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Developing ambidexterity through quality management and their effects on performance

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ABSTRACT

This study analyzes the influence of quality management practices on organizational ambidexterity and on performance, and the mediating role of ambidexterity in the relationship between quality management practices and performance in the hotel industry. The paper uses Partial Least Squares (PLS) analysis based on data from 365 Spanish hotels. The results show that quality management practices favor the development of organizational ambidexterity, that is, they help balance exploitation and exploration activities, and this contributes to improving hotel performance. Moreover, ambidexterity acts as a partial mediator between quality management practices and hotel performance. These findings imply that quality management practices can create an appropriate organizational context to simultaneously develop both service improvements (exploitative innovations) and service innovations (explorative innovations). This paper contributes to theory by developing new knowledge regarding quality management as a facilitator of ambidexterity, and the mediating role of ambidexterity in the relationship between quality management and hotel performance.

1. Introduction

Organizational ambidexterity refers to a firm's ability to develop both the exploration of new possibilities and the exploitation of old certainties (March, 1991). Exploitation of current resources and capabilities is needed to increase competitiveness in the current market, whereas exploration prepares for dealing with future needs (Asif and De Vries, 2015). Both activities are essential for organizations to achieve long-term performance (Tushman and O'Reilly, 1996). Nevertheless, the literature on organizational ambidexterity points out that the activities of exploration and exploitation compete for scarce resources and create paradoxical challenges, because they require substantially different structures, processes, strategies, capabilities, and cultures (Backström, 2017; He and Wong, 2004). Consequently, it could be difficult for organizations to reach a high degree of exploration and exploitation simultaneously (Asif and De Vries, 2015).

Previous empirical works have examined both the antecedents of organizational ambidexterity and its effects on performance, in order to better understand how organizations can become ambidextrous. The antecedents and consequences of ambidexterity are a key research topic (Koryak et al., 2018) in the management field. In relation to the antecedents of ambidexterity, some determinants that have been empirically analyzed are organizational culture (Lee et al., 2017), organizational characteristics (Jansen et al., 2009), leadership (Keller and Weibler, 2015) or human resource practices (Malik et al., 2019). Nevertheless, it is not yet clear how organizational ambidexterity can be achieved (Asif and De Vries, 2015). In this regard, some theoretical studies suggest that quality management could be an important antecedent of organizational ambidexterity (Asif, 2019; Moreno Luzon and Valls Pasola, 2011) because quality management practices can lead to both incremental and radical changes in processes and/or products (Kim et al., 2012).

The literature shows two different approaches regarding the relationship between quality management practices and exploitation and exploration activities. On the one hand, a common interpretation of quality management is that it is related to efficiency and variance reduction; therefore, it supports exploitation activities at the expense of exploration (Benner and Tushman, 2003; Fundin et al., 2017; Palm et al., 2016). On the other hand, there are also studies suggesting that quality management practices can lead to both exploration and exploitation activities, because they can enhance not only effectiveness and

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efficiency but also flexibility and adaptability (Behmer et al., 2016; Kim et al., 2012; Malik et al., 2019). According to this second approach, quality management practices could help towards the simultaneous development of exploration and exploitation activities, promoting the creation of an organizational context that enhances ambidexterity. In this regard, although some authors have analyzed the individual effect of some quality management practice on exploration and exploitation (Khan and Naeem, 2018; Kim et al., 2012), there is a need to understand if quality management can help balance the simultaneous development of exploration and exploitation activities, thus achieving ambidexterity (Asif, 2019; Fundin et al., 2018).

In relation to the consequences of ambidexterity, some works show a positive relationship between organizational ambidexterity and different performance measures such as shared growth rate (He and Wong, 2004), average profitability (Jansen et al., 2012) or subjective performance ratings (Cao et al., 2009).

These ideas indicate that quality management practices can facilitate ambidexterity and that ambidexterity can enhance performance. Based on these ideas and the fact that quality management practices can have positive effects on performance (Bhatia and Awasthi, 2018; Shafiq et al., 2019), it can be said that quality management practices, ambidexterity, and performance could be related. Accordingly, quality management practices could have a positive indirect influence on performance through organizational ambidexterity. In other words, organizational ambidexterity could mediate the relationship between quality management practices and performance. No empirical studies have been found about the effect of quality management practices on organizational ambidexterity, and the indirect effect of quality management practices on performance via organizational ambidexterity in the hospitality sector.

