations (Werner & Schafer, 2007). Murray and Vogel (1997) discuss the impact of CSR on firm's financial performance, and Hull and Rothenberg (2008) state that innovation may allow firms to differentiate themselves from others. Therefore, CSR, innovation, and firms' financial performance have close relationships. Because of these close relationships, Francisco (2005) argue that if firms do not perceive CSR as a value-creating process in its own right, the help in terms of corporate sustainability becomes limited. Epstein and Leonard (2008) mention that while pursuing CSR initiatives to achieve the goal of sustainability, understanding the business perspective of firms and integrating societal issues into their organizational systems and structures are important. Therefore, this study hypothesizes that SCSR can positively influence the interoperability between corporate innovation capability and corporate sustainability.

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