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THE EXTENT OF COMPUTERIZATION IN BIG COMPANIES OF THE SPANISH HOTEL SECTOR

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ABSTRACT

This is the first study of the hotel sector regarding the extent of computerization in its big companies.

This study examines the extent of computerization in big companies of the Spanish hotel sector with the aim of confirming the viability and sustainability of this sector relative to changes in ICT, a stage which is defined by the extensive use of the Internet and online social networks, and the handling of large quantities of information generated within these new environments. This research analyzes the extent of computerization of big hotel companies through an empirical study, with a "checklist" and questionnaire. We have confirmed that the hotel sector is computerized to a greater extent in terms of internal functions in its big companies, but these companies should strengthen their presence on the Internet and online social networks. They should use these networks as channels to shape their image and boost sales, and should reinforce Internet security and the use of CRM with the information extracted from them. All these characteristics are clearly dependent on the extent of computerization in these establishments.

1. INTRODUCTION

Tourism plays a significant role in international trade as a major source of income for many countries and territories. Tourism contributes to economic development and employment in related sectors such as construction, transport infrastructure, energy systems, trade and the development of Information and Communication Technologies (ICT). Although the latter is increasingly important, the academic literature on the subject is not abundant, which has prompted us to investigate the way in which the hotel sector has computerized its functions during the last three decades.

This hotel sector is growing and exceeded 13.4 million hotel beds in the 27 European Union (EU) countries in 2013. Spain now ranks third with a 13.9% share, up from fourth in 2000 when it supplied 12.4% of the 10.6 million hotel beds available in the EU (Eurostat, 2000-2013). Spain is, therefore, an important player in this sector both in terms of hotel bed numbers and in its ascendant position in the industry.

Our goal is to investigate the extent of computerization through ICT usage in the big companies of the Spanish hotel sector by means of data acquisition and subsequent analysis, through an empirical study (with a "checklist" and questionnaire). The hotel sector in Spain must take into account this new technological environment from the perspective of viability and sustainability, and this study poses whether the big hotel industry is able to adapt to this new challenge.

The paper is structured as follows: the next section provides a literature review on importance of tourism in Spain and importance of ICT in tourism industry and in hotel establishments, in addition to describe variables used to define the extent of computerization of the Spanish hotel sector. The third section describes our data compilation method and sample size. The fourth section presents the results of our analysis on 6 points (whose variables are listed in the second section): Information

technology in the company, Computer use, Internet, Internet security, Processing via Internet and Qualities of companies depending on the extent of computer centralization. At the final, we discuss and conclude the paper.

2. LITERATURE REVIEW

Spain is one of the biggest tourist destinations in the world, and tourism accounted for 10.9% of total GDP in 2012 (IET[1], Tourism Institute of Spain) and 12.2% of total employment nationwide in 2013 (IET[2]). It is the primary source of job and wealth creation in the Spanish economy.

And according to figures for 2014, hotel sector accounts for 72.96% of overnight stays, with 81.6% of tourists who choose it as accommodation. Data from the National Statistics Institute of Spain in 2014 show that there were 294.4 million overnight stays in 2014 (190.24 million generated by foreign tourists, of whom more than 94 million were from Germany and the UK) an increase of 2.9% on the previous year in which Spain was still deeply immersed in its economic crisis, all of which are reasons enough to study how technology can further contribute to this sector.

Clearly the tourism industry in Spain needs ICT for contacting destinations and for operating management systems; and to enable clients and computers to interact throughout the entire hotel complex (Guevara, 2003). Such interactions are necessary to better organize and coordinate the functioning of the hotel and foment greater customer numbers and customer satisfaction, and to ensure quality service (Dixit, 2013). Computers are crucial in the achievement of these aims and to satisfy the technological needs of the four areas that constitute Hotel Management Information Systems: the office, management, communications and building automation (Law & Jogaratnam, 2005).

The size of a hotel is not important in terms of the extent of its computerization. Information is essential in the tourism industry, and few sectors generate, group, process, use and communicate information on a daily basis in such quantities and frequency as tourist companies (Infante, Martínez, García & Infante, 2014; Lam & McKercher, 2013).

A sector as dynamic as tourism has had to adapt to the changes imposed by the Internet, and this tool has revolutionized the industry by introducing new business

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models, changes in distribution channels and in numerous work processes (Green & Warner, 2006). Of course, this revolution is not unique to tourism; computing and its various applications now influence a company's business planning to maximize profits and improve the services provided (Infante, Martínez, García & Infante, 2014; Maggi & Muro, 2013; Martínez-López & Vargas-Sánchez, 2013; Aldebert, Dang & Longhi, 2011; Kim, Pae, Han & Srivastava, 2010; Huh, Kim & Law, 2009; Kumar, Kumar & de Grosbois, 2008; Kim, Lee & Law, 2008; Wang & Qualls, 2007; Ham, Kim & Jeong, 2005; Croes & Tesone, 2004). The biggest change brought about by the Internet and new technologies is related to the globalization of the hotel industry; this evidently requires the hotel to have a presence on the Internet in order to remain competitive and provide potential customers with useful information (Holzner, 2009; Madura, 2007; Murphy, Olaru & Schegg, 2006; Krishnamurthy & Singh, 2005; Kucuk, 2002; Wang, Yu & Fesenmaier, 2002).

