

A Study on the Influence of Technologies Applied to Organizational Performance Learning in the Hotel Sector

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Abstract

Hotel sector is one of the most influenced by the new information and communication technologies (ICTs) since it generates a vast amount of information which circulates through these new technologies. Additionally, the latter could be a potential source of organizational performance. This paper has an exploratory character and analyses how the new ICTs influence the hotels' organizational performance. Thus, a descriptive statistical analysis and a study of statistical associations through Cramer's V have been carried out using data from 106 Valencian Community hotel establishments. The results show, on the one hand, that Internet and Intranet are the most influential technologies on intra-organizational level and, on the other hand, show that the Central Reservation Systems -CRS- and web 2.0 are the most important on an inter-organizational level. Both technologies affect most of the analysed results at organizational level.

Keywords: Organizational learning; ICTs; Organizational performance; Hotel sector

Introduction

The Information and Communications Technology (ICT) development has altered the ways in which tourism and hotel sector companies operate [1], driving significant changes and providing new opportunities for the industry [2]. Technological advances have been linked to organizational learning [3-5], which can be understood as the organizations' ability to maintain or improve their performance based on experience [6]. This ability involves acquiring, sharing and using the knowledge. Therefore, this is a process which increases the knowledge created in an organized and transformed way within the organization's knowledge system [6]; and it influences, according to Petrash [7], Gupta and Govindarajan [8] and Olivera [9], organizational performance in the tourism sector.

The technologies have positively contributed to the hotel industry, which has led the hotels to invest substantially in them [10] in order to improve both, internal processes and the service provided to consumers [11]. The research in this field has shown that the initiative to use ICTs can lead to achieve a sustainable competitive advantage [12,13], although in a recent study, Mihalič and Buhalis [14] show that ICTs do not directly increase the productivity of companies.

Since the technology plays an important role in the operations and management of the hotel, both managers and researchers must be informed about its development [1], so it becomes necessary that the researches deepen the ICT's general impact on the hotel performance [14,15]. In this connection, our paper aims to analyse the utility level of different ICTs within the context of organizational learning granted by the managers of 3, 4 and 5 star hotels in Valencia, but especially how the ICTs influence organizational results.

To achieve this goal, first a review of the related literature is done; secondly, the methodology used is explained in details, and then a descriptive statistical analysis of the data is carried out in order to find what technology and what organizational performance are most valued by the respondents in context of learning. Subsequently, association between ICTs and organizational performance is analysed and, finally the achieved results are presented and discussed to reach the

conclusions.

Theoretical Framework

Information and communications technology

Up to now, the literature has been more focused on the introduction and development of new ICTs, as well as on the costs and benefits involving its implementation, than on the impact of sharing knowledge and its use [1,16-23]. Therefore, this study pretends to shed more light on the latter. Technological progress and the tourism sector have been linked for decades [5]. The hotel industry has begun to use them into its management processes since the seventies of the last century. The Property Management Systems (PMS) improving interoperability and interconnectivity [24], as well as the Central Reservation System (CRS), providing automatic management of reserves [25] began to be used in hotels in that decade. The Global Distribution Systems (GDS), systems in which take part a group of tourism suppliers that offer information both airlines and hotels, while allowing to make bookings appeared in the late eighties. The Internet revolution, known as network of networks [26] came in the nineties, but it is since 2000 when a true transformation in the ICTs have been taking place with the appearance of other technologies, like Wireless-radio connection and Wi-Fi, thank to which Internet can be accessed anywhere without requiring a physical connection. At that time also appeared the blogs as a platform through which users collaborate in the construction of knowledge. In the case of tourism, we can mention Web 2.0 or Travel 2.0 which link the concepts of virtual communities or social networks and, according to Xiang and

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Gretzel [27], apply them in the search of travel information related. Finally, we can add the proliferation of different mobile technologies such as Personal Digital Assistants (PDA), 3G, Global Position Systems (GPS), etc.

When applied to organizational learning, ICTs include a variety of ways to create, capture, manipulate, communicate, share, present and use information [28]. In this study, the main ICTs have been grouped into two blocks: (1) for internal use among hotel employees and (2) oriented to relationships with stakeholders [10], using as a measuring unit the ICTs utility level in the process of organizational learning [15].

