

Article

# The Adoption of Environmental Management Systems Based on ISO 14001, EMAS, and Alternative Models for SMEs: A Qualitative Empirical Study

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**Abstract:** The adoption of environmental management systems (EMSs) based on standards such as ISO 14001 and EMAS (Eco-Management and Audit Scheme) has become very popular and the academic literature has studied the adoption of these standards extensively. However, the variety of ways in which EMSs are adopted and internalized has not been fully analyzed and the few studies that have analyzed this issue have focused on the analysis of the outcomes of just one of the main reference standards for EMSs, namely, ISO 14001. Considering this shortcoming in the literature, this work contributes to the empirical literature on the analysis of the adoption of standards for EMS by analyzing the case of the three main reference models used by organizations: ISO 14001, EMAS, and the alternative models for EMSs. The present work summarizes conclusions of interest for the different stakeholders involved in the adoption of EMSs. Implications for scholars and other stakeholders are discussed. It is recommended that further studies should focus on the analysis of the real effects of the adoption of the main standards for EMSs.

**Keywords:** environmental management systems; ISO 14001; EMAS; Ekoscan

## 1. Introduction

In the last two decades, more and more companies have implemented environmental management systems (EMSs) in their organizations [1,2]. Two reference models have been used worldwide in the adoption of EMSs: the ISO 14001 standard and the Eco-Management and Audit Scheme regulation (EMAS). The latter defines an EMS as the part of the overall management system that includes the organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining environmental policy. Boiral and Sala [3] consider that an EMS offers an organization a highly structured framework for the development of its environmental policy. For Conde et al. [4], an EMS aims to incorporate the environment into management, serving as a guide for the company to comply with current regulations and to implement its environmental policy in accordance with a process of continuous improvement.

From the practitioner's point of view, Cascio et al. [5] point out that the adoption of a systemic approach to the company's treatment of the environment implies recognizing that the way in which an organization aims to protect its environment is as important as the organization's goals. In fact, for these authors, the way in which organizations attempt to comply with environmental requirements is the greatest determinant of their likelihood of success. From this rather optimistic perspective, in which the environmental challenge is integral to the company, Cascio et al. [5] argue that the implementation

of an EMS should produce gradual change in the culture of the organization. They consider this expectation reasonable because, in their opinion, EMSs require education, training, and concern on the part of employees, in order to understand and respond to the environmental consequences of their work. Cascio et al. [5] point out that this process must promote a culture of environmental consciousness in the organization and, hopefully, in the private lives of individuals, promoting a more enlightened, perceptive, and sensitive organizational culture [5].

Jiang and Bansal [6] emphasized that an EMS is expected to introduce environmental responsibility into the company by requiring the establishment of an appropriate organizational structure. At the international level, as Heras and Arana [7] stated, three main options have been used to implement and certify EMSs:

- The international standard ISO 14001, the most widely used standard in the world, which specifies the requirements for the certification, registration, and self-assessment of an EMS;
- The EMAS regulation, inspired by the preventive policy set out in the European Union's Fifth Environmental Action Programme, which allows organizations to voluntarily join a community eco-management and audit scheme;
- Alternative models to these two predominant references, such as alternative models for EMS in small- and medium-sized enterprises (SMEs; see Heras and Arana [7] for more details). These are different models, such as the following: Ecoaction 21, Eco-lighthouse, Ecomappin, Ecoprofit, and Ekoscan.

All these references establish a systematic framework for incorporating environmental aspects into the day-to-day running of any type of company. The literature has referred to these frames of reference as "meta-standards" [8], and they are usually certified by a third party using a very similar methodology.

Yin and Schmeidler [9] and Heras-Saizarbitoria and Boiral [8] stated that the literature describes the impact of EMS adoption in general terms as homogeneous, accurate, and predictable, since the standardized nature of the reference models such as ISO 14001 and EMAS seems to generate an image of homogeneity and conformity. This conclusion is usually supported by an institutionalist perspective, which suggests that external pressure on organizations promotes institutional isomorphism, as argued by DiMaggio and Powell [10] and Meyer and Rowan [11]. However, in the opinion of Heras-Saizarbitoria and Boiral [8], some empirical studies find great variability in the way these tools for environmental management are implemented, leading to equally diverse environmental results. But, due to the tendency to publish mostly quantitative empirical papers, this phenomenon of the diversity in the adoption of EMS standards (i.e., different level of internalization) has not been sufficiently studied in the academic literature, as Heras-Saizarbitoria and Boiral [8] and Boiral et al. [1] stressed in their reviews. As far as we know, no previous empirical study has analyzed the adoption of all three main types of EMSs identified by Heras and Arana [7], i.e., ISO 14001, EMAS, and some alternative model for SMEs.

Considering this lack in the literature, the present work contributes to the empirical literature on the adoption of EMS. To this end, it analyzes, using a qualitative, case study methodology, the diversity in the adoption of the three major reference models, ISO 14001, EMAS, and an alternative model for EMS in SMEs.