The Internet offers other benefits: free advertising (a website presence can lead to an increase in sales), reduction in financial and labor costs, improvements in internal communication within the company and active communication with customers. The Internet also represents a new channel for selling the product (e-commerce), a product which is increasingly purchased over the Internet both in Spain and in other countries, and is one of the biggest selling products online (ONTSI, 2012). However, one drawback is that installation costs are high, and each establishment has to calculate whether this is a profitable option (Franco, Dias & Pereira, 2012).

Active communication with customers has also broadened due to the emergence of social networks on the Internet. The number of online social network users increases each year at a dizzying pace (Cassidy, 2006), and these networks contain useful information on users and related links (Escobar-Rodríguez & Carvajal-Trujillo, 2013; Berthon, Pitt, Plangger & Shapiro, 2012; Gillin & Schwartzman, 2011; Chan & Guillet, 2011; Michaelidou, Siamagka & Christodoulides, 2011; Piccoli, 2008).

Online social networks offer tourism companies several advantages (INTECO, 2012; Maciá & Gosende, 2011; Kasavana, Nusair & Teodosic, 2010):

- A new channel to connect with casual browsers and potential visitors.

- Better search engine positioning through external links that can direct the user to the company website.

- Increased brand awareness; the brand has a visible presence.

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- S tool to generate loyalty with customers (Zarella, 2010; Kim, Lee & Hiemstra, 2004).

- Customer feedback. This is an important source of information in the hotel sector and greatly justifies their online presence in social networks (Hsu, 2012; Green, 2009; Kasavana, 2008).

In sum, ICT usage in hotel establishments is an important study topic and we have carried out an in-depth investigation of the extent of computerization in this sector, limiting our research to the big companies (companies whose turnover exceeds two million euros annually) because they are companies with many employees and their extent of computerization has a critical role in their smooth functioning. This empirical research consists of a survey developed between 2011 and 2012 and visits to several hotels. We also studied 77 variables which have been validated throughout 2013.

77 variables that have been contained on 5 points, which define the role played by ICT in the tourism business and used to define the extent of computerization of the Spanish hotel sector (Khan & Khan, 2014; Bell, Knechel & Payne, 2011; Dumitru, 2011):

Information technology in the company: departments that deals with the computing and importance of Information Technology and Information Systems in companies.

Computer use: numbers and use of computers in company, and kind of software used.

Internet: Presence and use of Internet (Web presence, Social Media presence, Internet in communication, use of e-commerce to buy and to sell,...)

Internet security: importance of computer security (codes of conduct and trust seals, IT audits, guidelines of computer security in writing, Data Protection legislation,…).

Processing via Internet: Chances of EDI (Electronic Data Interchange) in companies.

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3. METHODOLOGY

3.1) DATA ACQUISITION TOOLS

The answer to this question lies first in making an exploratory study of perceptions of the extent of computerization in big companies of the hotel sector in Spain as a forerunner of Internet and online social network use. We carried out an analysis of the main companies through a "checklist" and detailed questionnaire that enabled us to work with empirical data, and qualitative and quantitative data.

The questionnaire is framed in clear technical language (accessible to respondents, information systems managers) and comes in conical order (ranging from general to specific questions). It also includes details to allow for the absence of answers: no cataloging data (number of employees, turnover, etc.) and with few identification variables because such data can be obtained from the databases. The questionnaire contains a large number of items, necessary for their interpretation, which is mitigated by a neat, uniform aesthetic, and different formats of presentation, graphics (PowerPoint) and text processors.

The survey consists of several categorized questions (with detailed answers provided for the respondent to choose from) for greater accuracy, and open questions to yield more qualitative aspects (more nuanced); other percentage questions with a base of one hundred, "hierarchical scale" questions (numbers assigned according to preference), with others that allow the respondent to reconfirm their answers; there are also questions related to support and research development (closed Yes or No questions or categorized questions).

3.2) SAMPLE SIZE

The study population is made of companies that can provide this study with telephone, postal and telecommunication data without errors. These establishments belong to the official hotel sector and are included in the "España 25.000" database (which consists of 23,910 companies with revenue greater than 2 million euros in 2011), published by "Fomento de la producción". In total 417 companies were selected, a number which can be considered as a framework population.

