Hotel innovation and performance in times of crisis

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Abstract

Purpose – This paper aims to analyze the influence of innovation-based orientation on hotel performance, how the management's perception of market turbulence moderates this relationship and the effect of an atmosphere of crisis.

Design/methodology/approach – The research carried out used an on-line survey among four-star hotel managers in 52 Spanish cities.

Findings – The results obtained indicate that the tendency of a hotel to innovate does not contribute directly and positively on short-term performance. However, it does confirm its importance when improving hotel performance in the medium- and long-term. This work discusses how the perception of technological turbulence influences the willingness to innovate, together with the effect that an economic-crisis-related-pessimistic management view has on marketing performance and long-term results.

Originality/value – Reliable and valid scales, applicable to the hotel sector and useful both for researchers and managers, are provided to measure the tendency to innovate, perceived technological turbulence and company performance. Knowledge regarding innovation is expanded, including a critical factor to increase business profits and competitiveness in uncertain environments. The model proposed is tested in a sector where there is little empirical evidence about the effect of innovation on performance.

Keywords Performance, Innovation, Spain, Crisis, Hotel sector

Paper type Research paper

1. Introduction

Traditionally, the hotel sector is considered to have limited innovation orientation (Pivcevic and Petric, 2011; Mattsson and Orfila-Sintes, 2013), although differences are observed in the industry. These differences may be based on the type and degree of innovation considered (Martínez-Ros and Orfila-Sintes, 2009) or the characteristics of the company, such as the category, dimension, ownership and type of administration (Orfila-Sintes *et al.*, 2005, Orfila-Sintes and Mattsson, 2009; López-Fernández *et al.*, 2011). They may also be linked to the degree of employee and customer involvement (Orfila-Sintes *et al.*, 2005; Ottenbacher and Gnoth, 2005; López-Fernandez *et al.*, 2011), to the importance of incorporating information and communication technologies (ICT) (Sundbo *et al.*, 2007; Aldebert *et al.*, 2011) or even vary depending on the country (Pivcevic and Petric, 2011).

According to a national survey about innovation in Spanish companies (INE, 2010), while three years ago 13 per cent of all service companies were carrying out

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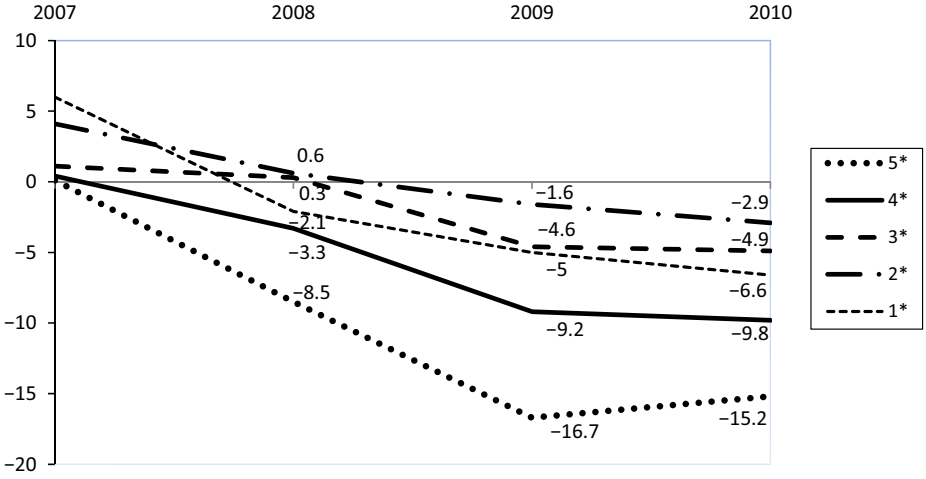
technological innovation, among hotel companies at that time, this percentage decreased to 5.5 per cent. The 2012 Tourist Innovation in Spain Report showed that relevant changes were taking place in the orientation toward innovation (Valls, 2012), but only in certain areas, such as administration, human resources and supplier management; nevertheless, other areas, specifically internationalization or ICT, were more stagnant.

Today, with the stage set for growing competition and uncertainty, technological, organizational and/or commercial innovation acquires greater strategic relevance for hotels. Innovation is a key element to improve productivity, competitive positioning and, therefore, profits (Nicolau and Santa María, 2013).

The international economic and financial crisis is having a profound effect on the competitiveness of Spain's hotel sector. Given that opening a hotel is a long-term endeavor, numerous concessions were offered in times of prosperity, which motivated a 9 per cent increase in the number of hotel beds in Spain between 2007 and 2010 (Spain's National Institute of Statistics). However, hotel demand began to diminish as of 2008, coinciding with the onset of the crisis. Between 2007 and 2008, the number of overnight hotel stays fell by an average of 1.7 per cent, while between 2008 and 2009, there was a 7.94 per cent decrease. In 2010, the average hotel occupation was 54.27 per cent. This situation, together with elevated national and international competition, forced hoteliers to significantly reduce their prices, thus increasing the need for greater cost control.

