



## Research article

# The comprehensiveness of environmental management systems: The influence of institutional pressures and the impact on environmental performance



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## ABSTRACT

This study contributes to the EMS literature by providing a more detailed insight into the comprehensiveness of environmental management systems (EMSs) by focusing on the intensity of use of environmental management practices. In addition, the study examines the influence of institutional pressures (coercive, mimetic and normative) on the comprehensiveness of environmental management systems (EMSs), and the impact of EMS comprehensiveness on environmental performance. A mail survey questionnaire was used to collect data from a random sample of Australian senior managers across various industries. Both coercive and normative pressures were found to influence the comprehensiveness of EMSs. Specifically, the pressure exerted by the government, through the creation of appropriate regulatory pressures and public incentives, and by employees, customers, professional groups, the media, and community, influenced the comprehensiveness of the EMS. In addition, organisations with more comprehensive EMSs were found to experience higher levels of environmental performance. With more than 300,000 organisations worldwide adopting EMSs (ISO, 2013), the findings provide an important insight into the relevance of EMSs. In particular, it is suggested that organisations should endeavour to implement a more comprehensive EMS and be conscious of the role that coercive and normative pressures play in influencing the comprehensiveness of their EMSs.

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## 1. Introduction

Increasing attention and concern over the environmental impact of business has led organisations to actively seek ways to minimise their exposure to environmental risk and take a proactive approach to environmental management. The pressure exerted on organisations to improve their environmental management can be attributed to regulatory bodies, increased public awareness and media coverage of environmental issues, and organisations' awareness of the need to improve efficiency through reducing environmental costs (Tinsley and Pillai, 2006; Deegan, 2003; Sullivan and Wyndham, 2001).

A growing number of businesses have invested significant resources in the implementation of an environmental management system (EMS), a systematic approach which requires the

integration of environmental issues into every aspect of business management (Tinsley and Pillai, 2006). By 2005, more than 111,000 organisations worldwide had adopted and certified their EMSs to the international environmental management standard ISO 14001 (ISO, 2013), and thousands more had adopted other types of EMSs (Darnall et al., 2008a). The number of ISO14001 compliant EMSs had increased to 301,647 in over 170 countries around the world by 2013 (ISO, 2013).

While many authors advocate the merits of EMSs (Tinsley and Pillai, 2006; Sullivan and Wyndham, 2001; Steger, 2000), empirical studies have been inconsistent in respect to the approach used to define and operationalize EMSs. The majority of studies have incorporated a simplistic approach of inquiring whether or not an organisation has adopted an EMS. Such an approach is problematic given respondents have different interpretations of the exact nature of an EMS. Furthermore, even if the users of an EMS were successfully captured, this approach ignores the comprehensiveness of the EMS (Edwards and Darnall, 2010) and hence, fails to distinguish between EMS users. Alternatively, other studies

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(Johnstone and Labonne, 2009; Anton et al., 2004; Khanna and Anton, 2002) have used the total number of environmental practices implemented by organisations as a proxy for the comprehensiveness of EMSs. While this approach is better in the sense that it explores the nature of the environmental management practices utilised by organisations, it fails to take into account variations in the intensity with which specific practices are used by different organisations. Accordingly, this approach provides an opportunity to 'green wash' with organisations able to create the impression that they are committed to a number of environmental practices without really engaging in environmental management activities (Cho and Patten, 2007; O'Dwyer, 2002).

Since EMSs are developed in different organisational settings and organisations follow different types of EMS (Darnall et al., 2008b), it is expected that they differ across organisations in respect to the comprehensiveness of their coverage (Anton et al., 2004). Accordingly, the first objective of this study is to attempt to overcome the limitations of previous studies by providing a more detailed insight into the nature of EMSs within organisations. Specifically, we operationalize the comprehensiveness of EMSs in respect to the intensity of use of nine environmental practices identified as important components of an EMS in the literature (Anton et al., 2004; Henriques and Sadosky, 2007a).

In conjunction with the incorporation of an improved approach of measuring EMS comprehensiveness, the study also aims to contribute to the contingency based literature examining the antecedents or determinants of EMS comprehensiveness. Previous literature has examined the association between organisational factors such as size (Edwards and Darnall, 2010; González-Benito and González-Benito, 2006), quality management systems (Johnstone and Labonne, 2009; Henriques and Sadosky, 2007a), financial resources (Clarkson et al., 2011; Johnstone and Labonne, 2009), and management capabilities (Sangle, 2010; Delmas and Toffel, 2004) with the use of EMSs and other proactive environmental management initiatives. Other research has investigated the influence of the institutional pressures exerted by a variety of stakeholders such as government (Zhu et al., 2013; Uchida and Ferraro, 2007; Delmas and Toffel, 2004), customers (Sangle, 2010; Khanna and Anton, 2002; Darnall et al., 2000), employees (Darnall et al., 2010; Kirkland and Thompson, 1999), and the community (Sarkis et al., 2010; Henriques and Sadosky, 1996) on environmental management initiatives.