With a sample size of 46 (49 in terms of the questionnaires sent out, in order to ensure sufficient responses), the Arkin & Colton formula, as reproduced by Sierra (2003), was used for calculation purposes. The survey yielded a confidence level of 95.5% and a margin of error of 9% (due to the small sample population), and with a "p" and "q" parameter assumption of 0.5 (this ensures the reliability and error margins chosen) and "z" equaling 2.

$$n = \frac{Z^2 \times N \times p \times q}{E^2(N-1) + Z^2 \times p \times q}$$

Where:

n = Sample size

N = Framework size

E = Margin of error

p & q = Population variances

3.3) THE PROCESS

The goal is to obtain meaningful statistical data once when the sample size is known. We used the "random sampling without replacement" procedure (by unit and random, without replacement) for a random sampling of finite populations (limited populations by authors such as Cochran [1977, 18] and Azorin & Sánchez-Crespo [1986, 53]). The data obtained are reliable and were taken from a random number generation of the database consulted, and then adapted to the framework population chosen to make a selection. The sample units were selected from this list.

Once these sampling units were confirmed, the surveys were sent out via e-mail (as an attached file) or by post, following a correction process to remove possible defects and performance failures had been carried out by "Polls Pilots", which proofread the texts and checked the categorizations.

Respondents are encouraged to complete the questionnaire by phone call, email and or direct contact. And the lack of response is countered by resending the survey and if no response is forthcoming, sending it to the next random number listed.

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Finally, we used a unitary technique (to remove small inconsistencies in each company) and a global technique (to increase the accuracy of the data and perceive the quality of the information from the questionnaire) to filter the answers. Global filtering consists of "Outliers" analysis (to correct defects through a second contact with the company) and "Edits" analysis (to correct defects of the "systematic" kind through logic). When a question remains unanswered (but most other questions are answered) it is corrected by contacting the company or inserting "no answer" (for privacy).

As a summary:

- Hypothetical universe. Spanish big companies belonging to the hotel sector.
- Target population. Spanish hotel sector businesses whose turnover exceeds 2 million euros annually.
- Framework population. The "España 25.000", *Fomento de la producción* database. Includes only hotel companies.
- Sampling error (+ / - 0.09).
- Confidence level (95.50%).
- Hypothesis parameters (Z=2 and P=Q=0.5).
- Sample size. 49 companies.
- Sampling procedure. Random sampling without replacement (random numbers).
- Survey method survey. Questionnaire sent out by email and post.

4. RESULTS

Data from the "Extent of Computerization" survey show the role played by ICT in the tourism business and the significance of their position in the sector. The data reveal the extent of the use of computers by employees, the computerized functions and tools commonly used, Internet use in the business and its importance, computer security and document processing. These data are categorical and numerical variables which are analyzed through descriptive statistics (means, modes, standard deviations, frequency histograms, etc.) to draw conclusions and facilitate organization, and to organize abstract and communication data. Analysis is also

done with inferential statistics (Pearson's coefficient associations, determination coefficients, X^2 test, etc.) to produce findings that the data alone do not reveal and to match up the hypotheses.

All this enables us to glimpse an overview of the extent of computerization in big companies of the hotel sector in Spain and it faces up to the challenge of the Internet and online social networks.

4.1) INFORMATION TECHNOLOGY IN THE COMPANY

Computerization is a growing presence in the business world, and today all big companies in the hotel sector in Spain acknowledge its importance and 90% state that it is very important or consider it essential (alongside information systems).

Indeed 63% of these companies have their own computer department, known as a department of information systems or simply a computer systems department in 77.4% of cases (22.6% declined to answer).

This department comes under general management in 65% of the companies surveyed, and in other companies it is within the remit of the technical, accounting or administration departments (in the latter, this was the case in 19% of companies) (see Figure 1).

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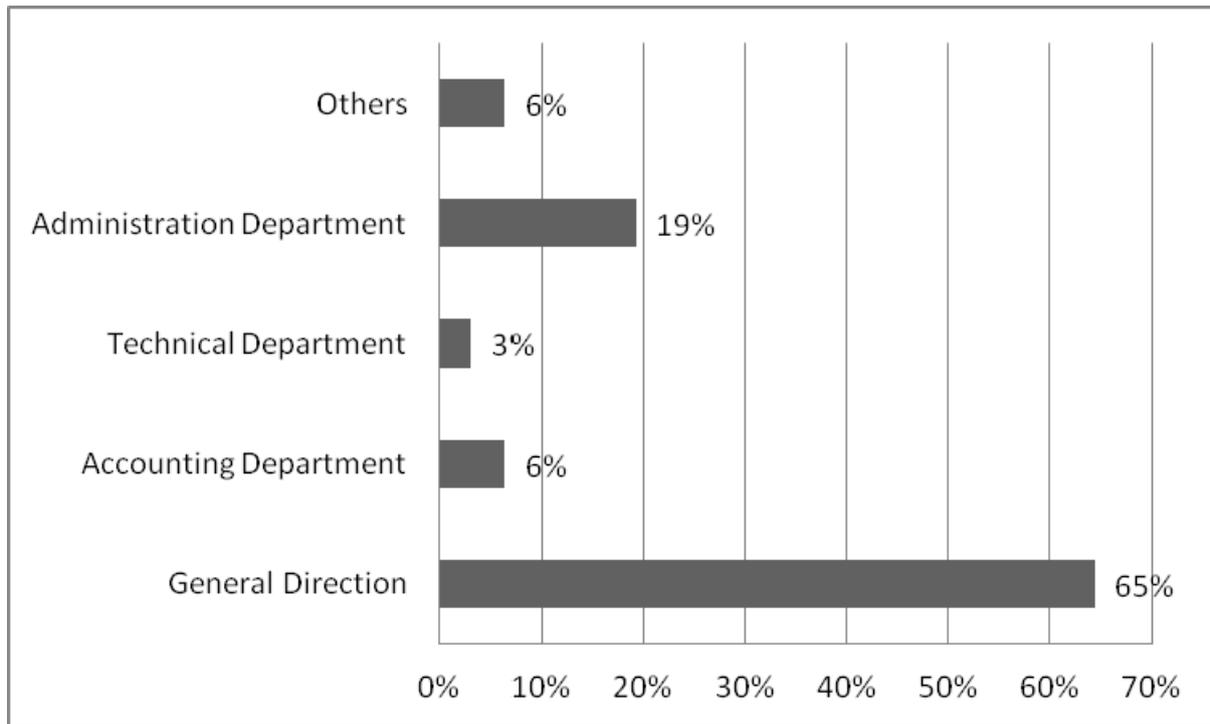
Figure 1. Frequency histogram. Departments which oversee information technology operations.

