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ISO 14000 certification and investments in environmental supply chain management practices: identifying differences in motivation and adoption levels between Western European and North American companies

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ABSTRACT

The adoption of an environmental management system (EMS) such as ISO 14000 is generally assumed to be part of a wider effort to reduce the supply chain's environmental impacts. EMS can be divided into externally certified systems such as ISO 14000 and investments in internal EMS programs. It has been suggested that the adoption and implementation patterns for these systems vary based on motivational differences. Furthermore, there is also evidence suggesting that these motivational differences might lead to differences in EMS investment patterns between organizations situated in North America and Western Europe. This research explores differences in EMS adoption and investments in North America and Western Europe to gain a greater understanding of companies' environmental motivations. More specifically, through survey data this research explores the differences in ISO 14000 certification and environmental supply chain investment levels between Western European and North American companies. Our results indicate that ISO 14000 is universally adopted as part of wider efforts to reduce supply chain environmental impacts, not as a legitimating tool.

1. Introduction

Ignoring environmental issues is no longer an option for most if not all organizations (Kleindorfer et al., 2005; Pagell and Wu, 2009). However, how organizations decide to respond to pressures to be greener can and does vary. There are organizations that have made legitimate attempts to significantly reduce the impact of their supply chains, but there is also evidence that some organizations create a veneer of being green while actually continuing to do business in traditional unsustainable ways (Hopkins, 2009). Being able to distinguish between these situations as well as being able to judge which environmental initiatives are legitimate is then of vital importance.

The problem of determining legitimacy is critical, especially when discussing environmental management systems (EMS) such as ISO 14000, the most widely known and adopted environmental certification (Nawrocka et al., 2009). Research indicates that companies seek certification for themselves or demand it of their suppliers to improve environmental performance, to help with meeting regulation and to reduce the risk of supplier non-conformance (e.g. Pagell and Gobeli, 2009; Seuring, 2004). The existence of an EMS, especially a certified EMS such as ISO 14000 is then viewed as an externally verified proxy for effective environmental management by members of the supply chain as well as stakeholders external to the supply chain (Corbett and Kirsch, 2001; Jacobs et al., 2010).

However, there is also evidence that some suppliers adopt ISO 14000 primarily as a marketing tool, with little to no change in their actual environmental practices or outcomes (Jiang and Bansal, 2003). For instance Boiral (2007) found that the Canadian organizations in his sample did not adopt ISO 14000 to improve their environmental management or reduce their environmental impacts. Instead the certification was used to gain legitimacy with stakeholders. Having ISO 14000 was used to signal that the supplier was doing what was expected to manage environmental issues, yet in these instances that was not actually the case.

Boiral's (2007) results merit further study for two main reasons. First, Matten and Moon (2008) use institutional theory to propose that the institution of nation will lead to different types of sustainability strategies in different places. They propose that North American organizations will have explicit sustainability

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strategies that are clearly communicated, while European organizations will have implicit strategies that are not communicated. In the context of EMS this suggests that European suppliers would be far less likely to adopt ISO 14000 mainly to explicitly signal to customers/the marketplace that they are taking environmental action. Rather, one would expect that if Europeans spent the time and resources required to achieve ISO 14000 certification that they would do so in order to actually improve their environmental management (Boiral, 2007; Matten and Moon, 2008). However, North American suppliers would be much more likely to adopt an EMS such as ISO 14000 as a marketing tool. This is what Boiral concluded, but because Boiral's sample is confined to North America it is unknown if this behavior is confined to North America or occurs globally.

The second reason for exploring this issue further relates to the nature of ISO 14000 as compared to other management systems based on ISO standards, especially ISO 9000. Some researchers have argued for significant parallels between ISO 9000 and ISO 14000 (Klassen and McLaughlin, 1996). Similar to quality, a long-term goal of environmental management is to move toward a proactive management stance. Environmental aspects are considered as a management system integrated in product design, the entire manufacturing process, marketing, product delivery and use, customer service, and post consumer product disposition (Hunt and Auster, 1990; Sroufe and Curkovic, 2008).