ICT and organizational learning

Fiol and Lyles [29] defined organizational learning as the process of improving actions through better knowledge and understanding. This organizational learning is supported by the management of knowledge creation in the organization and ICTs are a mean that can facilitate knowledge sharing and application [30]. In this line, some authors like Robey et al. [3], Moreno and Vargas [31], Martín-Rojas et al. [13] state that ICTs can facilitate the learning process, i.e., the processes of creating, accessing, transferring, sharing and codification of knowledge [31,32] and information [33].

One of the hotel sector's main features is that their services processes are becoming knowledge-based priority due to the huge influence of the ICTs' use [34]. In this sense, Figueroa [25] argues that ICTs are means to improve the management of information and to create new tourism products and services. Companies operating in the hotel sector have to become more innovative and increase their technological capacities in order to improve their organizational learning [35,36].

Different types of technologies have been adopted in the hotel industry during the past two decades) [37]. Thus, Buhalis [26] distinguished those technologies in the sector oriented to intra-organizational functions which exist within one organization from those oriented to inter-organizational functions-which occur between different tourism companies and, finally, distinguish those which are customer-oriented. The same author points out as examples of the technologies used at intra-level - Internet, Intranet and PMS. The email cannot be ignored at this level, as it allows not only an interaction with external agents, but also between the organization's members [38]. Furthermore, at inter-organizational level, Buhalis [26] mentions the CRS, email and website; and at consumers relations level, repeats the Internet, the website, email and the CRS. It should be added Web 2.0, which has also had a big influence on the tourism sector [37] and the CRM because its technology allows the hotels to collect the preferences of customers and learn how to use them in the future [39]. In consequence, we consider in this research all these technologies because of their close relationship with the organizational learning.

Results of the use of ICTs as a learning tool

Certainly many hotel executives evaluate the technologies' potential to achieve significant advantages in operational and strategic direction, so the hotel organizations have relied on technologies to take decisions and to develop their business [40]. In order to improve organizational performance, ICTs are becoming a strategic asset for the tourism and hotels business [41]. Since the rapid development and commercialization of the ICTs, there are many advantages for hotels and related industries which are incited to adopt these technologies [42]. Some researches show that investment in ICTs could improve the performance and productivity of a hotel [40,43,44], but others

suggest the opposite, it is to say, the investment does not improves return [45,46]. The present study attempts to follow this research line, enquiring whether an extraordinary organizational performance can be achieved through the ICTs.

In relation to the returns that tourism sector organizations could achieve through ICTs, we observe in the literature that: (1) if ICTs are properly directed, they would help tourism companies to achieve a competitive advantage to maintain price leadership in the market or to differentiate their products and services [24], which can be assimilated with organizational performance as a strategic renewal or new product development and innovation; (2) investment in ICTs in the hotel sector benefits the hotels in the way that it allows customers to have a better experience and the hotel staff work more efficiently to better assist customers [11] which can increase loyalty; (3) the use of ICTs can bring knowledge and information in the focus of the hotel organization's competitive profile [47], which can improve its competitive position. Law and Jogaratnam [11] point out that for hotel professionals is important to introduce proactively ICTs in their hotels in order to improve service quality; (5) There are many more benefits that can be obtained through the adoption of ICTs, for example, reducing operational costs, enhancing customer satisfaction, increasing market share and increasing operational efficiency [26,46,48,49] and, therefore, they are also linked to the improve of profits, sales or targets.

Methodology

This quantitative study is focused on the hotel sector in the Valencian Community, as it is one of the main tourist destinations in Spain. The Valencian Community was the sixth community in number of tourists' visits, with a total of 7.293.995 travellers in 2014, mainly for sun and beach tourism, and represent 8% of all international and national travellers in Spain. Additionally, the hotel sector in Valencia is one of the industries with major importance. That Community has 960 hotel establishments with a total of 13.847 people employed in the sector [50].

To achieve the proposed research aim, a questionnaire based on the most relevant literature was designed. It consisted of 32 questions related to a) the use of ICTs in the field of the internal organizational process; b) the relationships maintenance with other stakeholders linked to the analysed hotels; c) the organizational results reached by the analysed in the survey hotels. The survey also included questions in order to categorize respondents and the hotels where they work. Table 1 shows the technical specifications of the research.