The number of people employed in this area varies, from a single employee in 19% of the companies, and 2 to 5 employees in 42% of the companies. This influences the number of tasks they perform within the organization: systems technician, operator, analyst, administrator and programmer. It was found that systems technician was the job category most widely mentioned (see Table 1).

	Companies
Systems technician	90%
Operator	65%
Analyst	71%
Administrator	55%
Programmer	74%
Others	71%

Table 1. Job types of computer and information systems employees in big companies of the sector.

4.2) COMPUTER USE

The survey showed that 100% of these companies have more than 5 computers or terminals, and a high percentage of them have more than 100 computers (31%). This reveals the importance of computers in these organizations due to the

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computerization of many tasks performed in big hotels, where 47% of companies have more than half their workers using computers to carry out their duties.

There is no linear relationship between these two variables: total number of computers and terminals in the company and the percentage of employees who use a computer to perform job duties, despite what we may think (because it is expected that if more employees use computers, these companies will need more computers). This is verified by Pearson's correlation coefficient (-0.19) and the determination coefficient (3.56%), evidence that supports an inverse correlation, but which is too weak (a linear relationship of 3.56%). Since it is virtually invisible, is said to be non-existent (see Figure 2).

Figure 2. Scatterplot: Number of computers and terminals and percentage of employees who use computers.

Companies whose computer system is totally centralized account for 22% of cases, but we also find cases of decentralized usage among departments and personnel, although centralized use is predominant (see Table 2).

Use of computers	Mean	Mode	Standard deviation
Centralized	63%	100%	33%
Decentralized (departments)	25%	0%	26%
Decentralized (personnel)	12%	0%	17%

Table 2. Degree of centralization in the use of computers in big companies.

Nowadays, decentralization is less prominent but is set to increase over time with the growth in computer skills. This arises in situations in which company personnel engage in resolving user queries, training fellow personnel in tasks involving computing, and in purchase standardization, which occurs in 67% of companies.

In our survey, 80% of companies use custom software produced in-house or by external firms, which they can combine with other applications (standard and office automation) to computerize almost all management functions (billing, accounting, management cash, inventory management, cost accounting, human resources management, payroll, budget accounting, customer management, etc.) through tools such as word processors, databases, spreadsheets, CRM, ERP, supplies and production. The huge cost of and investment in custom software that shows a commitment to total computerization of the functions within the company and the high quality of these applications. The remaining 20% of the companies surveyed only use standard and office automation applications for computerization.

This custom software is usually only used in small percentages which range from 0% to 25% in terms of custom software made by the company in-house, and by external companies, in 82% and 59% of the companies, respectively (see Figure 3).