The remainder of this article is structured as follows. The second section summarizes a literature review related to the adoption of EMSs. The third section presents the methods used in the field work. The fourth section summarizes the main findings of the study. The article concludes with a summary of the main discussion and conclusions.

## 2. Literature Review

In the scholarly literature there are many works that have analyzed the rationale behind the adoption of metas-standard based EMSs—for a review, see the recent review by Boiral et al. [1]. In those

works, the extensively cited work by Bansal and Roth [12] has been used to shed light on this issue. This work underlined three main sources of motivations to adopt corporate environmental management practices: competitiveness, legitimation, and ecological responsibility. Similarly, according to institutionalist theory, the diversity in the adoption of EMSs can result from the different norms, values, and cultures of companies. For example, Hoffman [13] considers that the response of organizations depends much more on external institutional pressure than on the formal structure and culture within. On the other hand, the resource-based view proposes that this variability derives from the internal capacities and resources of the organization. Delmas and Toffel [14] consider that heterogeneity is a response to the pressures from the environment to adopt an EMS, acting on the internal organizational structure.

Desreumaux and Hafsi [15] argued that, through isomorphism, the world becomes more and more homogeneous. These authors pointed out that technology, training, and large national and international institutions have reduced our understanding of the world to its dominant logics. This dichotomy between the forces of isomorphism and those of differentiation is a fertile engine for the competitive dynamics of Desreumaux and Hafsi [15]. Yin and Schmeidler [9] stated that although companies are subject to similar external pressures, they can implement identical tools differently for strategic reasons. Thus, these authors concluded that growing organizational isomorphism is an external phenomenon, although the implementation of an EMS according to an international standard, from an internal point of view, does not produce a homogeneous or precise result.

With regard to ISO 14001 in particular, Boiral [16] found that, beyond formal similarities, the appropriation of the standard and its translation into operational devices by companies is very diverse. Similarly, Christmann and Taylor [17] suggested that the quality of implementation of a standard varies between the following extremes [17] (p. 863):

- Symbolic implementation, when companies fail to employ practices prescribed by a certified standard in day-to-day operations; and
- Substantive implantation, when companies consistently employ those practices in their daily activity.

These authors suggested that organizations choose a level of implementation that is commensurate with their perception of the cost–benefit of implementation. So, they will only invest in substantive implementation if they perceive that the benefits arising will exceed the costs incurred in doing so.

A few studies conducted in different geographical areas and time periods (see a review in Boiral et al. [1]) showed that firms may adopt policies or codes for symbolic purposes, without necessarily applying them in practice, so that policy actions can be very different from actual implementation. Boiral [18] suggested three possible implementation categories:

- The ceremonial integrators, who opt for a symbolic implantation, and minimize the changes in real activities;
- The enthusiasts, convinced of its usefulness, and implement it rigorously; and
- The dissidents, who consider the implementation an erroneous decision, and so resist it.

This result is in accordance with the theoretical observations of Meyer and Rowan [11] regarding the dissociation between the structural elements of an organization and daily activities, as a possible response to the conflict between guidelines oriented to internal effectiveness and ceremonial conformity with the myths of the environment. Organizations that decide to proceed with symbolic implementations do not use the certified EMS in their daily routines and make last-minute efforts to prepare for the pre-certification audit [19]. For them, the standard serves a symbolic purpose, and certification satisfies the demands of their customers and reinforces their legitimacy, without incurring the high costs of a substantive implementation of the requirements of the standard [20].

Since EMSs must be certified every few years and certification requires annual follow-up audits, third party control through system certification should reduce the risk of dissociation between actual

activities and the systems in place. The standards that are taken as a reference for the implementation of EMSs should be a good indicator of real implementation of appropriate practices. In the view of several authors, the role of certification is central to the function of the EMS standards [21,22]. However, doubts about the adequacy of the qualification and independence of auditors, as well as the nature of periodic audits, call into question the effectiveness of certifications by third parties, and their real impact on the quality of the implementation, which calls into question the effectiveness of the standards as a mechanism of governance (e.g., the case of ISO 14001 in Heras-Saizarbitoria et al. [19]).

However, to the best of our knowledge, these issues have not been analyzed in detail in the extensive literature related to the adoption and dissemination of standard-based EMSs. Heras-Saizarbitoria and Boiral [8] and Boiral et al. [1] reported that very few articles have analyzed the diversity in the adoption of EMSs. One exception is the work of Boiral [23] on ISO 14001 and based on qualitative methodology, a scholarly work that is widely cited in the specialized literature.