Figure 1 shows the price variations for overnight stays in Spanish hotels between 2007 and 2010. The effect of the crisis on hotel prices as of 2007 is also shown. From that point in time, the decrease in prices has been heterogeneous among categories. Four- and five-star hotels, which started with higher prices, have experienced greater price decreases between 2008 and 2010 (on average, 15.2 per cent for five-star hotels and 9.8 per cent for four-star hotels).

In such a context, a paradox is taking place: while nowadays an increased investment in innovation is a decisive factor to improve business productivity and growth, the



Source: Elaborated from data supplied by the National Institute of Statistics (www.ine.es)

Figure 1.
Progression of the hotel prices by categories from 2007 to 2010 (data – accumulated percentage)

pressure to reduce costs has led companies to slash their investment in R+D+i since the onset of the financial crisis. Given that there is little evidence of a strong relationship between innovation and hotel performance (Mattsson and Orfila-Sintes, 2013), additional research is needed to gain further insights that contribute to clarifying this relationship.

Besides studying the effect of innovation on hotel performance, from an academic point of view, it is also important to examine the moderating role of the environment, and more specifically technology, as this aspect has received only limited attention (Deshpande *et al.*, 1993; Matsuno *et al.*, 2002; Calantone *et al.*, 2003; Jansen *et al.*, 2006; Siguaw *et al.*, 2006; Rubera and Kirca, 2012). This paper will analyze the moderating effect of the management's perception about market turbulence and the crisis. These measures express managers' optimism or pessimism regarding the economic situation and its effect on their business. Previous studies provide evidence about the importance of business confidence indicators as a tool to measure the status and progression of economic activity (Gagea, 2012; Sum and Chorlian, 2013); these indicators generally play a significant role in predicting downturns (Taylor and McNabb, 2007). Decreasing business confidence often implies slow economic growth because business owners and managers are likely to reduce investment in innovation.

This analysis is important for several reasons: first of all, innovation is a critical factor, not only to increase business profits, but also to improve competitiveness in uncertain environments (Damanpour and Evan, 1984; Han *et al.*, 1998). Second, there is ample literature that has explored the relationship between innovation and performance, but empirical studies in this field have not produced conclusive results (in some cases, they are even contradictory). Likewise, the tourist sector is a motor of Spain's economy, as it contributed 160 billion Euros to the nation's GDP (15.2 per cent) in 2012 (www.wttc.org). Finally, most of the existent work focuses on manufacturing companies; there is little empirical evidence about this relationship in the service sector (Cainelli *et al.*, 2006; Grawe *et al.*, 2009) and, more specifically, in the hospitality and tourism industry (Nagy, 2012; Júnior and de Aquino Guimarães, 2012).

2. Review of the literature

2.1 Innovation and performance in services

Empirical research analyzing the relationship between innovation and business performance fails to obtain conclusive results (see an extensive review in Rosenbusch *et al.*, 2011). Birley and Westhead (1990), Jaworski and Kohli (1993) and Heunks (1998) found that the relationship between innovation and performance is not significant. Other authors verified that the relationship is negative (McGee *et al.*, 1995; Vermeulen *et al.*, 2005; Guisado-González *et al.*, 2013). On the other hand, several empirical studies (Han *et al.*, 1998; Li and Atuahene-Gima, 2001; Matsuno *et al.*, 2002; Hult *et al.*, 2004; Panayides, 2006; Gunday *et al.*, 2008; Rosenbusch *et al.*, 2011; Stock and Zacharias, 2011; Rubera and Kirca, 2012) offer a positive relationship between innovation and business performance.

Han *et al.* (1998) assign an important part of the diverse results identified in the literature to the sector analyzed. For service companies, implementing innovation and measuring its impact on business performance is commonly undertaken over a shorter period when compared with industrial sectors; this could explain the non-significant

and/or negative results seen in the literature. Other authors find no significant differences between manufacturing firms and services (Lööf and Heshmati, 2006).

In the tourist industry, and more specifically the hotel sector, research on innovation is a novel topic and there is limited confirmed knowledge about the effect of innovation on business performance (Hjalager, 2010; Aldebert *et al.*, 2011; Nagy, 2012). Agarwal *et al.* (2003) showed that innovation is a moderating variable of the relationship between market orientation and business performance. These authors found that managers' perceptions of hotel results, as well as the objective data about the chain's performance, are positive and significantly influenced by innovation. Victorino *et al.* (2005) also verified that innovative hotels obtain a competitive edge and, consequently, consumer preference. Recent study conclusions (Table I) among various tourist subsectors (hotels, restaurants, travel agencies, etc.), using a variety of methodologies (qualitative and quantitative) and in diverse geographical contexts (Croatia, Holland, Italy, Spain, Switzerland, Turkey), support the positive and significant effect of innovation on business performance, even when different types of measures are applied for both concepts.

