Journal of Cleaner Production 48 (2013) 85–92

Contents lists available at SciVerse ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Creating synergies between SMEs and universities for ISO 14001 certification

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ARTICLE INFO

Article history:
Received 14 June 2011
Received in revised form
8 October 2012
Accepted 5 November 2012
Available online 24 November 2012

Keywords:
Learning networks
SMEs
ISO 14001 certification

ABSTRACT

Despite the importance of working with environmental issues, many SMEs have little knowledge of, or even interest in, these issues. When they engage with such issues, they generally have difficulty fully integrating them into their business activities. This case study takes an action research approach in describing how nine SMEs co-operated with a university team in a learning network to implement an Environmental Management System (EMS) with the aim of achieving ISO 14001 certification. The theoretical contribution of the article is its construction of a framework for understanding the outcomes in a learning network in which a university team works with SMEs. The practical contribution is that SMEs may use this empirically-supported learning network to overcome many EMS implementation barriers (e.g., lack of resources, isolation, and low self-confidence).

1. Introduction

Strategic management of companies involves dealing with environmental issues that may have a powerful effect on their products and processes (Partidário and Vergragt, 2002). Large, industrial companies have developed innovative and proactive environmental strategies for dealing with these issues and even for gaining competitive advantage over their competitors. Some companies, in taking steps beyond mere compliance with environmental laws and regulations, have also organized their activities so as to avert possible environmental threats (Partidário and Vergragt, 2000). However, according to Porter and van der Linde (1995), companies spend too many of their environmental resources on fighting regulations and laws and not enough on finding innovative solutions.

SMEs also need to take measures to protect the environment (although implementation of an Environmental Management System (EMS) is difficult and complicated). Hillary (1995, 2004) observed that SMEs were responsible for up to 70% of all industrial pollution during the 1990s. According to Burke and Gaughran (2007) and Vettori (2007), this is still the case. Increasingly, legislators, trade associations, and customers are exerting pressure on SMEs to consider the environmental consequences of their activities.

In addition, because of demands by insurers, financial institutions, and shareholders (Friedman et al., 2000), many SMEs have begun to address the commercial implications of cost-efficient management of waste and recycling solutions. Such firms are interested in protecting themselves against future costs of waste disposal and transport and in taking advantage of market opportunities for environmental goods and services. Kirkpatrick and Pouliot (1996) argue that companies that adopt an EMS enjoy an economic benefit. A report by the Swedish, government-owned organization for business development (SKOP, 2008) states that SMEs with an EMS (in accordance with ISO 14001) have a higher growth rate than firms not working actively with environmental issues. Porter and van der Linde (1995) state that several researchers who study environmental management claim that the adoption of environmental management practices leads to increased profits as well as to improved environmental performance.

Despite the benefits claimed for working with environmental issues, most SMEs have little knowledge of, or even interest in, these issues (Hillary, 2000). When they engage with such issues, they generally have difficulty fully integrating them into their business activities (Leistner, 1999). A proposal is that SMEs use the ISO 14000 series as a framework for developing systems for managing environmental issues (Massoud et al., 2010). Cramer and Stevels (1997) think these international standards will lead to environmental improvements in both processes and products. However, as O'Laoire (1994) concludes, SMEs are not sure how to use an EMS as a competitive tool that increases profitability and that facilitates the adoption of environmental innovations.

Although it is not entirely clear why SMEs have been less successful than larger companies in the integration of

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http://dx.doi.org/10.1016/j.jclepro.2012.11.014

environmental solutions, various explanations have been offered. These explanations refer to prohibitive costs and insufficient resources (Nielsen and Thomsen, 2010). A third explanation refers to the difficulty SMEs have in exploiting the labour-intensive processes needed to develop the technological know-how. Teece (1986) claims that the environmental activities undertaken individually by SMEs often require knowledge and resources that a single organization lacks. However, according to Lozano (2012a), collaboration can help build stronger and more sustainability oriented organizations. He writes: "This is especially the case where real problems can be turned into learning laboratories where new theories, methodologies and tools are developed that challenge the status quo in order to solve today's problems with tomorrow's ideas" (Lozano, 2012a, p. 556).

The primary purpose of this paper is to provide a better understanding of the learning outcomes when SMEs co-operate in networks that support the implementation of environmental measures. A secondary purpose is to develop a framework that SMEs can use to initiate the implementation of an EMS in cooperation with a university team in a learning network.