From the information gathered in the interviews conducted, Boiral [23] identified four different strategies for integrating the EMS:

- Ritual integration was the most frequent among the cases studied. It consists of a way of promoting the corporate image of the organization in accordance with the pressures from the environment, but without fundamentally modifying everyday practices. Managers explain the lack of real involvement with environmental management among employees by reference to the individual awareness of each of the workers;
- Decoupled integration, as also found by Meyer and Rowan [11], involves inconsistency between an organization's search for efficiency and its search for legitimacy. The distance between prescription and practice is even greater, if possible, than in ritual implantation. The lack of involvement affects not only the workers but even those responsible for the system itself. This may be due to a lack of commitment or political will on the part of senior management, or scarcity of resources. Environmental issues are not considered a priority for the company;
- Mobilized integration is a response to an institutional and organizational need that encourages the use of the standard as a genuine tool in the service of improvement. Even if a lack of internal motivation is widespread, it is much less pronounced than in the previous cases. Implementation generates better results and greater commitment on the part of the workers. The certification process helps integration between system and everyday routines and reinforces and structures pre-existing practices. There is no evidence of conflict between external pressure and internal motivation, and this strengthens the company's commitment;
- Proactive integration is the least common form of integration, identified in only one case, of an environmental manager who had promoted the adoption of the ISO 14001 standard by the company. The implementation was directed, for internal reasons, to the codification of their own good practices. Certification was merely a new step in the process of continuous improvement, a process that was strengthened by the adoption and subsequent certification of the EMS.

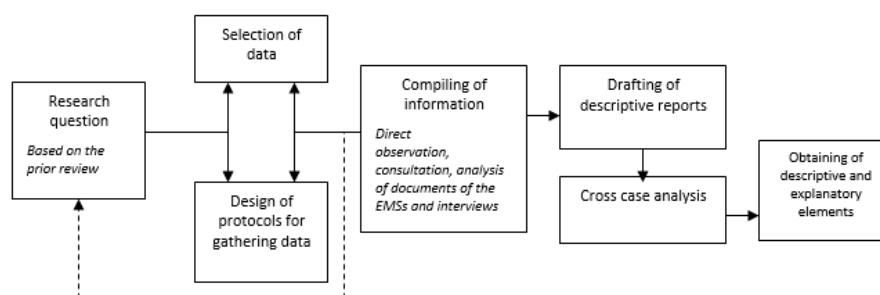
Following the work by Boiral [23], other more recent works have focused in a more or less direct way on the study of the diverse adoption of standard-based EMSs [24–35]. In general terms these works have highlighted the important influence of the internal sources of motivation for the better internalization of the practices associated with the EMS in the certified organizations. Nevertheless, these works were not conducted in the in-depth, qualitative, and exploratory way that Boiral [23] adopted in his extensively cited article. Boiral's work [23] was selected as the guide for the present article. It was conducted more than a decade ago, when ISO 9001 and ISO 14001 standards were new, and very different from the rather decadent form that they have now evolved into [29]. Furthermore, as stated above, it only examined ISO 14001 and not the other two main references for EMSs. For all these reasons, in the present work an exploratory qualitative study is carried out in a different geographical and temporal context, and focuses on the implementation of EMSs based

on ISO 14001, EMAS, and Ekoscan, one of the alternative models for EMSs in SMEs that has been important in the EU (for a detailed analysis of this model, see Heras and Arana [7]).

### 3. Method

A qualitative empirical research was designed, based on case studies. This methodology was selected for its suitability for analyzing the complex process of EMS adoption and its impact on organizational performance [9,36,37].

The study was carried out in Spain, a country with one of the highest rates of adoption of EMSs [38]. The fieldwork took place in four SMESs over a long period of time. It started in 2007 and it was completed in 2018. The interviews provided a long-term perspective on the adoption of EMSs in the companies analyzed. This is a key issue in understanding the real effects of this type of management practice, as has been noted in the literature [21]. The fieldwork had three main components (Figure 1). First, in-depth semi-structured interviews were conducted with managers, middle managers, and employees of the organizations, using a script flexibly, in a way that was consistent with the inductive method of analyzing information. A total of 27 interviews were conducted with a protocol based on the literature [9] and considering also the guiding work by Boiral [23] and other similar works focused on the adoption of quality management systems [39–41]. The protocol included a semi-structured interview guide (see Appendix A) together with a detailed description of the steps to be taken in the fieldwork, as suggested in the methodological literature e.g., [21,38]. Second, a continuous series of visits to the organizations under study was carried out and non-participant observation was used to gather direct information related to the internalization of the EMSs in the daily activity of the companies. For example, the use of a set of documents associated with the EMSs (e.g., working instructions) by employees of the case organizations were analyzed. Third, the organizations analyzed made available to the research, for in-depth analysis, a very broad set of internal documents related to the EMSs, such as internal procedures and working instructions. Following Yin [9], a transversal synthesis of cases was constructed to analyze the evidence obtained from the case studies. The sampling process to select the cases followed a theoretical sampling approach, as suggested in the literature [9]. The fieldwork was confined to these eight case companies that adopted EMSs because, although the number of cases could have been increased, as the fieldwork progressed it was found that progressively fewer ideas were being gathered, producing theoretical saturation [9,41]. As suggested in the scholarly literature, the validity of factors was supported by the use of different sources of information, while the internal validity was assured by the search for common patterns [17,41]. As suggested in the scholarly theory of case study methodology, external validity was based on the theoretical scheme proposed from the literature review and the use of replication logic in the analyzed case studies [9].