Given that the term "innovation" is overused and that it can be confusing (Tajeddini, 2010), we have defined it within the context of this specific study. According to Siguaw *et al.* (2006), Gunday *et al.* (2008) and Agarwal *et al.* (2003), innovation is understood as the orientation of business toward the incorporation of new products and new processes for its internal administration, whether marketing or organizational, in the competitive context of its market and it can be evaluated through the inputs invested in its generation from the perspective of hotel managers.

Based on the previous arguments, it can be concluded that hotel innovation is a route to obtain advantages in highly competitive environments. Our first hypothesis (*H1*) is:

H1. Innovation has a positive effect on hotel performance.

Furthermore, in accordance with Grawe *et al.* (2009), Sengupta and Dev (2011), Ordanini and Parasuraman (2011) and Rubera and Kirca (2012), innovation has a direct impact on marketing performance (*H1a*), and as Kirca *et al.* (2005), Gunday *et al.* (2008) and Cheng and Krumwiede (2010) state, this contributes to greater economic and financial performance (*H1b*). The explanation lies in the fact that, in the short-term, innovation allows a company to reach higher levels of customer satisfaction, loyalty and perceived quality; consequently, it obtains better economic results through increased sales, market shares, etc. In the long-term, innovation has an indirect effect on financial results, by improving economic and marketing results.

2.2 Moderators of the innovation-performance relationship

The moderating role of environmental variables such as the level of competition or market turbulence has already been analyzed in works studying the relationship between market orientation and company performance (Subramanian and Gopalakrishna, 2001; Wang *et al.*, 2012) and between market orientation and the consequences of innovations (Grinstein, 2008). Even so, few studies have analyzed the moderating effects of the technological and competitive environment on the relationship between innovation and performance (Deshpande *et al.*, 1993; Matsuno *et al.*, 2002, Jansen *et al.*, 2006; Siguaw *et al.*, 2006; Rubera and Kirca, 2012).

Table I.
Relationship between innovation and results in the hospitality industry

Study	Country	Sample size	Data year	Innovation (a)	Performance	Innovation-performance relationship
Erdem *et al.* (2013)	Turkey	40 hotels	2011	Subjective scale of orientation toward innovation	Perceptual scale of results	Positive and significant
Guisado-González *et al.* (2013)	Spain	443 (55) hospitality companies (Innovative)	1998-2000	Strategies of innovation	Results of innovation	Partial and negative
Martínez-López and Vargas-Sánchez (2013)	Spain	48 hotel chains	2009	Subjective scale of innovation	Competitive advantage and organizational performance	Positive correlation between degree of innovation and financial results
Mattsson and Orfila-Sintes (2013)	Spain	331 hotels	2001-2007	Combination of four innovation types	Average occupancy rate and profitability improvement	Positive and significant effect for two combinations: Full and Service and Back Office Innovation
Nicolau and Santa-María (2013)	Spain	Two hotel companies	1996-2008	Event study of 24 innovations grouped into four types	Market value as a future-oriented measure of cash-flow	Positive and significant; stronger effect for and marketing process innovations
Öncü, Mesci and Sahin (2012)	Turkey	Two hotels, two restaurants, two travel agencies	2011	Qualitative	Qualitative	The financial innovation favorably affects performance
Den Hertog, Gallouj and Segers (2011)	Holland	613 Hospitality firms (drinks, fast-food, restaurant and hotels subcategories)	2005	Subjective scale of innovation types and strategies	Subjective scale of results	Positive relationship between level of innovation and average performance (descriptive analysis)
Ordanini and Parasuraman (2011)	Italy	91 Luxury hotels	n.a.	Subjective scales on facets of service innovation (volume and radicalness)	Subjective scales on two measurements of company performance (revenue growth and profit growth)	Favorable and significant effects of each facet of the innovation on each measurement of results; volume and radicalness affect revenues to the same extent, only radicalness has a significant effect on profits

(*continued*)

Study	Country	Sample size	Data year	Innovation (a)	Performance	Innovation-performance relationship
Pivcevic and Petric (2011)	Croatia	68 hotels	2010	Subjective scales on degree of innovation of service, processes, marketing and organization	Percentage of change in occupation or income	Positive and significant correlation in the occupation variable
Tajeddini (2010)	Switzer-land	156 hotels	2007	Subjective scale of innovativeness	Perceptual measures of achievement in: profit goal, sales goal and ROI	Positive and significant effect
Orfila-Sintes and Mattsson (2009)	Spain	331 hotels	2004	Service changes and technology incorporation in the key areas, departments or services	Average level of occupation	Positive and significant effect

Note: n.a.: not available
Source: Own elaboration

Table I.