To contrast the validity of the measurement instrument, a panel composed by four academic experts on the topic was set up with the aim to use their theoretical and empirical experience to analyse and

Population or Universe	395 hotels of 3, 4 and 5 stars in the Valencian Community
Sample size	106 hotel establishments
Analysis units	Hotel establishments
Response rate	26.84%
Sampling error	8.1%
Confidence level	95%
Fieldwork period	November 2013-April 2014
Tracking	Phone
Survey's delivery method	Post, personal, email
Respondents	Senior managers or Department heads
Source: Compiled by authors	

Table 1: Technical details.

evaluate the full list of items that were collected from the literature. Thanks to their points of view after setting the first survey, we went on to perform a pre-test which was evaluated by three senior managers from 3, 4 and 5 star hotels respectively. The final questionnaire was established considering their remarks.

According to the results, most of the 106 hotels that were sampled belonged to chains: 58.2%. 70.2% of them are owned by national chains; 64.7% are directly operated by the owners; most of the clients who were staying there did so for leisure: 57.7%; higher percentage of hotels 36.3% have been between 20 and 50 years in the industry; 26.2% have between 100 and 199 rooms and 54.4% of the hotels studied have between 10 and 49 employees being, and therefore classified as small businesses by the European Commission [51].

Results

Once data collection process was completed, first, a descriptive statistical analysis was performed to, then, conduct a study of existing statistical associations of each variable contained in ICTs within the organizational learning in the organization and with other stakeholders, as well as with different variables which shape the organizational results achieved by the hotels.

The first results refer to the use of the ICTs by the hotels studied here. Table 2 shows how the most used technology internally by the employees is Internet, with a mean value of 4.85, having the lowest standard deviation 0.494. Internet is the most used by the employees' technology in their deals with customers, suppliers, etc. It is the most valued by respondents with a mean of 4.75 and a low standard deviation -0.61.

In reference to organizational results, it can be seen in Table 2, that increased customer loyalty is the most valued result, with a mean of 4.10 and the lowest standard deviation, 0.804. It is particularly important that the third most appreciated variable is the quality improvement, with a mean value of 4.04 which is closely linked with increased loyalty.

	Tecnologies	Mean	Std. dev.
Intra	Internet connection	4.85	0.494
	Email	4.46	0.978
	Existence of Intranet	4.43	1.060
	PMS –Property Management System-	4.40	1.097
Inter	Internet connection	4.75	0.619
	Email	4.73	0.595
	Web site	4.61	0.756
	Web 2.0/Blogs	4.39	0.938
	CRS –Central Reservation System-	4.35	0.983
Organisational Performance	Increased customers loyalty	4.10	0.804
	Competitive position improvement	4.06	0.807
	Quality improvement	4.04	0.827
	Efficiency increase	3.98	0.894
	Costs reduction	3.94	0.893
	Sales growth	3.88	0.885
	Fulfilment of objectives	3.87	0.906
	Increase of profits	3.72	0.881
	Strategic renewal	3.69	0.909
	Innovation	3.69	0.970
	Development of new products	3.63	0.949

Source: Compiled by authors

Table 2: Descriptive statistical analysis of the variables.

Internet connection – Performance		Value	Approx. Significance
Internet connection - Market share increase	Cramer's V	0.367	0.000
Internet connection - Increase of profits	Cramer's V	0.273	0.022
Internet connection - Strategic renewal	Cramer's V	0.593	0.000
Internet connection - Efficiency increase	Cramer's V	0.167	0.711
Internet connection-Sales growth	Cramer's V	0.320	0.005
Internet - Fulfilment of objectives	Cramer's V	0.325	0.000
Internet connection - Development of new services	Cramer's V	0.317	0.001
Internet connection - Customers loyalty increase	Cramer's V	0.260	0.011
Internet connection - Innovation	Cramer's V	0.281	0.003
Internet connection - Quality improvement	Cramer's V	0.246	0.023
Internet connection - Competitive position improvement	Cramer's V	0.262	0.039
Internet connection - Costs reduction	Cramer's V	0.204	0.352

Source: Compiled by authors

Table 3: Internet connection- Intra-organizational level - Organizational results.

Then, analysis of the existing statistical association between each type of technology used, both internally and externally, and organizational results achieved by the hotels was carried out. To do so, we used the Cramer's V which is a correction that can be applied to Pearson Chi-Square. This allows obtaining a maximum index value of 1 (indicating the largest association between quantitative or qualitative variables) and a minimum value of 0 (which represents no association).