This work is focused on the hotel industry. This industry faces a global market, with a high level of uncertainty and dynamism (Hernández-Perlines et al., 2019), in which organizational ambidexterity is increasingly necessary (Tang, 2014). Hotels need to satisfy current customer demands, increasing service quality through exploitation activities, and they also need to find new business opportunities, exceeding customer needs and expectations, and developing new services for new customers through exploration activities. This would make it possible to increase customer loyalty, and also the possibilities of attracting new customers. Nevertheless, few hotels develop exploitation and exploration activities simultaneously (Cheng et al., 2016). Thus, there is a need to research whether quality management practices can favor the development of organizational ambidexterity in hotels and if these quality practices may impact on hotel performance via ambidexterity.

Based on these gaps, the paper focuses on the following research problem: can quality management practices favor the development of organizational ambidexterity and in this way improve hotel performance both directly and indirectly via organizational ambidexterity? To address this research problem, the objective of this study is to analyze the influence of quality management practices on organizational ambidexterity, the link between quality management and performance, and the indirect effect of quality management practices on performance via organizational ambidexterity in the hotel industry.

This paper contributes to the theory about organizational ambidexterity by suggesting that quality management can be a facilitator of ambidexterity, and that ambidexterity can play a mediating role in the relationship between quality management and performance. Thus, this study contributes to theory about ambidexterity by jointly analyzing antecedents and effects of organizational ambidexterity in hospitality. The paper also contributes to theory about quality management by developing knowledge regarding the impact of quality management on both exploitation and exploration activities.

This work also makes a practical contribution for hotel managers because it shows that quality management practices may favor not only effectiveness and efficiency in the services provided to their customers, but also flexibility and adaptability to include new services and search for new customers. Quality management practices may enhance both exploitation and exploration activities, and this can make it possible to achieve better performance.

Next, the paper presents the literature review and the hypotheses proposed. Then, it describes the research method and the results. Finally, it shows a discussion and conclusions section, which includes implications, limitations and suggestions for further research.

2. Literature review and hypotheses

Quality management is a philosophy and a management system that includes a set of practices, such as management commitment, planning, people management, process management, supplier management, customer/stakeholder focus, and information and analysis (Asif, 2019; Kharub and Sharma, 2020; Lu et al., 2019; Parvadavardini et al., 2016), which are applied and integrated to all aspects of the organization with the aim of improving all organizational activities to satisfy different stakeholders (Dahlgaard-Park et al., 2018; Deming, 2000).

Organizational ambidexterity, as indicated above, refers to a firm's capability to develop both exploitation and exploration activities simultaneously (March, 1991; Tushman and O'Reilly, 1996). As the development of these activities seems to need different resources and capabilities, different approaches have emerged that try to explain how organizations can reconcile both activities (O'Reilly and Tushman, 2013): a) the sequential approach refers to temporal cycles with periods of exploitation followed by periods of exploration; b) the structural approach refers to the pursuit of exploration and exploitation activities simultaneously in differentiated organizational units, with different resources and capabilities; and c) the contextual approach refers to the development of the two activities in the same unit via a supportive work environment that encourages employees to integrate both actions. From this contextual approach of ambidexterity, when a supportive work environment is created, employees engage in both exploitation and exploration. This leads to contextual ambidexterity, which in turn can enhance performance (Gibson and Birkinshaw, 2004).

Hotel performance is classified by prior research into two streams (Sainaghi et al., 2019): performance measurement and determinants of performance. The present paper focuses on the determinants of hotel performance, examining the influence of quality management practices and organizational ambidexterity on hotel performance. Accordingly, hotel performance is the results that a hotel can achieve regarding perceived service quality by customers, market share, and other very common operational hotel results such as occupancy rate per room and gross operative profits per available room (Dogru et al., 2020; Sainaghi et al., 2017).