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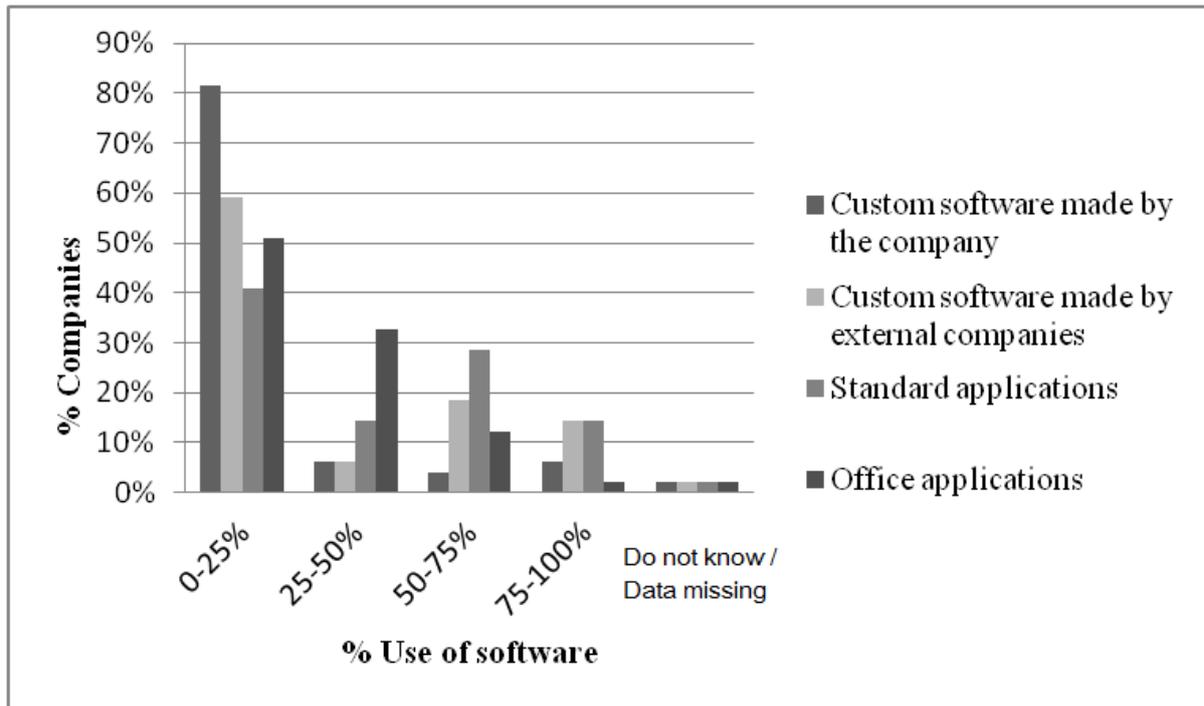
Figure 3. Frequency histogram. Percentage of software use in the company.

There is a widespread use of standard applications, averaging 37.15%. These data show considerable heterogeneity, a feature revealed by the data obtained in the standard deviation (high percentages) and mode (where its most frequent value is 0% in three forms, which is not near the means) (see Table 3).

	Mean	Mode	Standard deviation
Custom software made by the company	12.06%	0%	23.95%
Custom software made by external companies	26.35%	0%	31.20%
Standard applications	37.15%	0%	27.93%
Office applications	24.44%	10%	18.95%

Table 3. Use of software.

In terms of management functions, 96% of companies have computerized client management, which shows the importance of computerization when dealing with customers. But the relative lack of CRM use is remarkable (only 49% of companies use CRM), a tool that could significantly increase the income of such companies if properly used. It is worth noting that this software can be downloaded free on the Internet.

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Finally, we emphasize the use of technologies and technological applications such as fax (used by 98% of companies), email (98%) and ADSL (98%), and the increased use of Intranet (54 %) and Extranet (44%) in the companies surveyed.

4.3) INTERNET

Almost all the companies recognize that if they do not have a website, they do not exist, and indeed 98% state that they have a website and hence a presence on the Internet. And not only that, their employees have access to the Internet and use email on an average of 48.06% and 41.34% of cases, respectively (see Table 4).

	Mean	Mode	Standard deviation
Internet access	48.06%	100%	29.33%
Use of email	41.34%	30%	26.16%

Table 4. Percentages of employees with Internet access and who use email in the company.

The average percentage use made by employees ranges from 25% to 50%, with 33% of companies for Internet access and 37% for use of email (see Figure 4).

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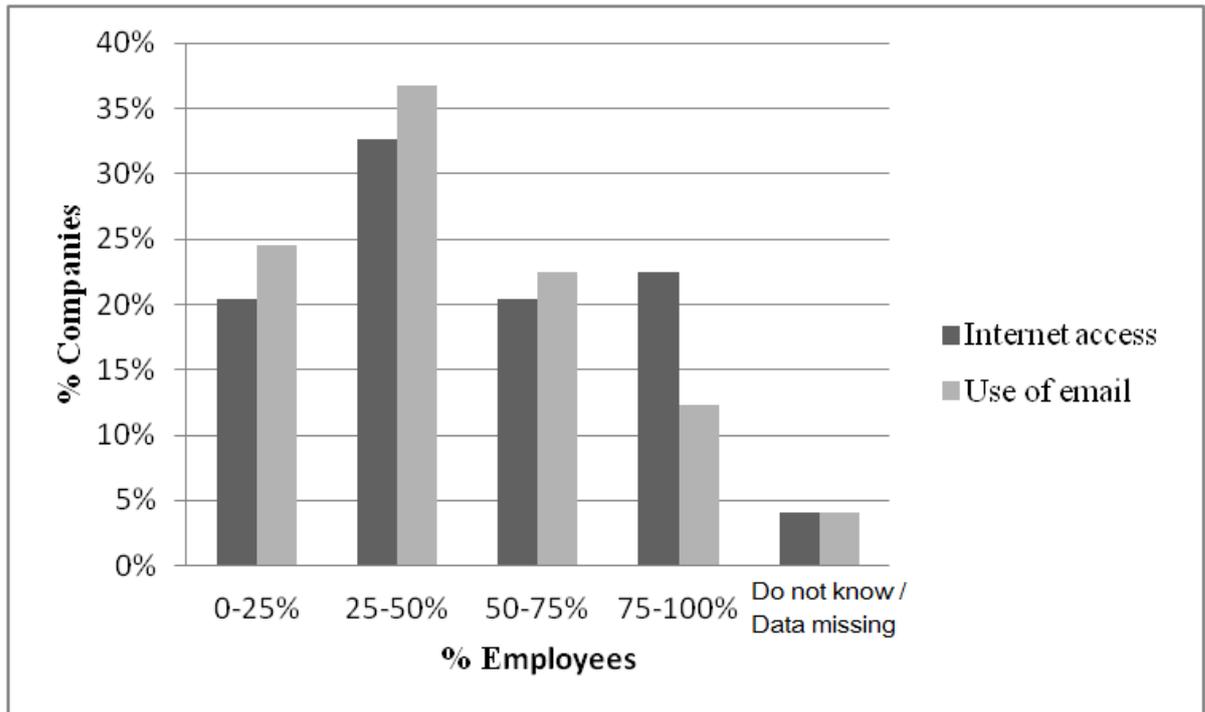
Figure 4. Frequency histogram. Percentages of employees with Internet access and who use email in the company.

