



The relationship between organisational factors and the effectiveness of environmental management



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ABSTRACT

This paper examines the relationship between specific organisational factors (top management support, training, employee participation, teamwork and the link of performance to rewards) with the effectiveness of environmental management. The effectiveness of environmental management is measured in respect of the effectiveness of environmental management processes and environmental performance. Data were collected by mail survey questionnaire from a random sample of 899 senior financial officers in Australian manufacturing organisations. The findings highlight the significance of the effectiveness of environmental management processes as an antecedent of environmental performance and a mediator of the relationship between organisational factors and environmental performance. The findings provide managers with an insight into the specific organisational factors that they need to focus on to enhance the effectiveness of environmental management.

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1. Introduction

Over the past few decades increasing industrial development has caused environmental degradation such as global warming, ozone layer depletion, air pollution and toxic waste (Zailani et al., 2012). It has been argued that manufacturing organisations are responsible for these environmental problems (Hsu et al., 2013). At the same time, there is increasing concern shown towards environmental issues by a variety of stakeholders including governments who impose environmental regulations, consumers who demand environmentally friendly products, and investors and shareholders who have higher expectations regarding the environmental performance of organisations. In response to the growing awareness and scrutiny from these stakeholders, many manufacturing organisations have moved beyond complying with legal requirements concerning environmental issues and have initiated a proactive environmental management approach to manage and reduce the negative impact on their business

operations (Stevens et al., 2012; Wong et al., 2012; Clarkson et al., 2011; Klassen and Whybark, 1999). This study focuses on examining the effectiveness of environmental management and the role of organisational factors in enhancing the effectiveness of environmental management in Australian manufacturing organisations.

There is a growing stream of research assessing the effectiveness of environmental management in respect to environmental performance (Massoud et al., 2010; Wagner, 2008; Yuksel, 2008; Savely et al., 2007; Prakash and Potoski, 2005; Anton et al., 2004). This approach does not consider Hamilton and Chervany's (1981),³ assertion that the impact of management initiatives on organisational performance is indirectly related to their ability to improve organisational processes. Following Hamilton and Chervany (1981), improved environmental outcomes such as reductions in water usage and emissions, and wastage in raw material will not be realised unless process objectives such as motivating better environmental performance, enhancing staff awareness of environmental issues and providing training in relation to environmental management initiatives are achieved.

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³ Hamilton and Chervany (1981) is one of the most cited studies illustrating different evaluation approaches to effectiveness.

While Hamilton and Chervany (1981) emphasise the importance of organisational process effectiveness in enhancing performance, no study to date has examined the effectiveness of environmental management in respect to environmental management processes. Accordingly, this study fills a gap in the literature by examining the effectiveness of environmental management from two perspectives, the effectiveness of environmental management processes and environmental performance. In addition, the study explores the relationship between the effectiveness of environmental management processes and environmental performance.

The study also examines the relationship between specific organisational factors and the effectiveness of environmental management. Many manufacturing organisations have undertaken environmental management to manage their environmental performance, however the ability of these organisations to improve their environmental performance varies due to the different organisational settings (Christmann, 2000). Accordingly, it is important for managers to understand the specific organisational factors that can contribute to the achievement of environmental objectives. Daily and Huang (2001) proposed five organisational factors (top management support, training, employee participation, teamwork and the link of performance to rewards), theorising how each of these factors contributes to environmental performance. While prior literature has focused on these organisational factors as direct enablers of environmental performance (Massoud et al., 2011; Daily et al., 2007), very few studies (Paille et al., 2013(a); Paille et al., 2013 (b)) have empirically examined the mechanisms through which specific organisational factors contribute to improvements in environmental performance. Consequently, it is proposed that the positive impact of specific organisational factors on environmental performance is mediated by the effectiveness of environmental management processes. Hence, in addition to examining the relationship between the effectiveness of environmental management processes and environmental performance, the study will hypothesise the relationship between five specific organisational factors and the effectiveness of environmental management processes.

The remainder of the paper is structured as follows. Section 2 provides the literature review and relevant hypotheses. Sections 3 and 4 discuss the research method and findings. Finally, Section 5 presents the conclusion and limitations of the research.

2. Literature review

2.1. Environmental management

Environmental management involves the processes of setting 'objectives, plans and systems that determine operations' position and responsiveness to environmental issues and regulation' (Klassen and Whybark, 1999, p. 604). Research in the field of environmental management falls into two streams. The first stream examines the antecedents of environmental management practices maintaining that the adoption of environmental management practices is contingent upon various factors including regulation and legal requirements (Zhu and Sarkis, 2007), stakeholder pressures (Sarkis et al., 2010), industry pressures (Hofer et al., 2012; Berry and Rondinelli, 1998), resource availability (Aragon-Correa and Sharma, 2003; Berry and Rondinelli, 1998), and management commitment (Gattiker and Carter, 2010). The findings of these studies indicate that organisations are more likely to adopt environmental management practices when they are experiencing greater pressure from customers, local communities, regulators, the government and competitors. In addition, those organisations with

greater resources and more committed managers are more likely to adopt environmental management practices to a greater extent.

While there is extensive literature on the adoption of environmental management practices fewer studies have focused on the second stream of research which examines the effectiveness of environmental management.

2.2. The effectiveness of environmental management

Environmental management is effective when the intended objectives are attained. The majority of studies assess the effectiveness of environmental management in respect to environmental outcomes (Massoud et al., 2010; Wagner, 2008; Yuksel, 2008; Savelly et al., 2007; Prakash and Potoski, 2005; Anton et al., 2004). However, according to Hamilton and Chervany (1981), the effectiveness of an initiative can be assessed based on i) the usefulness of information ii) improvements in organisational processes and iii) improvements in organisational performance. Following this framework, the effectiveness of environmental management could be assessed on the basis of: i) the usefulness of environmental information ii) improvements in environmental management processes and iii) improvements in organisational environmental performance.

Most studies in the field have assessed the effectiveness of environmental management using the third approach, with the adoption of environmental management practices found to contribute to improvements in environmental performance (Johnstone and Labonne, 2009; Hertin et al., 2008; Schylander and Martinuzzi, 2007). However, in line with Hamilton and Chervany's (1981) suggestion, improvements in environmental performance do not occur directly. Rather they are the result of the effect of environmental management on organisational processes. Hamilton and Chervany (1981) argue that irrespective of the type of management practice, process effectiveness represents an antecedent of desired performance. This suggests that environmental performance is contingent upon the effectiveness of environmental management processes. Consequently, this study contributes to the literature by examining the effectiveness of environmental management with respect to both its effect on environmental management processes and environmental performance.

The study assesses the effectiveness of environmental management processes in respect to the achievement of eleven desired objectives of environmental management which are based on Lawler (2003) and are shown in the Appendix. These objectives facilitate a favourable operating environment which in turn, assists an organisation to achieve environmental outcomes (see the operational and management environmental performance measures in the Appendix). These outcomes were derived from the performance management and environmental performance literature (Henri and Journeault, 2010; Clarkson et al., 2008, 2004; Lawler, 2003).

2.3. The relationship between specific organisational factors and the effectiveness of environmental management processes

The relationship between five organisational factors (top management support, training, employee participation, teamwork and the link of performance to rewards) and the effectiveness of environmental management processes is hypothesised. These factors have been found to be related with the effectiveness of various management accounting practices (Tung et al., 2011; Snider et al., 2009). However, while the relationship between these factors and the effectiveness of environmental management has been discussed and theorised in the environmental management literature (Daily and Huang, 2001), there is limited empirical evidence to

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