2.1. Quality management and ambidexterity

As has been said, quality management practices and organizational ambidexterity can be related. Originally it was thought that quality management practices could inhibit revolutionary innovations (Benner and Tushman, 2003). These authors justify this approach by indicating that quality practices focus on standardization and variability control and lead to exploit organization capabilities, but evade the risks of exploring new opportunities (Álvarez Santos et al., 2018). Nevertheless, other studies highlight that quality management practices can provide a suitable work environment for the development of incremental and radical innovations (Khan and Naeem, 2018; Martínez-Costa and Martínez-Lorente, 2008; Zeng et al., 2015). Therefore, following the contextual approach of ambidexterity, it can be argued that quality management practices can favor the creation of this organizational context that encourages exploration and exploitation activities simultaneously. In the following subsections the paper describes first how quality management practices can facilitate exploitation activities and innovation; second, how quality management practices can facilitate

exploration activities and innovation; and third, these arguments are integrated to explain that quality management practices can favor the development of contextual ambidexterity.

2.1.1. Quality management and exploitation

Regarding exploitation activities, they are related to efficiency, refinement and focus (Jansen et al., 2009; March, 1991), and the improvement of current competences, to better exploit present products, services and technologies, and the adaptation to existing environmental demands (Benner and Tushman, 2003; He and Wong, 2004). Exploitative innovation refers to expansions and/or improvements of existing products and services. Current organizational knowledge is used to improve products, services and processes in order to satisfy current customers in known markets (Khan and Naeem, 2018).

These exploitation activities can be affected by quality management practices (Álvarez Santos et al., 2018; Kim et al., 2012) such as process management, customer focus, information and analysis, employee management (suggestions, teamwork, training …), and supplier management. For example, process management is focused on the search for conformity with specifications and the reduction of variance in processes. Thus, the design and development of procedures and processes can increase efficiency (Benner and Tushman, 2003; Herzallah et al., 2017; Moreno Luzon and Valls Pasola, 2011). Process management helps solve problems, and also facilitates control over processes, which are exploitation-related activities (Alcaide-Muñoz and Gutierrez-Gutierrez, 2017). Therefore, process management can stimulate exploitative innovations.

Regarding customer focus, organizations adapt their products or services to the desires and needs of customers (Moreno Luzon and Valls Pasola, 2011). The focus on customer satisfaction may help organizations collect and understand information about customers' needs (Tang, 2014). Using this information, organizations can identify the needs of their customers, receive and process customer requests, manage complaints and after-sales services (Asif and De Vries, 2015; Kim et al., 2012). In addition, this information generates knowledge that can be shared in the company in order to improve the design of its processes, products or services to fit them to customers' needs (Alcaide-Muñoz and Gutierrez-Gutierrez, 2017), which are exploitation activities. This practice is particularly relevant in the hotel industry because customers often supply non-verbal information which may be collected by employees in order to improve the services offered (Tang, 2014).

This information about customer needs is essential in a quality management context, but employee suggestions are also needed. If organizations facilitate the provision of ideas for improvement by employees, they can develop incremental improvements in their jobs, and thus, exploitative innovations (Pérez-Aróstegui et al., 2015). In relation to employees' training, which is another essential part of quality management, it first ensures they understand the quality concepts, and then the development of appropriate abilities and skills in order to achieve the quality objectives of products, services and processes (Moreno Luzon and Valls Pasola, 2011). Employees' training on quality allows the development of employee competencies so that they are more effective in their current jobs (Asif and De Vries, 2015; Escrig-Tena et al., 2018). Therefore, this training can refine the knowledge and experience of workers to favor exploitation activities. Likewise, work teams, normally created to solve work-related problems, may contribute to exploitation, by focusing on cost reductions, productivity improvement, or defect reductions (Asif and De Vries, 2015; Moreno Luzon and Valls Pasola, 2011).

The practices related to supplier management could also promote exploitative innovation. Supplier management has traditionally been based on actions aimed at improving product quality, which includes a reduction of lead time or defects; these would be considered exploitation activities (Asif and De Vries, 2015). In this regard, managers can establish long-term cooperation with suppliers, to ensure the procurement of high-quality materials (Lemke et al., 2003). This cooperation with suppliers facilitates the exchange of information in order to reduce costs and time in the development of organizational operations, and continuous improvement in the exploitation of products or services (Kim et al., 2012). Therefore, all these quality management practices, alongside with management commitment, can help increase exploitative innovations.