There is a correlation between these two variables: percentage of employees with Internet access and percentage of employees who use email. This is confirmed by Pearson's correlation coefficient (0.66) and the determination coefficient (44%), evidence that supports a direct correlation, and a linear relationship of 44%. It implies a reduction in staff time and cost and improving clarity in the exchange of information, features provided by email, the use of which rises as the percentage of employees who access the Internet increases (see Figure 5).

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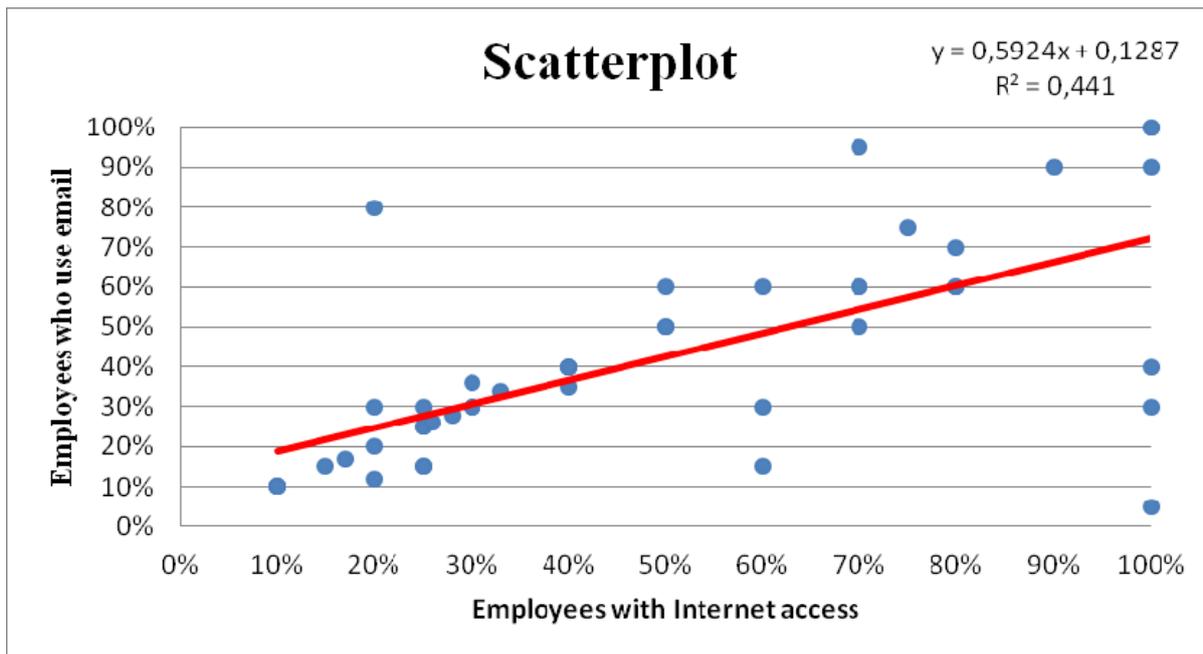
Figure 5. Scatterplot: Number of employees with Internet access and employees who use email.

So, the Internet is considered essential by 57% of these organizations, and 22% give it a lot of importance. No company gives it little importance.

The Internet is not only a tool used for the exchange of information within the same company, it is also a channel of communication and advertising to customers through online social networks and acts as a sales conduit through its website in the form of trade mail. A total of 82% of the companies polled has a presence on online social networks, and while the remainder do not, they consider it important despite it being a recent phenomenon. Nowadays, online social networks represent a market that has hundreds of millions of followers around the world and plays a significant role in both e-business and face-to-face business.