**Figure 1.** Methodological scheme for the research (summary). Source: Elaborated by authors.

For each organization, the head of the environmental department or service was interviewed, as well as a head of an operational area, who would be closer to the daily routines and activities of the company. This was done in order to gather a heterogeneous perspective on the adoption of the EMS.

The interviews were conducted using a semi-structured guide. Interviews ranged in length from 50 to 90 minutes. Interviewees were selected from those with the best knowledge of the organizations' environmental initiatives and the reasons behind them. Information that would allow the identification of companies and individuals was not reported.

Table 1 contains the main characteristics of the four cases analyzed. Only information that is essential to understanding the case studies was reported. Information that would make the companies identifiable was omitted.

**Table 1.** Profile of the case organizations.

Cases	Employees	Sector of Activity	Year of First Certification	Reference for EMS	N° of Interviews
Alpha	54	Chemical	2004	Ekoscan	6
Beta	27	Manufacturing	2001	ISO 14001	7
Gamma	14	Food industry	2005	ISO 14001	6
Delta	31	Public administration	2008	Ekoscan/ISO 14001/EMAS	7

Source: data collected by authors.

The following is a summary and cross-sectional synthesis of the cases. The following five sections report the four cases involved in our qualitative study.

## 4. Results

### 4.1. Motivation for the Adoption of the EMS

#### 4.1.1. Compliance with Applicable Legislation, and Anticipation of Future Regulatory Developments

In the four cases examined, even though it was recognized that the implementation of an EMS helps compliance with the applicable regulations (since the adoption of any of the standards leads the organization to incorporate a process of periodic review of the organization's requirements), this motivation appears to be unimportant. In all cases it was emphasized that the organization scrupulously complied with environmental regulations prior to the implementation of its EMS, although the interviews sometimes produced contradictions in this regard.

#### 4.1.2. Customer Pressure

With the exception of the administrative organization, which is a special case because it does not really face market conditions, three cases considered certification a way of meeting customer demand, although certification was rarely a formal condition of their clients, since all their competitors have an EMS certified according to a widely recognized international standard.

#### 4.1.3. Pressure from Stakeholders and Competitors

One organization emphasized that, because they belong to a multinational group, that was the key motivational for an externally certifiable EMS. None of the other cases said they were responding to pressure from their environment, even a secondary motivation. There were some anecdotes of stakeholder pressure.

#### 4.1.4. Economic Results and Competitive Advantage

In no case was improvement of economic results perceived to be an essential motivation. In all cases it was recognized that, at the beginning of the implementation process, the starting point was the idea that an adequate EMS would generate savings by reducing the consumption of the different inputs, and by the lower cost of managing waste, especially hazardous waste.

#### 4.1.5. Commitment to the Natural Environment and Social Responsibility

Only in the case of manufacturing sector was environmental concern cited as one of the main reasons for its action. In other cases, this source of motivation was not mentioned.

#### 4.1.6. Search for Recognition and Legitimacy

In the case of the public administration organization, the search for credibility with citizens was the main reason for implementing and certifying their EMS. In the other three cases, it was considered, at the time of deciding to implement an EMS, that having a certified system would reinforce their public image and boost the legitimacy of the organization externally.

#### 4.1.7. The Importance of the Long Term

In all cases, the growing importance of the environmental issue was evident, both within the strict scope of business and in general. Implementation and certification of their EMS was a strategic bet for the future for all the organizations analyzed (Table 2).

**Table 2.** Motivation for adoption of the environmental management systems (EMS).

Alpha	Beta
<ul style="list-style-type: none"> <li>• Opportunity for environmental improvement derived from moving to a new plant;</li> <li>• Ensuring legislative compliance;</li> <li>• Demands from customers;</li> <li>• Betting on the future.</li> </ul>	<ul style="list-style-type: none"> <li>• De facto requirement by customers;</li> <li>• Ensuring legislative compliance;</li> <li>• Improving corporate image;</li> <li>• A bet for the future.</li> </ul>
Gamma	Delta
<ul style="list-style-type: none"> <li>• Decision of the multinational group to which they belong;</li> <li>• Demands by customers;</li> <li>• Betting on the future.</li> </ul>	<ul style="list-style-type: none"> <li>• Search for a credible signal to citizens;</li> <li>• Search for legitimacy, internal and external.</li> </ul>

Source: prepared by the authors based on in-depth interviews.

