12-1-2011

Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO14001 Hotels in Spain

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Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO14001 Hotels in Spain

Abstract
As the number of hotels that are strongly interested in sustainability-related issues increases, the hotel industry is still seeking consensus on how sustainability can be measured and managed. One standard that provides both measurement and policies for sustainability management is ISO 14001, which is being adopted by an ever growing number of hotels, especially in Europe. Using a sample of over 2,000 independent hotels in Spain, this report analyzes the differences between those hotels that have implemented the ISO 14001 standard and those that haven't. Also considered are the possible effects on the business results of such companies of moderating factors such as company size and the market segment in which the hotel operates. On balance the certified hotels recorded stronger sales and earnings before taxes and depreciation than those that were not certified. Certified hotels in Spain tended to be larger than uncertified properties, and certified hotels in city and beach locations enjoyed considerably stronger performance than those without the certification. The report challenges the often-heard contention that adopting sustainability programs will diminish hotels' performance. Instead, these data show the reverse to be the case.

Keywords
hotel, ISO 14001, environmental management certification, standards, guest satisfaction

Disciplines
Business | Hospitality Administration and Management

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Environmental Management Certification and Performance in the Hospitality Industry: 
A Comparative Analysis of ISO 14001 Hotels in Spain

Cornell Hospitality Report
Vol. 11, No. 22, December 2011

by María-del-Val Segarra-Oña, Ph.D., Ángel Peiró-Signes, Ph.D., and Rohit Verma, Ph.D.
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Cornell Hospitality Reports, Vol. 11, No. 22 (December 2011)

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Cornell Hospitality Report is produced for the benefit of the hospitality industry by The Center for Hospitality Research at Cornell University

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EXECUTIVE SUMMARY

As the number of hotels that are strongly interested in sustainability-related issues increases, the hotel industry is still seeking consensus on how sustainability can be measured and managed. One standard that provides both measurement and policies for sustainability management is ISO 14001, which is being adopted by an ever growing number of hotels, especially in Europe. Using a sample of over 2,000 independent hotels in Spain, this report analyzes the differences between those hotels that have implemented the ISO 14001 standard and those that haven’t. Also considered are the possible effects on the business results of such companies of moderating factors such as company size and the market segment in which the hotel operates. On balance the certified hotels recorded stronger sales and earnings before taxes and depreciation than those that were not certified. Certified hotels in Spain tended to be larger than uncertified properties, and certified hotels in city and beach locations enjoyed considerably stronger performance than those without the certification. The report challenges the often-heard contention that adopting sustainability programs will diminish hotels’ performance. Instead, these data show the reverse to be the case.
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After France, Spain is the world’s second most popular tourist destination, with 59.2 million visitors each year. The hospitality sector in Spain includes 358,979 firms, including 22,662 hotels. Tourism is a resource-intensive industry that leaves a considerable footprint on the environment. Therefore, close attention should be given to the services sector, especially to the hotel industry, which is one of the most important economic activities due to the amount of employment it provides and its effects on regional development.
Business companies are giving more and more consideration to aspects connected with sustainable development, environmental awareness, eco-innovation, and environmental management. These are first-class strategic assets.  

In this context, the management of sustainable development becomes a crucial process, and eco-efficiency is considered as one of the major challenges for R&D practice. Many hospitality firms seek to demonstrate their implementation of quality control mechanisms that ensure that their products and services comply with stipulated standards of excellence related to the principles and practices of sustainability and value creation through environmental certification and especially through ISO 14001.

Some authors have detected that worldwide hotel managers are trying to improve the sustainability of their operations while analyzing measures for environmental sustainability in hotels in two main areas: operating factor–related activities and behavioral policies. ISO 14001 certification can have a positive influence in both of these.

ISO 14001 is the most frequently used global environmental management standard, with Spain and Italy being the European countries with the highest number of ISO 14001 certifications in the services sector. To date, some studies show that hotels that have put ISO 14001 into practice have recognized its advantages, although they have not identified them. As described by Chan and Wong, the motivation for the adoption of the ISO 14001 standard is determined more by internal forces than by external forces. Those researchers identified two motivating factors for the adoption of ISO 14001 by the hospitality industry: corporate governance and legislation.

