



Institutional pressures, dynamic capabilities and environmental management systems: Investigating the ISO 9000 – Environmental management system implementation linkage

Qinghua Zhu^{a,*}, James Cordeiro^{b,1}, Joseph Sarkis^{c,2}

^a School of Business Management, Dalian University of Technology, Linggong Road 2, Gaoxinyuan District, Dalian, Liaoning Province 116024, PR China

^b Department of Business Administration & Economics, State University of New York, Brockport, NY 14420, USA

^c Graduate School of Management, Clark University, 950 Main Street, Worcester, MA 01610-1477, USA

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ABSTRACT

We hypothesize a model where domestic and international institutional pressures lead to the successful implementation of ISO 9000 and can in turn lead to the successful implementation of environmental management systems such as ISO 14001 environmental certification systems or total quality environmental management (TQEM) systems. Using appropriate tests for mediation with dichotomous mediators and outcomes, we find that the model holds for a sample of 377 Chinese manufacturers in six major industrial groups in Suzhou, Dalian, and Tianjin. Our findings are consistent with the theory linking internal capabilities to heterogeneous external (in this case, institutional) pressures on organizations for environmentally proactive efforts. Our findings suggest that institutions in developing countries with significant environmental concerns such as China as well as foreign suppliers and partners to firms in these countries should encourage and support ISO 9000 implementations by local firms. These findings may influence other developing nations' adoption of quality and environmental process systems.

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1. Introduction

China's recent dramatic economic growth and its acceptance into the World Trade Organization (WTO) have been accompanied by equally dramatic environmental degradation (Economy, 2007). Sixteen of the world's twenty most polluted cities are located in China. Environmental degradation is expected to cost China around 8–12 percent of annual GDP (Economy, 2004). Much of the responsibility for this environmental degradation is attributable to industrialization that continues to overwhelm ostensibly strenuous central government efforts to protect the environment. In 2000, for example, China's State Environmental Protection Administration (SEPA) estimated that 40 percent of water pollution and 80 percent of air pollution were attributable to industry (Wang et al., 2004).

Substantial scholarship has focused on the response of Chinese firms to environmental concerns. ISO 14001 certification (Chan and

Li, 2001) and its diffusion (Corbett and Kirsch, 2001; Vastag, 2004) can respond to environmental pressure. We pick up the thread that examines institutional pressures as developed in institutional theory (DiMaggio and Powell, 1983; Delmas and Toffel, 2004). In relevant prior research, Christmann and Taylor (2001) showed that the status of being an exporting company would expose the company to more stringent environmental requirements and led to the need to adopt a systematic environmental approach such as an internationally standardized ISO 14001 environmental management systems. Similarly, Cordeiro et al. (2009) documented the impact of both international and domestic normative, coercive, and mimetic institutional forces on the likelihood of adoption of three environmentally proactive practices: ISO 14001, total quality environmental management (TQEM), and generic EMS in Chinese firms. The main objective of this study is to develop this line of research further by investigating ISO 14001 and ISO 9000 as important process-focused best practices in the context of organizational and environmental management (Christmann, 2000). The relationship between successful ISO 9000 implementation and subsequent successful ISO 14001 implementation is important in the context of corporate environmental strategies since there is a sequential logic embedded in environmental operational strategy implementation

* Corresponding author. Tel.: +86 411 8470 6018; fax: +86 411 8470 8342.
E-mail addresses: zhuqh@dlut.edu.cn (Q. Zhu), jcordeir@brockport.edu (J. Cordeiro), jsarkis@clarku.edu (J. Sarkis).

¹ Tel.: +1 585 395 5793; fax: +1 585 395 2542.

² Tel.: +1 508 793 7659; fax: +1 508 793 8822.

(Hart, 1995, 1997). Specifically, as we detail in the discussion below, we study ISO 9000 certification as a key mediating variable that mediates the impact of domestic and international institutional pressures on the adoption of corporate environmental management processes like ISO 14001 and similar TQEM-type environmental management systems.

This study helps advance both practice and research. From a practice perspective it provides insights for operations managers to aid in adoption and implementation of quality and environmental management systems. From a research perspective it seeks to advance the theoretical linkages between external pressures and internal capabilities. The linkage of these two streams will provide superior underpinnings for organizational efforts to build operational capabilities and capacities in response to various external pressures and forces, especially institutional pressures.

We use a 2007 survey of 377 Chinese manufacturers in six major industrial groups in Suzhou, Dalian, and Tianjin cities. We begin with a discussion of the theory and develop testable hypotheses. We then present the methodology followed by the results and discussion. We conclude with a discussion of some avenues for future research.