## 4.2. EMS Implementation and Certification Process

### 4.2.1. External Consultants and the Adoption

Although at the start of the EMS implementation process all the organizations studied had the services of a consultant, only two of them considered that this process was supported fundamentally by the consultancy service. In the other two cases their own staff were responsible for the implementation, turning to the external consultancy exclusively for consultations or specific services (for example, internal audits and updating of the legal requirements of the system).

### 4.2.2. Public Aid for the Adoption

In general, they did not receive public aid, although one of them benefited from numerous initiatives and programs deriving from being a pioneering company in the Ekoscan programme. That was promoted by the regional government, even before the reference standard was set.

### 4.2.3. Formation

In all the cases observed, training about environmental aspects was limited to those directly responsible for specific issues directly related to their professional performance in the company.

They admitted that, in all cases, the operators, whose participation was crucial to the achievement of the objectives, were only provided with general information.

#### 4.2.4. Participation

In the opinion of the interviewees, in all four organizations, staff awareness was essential for the success of their environmental policy, since it sustains the participation and involvement of workers, whose activity is closely linked to the environmental impact of their organization (although little was done to encourage environmental sensitivity).

One of the managers interviewed stated that, as managers are the engine of change and the involvement of staff depends to a large extent on their age, the renewal of management teams is essential for achievement in this field.

In two of the cases analyzed, it was highlighted that the implementation and maintenance of the EMS was carried out with a special support from the employees most sensitive to the environmental challenge.

#### 4.2.5. Structural Changes Introduced

In three of the four cases, the implementation of an EMS meant a profound structural change in the environmental area of their organizations, either through the creation of a new department, in two cases, or through the incorporation of specialized technicians in the organizations.

In one case, routines have only changed slightly, and there was a clear lack of connection between the work routines established in the EMS and the day-to-day running of the company. These comments were not collected in the early interviews, but only once trust had been placed established. The fact was also reflected in the documents associated with the EMS, which changed very little over the years (Table 3).

**Table 3.** EMS implementation and certification process.

Alpha	Beta
<ul style="list-style-type: none"> <li>• External consultancy services during implementation and from certification on an ad hoc basis (internal audits and updating of legal requirements);</li> <li>• Benefits derived from the pioneering participation in the Ekoscan programme;</li> <li>• Creation of a new department.</li> </ul>	<ul style="list-style-type: none"> <li>• Specific environmental training for managers;</li> <li>• Young managers as a driving force for change;</li> <li>• Incorporation of an environmental technician;</li> <li>• Doubts about the relevance of the structural changes resulting from implementation.</li> </ul>
Gamma	Delta
<ul style="list-style-type: none"> <li>• External consulting services only during implementation;</li> <li>• Specific environmental training for managers;</li> <li>• Participation built on people's awareness but without related actions, and taking advantage of environmental enthusiasts.</li> </ul>	<ul style="list-style-type: none"> <li>• Consulting services aimed at passing the external certification;</li> <li>• Specific environmental training for managers;</li> <li>• Focused participation on the most conscientious people;</li> <li>• Structural reorganization of the department but superficial transformation of tasks and routines.</li> </ul>

Source: prepared by the authors based on in-depth interviews.



### 4.3. Results of the Adoption of the EMS

#### 4.3.1. What Have Been the Main Positive Results Following Implementation?

In all four cases the main positive result of implementing an EMS was the reinforcement of order and control (Table 4). There was improvement in the environmental aspects of some of their routines, and this led them to reduce the use of some inputs, especially energy, and to better separation of waste, especially hazardous waste, which reduced its volume and, consequently, the cost of its management.

**Table 4.** Results of EMS adoption.

Alpha	Beta
<ul style="list-style-type: none"> <li>• Reinforcement of order and control;</li> <li>• Compliance with legislation leads to having data sets that improve self-knowledge;</li> <li>• The audit involves an exorbitant cost;</li> <li>• No significant investments when the system is implemented during the move to a new plant.</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforcement of order and control;</li> <li>• Reduction of energy consumption and the cost of managing hazardous resources, mainly;</li> <li>• Significant investments when implementing the system to adapt the facilities to the requirements of environmental regulations.</li> </ul>
Gamma	Delta
<ul style="list-style-type: none"> <li>• Reinforcement of order and control;</li> <li>• Reduction of waste generated and the cost of its management;</li> <li>• Great dedication to documenting the EMS, especially during implementation;</li> <li>• Huge cost of the audit;</li> <li>• Significant investments in implementing the system and to adapt the facilities to the requirements of environmental regulations.</li> </ul>	<ul style="list-style-type: none"> <li>• Internal legitimacy thanks to the auditing process linked to the certification, and to the certification understood as a signal towards the outside;</li> <li>• Great dedication to documenting the EMS, especially during implementation;</li> <li>• The audit does not bring too much to the day to day.</li> </ul>

Source: prepared by the authors based on in-depth interviews.

In one case, compliance with legal requirements provided them with numerous and detailed sets of data that reinforced their knowledge of the organization, especially with regard to waste.