Many authors such as Schaefer (2007) and Delmas (2002) indicate that institutional pressures are the predominant driver of the adoption of proactive environmental practices. Accordingly, this study places emphasis on the effect of institutional pressures on EMS comprehensiveness. The extant literature has tended to focus on the impact of specific stakeholder groups on the use of environmental management initiatives. Rather than concentrating on specific stakeholders, this study contributes to the literature by utilising DiMaggio and Powell's (1983) theoretical construct of institutional isomorphism to gain an insight into the influence of an organisation's overall institutional environment.

Given the majority of studies in the extant literature are prescriptive (Delmas and Toffel, 2004; Delmas, 2002) and/or adopt a case-based approach (Schaefer, 2007; Darnall et al., 2000), the second objective of the study is to contribute to the literature by adopting an empirical approach to examine the influence of institutional pressures on the comprehensiveness of EMSs. Further, since the few extant empirical studies are limited to large US or European organisations operating in the manufacturing industry (Yu and Ramanathan, 2014; Boiral and Henri, 2012; Anton et al., 2004; Henriques and Sadosky, 1996), this study addresses the dearth of studies examining this relationship in alternate industries in Australia.

Finally, in response to Yu and Ramanathan's (2014) claim that there is a research gap in the literature regarding the clarification of the effect of environmental management practices on environmental performance, the third objective of the study is to investigate the association between EMS comprehensiveness and environmental performance. There has been ongoing debate as to whether it is worthwhile to be "green", or environmentally proactive, with mixed findings reported in relation to the association between EMSs and environmental performance (Iraldo et al., 2009; Hertin et al., 2008; Johnstone et al., 2004; Melnyk et al., 2003). Such mixed findings can be attributed to the way in which EMSs and environmental performance have been operationalised in prior studies.

Accordingly, this study aims to provide further insight into this association by incorporating a more comprehensive approach to the measurement of both EMSs and environmental performance. In terms of EMSs, as mentioned previously, many studies fail to account for the variation in the comprehensiveness of EMSs (Anton et al., 2004) and therefore this study incorporates an approach which focuses on the intensity of use of environmental management practices associated with an EMS. Similarly, in examining environmental performance, we aim to provide a broader perspective than previous studies which have simply focused on examining the environmental impact generated by operations such as an electricity index (Friedrich et al., 2011), total material requirements (Baboulet and Lenzen, 2010), greenhouse gas emissions (Psaraftis and Kontovas, 2010), and toxic releases (Patten, 2002). Henri and Journeault (2010) argue that this approach limits the measurement of environmental performance to one aspect. Consequently, we utilise Henri and Journeault's (2010) broader approach which incorporates measures covering different dimensions of environmental performance.

## 2. Theory and hypotheses development

### 2.1. Environmental management system (EMS)

An EMS has been defined by the British Standards Institute (1992) as "the organisational structure, responsibilities, practices, procedures and resources for determining and implementing environmental policy". An EMS is a transparent and systematic process with the objective of "prescribing and implementing environmental goals, policies, and responsibilities, as well as regular auditing of its elements" (Steger, 2000, p. 24). The establishment of an EMS provides a wide range of benefits. For instance, many organisations have reported that environmental management has led to reduced environmental risks, better management of regulatory compliance, improved utilisation of resources and employees, and improved public reputation (Tinsley and Pillai, 2006; Sullivan and Wyndham, 2001; Steger, 2000).

Various management standards have been introduced to assist organisations in developing formalised environmental management systems. The first of these was the UK national standard BS 7750 which was created in the early 1990s (Schaefer, 2007). The European Eco-Management and Audit Scheme (EMAS) was then launched in 1995 (Tinsley and Pillai, 2006), while the most commonly referred to international standard for environmental management, ISO 14001, which was based on BS 7750, was created in 1996 (Tinsley and Pillai, 2006). The number of certifications to ISO 14001 has been rising, with 301,647 registrations worldwide in 2013, a significant increase from 13,994 registrations in 1999 (ISO, 2013). In Australia there had been 3339 certifications issued to organisations by the end of 2012 (ISO, 2013). The key elements of an ISO 14001 EMS include: development of an environmental policy; identification of environmental aspects and evaluation of

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