According to Han *et al.* (1998), the positive relationship between innovation and performance is stronger in companies operating in more turbulent markets. The underlying argument is that innovation is utterly crucial for those companies facing a certain degree of uncertainty, whether due to the actual market configuration, or to its degree of turbulence. Damanpour and Evan (1984) propose that organizations could be in a position to face market uncertainty through technical and administrative changes in their organizational structure, and thus improve the achievement of their objectives and results. Han *et al.* (1998) and Lichtenthaler (2009) contradict the conclusions of Jaworski and Kohli (1993), who found no significant effect for technological turbulence; Slater and Narver (1994) noted that technological turbulence negatively moderates the relationship between market orientation and firm performance. In this study, the orientation of Han *et al.* (1998) is followed, in the hope of discovering that the technological turbulence of the environment works as a moderator for the relationship between innovation and performance, with a stronger relationship when managers perceive a highly turbulent environment. This argument leads to the formulation of a second hypothesis (*H2*), which is:

H2. The technological turbulence of the environment positively moderates the relationship between innovation and results.

Finally, hotel results may also hinge upon a series of contextual variables working as control variables (Li and Atuahene-Gima, 2001; Rosenbusch *et al.*, 2011) affecting the innovation-performance relationship. In an unstable economic situation, as is the current state of affairs, management confidence in the future is crucial to determine its vision about the importance of investing in innovation (Gagea, 2012; Sum and Chorlian, 2013). If managers are optimistic about the effects of the crisis and its length, their perceptions about the innovation-performance link will differ from those of managers with a more pessimistic viewpoint. In this regard, a hypothesis has not been proposed as an effect signal for the control variable on the innovation-performance link, but rather it has been formulated as a relationship whose signal and intensity will be explored in this research. Figure 2 summarizes the proposed innovation-performance model we strive to verify in this work, where the positive impact of innovation is expected to be stronger when the hotel manager perceives a highly turbulent environment.

3. Methodology

To test the hypotheses formulated herein, an on-line survey was sent to the managers of 357 four-star hotels, in 52 cities of Spain (administrative capitals). We extracted the list

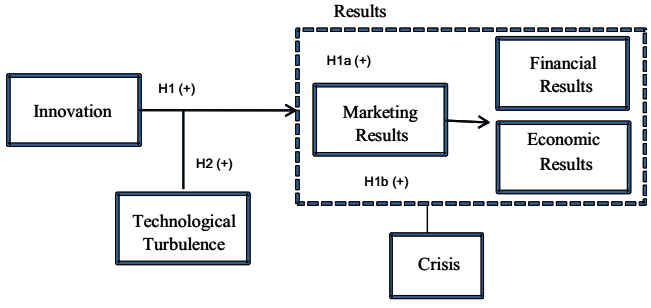


Figure 2.
Proposed model

of hotels from Booking.com, the leading online sales travel agency in Spain, and selected only those hotels with more than 100 rooms. The request for participation was made by e-mail and by telephone. We obtained a total of 151 valid surveys (42 per cent response rate); among them, 131 hotels belonged to a chain (87 per cent) and 20 hotels were independent establishments (13 per cent). Data collection was performed between March and May of 2010. The questionnaire was answered by the manager or assistant manager of the selected hotels with an average seniority of eight years.

When measuring the effects of innovation in the hotel sector, primary information sources are more adequate than patents or resources designed to generate new knowledge (Mattsson and Orfila-Sintes, 2013). Consequently, all variables in this study have been measured using subjective scales elaborated from the opinions of hotel managers. To measure the degree of hotel innovation, the Siguaw *et al.* (2006) idea of innovation orientation was used. To look for innovation types, the OECD (2005) guidelines and the Schumpeterian taxonomy (Hjalager, 2010) were followed; the Gunday *et al.* (2008) and Agarwal *et al.* (2003) deliberations were also taken into consideration by including three items in the questionnaire (see Appendix). Hotel performance was measured in three categories (Agarwal *et al.*, 2003; Matear *et al.*, 2002; Snoj *et al.*, 2007): economic results (three items), marketing results (four items) and financial results (three items).

To assess perceptions regarding the turbulence of the technological environment, the Han *et al.* (1998) scale was applied to the hotel context using five items. A control variable – perception about the crisis – was included, which could directly affect the change perceived in hotel results and whose omission could cause the hypotheses to be proven not significant.

4. Results

4.1 Descriptive analysis

Table II shows that the perceived degree of hotel innovation compared to competitors reaches an average value of 4.93 on a Likert-type scale ranging from 1 to 7, which indicates that the sector is not in the high innovation tendency group. Among the managers consulted, innovation for internal administration processes (5.16) was above the investment in human resources to innovate (4.77) and the capital investment to develop new services (4.88).