The article is structured in five sections. Following this introductory section, which identifies the research issue and presents the purpose of the study, the second section presents a description of the research participants and of our research methodology. In the third section we discuss the theoretical framework for the study. In the fourth section we present the developed framework and discuss the results. In the fifth section we present our conclusions and offer suggestions for future research.

2. Research methodology

We took an action research (AR) approach for this study that aims at solving practical problems in real life situations. The AR approach seems the best method for acquiring deep knowledge on the complex situations and issues that arise in the organization and use of an EMS learning network. Our research procedure was democratic – we, the researchers, worked with the SMEs' management teams in the joint learning process. This close working relationship, which created the kind of trust between researchers and managers that Zobel and Burman (2004) discuss, facilitated our access to internal company documents.

In addition to searching for solutions to practical problems, an AR approach allows the researcher to develop new knowledge/theories (Levin and Greenwood, 1997). In the learning network, we used the plurality of experiences as a way to enrich the development process. However, there is a drawback with taking an AR approach: the researcher may become "stuck" in the action and then be unable to reflect on the process objectively. This is a complaint that Argyris et al. (1985) make. Saunders et al. (2009, p. 160) warn against another important potential problem with taking the AR approach. They write that the researcher should consider certain constraints and ethical issues: "The research design should not subject the research population to embarrassment, harm or other material disadvantage."

Therefore, it is important to find methodological ways to overcome these possible problems. Our solution was to use a case study. A case study design is appropriate for our investigation because it produces context-dependent knowledge as well as provides a rich understanding of a real life context (Yin, 1994). Furthermore, by working closely with the SMEs' managers, we established a trusting relationship that helped us avoid ethical problems.

Flyvbjerg's (2006) discussion on the use of case studies in research captures the ontological challenges and the complexity in presenting such research objectively. Had we chosen a research design more removed from the object (i.e., the subject) of study, with less room for feedback, we would have risked engaging in "a stultified learning process" (Flyvbjerg, 2006, p. 223). However, although our research design better equipped us to reflect on the process, we recognize that by taking an AR approach we were not fully involved (see Argyris et al., 1985, for this criticism of AR). We conclude, however, that the proximity to the "real life situations and its multiple wealth of details" (Flyvbjerg, 2006, p. 223) outweighed the disadvantages of using the AR approach.

The presence of at least two researchers during the entire research process, which permitted continuous dialogue with managers, supported the reliability (i.e., its inter-subjectivity) of this qualitative study. In addition, in our use of multiple data sources (e.g., observations, interviews, and literature review), we followed Yin's (1994) recommendations for establishing as much internal as well as the external validity as possible. As a result, we obtained many trustworthy opinions in most instances.

In summary, our use of an AR approach and of a case study research design gave us access to objective and reliable data. Moreover, our research process, in the joint development work between the nine SMEs and the university, had a positive effect on the company managers and their firms. Sustainable Higher Education (SHE) is a very important issue for many universities around the world, even in third world countries (Saadatian et al., 2009), and that will be even more important in the future. However, we agree with Zobel and Burman (2004, p. 16), who write: "It is not possible to achieve full reliability, since the research process is largely influenced by the author's frame of mind."

2.1. The network background

The EMS project emerged from the previous co-operation with the SMEs (see Tell, 2001). The nine SMEs who participated in the project were committed to developing their existing network as a forum to facilitate the implementation of an EMS in accordance with ISO 14001. In the autumn of 1998, several managers raised the idea of an ISO 14001 certification project in the network. The impetus for the project was the fact that various customers had asked the SMEs about their environmental systems.

The nine firms in the network are from different industries and are not competitors. We identify the firms by letters A through I (see Table 1).

These nine firms are "typical" of small and medium sized firms (firms that employ between 10 and 250 people) that operate in manufacturing industries traditionally found in Sweden. A Swedish opinion polling organization (SKOP, 2008) reported that as of 2008, half of the SMEs in Sweden do not work with an EMS. The nine firms in this study thus differ markedly from the larger population of Swedish SMEs because they had implemented a system for managing environmental issues several years prior to the beginning of this research. At the time of this research, four of the nine firms had achieved ISO 14001 certification, and the other five firms were preparing for certification.

2.2. Data collection

Our collection of qualitative data began in 1999 and ended in 2000. We collected quantitative data yearly (1999–2004). We used a semi-structured approach in our interviews in order to achieve open conversations. We used an interview guide for initial questions, main areas of interest, and follow-up questions. The main themes in the interviews were the following: the current EMS work, the driving forces behind the work and barriers to it, future environmental work, and the importance of the network as a support system. We also made participant observations of 14 network meetings (in which all firms participated) during 18