Previous Studies
Some authors have pointed out a relationship between hotels’ environmental responsibility and their economic performance. A correlation has also been found between environmental orientation and performance in the tourist sector. The studies which have reviewed implementation of environmental management tools, have analyzed both the external and internal factors influencing the implementation of environmental management systems. Researchers have also examined the conditions of environmental certification in the Spanish hotel industry.

In this context, the need has been detected to compare cases of implementation of organizational eco-innovation systems in the tourist sector to evaluate the relationship between the use of one of the most frequently used environmental tools, the ISO 14001 standard, and business results.

The environmental practices of the Spanish hospitality industry have been broadly studied. Researchers have found that the commitment to quality and environmental practices influences hotel performance and stated that environmentally proactive hotels have a higher level of economic performance and demonstrate a positive relationship between environmental management and firm performance. On the other hand, it has been shown that the most strategically advanced proactive hotels are also the most competitive. However, there is a lack of research on the correlation between ISO 14001 certified hotels and their economic performance in crisis situations and also as the standard relates to urban, rural, and beach hotels.

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13 Ibíd.
17 Claver-Cortés et al. (2007). op.cit.
In this regard we have identified a research gap linking the implementation of management tools with economic performance, or the relationship between both concepts according to the type of hotels involved as regards the importance of size and segment.

Objectives of the Study

Our purpose in this report is to make a contribution to understanding the role of proactive environmental management tools in creating value for hotels by analyzing the effects of adopting ISO 14001, as indicated by the experience of Spanish hotels. For this study, we segmented the hotels according to location (i.e., urban, beach, and rural) and by size.

Research Questions

One of the enduring concerns for hotel and tourism businesses is that engaging in sustainability programs will cost money and hurt profits. Consequently, we wanted to analyze whether achieving ISO 14001 certification helps the economic performance of hotels. Our main hypothesis states: Environmental management through ISO 14001 in hotel companies affects their economic performance. From this line of study, we will determine whether it is possible to identify moderating factors that influence this link, considering the variables size of the firm and geographic segment to which the hotel belongs. With this framework, we conducted an analysis and evaluation of a Spanish hotel sample that has implemented ISO 14001 and compared those properties to a sample of hotels that have not adopted this standard. In the remainder of this report, we explain the empirical relationships between environmental management using ISO 14001 and economic performance. After the statistical analysis and discussion of the results, we offer conclusions and implications.

The Sample

The sample of hotels that we analyzed were all located in Spain, and all had a classification of three stars or greater. None had a flag belonging to a large commercial chain. Although at first we had thought of adopting smaller and more homogeneous regions for the sample, we considered that analyzing a broader geographic area could help us to obtain better results. Given the strategic importance of the tourist industry in Spain, we included hotels from all of Spain’s regions.

The sample of hotels with environmental certification was drawn from the IHOBE database, which consists of a monthly updated comprehensive list of Spanish companies certified according to the ISO 14001 standard, with a search system by sector, National Spanish Activities Classification (CNAE), or province. Affiliate level information includes name of the affiliate; host-region, and economic activity as defined by the CNAE codes, the address, and the certifying organization.

Exhibit 1

Classification of establishments studied according to type and size

<table>
<thead>
<tr>
<th></th>
<th>City hotels</th>
<th>Beach hotels</th>
<th>Rural hotels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without ISO 14001</td>
<td>800</td>
<td>814</td>
<td>394</td>
</tr>
<tr>
<td>Fewer than 50 employees</td>
<td>659</td>
<td>578</td>
<td>377</td>
</tr>
<tr>
<td>50 to 249 employees</td>
<td>128</td>
<td>194</td>
<td>17</td>
</tr>
<tr>
<td>250 employees or more</td>
<td>13</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>With ISO 14001</td>
<td>27 (3.4%)</td>
<td>45 (5.5%)</td>
<td>36 (9.2%)</td>
</tr>
<tr>
<td>Fewer than 50 employees</td>
<td>13</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>50 to 249 employees</td>
<td>7</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>250 employees or more</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>827</td>
<td>859</td>
<td>430</td>
</tr>
</tbody>
</table>

Source: IHOBE and SABI databases.