The analysis of the three types of business performance allows us to state that hotel managers value the results achieved in the marketing area more positively (5.73) than economic (5.09) or financial (4.67) results. In terms of marketing performance, directors awarded an average value of 5.55 to the degree of satisfaction offered to customers regarding the established objective, while they judged the results related to the added value offered to the clients (5.86), the level of quality provided (5.81) and the improvement of the hotel's image in the market (5.70) more favorably. The evaluation of the economic performance was somewhat lower; this was perhaps due to the reduction of the average prices for Spanish hotel accommodation as a consequence of the economic crisis and greater pressure from competitors. This argument is in keeping with the values for each of the three indicators included, as the average score for the market share (5.16) and the occupation rate (5.12) is higher than the figure for sales (5.01), an indicator that directly includes the price variable. Finally, the lower values obtained for financial

Variables[a]	Average	D.T	L_i	E_i	Reliability: Alpha Cronbach	Reliability: Compound reliability (CF)	Validity: Average variance extracted (AVE)	Validity: Convergent validity
Degree of innovation	4.93	1.17						
I1	4.77	1.28	0.80	0.36				–
I2	4.88	1.37	0.92	0.15	0.86	0.86	0.67	$t = 11.00$
I3	5.16	1.33	0.73	0.46				$t = 9.47$
Marketing results	5.73	0.79						–
MK1	5.55	1.06	0.77	0.39	0.85	0.86	0.60	$t = 7.82$
MK2	5.86	0.90	0.70	0.51				$t = 9.72$
MK3	5.81	1.02	0.79	0.37				$t = 10.09$
MK4	5.70	0.80	0.83	0.31				
Economic results	5.09	1.14						
E1	5.01	1.27	0.92	0.15				–
E2	5.16	1.15	0.94	0.12	0.93	0.93	0.82	$t = 19.54$
E3	5.12	1.22	0.86	0.26				$t = 15.86$
Financial results	4.67	1.19			0.93	0.94	0.83	–
F1	4.64	1.24	0.85	0.27				$t = 16.54$
F2	4.70	1.31	0.95	0.09				$t = 15.96$
F3	4.67	1.23	0.93	0.13				
Technological environment	5.91	1.15						
ET1	5.67	1.35	0.58	0.66	0.76	0.78	0.43	–
ET2	5.61	1.27	0.78	0.39				$t = 6.20$
ET3	6.02	1.07	0.71	0.49				$t = 6.36$
ET4	6.56	0.71	0.58	0.66				$t = 5.08$
ET5	5.72	1.25	0.58	0.66				$t = 5.56$
Crisis	4.09	1.32						

Table II.
Descriptive statistics: reliability and validity analysis

Notes: [a] L_i: standardized weights; $E_i = (1 - R^2)$: variance of error; CF $= \frac{(\Sigma L_i)^2}{(\Sigma L_i)^2 + \Sigma \text{ var}(E_i)}$; AVE $\frac{\Sigma L_i^2}{\Sigma L_i^2 + \Sigma \text{ var}(E_i)}$

performance could be influenced by the consequences of a tough financial situation, due to the shortage of credit and increased financing costs.

Data also show that the managers' perception about customer assessment of the hotel services does not match customers' opinion. To confirm this statement, we used the average evaluation provided by the clients of the hotels analyzed in this work and published on the website Booking.com. The variables analyzed include the global assessment of the service and a number of service-related aspects such as the staff, the service offered by the hotel and the quality–price relationship. This information is compared to the management's perception of customer satisfaction and the quality offered by the hotel. According to the data obtained, there is a gap between the level of

service perceived by the client and the management's assessment of the service offered. Hotel managers score their customers' satisfaction (8.15) and the level of quality offered by their hotel (8.40) very positively, but these opinions fail to correspond with the client's reality, whose average evaluations are lower for global assessment service (8.01), staff (7.97), service offered (7.85) and price-quality relationship (7.79).

The perception of turbulence within the technological environment is, on average, high (5.91). Variables with even higher scores are those relating to the managers' opinions about the capacity of new technologies to open new access routes for clients (6.57), and to create important business opportunities within the sector (6.02).

The hotel managers' evaluation regarding the effect of the crisis on the results of the hotel holds an average-high position (4.09). Moreover, in this case, the standard deviation is relatively high (1.32), which indicates that the crisis could be affecting hotels in very different ways, depending on their location and target segments.

4.2 Validation of measurement scales and hypotheses

To test the previously formulated hypotheses, a structural equation model was applied using AMOS 19.0. The scales were subjected to both an exploratory analysis and a confirmatory factor analysis, which allow their reliability and legitimacy to be verified (Table III).

Reliability indicators – alpha coefficient and compound reliability – present satisfactory values, superior to the recommended minimum value of 0.7. Alternatively, the average variance extracted also presents acceptable values, except for technological turbulence, which reaches a value close to the 0.50 limit. On the other hand, the contrast for convergent validity offers extremely satisfactory values for all individual indicators, as none of the confidence intervals of the estimated correlations between each pair of dimensions contained the value 1.