In addition, to carry out the contrast of the null hypothesis of no association through Cramer's V, the critical value of probability is tested. Usually, if it is less than or equal to 0.05 said hypothesis is rejected and therefore a statistically significant association between each pair of variables considered exists.

Regarding the results on technologies use at intra-organisational level - Internet, Intranet, PMS and email, it can be seen that:

- According to the results, internet connection is one of the tools that are most related to a big part of the organizational results analysed. One exception is the operational efficiency increase and the costs reduction (Table 3) although some authors like Wan [52] argue that the use of Internet does not give a guarantee of success or a competitive advantage.

- Regarding Intranet, there was also a significant association with several organizational results analysed, but in a lesser degree than that with Internet. These results are related mainly to financial and customers service improvement (increase of profits, strategic renewal, sales growth, achievement of objectives, increased customers' loyalty, quality improvement and costs reduction) (Table 4). In any case, Intranet is a tool that can benefit internally every member of the hotel as it allows conducting communications and interactions [53], which can improve competitiveness. Thus, Intranet, along with Internet, as proved in this study, in line with Garbin [53], is considered as one of the technologies with greatest impact on tourism sector.

- The email had a lower association with organizational results at the hotels employees' level of use. It only related to the strategic renewal, fulfilment of objectives and customers loyalty increase, results linked to the employees' work (Table 5). On the contrary, according to the literature, the email is more related to knowledge in organizations development [54].

Internet connection – Performance		Value	Approx. Significance
Intranet connection - Market share increase	Cramer's V	0.233	0.111
Intranet connection -Increase of profits	Cramer's V	0.297	0.002
Intranet connection - Strategic renewal	Cramer's V	0.337	0.000
Intranet connection - Efficiency increase	Cramer's V	0.226	0.153
Intranet connection - Sales growth	Cramer's V	0.317	0.002
Intranet - Fulfilment of objectives	Cramer's V	0.287	0.010
Intranet connection - Development of new services	Cramer's V	0.248	0.054
Intranet connection - Customers loyalty increase	Cramer's V	0.280	0.015
Intranet connection - Innovation	Cramer's V	0.252	0.064
Intranet connection - Quality improvement	Cramer's V	0.270	0.026
Intranet connection - Competitive position improvement	Cramer's V	0.231	0.123
Intranet connection - Costs reduction	Cramer's V	0.300	0.001

Source: Compiled by authors

Table 4: Intranet connection- Intra-organizational level - Organizational results.

Email-Performance		Value	Approx. Significance
Email - Market share increase	Cramer's V	0.227	0.149
Email - Increase of profits	Cramer's V	0.222	0.180
Email - Strategic renewal	Cramer's V	0.293	0.003
Email - Efficiency increase	Cramer's V	0.220	0.199
Email - Sales growth	Cramer's V	0.259	0.097
Email - Fulfilment of objectives	Cramer's V	0.471	0.000
Email - Development of new services	Cramer's V	0.237	0.092
Email - Customers loyalty increase	Cramer's V	0.366	0.000
Email - Innovation	Cramer's V	0.229	0.163
Email - Quality improvement	Cramer's V	0.223	0.200
Email - Competitive position improvement	Cramer's V	0.219	0.208
Email - Costs reduction	Cramer's V	0.201	0.380

Source: Compiled by authors

Table 5: Intra-organizational email - Organizational results.

• The Property Management Systems were more correlated to organizational results than the email. Thus, they are linked to strategic renewal, customer loyalty increase, quality improvement and cost reduction (Table 6). These results are linked to the very purpose of this tool, which is to improve the management of both the back-office, that includes, among others, the financial and commercial arrangements, and the front office, which would be linked to other related to customers activities: reception, telephone connections. etc. [27]. Additionally, the study of these authors shows that hotels using PMS reach higher productivity rates than those which do not use it. Finally, we analysed organizational results achieved related to the use of technologies at inter-organizational level: Internet, email, website, CRM, CRS, Web 2.0 and blogs. We have reached the following conclusions:

• The use of Internet with the stakeholders in the analysed hotels does not imply so good organizational results as those achieved by its use among employees. They include strategic renewal, sales growth, fulfilment of objectives and, finally, one which most sense has for the remarkable link between Internet and customers: customers loyalty increase (Table 7). Internet itself can be considered as an important innovation that can contribute to the increase of companies' competitiveness, as it facilitates the relationship with customers [55]. Then, Internet is a new communication and distribution channel

for consumers and suppliers of products and services in the tourism sector [56]. Internet has been highlighted as one of the most influential technologies commercially to the consumers' behaviour [34,57,58].