---


ISO certification. We excluded 34 establishments that did not fit any of the three geographic categories.

We measured company size by the number of employees. Those with fewer than 50 were considered to be small companies, between 50 and 249 were considered to be medium size, and those with 250 and over were classified as large companies.\(^{22}\)

**Data Analysis: Mean Differences Analysis**

We applied an ANOVA test to detect mean differences between hotels with the ISO 14001 certification and results from non-certified firms, using the following specific performance indicators: trading income (TI), net sales (NS), size by number of employees (SZ), and earnings on sales before interest, taxes, depreciation and amortization (EBITDA). In choosing these indicators we noted an earlier study used to analyze economic performance in Spain’s food industry.\(^{23}\) To construct the indicators, we processed information taken from the SABI database.

The database was analyzed using the analysis of variance test in SPSS 17.0. ANOVA analysis seeks to break down the variability in a study into independent components that can be assigned to different causes. It is a statistical technique designed to analyze the significance of the mean differences of the different populations, and as such, it is considered as an extension of the means difference test, and is used to study the relationship between nominal, ordinal, and interval variables.\(^{24}\) The ANOVA technique indicates whether we reject the null hypothesis that reflects the equal means value for each \(\alpha\) level of significance. In this way we confirm whether the mean of the variable performance is significantly different for the firms according to their ISO 14001 environmental certification.

After analyzing the overall mean value of the eight studied variables, we found that TI, NS, SZ, and EBITDA all revealed significant differences between hotels with ISO 14001 certification and those without.

It is interesting to note that the mean values of both trading income and net sales of ISO-certified hotels are twice those of non-certified establishments. Considering the mean size gives some indication of the relationship between size, process organization, and economic performance. This indication is supported by the EBITDA value.

**Geographic segments.** A total of four one-way analyses of variance were conducted on each of the different perfor-

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performance measures to examine differences among the three segment groups identified.

Urban hotels’ results were similar to those of the whole sample, with TI, NS, SZ, and EBITDA revealing significant differences between hotels with ISO 14001 certification and those without. This was true of SZ, NS, and TI. Here again, a relationship between size, organizational innovation, and performance can be observed.

The data obtained from the ANOVA analysis of beach hotels shows significant results for TI, NS, SZ, and EBITDA, but we found no significant correlation between the ISO 14001 hotels and the remainder in the rural hotel segment. We should note that these rural hotels are all relatively small (< 50 employees).

The results can be seen graphically in the following figures, where each of the variables has been compared for the whole sample and also considering each individual segment.

Exhibit 2 shows a comparison of mean income for the two groups, showing important differences especially in urban and beach segments. The whole sample shows mean differences of €7,400,560 for firms with certification and €3,512,390 for firms without certification.

Exhibit 3 compares net sales means between certified and non-certified hotels for the sample as a whole and for different geographical subsamples. Once again, as can be seen in the bar chart, in all the segments analyzed, mean net sales stood higher in those hotels that achieved the ISO 14001 certification.

It is interesting to see that hotels that have ISO 14001 certification are larger on average than those without, a finding consistent with previous studies (see Exhibit 4).25 Mature companies seem to be able to better organize and better accomplish with standardization and regulations. The outcome was better results and performance.

Discussion

Many studies analyze the economic outcomes for firms that have implemented ISO 14001. Empirical evidence suggests that this standard improves both environmental and economic results by reducing costs, improving quality, or improving reputation.26 Such improvements are due to the fact that the ISO 14001 helps to generate valuable resources to

maintain or create competitive advantages.\textsuperscript{27} Other authors suggest that environmental management systems provide a company with an information system that not only reduces contamination but also helps to improve corporate results.\textsuperscript{28}

Most ISO 14001 certifications have occurred in the tourist industry, although they are also taking place at a steady rate in the services sector throughout the world.\textsuperscript{29}

Our findings showed that the use of ISO 14001 as an environmental management tool had a significant impact on several economic performance variables, which led us to conclude that there is a relationship between ISO 14001 and corporate performance, thus validating our main hypothesis, which stated that environmental management through the application of ISO 14001 contributes to value creation in the hotel industry by improving business results.