Figure 3 shows the results of the proposed relationships. The estimated relationship model offers a good global fit with a chi-squared/gl proportion of 1.54, less than 2, and

Estimated relationship	Standardized coefficient
Low level of technological turbulence perceived	
Innovation → Marketing results	0.29*
Marketing results → Economic results	0.78**
Marketing results → Financial results	0.49**
Crisis situation → Marketing results	−0.46**
$\chi^2 = 100.38$; χ^2/g,l, = 1.41; CFI = 0.96; TLI = 0.95; IFI = 0.96; RMSEA = 0.08	
High level of technological turbulence perceived	
Innovation → Marketing results	0.49**
Marketing results → Economic results	0.64**
Marketing results → Financial results	0.59**
Crisis situation → Marketing results	−0.14(n.s.)
$\chi^2 = 124.82$; χ^2/g,l, = 1.76; CFI = 0.94; TLI = 0.92; IFI = 0.94; RMSEA = 0.09	

Notes: $^{**}p < 0.001$; $^{*}p < 0.01$

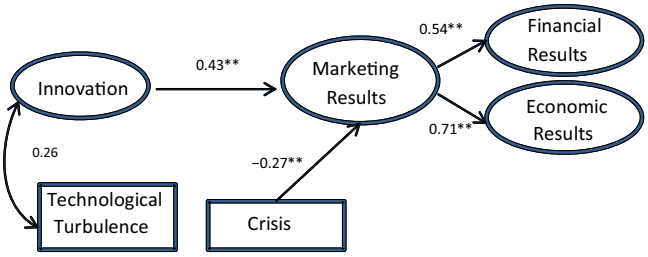
Table III. Estimation of the model for sub-samples, low and high technological turbulence

CFI, TLI and IFI indicators equal to 0.95 and RMSEA equal to 0.06. The results obtained confirm the direct, positive and strong effect of perceived innovation on marketing performance (0.43), which corroborates *H1a*. The relationship between the three types of results considered is also positive and significant. An increase in marketing performance leads to an increase in economic performance (0.71) and the financial results achieved by the company (0.54). The effect of innovation on the economic and financial performance is indirect. Thus, it occurs through the improvement of the marketing results, as was postulated in *H1b*. Hence, the estimated model hinders the rejection of *H1*, which states that innovation positively affects hotel results; it has a direct effect on marketing results and mediates both economic and financial performance.

The positive and significant correlation (0.26) found between the latent variables of innovation and turbulence in the technological environment confirms that when the turbulence perceived by hotel managers is greater, this increases the relative capacity for innovation, and therefore, the effect of this innovation on the results acquires greater strength (*H2* confirmed).

To further the testing of *H2*, a multi-group analysis of the model was performed, dividing the sample into two sub-samples according to the mean value of the scale (perception of low vs high technological turbulence). Table III shows the results of the estimated models for each of the two sub-samples. The global fit of the estimated model is acceptable; moreover, in both sub-samples, the positive and significant effect of the innovation perceived on the results of the hotels is maintained, both for the direct effect on marketing results and the indirect effects on the economic and financial results, although the sizes of the estimated coefficients are different. In short, as outlined in *H2*, in the sub-sample of hotels perceiving a more turbulent technological environment, the impact of perceived innovation on marketing performance is much stronger and more significant (0.49) than in the sub-sample perceiving low technological turbulence (0.29). Similarly, the total effect of innovation on economic and financial performance is 0.32 and 0.29, respectively, in the most turbulent environment, as opposed to 0.23 and 0.14, respectively, in the environment perceived as less turbulent.

Finally, the effect of the managers' perception about the consequences of the crisis is negative and significant on marketing performance (−0.27). When hotel directors perceive that the economic crisis has a significant impact on their business – greater than for the rest of their competitors – they also perceive that their marketing results are



Notes: ** $p < 0.001$; * $p < 0.01$; good-of-fitness indexes: $\chi 2$ 144 = 222.02, CFI = 0.95, TLI = 0.95, IFI = 0.95, RMSEA = 0.06

Figure 3.
Estimated relationship model (standardized coefficients)

worse. This effect is statistically significant for the entire sample and for the hotels that perceive low technological turbulence, but does not reach a significant level for the sub-sample of hotels rendering a high score to the turbulence of the technological environment.

5. Conclusions, implications for management and limitations of the study

This work seeks to fill a research gap in the field of innovation within the context of the current economic crisis: the relationship between innovation and firm performance is not clear, and there are few studies dealing with this topic in the tourism sector. By understanding the effect of a pro-innovation mentality on business results and how an optimistic/pessimistic perception on behalf of entrepreneurs affects this relationship, hotel managers have arguments when considering an investment in innovation to be a priority.

In this sense, the main contributions of our study are as follows: first, the present study offers reliable and valid scales applied to the hotel sector to measure and quantify company orientation toward innovation, perceived technological turbulence and three types of business performance (marketing, economic and financial). These scales could be of great use for academic researchers in subsequent works, carried out in other countries or for diverse accommodations. The scales could also be useful for managers who are willing to apply them in their own market research to determine their clients' opinion about their innovativeness or determine the degree of technological turbulence in their local markets. Besides, managers can integrate them in their strategies to improve their orientation toward innovation. In the same way, introducing a measure of the technological turbulence in the company will allow managers to identify opportunities offered by technological changes in advance and face the increased rivalry associated to these contexts in better conditions.