For the administrative organization one of the most obvious benefits was that the audits and certification of the system strengthened their position and legitimized them in the municipality.

#### 4.3.2. What Have Been the Main Negative Results Following Implementation?

Data collection and record-keeping required for legislative compliance were resource-intensive in all cases. At the beginning of the process the cost of the documentation was high, but once the new tasks were incorporated into the routines of the different posts, this cost reduced. The strengthening of bureaucracy was obvious, as a consequence of the implementation and certification of the EMS, although even without such systems, this problem of growing documentation could not be avoided. In three cases, the highest cost of maintaining a mature EMS was related to the audit process, which they considered to be exorbitant.

#### 4.3.3. Has Significant Investment Been Made to Reduce the Company's Environmental Impact?

In three cases, significant investments were needed to transform the facilities and adapt them to legal requirements.

#### 4.3.4. The Possible Non-Quantifiable Benefits: Public Awareness of the Environment

No non-quantifiable benefits were highlighted in any of the interviews.

#### 4.4. Assessment of the Impact on the Day-to-day Running of the Company

##### 4.4.1. Changes in Routines

In two cases the reconsideration of numerous objectives linked to the control of consumption and waste management led them to radically modify their tasks and routines permanently (Table 5). However, one of the interviewees in one of these organizations doubted the veracity of this statement and indicated that the process of implementation of the EMS went unnoticed, so it could hardly lead to profound changes in work routines. Following the typology established by Boiral [23], it could be said that in this later case most of the employees could be included in the group of the ‘ceremonial integrators’. These employees understood the EMS-related work as if it were ‘more administrative work’. That is, as a ‘maintenance task’ of the EMS. On the contrary, in the two cases where the adoption of the EMS produced substantive changes, the profile of an important part of the employees—especially of the employees who were in charge of the leadership of the adoption of the EMS was of enthusiasts—convinced of the usefulness of the EMS [23]. In that case, the employees internalized the day-to-day guidelines and routines established in the EMS. For example, it was common for these employees to refer to numerical codes of procedures or work instructions when discussing possible day-to-day improvements in specific processes. Similarly, it was observed that in their workplaces there were information boards and similar elements related to specific procedures and instructions of the EMS that were used on a day-to-day basis.

**Table 5.** Day-to-day impact assessment.

Alpha	Beta
<ul style="list-style-type: none"> <li>• Fundamental, coherence in the goals defined of management;</li> <li>• The acceptance of the EMS is facilitated by the pre-existence of environmental sensitivity of the workers and the culture of quality in the company;</li> <li>• The relevance of the gradual introduction of change is underlined.</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental, the role of management, the driving force of the process;</li> <li>• Very important that the EMS is seen as relevant to workers;</li> <li>• The relevance of the gradual introduction of change is underlined.</li> </ul>
Gamma	Delta
<ul style="list-style-type: none"> <li>• Fundamental aspect, perseverance in the path of environmental improvement undertaken by management;</li> <li>• The adoption of the system is valued positively for strategic reasons, despite its cost.</li> </ul>	<ul style="list-style-type: none"> <li>• One of the key obstacles encountered has been the disparity of views among policy-makers;</li> <li>• Cultural change in the department, but not in the organization.</li> </ul>

Source: prepared by the authors based on in-depth interviews.

##### 4.4.2. What were the Most Important Aspects of the Process?

In the three privately owned organizations, an essential factor for the success of the environmental actions undertaken was coherence and perseverance produced because the management recognized the importance of the project.

In the remaining organization, the technical manager believed that the conflicting criteria, attitudes, and sensitivities among politicians has produced problems and stumbling blocks.

#### 4.4.3. Has the Implementation of the EMS Meant a Change of Environmental Culture?

In two cases, the implementation of the EMS had the advantage of the previous sensitivity of the workers towards environmental issues. The EMS reinforced the environmental culture of the workers in relation to waste management, for example.

#### 4.4.4. Has Implementation of the EMS Produced Radical or Continuous Changes in Ways of Working?

All the interviewees agreed on the importance of slow change, of moving serenely, “little by little”, on the defined path of improvement. This type of continuous improvement was understood very flexibly in the case of the company where work routines in the EMS were disconnected from the day-to-day operation of the organization. In other words, in this case, most of the behaviors/practices could be connect to the ones of the ceremonial integrators in the typology by Boiral [23].

### 4.5. Valuation of External Agents

#### 4.5.1. Consultant

Consultants were generally thought to be professional, qualified, and experienced. In one case it was emphasized that their role was not only important but essential.

#### 4.5.2. Administration

In one case, administration played a central role as environmental disseminator and sensitizer.

In two cases the administrative inspection was very rigorous for new projects but became almost invisible once the projects had received the go-ahead.

In another case administration was a source of problems due to its normative role. It sometimes suffered from having a perspective that fits better in business activity.

In one case green purchasing by the administration will be a driver of the EMS.