And the Internet opens a new sales channel; 59% of Spanish big hotel companies use it to make purchases and 71% for sales. These percentages increase, especially in sales, with growing customer confidence in the security of online shopping.

There is no correlation between the variables: use of e-commerce to sell and presence on online social networks. In the contingency table analysis (Table 5) via the X2 test (two qualitative variables), the X2 calculated (0.926) is less than the critical X2 (3.84) with α = 0.05, providing one reason for accepting H0: The variables are independent. Therefore, there is no correlation between the variables. Many

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companies use their social media presence for advertising, but they do not exploit it as an electronic sales channel.

Use of e-commerce to sell	Presence on online social networks		Total
	Yes	Not now, but important.	
No	6	2	**8**
Yes	30	4	**34**
Total	**36**	**6**	**42**

Table 5. Contingency table: presence on online social networks and use of e-commerce to sell.

4.4) INTERNET SECURITY

Companies must have a strong Internet security system in place and apply it, as the e-commerce data above reflect the importance of Internet as a business channel.

They must improve it, because only 61% of these companies know the codes of conduct and trust seals, and only 53% perform IT audits, which are conducted by internal IT auditors (54% of these companies), by IT auditors relating to the auditing of accounts in 12% of cases and by external IT auditors in 35% of cases.

There is no correlation between the variables: big hotel companies that perform IT audits and use of e-commerce to sell. In the contingency table analysis (Table 6) using the X2 test (two qualitative variables), the X2 calculated (0.24) is less than the critical X2 (3.84) with α = 0.05. This means we can accept H0: The variables are independent. Therefore, there is no correlation between the variables; many companies do not perform IT audits as a symbol of trust for their clients, and they use e-commerce to sell. If they did so, they would increase their sales (Guardia, Lladró & Martín, 2014; Chen & Ke Zheng, 2013; Jin, 2011).

Use of e-commerce to sell	IT audit		**Total**
	No	Yes	
No	3	5	**8**
Yes	16	18	**34**
Total	**19**	**23**	**42**

Table 6. Contingency table: Big hotel companies that perform IT audits and use of e-commerce to sell.

Evidence of this lack of concern in Internet security is registered in 26% (2 + 24) of the companies surveyed; they give little and or moderate importance to computer security in their company, one of the requirements demanded by Internet users. It is a contradiction to consider. Although it is true that 73% of companies have written guidelines on computer security.

There is a correlation between variables: companies that perform IT audits and written guidelines on computer security. In the contingency table analysis (Table 7) with the X2 test (two qualitative variables), the X2 calculated (16.61) is greater than the critical X2 (3.84) with α = 0.05, which is one reason for the rejection of H0: The variables are independent. Therefore, there is a correlation between the variables. They are making good use of e-commerce and we observe that all companies that perform IT audits have written guidelines on computer security.

Companies that perform IT audits	Written guidelines on computer security		Total
	No	Yes	
No	10	10	**20**
Yes	0	26	**26**
Total	**10**	**36**	**46**

Table 7. Contingency table: Companies that perform IT audits and written guidelines on computer security.

Finally, 55% of companies have rules on employee use of the Internet and online social networks (an important issue because companies can go out of business if their online presence is poorly managed), and 96% are aware of data protection legislation and the Data Protection Agency; the remaining 4% did not answer this question.

There is correlation between variables: rules governing use of the Internet, online social networks, etc., for employees and written guidelines on computer security. In the contingency table analysis (Table 8) by the X2 test (two qualitative variables), the X2 calculated (12.42) is greater than the critical X2 (3.84) with α = 0.05, which is one reason for rejecting H0: The variables are independent. Therefore, there is a correlation between the variables. It is important for computer security and for corporate branding.

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Written guidelines on computer security	Rules governing use of the Internet, online social networks, etc.		Total
	No	Yes	
No	10	1	**11**
Yes	11	25	**36**
Total	**21**	**26**	**47**

Table 8. Contingency table: Rules governing use of the Internet, online social networks, etc., and written guidelines on computer security.

4.5) PROCESSING VIA INTERNET

These companies do not usually have computer compatibility issues (over 63% [(59+4) hardly ever or never, and 33%, mean] in terms of different brands of hardware or software, data that would help the implementation of EDI (Electronic Interchange of Documents). Some 78% of companies are aware of this kind of exchange system and 61% consider it very useful for the paperless exchanging invoices, orders, etc., electronically between companies (only 2 % consider it negative).

In general, companies have a medium-high level of data standardization (89%), and 91% of these companies believe that they will become totally standardized.

And following on from this, 98% of organizations believed it would be possible to reach agreement between the hotel sector and public authorities to file papers and carry out all official transactions electronically with these entities in the medium to long term, which would mean savings in time and cost.

4.6) QUALITIES OF COMPANIES DEPENDING ON THE EXTENT OF COMPUTER CENTRALIZATION

Following an analysis of the five points into which the extent of computerization is divided, we can describe the percentage of big companies in this sector which have those qualities already described, depending on the type of computer centralization mainly used (see Table 9).