Regarding the relationship between perceived innovation and firm performance, this study, in line with those of Erdem *et al.* (2013), Martínez-López and Vargas-Sánchez (2013), Den Hertog *et al.* (2011) and Tajeddini (2010), shows a positive and significant effect of the first construct on the second. These results increase the reliability of previous findings and extend the link identified in other fields to hotels.

The results obtained in the analysis of the relationship between perceived innovation and performance allow us to state that a hotel's innovative focus does not directly and positively contribute to short-term performance – translated into higher hotel occupation rates or an increase in the short-term sales – but they do confirm the importance of investing in innovation to improve the services offered in the medium- and long-term. As Hjalager (2010) states, this may be due to the fact that investment in innovation is tied to an increase in the short-term costs that are not quickly compensated. Nevertheless, in line with the results of previous research (Victorino *et al.*, 2005), our study shows that when applied to the field of tourism, innovation has a direct and positive influence on marketing performance. This relationship supports the arguments in the literature about the need to be innovation-oriented as a mechanism to differentiate and improve performance toward consumers; with this, the company is in a position to obtain greater business profits.

The increased ability of a hotel to innovate, compared to its competitors and expressed as greater investments in human and capital resources plus improvements in internal administration processes, allows an increase in the quality of the services

provided to customers, together with higher satisfaction levels, greater value offered by the company and a better market image, which are key variables to obtain a sustainable, long-term competitive edge and economic and financial profits.

For that reason, hotels limiting investment in innovation due to the crisis or those that have limited such investments to reactive actions (basically innovation to reduce costs) should review their decision and deem the creation of new services and process improvements a priority. They should start seeing investment in innovation as an opportunity to combat the current excessive offer – especially in cities – and the price drops seen in recent years.

Nevertheless, the results of this analysis detect that Spanish hotels are defined by their limited tendency to innovative and that any investment in innovation is directed more toward internal administration processes than customer services. The current economic crisis and higher international competition may have pressed hotels to lower prices and control internal costs, which might explain the orientation of innovation toward internal management. In an international context, this orientation, which is not directed toward the market, could affect the long-term results of the hotel sector.

This limited tendency toward market orientation is observed when comparing the opinions of customers with regards to the service provided and the opinions of the management when it comes to assessing the service offered to the clientele. Data show the first ones are lower than the second. This difference may be due to the fact that the investment in innovation on behalf of the hotels is inaccurately focused. A change in orientation is necessary; the focal point must move from being internal to focusing on the market. Investing in innovation to offer better services may be the key to improving customer ratios. Rising occupation rates and sales ratios without distorting fees while maintaining an excellent level of service is one of the challenges facing Spain's hotel sector.

Technological turbulence acts as a moderating variable on the relationship between innovation and results, as this is correlated with the innovative superiority perceived by hotels. This work states that technological turbulence exerts a significant moderating effect on the relationship between innovation and performance and that it neutralizes the negative impact of the crisis on firm performance. This is an important contribution, as no previous studies had rigorously analyzed this effect in the hotel sector. It offers useful evidence to be replicated in future studies with the purpose of extending its validity.

When managers perceive that the sector where they operate is changing with regards to technological investment and that this facilitates new business opportunities, they assume that increased investment in innovation, in comparison with their competitors, will lead to achieving better results.

New technologies, especially the Internet, have had a major impact on the tourist industry in general, and more specifically on the hotel industry. In less than ten years, hotels have seen the great possibilities that new technologies offer. For example, the fact that tourists can obtain up-to-date information about the various hotels from their home, and negotiate their own on-line reservations, has not only increased the negotiating power of the hotels against tourist service suppliers, but it has also opened new customer communication and access routes to provide important business opportunities. This new perception of the opportunities generated by the technological environment motivates a firm's greater tendency toward innovation.

At the same time, those companies with the greatest predisposition for innovation perceive that they are operating in a more technologically turbulent environment. This means that in those hotels that perceive they compete in more dynamic technological contexts, there is a much stronger, more significant and direct relationship between the relative degree of innovative propensity and their marketing results, than in those hotels that do not perceive such a high degree of turbulence (0.49 as opposed to 0.29). This differential impact also influences the indirect relationship with economic and financial results.

As shown in Figure 4, in low turbulence environments, the average sizes of all latent variables analyzed in Spanish hotels are smaller than those of hotels that perceive high turbulence environments. It can equally be appreciated that the disparities in innovation variables are greater than those for results; this indicates that an improvement in innovation does not become an improvement of equal or greater quantity in marketing, economic and financial performance, but rather, other variables mediate and cause the conversion to be inferior to the unit. For example, the perception of the degree of severity of the consequences compared with competitors is greater, on average, in the community of hotels that perceive high turbulence (4.18) than in those that perceive low turbulence (3.98).

The field work in this study was carried out in the heat of a worldwide economic and financial crisis. This context allowed us to verify that the positive relationship between innovation and company performance is also observed during recession stages of an economic cycle. These findings contribute to emphasizing the need to include economic control variables in models linking strategic variables to hotel performance, to obtain free-of-error measures of the main effects analyzed.

