

Title of Submission:

ISO 14001 Research Streams in Operations and Supply Chain Management: an Overview

Type of Submission:

Non-Refereed Research Abstract

Authors:

**Randall A. Napier
Rajat Mishra**

Affiliation:

The University of Texas at Arlington

Address:

**P.O. Box 19437
701 S. West Street, Suite 535
Arlington, TX 76019**

Telephone:

817-706-6613

e-Mail Address:

rnapier@uta.edu

Dean of the Affiliate School:

**Daniel Himarios, PhD
Dean, College of Business**

Track / Best Fit for Submission:

Operations & Supply Chain Management

Corresponding Author:

Randall A. Napier

ISO 14001 Research Streams in Operations and Supply Chain Management: an Overview

Abstract

Sustainability has become an important research topic in Operations and Supply Chain Management (OSCM). The implementation and application of environmental management systems (EMS) is an important subtopic of sustainability, and the International Standards Organization's ISO 14001 framework is the most widely recognized set of EMS standards.

The proposed Conference presentation provides an overview of OSCM research on the ISO 14001 framework, discusses significant ISO 14001-related research in other fields, and identifies promising areas for future research in the ISO 14001 area that will extend the body of knowledge on sustainability.

The proposed presentation summarizes the literature review section of an in-process research study. The full study will examine the integration of ISO 14001-compliant environmental management processes with other operational processes, and the operational performance effects of such integration, in U.S. companies. The presentation will be followed by a question and answer session devoted to future ISO 14001 and sustainability research.

1. Introduction: the Who, What, and How of ISO 14001

The ISO 14000 standards are administered by the International Organization for Standardization (ISO), which is the world's largest publisher of international standards. ISO is a network that comprises the national standards institutes of 160 countries, with a central office in Geneva, Switzerland that oversees and administers the system. The background information provided here is drawn from the ISO's own web site.

ISO is a non-governmental organization, but its affiliates include governmental units and partnerships of private-sector industry associations. Because "International Organization for Standardization" would have different acronyms in different languages, its founders chose ISO, derived from the Greek *isos* meaning "equal," as the short form of the organization's name in all countries and languages.

The ISO 14000 standards address various aspects of environmental management. The primary standards, ISO 14001 and ISO 14004, deal with environmental management systems (EMS). ISO 14001 provides specific requirements for an EMS, while ISO 14004 sets out general EMS guidelines.

ISO 14001 assumes that, regardless of the nature of an organization's activity, the requirements of an effective EMS are the same. ISO 14001 does not establish specific levels of environmental performance, but a commitment to compliance with applicable environmental legislation and regulations is required, along with a commitment to continuous improvement.

2. ISO 14001 Research in OSCM: An Overview

The overview of OSCM research on ISO 14001 addresses geographic focus, subtopics covered, and methodologies applied. Specific examples in each area will be presented and discussed.

Geographic focus: adoption of the ISO 14000 standards has proceeded at different rates in different parts of the world. By the end of 2007, about 40% of ISO 14001-certified sites were in the European Union, while only about 3.5% of such sites were in the United States. This disparity is reflected in the divergent country-focus of published research on ISO 14001 in the OSCM literature.

Subtopics covered: major subtopics explored in the OSCM literature include firms' motivations for pursuing ISO 14001 certification, the internal integration of ISO 14001 processes with other operational processes, and the financial and operational performance effects of ISO 14001-certified environmental management systems.

Methodologies applied: papers addressing ISO 14001 in OSCM journals have included survey research, case studies, and archival data studies.

The information presented in this section will be referenced in Section 4, below, to identify existing gaps and future research directions.

3. Significant ISO 14001 Research in Other Fields

Other academic disciplines with significant research devoted to ISO 14001 include strategic management, economics, and environmental management. Following the structure used in Section 2, above, the geographic focus, subtopics covered, and methodologies applied in other fields will be examined. Specific examples in each area will be presented and discussed.

The information presented in this section will be used in Section 4, below to identify useful extensions or complementary topics to be addressed in future OSCM research on ISO 14001 and related topics.

4. Future Research Directions

This section will present a gap analysis that identifies useful directions for future research related to ISO 14001 and broader sustainability issues in OSCM. It will also list specific research questions that could be pursued in future studies.

Examples of research questions that could be included in the presentation follow:

- a. How are risk and risk management addressed in the context of ISO 14K-compliant procedures?
- b. How is sustainability accounting implemented and applied in companies that achieve ISO 14K certification?

- c. To what extent are “triple bottom line” metrics implemented and used in ISO 14001 companies?
- d. What function sponsors/manages/owns ISO 14001 certification and process management in ISO 14001 certified companies?
- e. How can the costs involved in achieving and maintaining ISO 14001 certification be measured and quantified?
- f. How can the benefits of ISO 14001 certification be measured and quantified?

Other research questions identified between the abstract submission and the presentation date will be included.

5. Concluding Remarks

Concluding remarks will recap the presentation, and will look ahead to key elements of the in-progress study.

The presentation will be followed by a question and answer session. Ideally this will generate suggestions for refining the list of future research questions, and will yield useful feedback on the measurement of operational performance effects of ISO 14001 and related EMS initiatives.

References (a partial and indicative list of significant references is presented here)

Boiral, O., 2007. Corporate greening through ISO 14001: a rational myth? *Organization Science* 18(1), 127-146.

Del Brío, J. Á., B. Junquera, 2003. Influence of the perception of the external environmental pressures on obtaining the ISO 14001 standard in Spanish industrial companies. *International Journal of Production Research* 41(2), 337-348.

González-Benito, J., Ó. González-Benito, 2008. Operations management practices linked to the adoption of ISO 14001: an empirical analysis of Spanish manufacturers. *International Journal of Production Economics* 113(1), 60-73.

Heras-Saizarbitoria, I., G. A. Landín, J.-F. Molina-Azorin, 2011. Do drivers matter for the benefits of ISO 14001? *International Journal of Operations & Production Management* 31(2), 192-215.

King, A. A., M. J. Lenox, A. N. N. Terlaak, 2005. The strategic use of decentralized institutions: exploring certification with the ISO 14001 management standard. *Academy of Management Journal* 48(6); 1091-1106.

Vastag, G., S. A. Melnyk, 2002. Certifying environmental management systems by the ISO 14001 standards. *International Journal of Production Research* 40(18), 4743-4763.