The ANOVA test revealed significant differences in total business performance in the total sample, which was composed of all Spanish hotels with ISO 14001 environ-

mental certification (in 2008), with 3 or more stars and not belonging to large chains.

In the analysis of the sample segmented by geographic location it can be seen that size is also acting as a moderating factor for urban, beach, and rural hotels. In urban and beach segments, the mean establishment size can be classified as medium, that is, between 50 and 250 employees, as compared to the mean size of rural hotels, all of which have fewer than 50 employees. (Mean of entire sample, SZ=50.48, with ISO 14001, SZ=112; Urban Hotels, SZ=43, with ISO 14001, SZ=115; Beach Hotels, SZ=68, with ISO 14001, SZ=101; Rural Hotels, SZ=27, with ISO 14001, SZ=36.)

The ANOVA did not reveal any significant differences in business results among rural hotels with ISO 14001 and those hotels without that certification.

The second hypothesis is validated by the fact that the influence of the so-called organizational eco-innovation on the hotel results depends in part on their location. This is evident in the difference between the urban and beach segments as compared to rural hotels. The most important difference with regard to the ISO 14001 results is the relatively large size of those that have adopted it. Hotels in natural surroundings such as the rural hotels are forced to respect the environment, and one consequence of this fact may well be the small hotel size for this segment. Beyond that, small hotels can give individual attention to customers and integrate themselves

\begin{itemize}
\end{itemize}
more thoroughly with the environment, apart from any specific regulations. The influence of size and organizational evolution can be detected in the correlation between implementation of management organizational tools and business results.

On the other hand, it is reasonable to assume that the clientele of rural hotels is environmentally aware and purposely looks for this type of establishment, so that possessing ISO certification does not give any advantage over non-certified hotels, since both types can basically be considered to be environmentally friendly, without the need for official certification.

A large number of empirical studies have confirmed the use of formal systems for changes that characterize an organization’s evolutionary periods. This could explain the relationship between new innovative organizational systems and improvement of business management and performance.

The data analyzed in this research seem to be in agreement with other studies. The results show that firms with proactive practices exhibited a significantly positive economic performance. In addition, as could be expected from the theory, small firms need support systems to help managers in their development needs, while larger firms can afford to have a team of specialists. Rural hotels with a proactive attitude can assess current challenges as soon as they enter in a "resource maturity" stage.

To sum up, our analysis shows that the best performing hotels in the Spanish hospitality industry are those that have adopted the ISO 14001 proactive environmental management tool, and, considering that size acts as a moderating factor, urban and beach hotels show better performance in this regard than rural hotels. Another interpretation of the difference between these segments could be that for rural hotels, given their association with natural surround-

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The results offer quantitative support to the notion that implementing ISO 14001 is worthwhile for hotels, something that most hoteliers had previously detected in a tacit way. These data explain why the number of certified hotels is increasing and also why some of the most important hotels are adopting ISO 14001 certification in all their establishments, especially in Europe. For instance, Paradores Nacionales in Spain have gained certification,\(^\text{34}\) and Groupe Accor has certified all of its Ibis hotels.\(^\text{35}\)

\(^{34}\) http://www.parador.es/en/green-parador.

The principal limitations of this research involve the available sample and data and the proportion of rural hotels which somehow by-pass the statistical analysis. Future research will focus on the use of different methodologies with more complex analysis (a larger variety of organizational factors) and larger data bases as well as longitudinal studies. An in-depth case qualitative study will be necessary to obtain further information on the results obtained by the different hotel segments. Another line of research will consist of the analysis of hotels’ eco innovative performance in other countries, such as France and Italy, which have a different customer profile than Spain and where tourism means a considerable contribution to the GDP, as well as in the USA, where the international environmental management systems and ISO standards are much less common.
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