2.1.2. Quality management and exploration

Regarding explorative innovation, exploration activities refer to exploring new possibilities, ideas or processes, and to developing new products and services, for firms to be able to adapt to environmental changes (He and Wong, 2004; Jansen et al., 2009; March, 1991). Explorative innovation is often related to more radical changes to offer new products or services, to detecting new customers' needs and to finding emerging markets. Explorative innovation is associated with the search for new opportunities through invention and experimentation (Khan and Naeem, 2018).

This explorative innovation can also be affected by quality management practices (Kim et al., 2012). For example, process management is related to standardization and formalization (Moreno Luzon and Valls Pasola, 2011), but this standardization of processes should be enabling and empowering (Fundin et al., 2017). That is, instead of being a coercive means of control, standardization of processes can build trust among employees to achieve good job performance (Palm et al., 2016). According to Moreno-Luzon et al. (2014), process management enables the necessary systematization for the creative process, stimulating explorative innovation. This is because the knowledge required for exploration does not always develop spontaneously (Palm et al., 2016). Without formal organizational procedures, the efforts to capture and resort to new knowledge may not go beyond sporadic, disorganized attempts which eventually prove ineffective (Pertusa-Ortega et al., 2010). Thus, processes management can help develop exploration activities (Moreno Luzon and Valls Pasola, 2011).

Regarding customer focus, customer feedback makes it possible to learn from errors, recognize gaps in the organization's processes, products or services, and identify new potential business models (Alcaide-Muñoz and Gutierrez-Gutierrez, 2017). Customer satisfaction management includes using customer data in order to derive conclusions and being able to identify changes in customers' preferences (Asif and De Vries, 2015; Tang, 2014). The collection and analysis of this information can reveal the need to introduce exploration innovations (Kim et al., 2012). Moreover, customer management should be focused not only on the satisfaction of current customers, but also on the satisfaction of potential new customers, trying to identify new market trends (Escrig-Tena et al., 2018). Advanced quality management practices can even try to satisfy other stakeholders, and not just current customers, which means more exploration opportunities for the firm (Moreno Luzon and Valls Pasola, 2011; Tang, 2014).

Employee training can also have a positive effect on exploration if it is focused not only on the refinement of existing skills, but also on the regeneration of knowledge of multiple skills (Herzallah et al., 2017; Zhang et al., 2012). It can increase the variety of employee skills, favoring the generation of new ideas and explorative innovations (Asif, 2019). Training employees along with work teams may favor their interaction and sharing of knowledge and ideas, which can be essential for exploration activities (Moreno Luzon and Valls Pasola, 2011). Training and recognition of employees' suggestions enable the creation of a fertile work environment that promotes employee contributions and new initiatives (Escrig-Tena et al., 2018).

Work teams may also contribute to exploration by developing innovative solutions to problems, mainly if they are cross-functional teams, with diverse competencies, that favor the promotion of cross-fertilization of ideas (Asif, 2019; Jansen et al., 2009). Work teams make it easier to share ideas from the information collected that may promote creativity to design new products or services (Alcaide-Muñoz and Gutierrez-Gutierrez, 2017). Teamwork stimulates exploration

activities thanks to the cooperation and commitment that usually exists among the employees of a work team (Moreno Luzon and Valls Pasola, 2011). Employee training and teamwork help employees learn from each other (Alcaide-Muñoz and Gutierrez-Gutierrez, 2017). These ideas indicate that quality management practices such as communication, teamwork and employee training may increase the involvement of workers to provide ideas and share information that can facilitate the creation of explorative innovations.

Similarly, Asif and De Vries (2015) explain that an emerging role of supplier management requires mutual development and involvement in product or service design, which may favor exploration. By cooperating with suppliers, a company may exchange with them insights aimed at innovation in products or services (Escrig-Tena et al., 2018). Suppliers may offer key information about customer demand changes (Kim et al., 2012). Thus, for example, if the company collects internal and external data through cooperation with suppliers, and shares this information with employees and other organizational members, it may be possible to promote explorative innovation.