• The e-mail, which is conceived as a tool for inter-organizational learning, almost did not have relationship with organizational results of the analysed hotels. Thus, it only had a significant association with the strategic renewal and fulfilment of objectives (Table 8). The email has been seen as a mean of marketing with commercial purposes and results, but lately its use has been limited by the appearance of spam [59].

• The website had a greater effect on organizational performance because it leads to increase in the efficiency, fulfilment of objectives, customer loyalty increase. It is a key tool in the hotel sector's interaction with customers and the possible increase in consumer buying intention depends on its quality [60]. Finally, it leads to innovation (Table 9). The websites are a key tool to attract customers, especially through its design [37,61].

• Customer Relationship Management (CRM) is a technology based on deep insight into our customers' identification in order to adapt products and services to their tastes and preferences. It was associated with a considerable number of organizational performances

PMS-Performance		Value	Approx. Significance
PMS - Market share increase	Cramer's V	0.217	0.455
PMS - Increase of profits	Cramer's V	0.223	0.396
PMS - Strategic renewal	Cramer's V	0.321	0.002
PMS - Efficiency increase	Cramer's V	0.247	0.171
PMS - Sales growth	Cramer's V	0.255	0.098
PMS - Fulfilment of objectives	Cramer's V	0.228	0.350
PMS - Development of new services	Cramer's V	0.260	0.093
PMS - Customers loyalty increase	Cramer's V	0.325	0.004
PMS - Innovation	Cramer's V	0.251	0.172
PMS - Quality improvement	Cramer's V	0.281	0.049
PMS - Competitive position improvement	Cramer's V	0.210	0.543
PMS - Costs reduction	Cramer's V	0.300	0.008

Source: Compiled by authors

Table 6: PMS at intra-organizational level – Organizational results.

Internet connection – Performance		Value	Approx. Significance
Internet connection - Market share increase	Cramer's V	0.190	0.508
Internet connection - Increase of profits	Cramer's V	0.225	0.161
Internet connection - Strategic renewal	Cramer's V	0.283	0.006
Internet connection - Efficiency increase	Cramer's V	0.201	0.378
Internet connection - Sales growth	Cramer's V	0.273	0.047
Internet connection - Fulfilment of objectives	Cramer's V	0.309	0.003
Internet connection - Development of new services	Cramer's V	0.175	0.678
Internet connection - Customers loyalty increase	Cramer's V	0.322	0.001
Internet connection - Innovation	Cramer's V	0.198	0.408
Internet connection - Quality improvement	Cramer's V	0.199	0.397
Internet connection - Competitive position improvement	Cramer's V	0.231	0.126
Internet connection - Costs reduction	Cramer's V	0.162	0.805

Source: Compiled by authors

Table 7: Internet connection at inter-organizational level- Organizational results.

Email -Performance		Value	Approx. Significance
Email - Market share increase	Cramer's V	0.199	0.398
Email - Increase of profits	Cramer's V	0.215	0.236
Email - Strategic renewal	Cramer's V	0.271	0.013
Email - Efficiency increase	Cramer's V	0.243	0.070
Email - Sales growth	Cramer's V	0.240	0.226
Email - Fulfilment of objectives	Cramer's V	0.284	0.012
Email - Development of new services	Cramer's V	0.244	0.064
Email - Customers loyalty increase	Cramer's V	0.246	0.082
Email - Innovation	Cramer's V	0.224	0.193
Email - Quality improvement	Cramer's V	0.213	0.276
Email - Competitive position improvement	Cramer's V	0.183	0.581
Email - Costs reduction	Cramer's V	0.155	0.859

Source: Compiled by authors

Table 8: Email – Organizational results.

Website – Performance		Value	Approx. Significance
Website - Market share increase	Cramer's V	0.199	0.404
Website - Increase of profits	Cramer's V	0.181	0.611
Website - Strategic renewal	Cramer's V	0.220	0.194
Website - Efficiency increase	Cramer's V	0.261	0.025
Website - Sales growth	Cramer's V	0.218	0.449
Website - Fulfilment of objectives	Cramer's V	0.266	0.032
Website - Development of new services	Cramer's V	0.219	0.206
Website - Customers loyalty increase	Cramer's V	0.290	0.008
Website - Innovation	Cramer's V	0.290	0.008
Website - Quality improvement	Cramer's V	0.224	0.192
Website - Competitive position improvement	Cramer's V	0.216	0.232
Website - Costs reduction	Cramer's V	0.203	0.352

Source: Compiled by authors

Table 9: Website- Organisational results.