Qualities \ Computer use in the company	Centralized	Decentralized (departments)	Decentralized (personnel)
The computer department	64%	90%	50%
% employees who use computer for work tasks	44%	51%	49%
computers / employees	62%	155%	32%
Computing Information Center	79%	70%	50%
Use of software	100%	100%	100%
- Custom software made by the company	16.6%	12.0%	0.5%
- Standard applications	38.1%	41.5%	35.0%
- Custom software made by external companies	24.8%	24.0%	0.0%
- Office applications	20.5%	22.5%	64.5%
% employees with Internet Access	47%	45%	59%
% employees who use email	40%	40%	59%
IT audits	54%	50%	100%
Written guidelines on computer security	81%	70%	100%
Rules on use of the Internet, online social networks, etc.	61%	60%	100%
Extent of data standardization in the company	Medium-High	Medium	Low-to-Medium

Table 9. Qualities of companies depending on the extent of computer centralization.

5. DISCUSSION AND CONCLUSION

As presented in the introduction, the objectives of this study were to determine the extent of computerization in big companies of the Spanish hotel sector; to confirm or assume the viability and sustainability of this sector as it adapts to this new ICT scenario.

One of the limitations of the study comes from the lack of academic literature on the subject and the absence of a survey with sufficient variables to evaluate all operations performed in companies through ICT. Consequently, all variables come from the authors mentioned in the literature review. On the other hand, our research is limited to the big companies (companies whose turnover exceeds two million euros annually) since these companies have more employees and their extent of computerization has a critical role in their smooth functioning. This latter limitation may be removed in the future studies by extending this study to companies of other sizes.

Finally, the analysis shows that the sector has been able to adapt to the new scenario in terms of information technology but less so in communications technologies. We have seen that big hotels are:

- Companies that are aware of the social importance of ICT systems, considering them to be essential, having their own departments (although small-scale and multi-functional) in more than half of cases, and which answer directly to the general management. We note that these companies are interested in ICT usage to enable smooth functioning.

- Companies which use a combination of in-house software (in over 80 % of cases) and applications (standard and office applications, used in a higher percentage of cases) for the computerization of almost all hotel management functions. This leads to an increase in the percentage of employees who use a computer to perform tasks, and the number of computers and terminals is high (there is no correlation between them). And it produces a growing decentralization of computer use, backed by a computer support team and the growth in employee computing knowledge at a time when this use of information is mostly centralized.

- Companies with computerized customer management systems but only half use CRM. This tool could increase income and alongside the use of online social networks, because they increase the availability of customer information.

- Companies with an online presence in the vast majority of cases through a website and even on online social networks. The Internet is deemed essential in many organizations. It is a tool for exchanging information within the company (it helps reduce costs and makes better use of staff work time, and brings greater clarity to the exchange of information) and is a channel of communication with customers and advertising through online social networks, although many companies still do not use online social networks as a sales channel.

- Companies that use the Internet as a new sales channel which today accounts for more than half their transactions and is set to increase, especially in terms of sales, as customer confidence in the security of online shopping grows. They must continue to improve online security (meeting basic standards,

strengthening computer security and giving it greater importance too). For example, there are companies that do not carry out IT audits, which would increase customer trust, and they use e-commerce to sell (these audits would boost sales).

- Companies that have a medium-high level of data standardization; they believe that these data will become increasingly standardized to enable them to make full use of an Electronic Data Interchange for all transactions.

- In general, it is observed that the extent of computer centralization use defines the characteristics described above and the tools which these companies choose to develop their activity.

The new stage is defined by the wealth of information provided by online social network users and, therefore, the extent of computerization is not the only relevant factor. Others include:

- The use of information from online social network users, and whether it can be used for decision-making and changes in the company. At computing level, these companies are capable of for receiving this kind of information, but we do not know if they use this information to make decisions and whether management is capable of processing the amount and type of information, because the increase in information transmission will be significant.

- Other factors such as guidelines for action and the ability to solve conflicts arising from contact with online social network users.

With all this, we presuppose the viability and durability of big companies of the hotel sector in Spain in terms of the extent of computerization and the importance of its use and as a means to improve business functioning. These companies are prepared for this new stage of information technology and online social networks.

But this opens a new line of research on the use of information extracted from the online social networks to complement this research and to add greater certainty to the answer to the central question of this study. This new line of research will focus on the kinds of online social networks used and the type of information sought, information processing, the use made of the information obtained and the effects it can have on the company, a solution to information overload, guidelines for action and solutions to conflicts arising from contact with the online social networks

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(Kasavana, 2008). It would reduce the uncertainty of those still resisting this new change in the hotel sector in Spain.

In sum, the answer to our question: Are the big companies of the hotel sector in Spain prepared to rise to the challenge of this new change? The answer is yes. Computerization now covers tasks in hotel management but these hotels must raise their profile with an online presence and must engage with the online social networks.

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