#### 4.5.3. Auditor

Auditors were generally valued, especially in one case where the auditor moved to a more consulting than auditing role in recent years. In two cases the auditors’ participation was highlighted in the tension that they introduced to the organization. In one case the auditor was considered knowledgeable, although their experience was confined to the industrial field, a field that was not relevant to the field of activity of the organization in question.

#### 4.5.4. Certifying Body

In general, the persons interviewed had a positive view of the certifying bodies (Table 6).

**Table 6.** Valuation of external agents.

Alpha	Beta
<ul style="list-style-type: none"> <li>• Good opinion of the involvement of consultants, auditors and certification body: qualified and experienced;</li> <li>• It is proposed that the administration reinforces its role as disseminator and promoter of environmental awareness;</li> <li>• The auditors are moving on to act as true consultants.</li> </ul>	<ul style="list-style-type: none"> <li>• Regulation sometimes lacks an adequate perspective to facilitate its fit into business activity;</li> <li>• The auditors provide the necessary stress.</li> </ul>

Table 6. Cont.

Gamma	Delta
<ul style="list-style-type: none"> <li>• Rigorous administrative inspection of new projects, but the pressure then declines;</li> <li>• The environmental improvement rests on a much more demanding administrative inspection work and maintained over time;</li> <li>• The auditors provide the necessary stress.</li> </ul>	<ul style="list-style-type: none"> <li>• The certifiers and auditors have extensive industrial experience but little in the field of services;</li> <li>• The auditors provide the necessary stress;</li> <li>• Green purchase by the administration is a driving element of the EMS.</li> </ul>

Source: prepared by the authors based on in-depth interviews.

#### 4.6. Assessment of the Social Impact of the EMS

##### 4.6.1. What Do you Think about the Implementation of EMS in Companies in General?

In three cases it was stated that without EMS certificates, no company would comply with the legislation in full (Table 7).

Table 7. Assessment of the social impact of the EMS.

Alpha	Beta
<ul style="list-style-type: none"> <li>• Without EMS certificates no company would fully comply with environmental legislation;</li> <li>• Positive, especially with regard to progress in compliance with legislation and waste management;</li> <li>• Useful for companies that adapt systems to their reality;</li> <li>• The role of the administration and that of the EMS are mutually reinforcing;</li> <li>• Socially positive.</li> </ul>	<ul style="list-style-type: none"> <li>• Socially positive, but with an emphasis on its gradualness, overcoming people's aversion to change and companies' resistance to the cost involved;</li> <li>• Globalization drives EMS in other areas of the planet.</li> </ul>
Gamma	Delta
<ul style="list-style-type: none"> <li>• It will only make significant progress in this area if the administration diligently assumes its role of inspecting and sanctioning non-compliance;</li> <li>• Competitive advantage of companies in the medium term;</li> <li>• Socially positive.</li> </ul>	<ul style="list-style-type: none"> <li>• Without EMS certificates no company would fully comply with environmental legislation;</li> <li>• Competitive advantage in the medium term;</li> <li>• Socially positive;</li> <li>• Doubts about the efficiency of the EMS in reducing the environmental impact of human activity.</li> </ul>

Source: prepared by the authors based on in-depth interviews.

In one case it was stated that significant progress can only be made in this area if the administration assumes responsibility for inspection and sanctioning non-compliance.

In two cases, it was emphasized that the EMS has produced competitive advantage in the medium term.

##### 4.6.2. Positive/Negative Results from the Implementation of EMSs for the Company

In general, the managers had a very positive opinion of the implementation and certification of EMSs, especially in relation to compliance with legislation and waste management.

In one case it was pointed out that an EMS is only useful for companies that make an effort to adapt them to their circumstances and not the other way around.

#### 4.6.3. Outcomes for the Society as a Whole

In general, interviewees had a positive opinion, but were less enthusiastic than they were about profit for companies. In one case, the role of the administration was highly emphasized, with the EMS seen to be mutually reinforcing in this area. In another case, the importance of gradual environmental change was highly valued for two reasons; first the EMS stimulates cultural change and then people react to change, and second, serious reduction of environmental impact is costly, and companies will resist rapid change. In another case, doubts were raised about whether or not the EMS itself consumes most of the savings.

### 5. Discussion

The case studies showed that the adoption of EMSs in the organizations has some important effects. The implementation of an EMS helps compliance with the applicable regulations, but this motivation appears to be unimportant, as in all cases it was emphasized that the organization scrupulously complied with environmental regulations prior to the adoption of the EMS. Similarly, certification was rarely a market advantage, since all their competitors are EMS certified. These two findings contradict previous findings found in the literature e.g., [1,4,7].