Finally, the results of this study also reveal that the management's perception of the effect of the crisis on their business has a direct and significant negative influence on their marketing results. Therefore, when the management is pessimistic about the effect of the economic crisis on their business, they are also pessimistic about the marketing results achieved and, consequently, the long-term results.

This result confirms the importance of the Business Confidence Index as an indicator of a business' long-term economic development. A pessimistic attitude about the economic situation and the development of the business leads to short-term management orientation that is less inclined to innovate and that focuses on increasing sales through promotional stimuli that could very well delay the hotel industry's escaping the crisis. The data obtained reveal that hotel managers belonging to chains

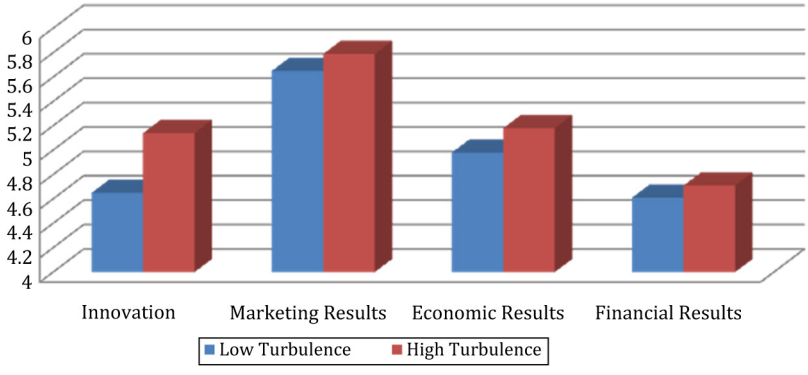


Figure 4.
Levels of innovation and business results in the Spanish hotel sector according to the perceived degree of technological turbulence

have, on average, a somewhat less pessimistic attitude (4.05) than those at independent hotels (4.53). Although the difference fails to be statistically significant, it detects the unfavorable position of independent hotels in advance, compared to chain hotels and their greater long-term risk if corrective measures are not taken.

Thus, crisis situations and those circumstances with a high degree of technological change must be considered an opportunity. From the standpoint of internal marketing, this translates in undertaking actions by which the staff shares an optimistic and favorable opinion of innovation, both in terms of service and processes.

This study has a number of limitations that must be taken into account when interpreting the conclusions. First of all, it is a transverse exploratory study. These results are valid in the current situation and for four-star, urban hotels in Spain. However, it is possible that these results could vary over time, depending on the location of the hotel and given the sector analyzed, as this is characterized by continuous technological changes and notable differences in target customer segments, depending on the destination type. Second, the scales are measured based on the perception of the hotel director or manager. This methodology, very frequently used in research in the tourism sector, has obtained valid and reliable results, but it is not free of possible biases. Finally, it has been impossible to examine the effect that belonging to chain may or may not have on the model, due to the limited number of independent hotels included in the total sample.

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Appendix

Items in italics were removed after a refinement process of the scales

Degree of innovation (alpha = 0.86). Think about the last three years and indicate how they have been compared with your main competitors (1 – much lower than the competition; 7 – much higher than the competition):

- Investment in human resources for innovation in hotel services (I1).
- Capital investment to develop new hotel services (I2).
- The degree of innovation for internal management processes (I3).

Turbulence of the technological environment (alpha = 0.77). (Indicate the characteristics of the technological environment within which the hotel has operated over the last three years. (1 – totally disagree; 7 – totally agree):

- The competition in our sector of activity has intensified due to technological changes (ET1).
- The technology used in the hotel sector changes quickly (ET2).
- Technological changes provide important business opportunities in the hotel sector (ET3).
- Technological changes have opened new channels via which to access our customers (ET4).
- Technological changes have increased the hotel's negotiating power in the distribution channel (ET5).
- Technological changes have increased the negotiating power of our customers in the hotel in the distribution channel (ET6).
- Many new services have been developed thanks to the technological advances made in the hotel sector (ET7).

Performance. Indicate what the last three years have been like (1 – very low; 7 – very high) with respect to your objectives.

(1) Marketing results (alpha = 0.86):
   - Our customers' degree of satisfaction (MK1).
   - *Percentage of customers who use our hotel more than once (MK2)*.
   - The added value provided to our customers (MK3).
   - Level of service quality offered to our customers (MK4).
   - Image of the hotel in the market (MK5).

(2) Economic results (alpha = 0.93):
   - Development of sales (E1).
   - Development of market share (E2).
   - Development of occupation rate (E3).
   - *Percentage of earnings from on-line reservations (E4)*.
   - *Percentage of earnings from overseas customers (E5)*.

(3) Financial results (alpha = 0.93):
   - Gross profit (F1).
   - Return on investment (F2).
   - Return on equity (F3).

Crisis. To what extent do you believe that the current crisis situation is affecting the business performance of your hotel? (1 – a lot less than the competition; 7 – a lot more than the competition), single item.

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