2. Theory development and hypotheses

In the subsections below, we discuss various international and domestic institutional pressures faced by Chinese organizations. We also review environmentally proactive systems (ISO 14001 and TQEM) whose implementation is the main outcome of interest in this research. Our main focus, however, is on the role played by existing ISO 9000 systems as mediators of the relationship between domestic and international institutional pressures and the adoption of environmentally proactive systems by Chinese organizations.

2.1. Institutional pressures for adoption of environmental management systems

New institutional theory (DiMaggio and Powell, 1983; Scott, 2002) suggests that firms can obtain legitimacy if they conform to their institutional field's dominant practices. The institutional field constitutes the organization's key suppliers, consumers, regulators, and rivals (DiMaggio and Powell, 1983). Normative, coercive and mimetic isomorphism mechanisms create and diffuse a set of common norms, rules, and values that result in similar structures and practices across organizational fields. Jennings and Zandbergen (1995), Delmas (2001, 2002), and Delmas and Toffel (2004, 2008) have applied the logic of the new institutional theory to the field of corporate environmental management. We now consider these institutional pressures in the context of China.

Normative pressures cause organizations to conform in order to be perceived as legitimate. Product market pressures have caused many Chinese manufacturers to rethink the role of environmental practices in their organizational strategies and operations. China has increasingly attracted foreign investments, providing additional motivation for Chinese manufacturers to serve foreign customers by improving their environmental performance – increasingly a precondition for dealing with foreign customers such as Bristol-Myers Squibb, IBM and Xerox (Zhu and Sarkis, 2004).

Regulation-related government fines and trade barriers can exert coercive pressures on companies (Rivera, 2004). One such international regulatory scheme, take-back obligations has been designed for electronics in Europe (Fleischmann et al., 2000). International laws in developed regions such as the European

Community Directive on Waste Electrical and Electronic Equipment (WEEE) have motivated China and Chinese firms to evaluate their recovery and reclamation programs (Yu et al., 2008). China published the Chinese WEEE regulations on March 5, 2009, and has implemented since January 1, 2011. These regulations require Chinese companies to manage extended producer responsibility for end-of-life products, although details on how to implement the Chinese WEEE regulations are still being developed.

Finally, mimetic pressures occur when an organization mimics the actions of successful competitors in the industry, in an attempt to duplicate their success. Globalization has created opportunities for Chinese manufacturers to learn from and share innovations with their foreign competitors and through international supply chains, especially those operating in China (Christmann and Taylor, 2001; Liu and Buck, 2007; Zhu and Sarkis, 2007).

Chinese organizations also face institutional pressures on the domestic front. These include normative pressures corresponding to environmental requirements from domestic customers, and mimetic pressures from industrial professional group environmental activities. Different industries have different levels of competition, uncertainty and technology development, and thus individual firms in different industries face different types and intensities of environmental challenges (King and Lenox, 2000; Lyon and Maxwell, 2000). Finally, domestic coercive pressures result from varying regional environmental regulations concerning waste emissions, cleaner production, and so on.

There is relatively little empirical research on the impacts of institutional pressures in China on the adoption of environmentally proactive practices. Christmann and Taylor (2001) showed that Chinese manufacturers exporting products to developed nations with more stringent environmental norms and regulations have made efforts to comply with domestic environmental standards and to adopt internationally standardized ISO 14001 environmental systems. Cordeiro et al. (2009) documented the impact of both international and domestic normative, coercive, and mimetic institutional forces on the likelihood of adoption of three environmentally proactive practices: ISO 14001, total quality environmental management (TQEM), and generic EMS in Chinese firms.

In the sections below, we build on this research by (a) first describing our main outcomes of interest – ISO 14001 and TQEM systems, (b) next investigating ISO 9000 systems as an outcome of institutional pressures, and, (c) arguing for successful ISO 9000 adoption as a mediator between domestic and international institutional pressures and the adoption of ISO 14001 and TQEM systems.

2.2. Background on environmental management systems

We focus on two outcomes in this research: the successful adoption of ISO 14001 systems and non-ISO total quality environmental management (TQEM) programs by Chinese firms. This classification is based on Melnyk et al. (2003) who have defined three types of EMS: (1) an informal system; (2) a formal system that does not meet ISO 14000 standards; and (3) a formal system that does meet ISO 14001 standards. Although, other regionally or industrially supported environmentally oriented certifications and systems do exist. For example there is the eco-management and audit scheme (EMAS) that is prevalent in Europe (González et al., 2008), Responsible Care for the chemical industry (Prakash, 1999), and the Equator Principles for the banking industry (Wright and Rwabizambuga, 2006). Similar relationships that we investigate in this study between ISO 9000 and these systems may be an interesting direction for further study. At this time we focus on very global and generic environmental management systems, ISO 14001 and TQEM.

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