In all four cases the main positive result of implementing an EMS was the improvement in the environmental aspects of their routines, and this led them to reduce the use of some inputs, especially energy, and to better separation of waste, especially hazardous waste, which reduced its volume and the consequent cost of its management. For these purposes, the involvement of company employees was fundamental, especially in the case of the involvement of the employees that led the adoption of the EMS. Therefore, it is confirmed in this study that it is important to have enthusiastic employees who contribute with their commitment and dedication to the daily internalization of the EMS, as Boiral [23] pointed out, but especially among the leadership because of their multiplier and demonstration effects. It is also very important, as underlined in the practitioner literature e.g., [4,5], to adopt the EMS as a program integrated into the rest of the activities of the company and not as an isolated administrative project associated to the environmental management of the company.

Conversely, the most serious shortcomings of EMSs were related to the lack of internalization of these tools for systematizing the great majority of the day-to-day activities, as has also been found for the adoption of quality management systems [42–45]. This finding is especially relevant, as a rather similar general pattern of adoption can be detected in the way different management systems based on diverse standards are adopted, such as quality management, occupational health and safety, or EMSs.

Comparing ISO 14001, EMAS, and Ekoscan, no major differences were detected, although ISO 14001 and EMAS are the most widespread models and may seem a priori more demanding, especially EMAS [45,46]. This research found little difference from the alternative standards for SMEs, like Ekoscan. This finding contradicts other evidence in the literature e.g., [4,7] that asserts that some schemes or standards (e.g., EMAS) are much more demanding than others.

### 6. Conclusions

The evidence of this research indicates that the organizations studied were not truly proactive in the adoption of EMSs. Because of this, only a fraction of the potential benefits was gained from EMSs. The adoption by certified organizations of a really proactive environmental strategy would have a substantial impact on the outcomes of the EMS. This attitude toward the environment seems to be related to a long-term vision of the benefits of such a strategy, benefits that should not only be evaluated only in economic–financial terms, but also in terms of sustainability and social responsibility.

This article contributes to the theoretical literature on the adoption of EMSs in at least two ways. First, the article casts doubt on the predominant monolithic view of EMS adoption found

in the literature, as underlined by Heras-Saizarbitoria and Boiral [8]. Nevertheless, other works in the literature [41,42] also found that the institutional isomorphic processes pointed out by the neo-institutional theory do not imply that the adopting firms are passive actors, as they transform and adapt the external pressure and the ISO 14001 or EMAS framework. This exploratory work gives specific evidence for the case of the adoption of EMSs with regard to the mentioned transformation and adaptation. Second, this exploratory study contributes to the understanding of the potential differences among competing standards or schemes to adopt EMSs, such as ISO 14001, EMAS, and the alternative models to adopt EMSs. More specifically, the exploratory work showed that there are no relevant differences among the analyzed standards or scheme of reference in the real practices associated to the adoption of the EMSs. In other words, this work suggests that there could be a general pattern of adoption of EMSs, regardless the type of standard used as a reference.

Looking to the future, it is a challenge for all those involved in the promotion and adoption of EMSs, both private and public, to try to redress this situation. It is important that the win-win perspective on EMS adoption, the perspective emphasizing the possibility of improving business competitiveness and reducing environment impact, overcomes a procedural approach to EMSs. In this way, greater benefits could be achieved. As has been shown in the fieldwork, both top-down and bottom-up daily engagement are important. These findings are especially important for some of the stakeholders, for the managers and public decision-makers in particular, as in many cases the adopters of EMSs receive grants or regulatory relief [47].

This work has limitations related to the methodology used. The qualitative methodology obtained results that cannot be generalized [9]. As underlined by Heras-Saizarbitoria and Boiral [41] the external validity of this type of qualitative research is limited. Although the case selection protocol followed the conventional literature standard, it might be also considered a limitation. A similar comment could be made regarding the decision to mix companies from the public and private fields, despite in the scholarly literature aimed to shed light on the adoption of EMSs and other similar systems there are many empirical works that have mixed companies from the mentioned fields e.g., [7,19,40,43]. Nevertheless, as it has been also extensively pointed out in the specialized scholarly literature of the field of the EMSs and the meta-standards e.g., [1,2], qualitative works shed light on complex processes such as the adoption of these organizational tools and then contribute to this research field. For the future, studies should be planned that analyze quantitative and comparative information, to show the real effects of the adoption of EMSs based on the three types of reference models identified. However, the major limitations and distortions involved in the use of quantitative methodologies have been stressed by Boiral et al. [1].

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## Appendix A

Section 1: Context of the sector and the company

Section 2: Motivation for the adoption of the standard-based EMS

- External and internal drivers for the adoption
- Training received
- External and internal help with the adoption (consultants, auditors, coordinators etc.)

- Main obstacles to and benefits of the EMS adoption
- Influence of adoption on operative performance (costs, productivity, etc.)

#### Section 3: Daily work and the EMS

- Prevention of problems
- Improvement of processes
- Use of system documents
- Changes in the way of doing things and behavior
- Preparation of audits

#### Section 4: Other personal experience with the adoption of the EMS

- Unstructured narration of the experience

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