Using this line of logic one would expect that ISO 14000 would follow a similar trajectory as ISO 9000. When ISO 9000 was becoming the *defacto* quality standard, there were debates as to the merits of this certification (Casadesus et al., 2008). Some authors argued that ISO 9000 was mainly paperwork driven and did not improve quality and hence was adopted mainly because customers demanded it (Han et al., 2007; McGuire and Dilts, 2008). Others argued that ISO 9000 could actually be obtained to manage and improve quality (Naveh and Erez, 2006; Terlaak and King, 2006). Today, it is accepted that the adoption of ISO 9000, while never a guarantee for higher quality, is an indicator of the existence of a functioning and effective process based quality management system (Benner and Veloso, 2008). Therefore, if ISO 14000 follows the same trajectory as ISO 9000 it could be assumed that the debates over the merits of ISO 14000 might dissipate as the standard becomes more widespread (Mueller et al., 2009).

However, assuming that ISO 14000 will work the same way as ISO 9000 and hence will follow the same path to widespread adoption ignores one important difference. ISO 9000 with its emphasis on quality is focused on creating a management system to improve quality. This is something the focal customer of the supply chain both can assess themselves and about which they care deeply (Pagell et al., 2010). However, ISO 14000 is directed at something that is much harder for the focal customer to assess and many may not care about, especially in B2B relationships. However, if they did care it would be to mitigate their own risk and not to actually reduce the environmental impact of the supply chain. In other words, being able to say we did our due diligence by requiring our suppliers to be certified may be all that is required for legitimacy. Therefore, there seems to be greater scope for an organization to use ISO 14000 only for legitimating purposes.

This research draws especially on Boiral's (2007) and Matten and Moon's (2008) work to further explore the motivational differences and levels of adopting ISO 14000 between Western European and North American companies. Theory suggests that the drivers and outcomes of ISO 14000 adoption could vary between North America and Western Europe, even if adoption rates did not (Boiral, 2007; Matten and Moon, 2008). North Americans would adopt ISO 14000 to show legitimacy and as a marketing tool while Western Europeans would adopt mainly to make actual environmental improvements to their operations and supply chain (Boiral, 2007; Matten and Moon, 2008). In this research we directly address this supposition by looking at how ISO 14000 adoption affects the level of investment in environmental supply chain management (ESCM) practices.

We study ISO 14000 because it allows us to gain insights into the rationale for EMS adoption. Being ISO 14000 certified is by nature explicit and the information is available to the public (Corbett et al., 2003). Based on the theory of Matten and Moon (2008) and the results in Boiral (2007) and Jackson and Apostolakou (2010), when ISO 14000 is adopted primarily as a marketing/legitimacy tool we would expect lower levels of investments in other practices associated with EMS relative to when ISO 14000 is adopted as part of a broader effort to develop a fully functioning EMS. An examination of organizational efforts in regards to ISO 14000 and other practices associated with EMS allows for an examination of what can be viewed as the organization's EMS orientation. EMS orientation builds on well-developed literature that links managerial values, cognitions and intentions to the adoption of environmental actions (e.g. Klassen and Whybark, 1999; Wu and Pagell, 2011). ISO 14000 is then the external component of an organization's EMS orientation. Investment in other ESCM practices associated with EMS is the internal component of EMS orientation.

Investments show intent (Hamel and Prahalad, 1989), making actual investments a good proxy for the intent of ISO 14000 certification (see Table 1). Therefore, this research tries to answer the following research questions: (1) Do Western European and North American companies have the same level of adoption of ISO 14000 and other ESCM practices? and (2), do European and North American companies adopt ISO 14000 for different reasons?

To address these research questions we use survey data collected from a range of countries in Western Europe (Germany, Austria, Ireland, Italy, Finland, Sweden and Switzerland) and North America (United States, Canada and Mexico).

2. Literature review

2.1. Drivers for investing in EMS

In 1996 "*The International Organization for Standardization*" introduced a series of certifications and standards in the realm of ISO 14000, which has become the reference model in formal EMS (Boiral, 2007). ISO 14000 certification is intended to provide a framework for a holistic strategic approach to the organization's environmental policy, plans and actions. The rate by which companies are getting ISO 14000 certified has increased from 128,211 at the end of 2006 to 188,815 in 155 countries in December 2008 (ISO, 2008).

Table 1
EMS orientation.

ISO 14000/SSCM Investment levels	ISO 14000 Certified	Not ISO 14000 Certified
High levels of investment in ESCM practices	Complete EMS orientation: ISO adopted as part of a broader effort to create a functioning EMS that customers are aware of.	Internal EMS orientation: Organization engaged in broad effort to create EMS but does not explicitly share this information.
Low levels of investment in ESCM practices	External EMS orientation: ISO 14000 adopted for marketing/legitimating reasons not as part of broader effort to create a functioning EMS.	No EMS orientation

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