CRM-Performance		Value	Approx. significance
CRM - Market share increase	Cramer's V	0.333	0.001
CRM - Increase of profits	Cramer's V	0.289	0.018
CRM - Strategic renewal	Cramer's V	0.311	0.004
CRM - Efficiency increase	Cramer's V	0.269	0.060
CRM - Sales growth	Cramer's V	0.254	0.102
CRM - Fulfilment of objectives	Cramer's V	0.264	0.101
CRM - Development of new services	Cramer's V	0.317	0.002
CRM - Customers loyalty increase	Cramer's V	0.276	0.061
CRM – Innovation	Cramer's V	0.258	0.132
CRM - Quality improvement	Cramer's V	0.303	0.015
CRM - Competitive position improvement	Cramer's V	0.203	0.619
CRM - Costs reduction	Cramer's V	0.298	0.010

Source: Compiled by authors

Table 10: CRM-Organizational results.

as market share increase, profits increase, strategic renewal, development of new services, quality improvement and costs reduction (Table 10). The literature, in general, is based on the fact that the CRM increases customers' satisfaction and, therefore, leads to customers' retention [62]. Notwithstanding, we have to consider that the research that reveals the relationship between CRM and the performance of a hotel is scarce [62] and that the existing studies reject its impact on organizational performance [63,64].

- The Central Reservation Systems (CRS), an application of central location, that controls and updates the inventory of rooms, prices in different distribution channels and allows the automatic management of the reserves, produced a large number of organizational results that can be obtained through its use at inter-organizational level. Specifically, most of them, with exception of the development of new services, innovation and competitive position improvement. It indicates that there is a clear orientation towards financial returns (Table 11). According to Figueroa [25], the CRS offer clear advantages for the management of a hotel which is also supported by our study.

- Finally, more innovative technologies used with stakeholders, especially customers, namely, the Web 2.0 and the blogs, also have a significant association with most of the analysed results unless with profits increase, strategic renewal, competitive position improvement and costs reduction, i.e., results closely linked with the financial aspects of the company (Table 12).

Conclusions and Discussion

According to results of descriptive statistics, we find that Internet is the most valued technology by respondents from the analysed hotels because of its utility at both intra-organizational learning - learning among employees, as well as inter-organizational level-learning with the stakeholders. These results are in line with Sooraksa [65] who indicates that organizational learning among employees in the hotel

CRS-Performance		Value	Approx. Significance
CRS - Market share increase	Cramer's V	0.310	0.004
CRS - Increase of profits	Cramer's V	0.289	0.018
CRS - Strategic renewal	Cramer's V	0.348	0.000
CRS - Efficiency increase	Cramer's V	0.309	0.004
CRS - Sales growth	Cramer's V	0.273	0.033
CRS - Fulfilment of objectives	Cramer's V	0.281	0.048
CRS - Development of new services	Cramer's V	0.265	0.074
CRS - Customers loyalty increase	Cramer's V	0.368	0.000
CRS - Innovation	Cramer's V	0.239	0.256
CRS - Quality improvement	Cramer's V	0.334	0.002
CRS - Competitive position improvement	Cramer's V	0.248	0.165
CRS - Costs reduction	Cramer's V	0.395	0.000

Source: Compiled by authors

Table 11: CRS-Organizational results.

Web 2.0/Blogs-Performance		Value	Approx. Significance
Web 2.0/Blogs - Market share increase	Cramer's V	0.282	0.028
Web 2.0/Blogs - Increase of profits	Cramer's V	0.270	0.056
Web 2.0/Blogs - Strategic renewal	Cramer's V	0.237	0.254
Web 2.0/Blogs - Efficiency increase	Cramer's V	0.274	0.045
Web 2.0/Blogs - Sales growth	Cramer's V	0.273	0.032
Web 2.0/Blogs - Fulfilment of objectives	Cramer's V	0.349	0.001
Web 2.0/Blogs - Development of new services	Cramer's V	0.310	0.004
Web 2.0/Blogs - Customers loyalty increase	Cramer's V	0.394	0.000
Web 2.0/Blogs - Innovation	Cramer's V	0.371	0.000
Web 2.0/Blogs - Quality improvement	Cramer's V	0.282	0.047
Web 2.0/Blogs - Competitive position improvement	Cramer's V	0.231	0.312
Web 2.0/Blogs - Costs reduction	Cramer's V	0.257	0.108

Source: Compiled by authors

Table 12: Web 2.0/Blogs-Organizational results.

industry has involved extensive use of Internet. Furthermore, Internet is important in the commercial area referring to a good learning from customers, suppliers, etc. as testified by Redondo [66].

We can find studies focused on how organizational learning can affect organizational effectiveness in the tourism sector [7-9] and specifically, in the hotel sector it is proved empirically that organizational learning influences organizational performance [67]. Then, some researchers analyse organizational learning as a cause that explains and solves the problems related to new technologies use in organizations [3]. We analysed which technologies associated with learning generate specific organizational results. We found that the most valued result is customer loyalty increase.

Specifically, organizational learning-oriented technologies which have had a greater effect on organizational outcomes on intra-organizational level are Internet and Intranet. Internet use among hotel employees assumes, according to our study, an improvement of all organizational results analysed unless operational efficiency increase and costs reduction. This means that Internet is a very powerful tool and a key for the development of appropriate management of the tourist organization through organizational learning, as indicated by Martin-Rojas et al. [5].

Although the use of Intranet supports the use and access to knowledge flowing in the organization [68-71], this study has shown that even though it may influence some organizational results, it has no such a positive impact as Internet.

In order to obtain positive results, the most valued technology-oriented to organizational learning at inter-organizational level is the CRS, followed by Web 2.0, blogs and CRM and to a lesser extent Internet, website and email which can be highlighted as they are technologies closely linked to customers and suppliers although two of them, Internet and website, are significantly associated with customers loyalty. The CRS allows mainly to control, promote and sell products globally as well as to facilitate the yield management, as advocates Buhalis [26]. This can be related mainly to good financial returns, as indicated in this study, through results such as market share increase, profits increase, sales growth, etc.

Web 2.0 and blogs have also been highlighted in this study as a technology that can generate efficient results if used as a learning tool at inter-organizational level. According to Lim et al. [72] introducing Web 2.0 technologies allow to interact with clients to share comments and provide feedback.

On the one hand, from an academic perspective, this study enhances the understanding of the importance of ICTs as a tool that can improve organizational results from a learning point of view. As mentioned in the literature, previous research has been more focused on the introduction and development of ICTs and their costs and benefits [16-19,21], but not from a specific point of view as it is the learning. On the other hand, this study re-emphasize that Internet can improve performance and competitiveness, as indicated also by Namasivayam et al. [73], Porter [74] and Salter et al. [75]; and the CRS could be seen as a new competitive source, as indicated by Mihalič and Buhalis [14].

From the business perspective, we conclude that (1) the use of Internet is a key learning tool that can generate positive results in hotels and, above all, its use at inter-organizational level, it is to say, between employees. It means that employees have to make more use of it like Intranet (2) that the hotels should promote the use of the CRS

as interaction tool with stakeholders as it can generate effective results at inter-organizational level similarly as the blogs and Web 2.0; (3) that the customer loyalty increase is one of the most appreciated results from the use of ICT as a learning tool. Thus, hotels should give it a boost as customer loyalty can lead to better financial results.

We have to point out that there are a number of limitations in this work. First of all, the measurement of variables is based on the subjective assessments of respondents. The collected information comes from the perceptions of a single informant - senior and middle managers of the hotel establishments, which includes a certain degree of subjectivity in their opinions. Even though it is a common approach in such studies, the possibility of including more objective measures to improve the validity of the obtained results could be considered. However, it is not easy to obtain such information in the hotel industry which makes difficult gathering more objective measurements.

Finally, we could point out the following future research lines: (1) it would be interesting to consider a qualitative research methodology, introducing case studies, in order to be able to compare between our results and business practices; (2) owing to the fact that our study includes hotels of 3, 4 and 5 stars, a comparison between the level of learning achieved by different categories could be made. Furthermore, a cluster analysis could be carried out according to the size of the hotel, age, number of employees and belonging or not to a chain; (3) finally, this study could be carried out in other Spanish regions or regions in other countries in order to determine whether there are significant statistical differences in comparison with our results of the ICTs-related organizational results in terms of learning.

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