2.1.3. Quality management and contextual ambidexterity

To become an ambidextrous organization, it is not only necessary to favor exploration and exploitation activities independently, but also to integrate and develop both activities simultaneously. As said above, the contextual approach of ambidexterity refers to the creation of a supportive work environment that stimulates people to integrate both activities (Gibson and Birkinshaw, 2004). Based on the previous ideas about quality and exploitation, and quality and exploration, it can be argued that quality management practices as a whole help create this organizational context to achieve ambidexterity. This is because quality management practices create a work environment in which it is easy to generate and connect new ideas and knowledge or recombine previous knowledge in new ways, through management commitment, the involvement and interaction of employees, cooperation with suppliers, the focus on customers, and the improvement of processes and services. For example, employee training and teamwork foster an organizational context of autonomy and trust that encourages behavior towards knowledge sharing and the generation of new ideas for exploration and exploitation. Similarly, management commitment to continuous improvement facilitates problem-solving processes aimed at improving processes and products. This commitment helps employees improve, learn and innovate at work, and thus it can be said that this leadership is related to contextual ambidexterity (van Assen, 2020).

Thus, quality management practices favor a learning process needed to develop both types of activities. Quality management practices help introduce order and create routines that stimulate workers to pay attention to problems and customer needs (exploitation activities), and search for innovative solutions, going beyond conforming to standards (exploration activities) (Escrig-Tena et al., 2018). According to this previous literature review, the following hypothesis is proposed:

Hypothesis 1. Quality management practices facilitate organizational ambidexterity.

2.2. Quality management and performance

The relationship between quality management practices and performance has been widely examined. Previous literature shows that quality management practices such as management commitment, customer focus, training, information and analysis, supplier relationships and process management have positive effects on performance, although some of these practices may have a stronger positive effect than others (Bakotić and Rogošić, 2017; Kharub and Sharma, 2020; Lu et al., 2019; Parvadavardini et al., 2016). For example, some studies find that quality management practices related to people management are the most important ones for quality improvement (Bakotić and Rogošić, 2017; Kharub and Sharma, 2020). Other studies reflect that practices such as process management are critical for incremental and radical changes (e.g., Kim et al., 2012). This means that quality management practices lead to different improvements in customer satisfaction and perceived product/service quality by customers (Lee et al., 2009; Shafiq et al., 2019), market share, profits and sales (Bhatia and Awasthi, 2018; Bou-Llusar et al., 2009). These studies are in line with the benefits of the quality philosophy suggested by quality leaders (e.g., Deming, 2000) and by quality models (e.g., EFQM, 2019).

These positive effects of quality management practices on performance are due to the understanding of what customer and other stakeholders (e.g., employees and suppliers) want, which leads companies to introduce this feedback in organizational daily routines to reduce complaints, increase customer, employee and society satisfaction, enhance efficiency in operational processes, and improve revenues, profits and sales.

In the particular case of the hotel industry, analyzed to a lesser extent than manufacturing firms or other service organizations, although some authors suggest that not all hotels achieve benefits from quality management practices (Breiter and Bloomquist, 1998; Nield and Kozak, 1999), it can be said that such practices lead to the following outcomes: customer and other stakeholder satisfaction, better operational results, improved efficiency, and better market share and sales (Del Río-Rama et al., 2019; Wang et al., 2012).

These ideas suggest that quality management practices can have positive effects on performance (e.g., customer satisfaction, profits and market share) in the hotel industry. Accordingly, the following hypothesis is proposed:

Hypothesis 2. Quality management practices enhance hotel performance.

2.3. Effects of quality management on performance via organizational ambidexterity

As said above, quality management practices can impact directly on performance. Nevertheless, this effect can be also an indirect one (Bhatia and Awasthi, 2018) via different mediating factors. For example, the literature shows that one of these mediating factors is innovation (Kafetzopoulos et al., 2019; Martínez-Costa and Martínez-Lorente, 2008). Based on this idea and the previous subsections, organizational ambidexterity can be suggested as a mediating variable in the relationship between quality management and performance.

Quality management practices such as management commitment, process management, customer focus, information and analysis, employee management, and supplier management facilitate organizational ambidexterity, as explained previously. This is because management commitment supports activities related to improving, learning and innovating at work. Similarly, employee involvement, cooperation with suppliers, paying attention to customer needs, and managing processes allow organizations to share knowledge and generate new ideas for exploration and exploitation.

The literature on organizational ambidexterity shows that firms capable of jointly developing exploration and exploitation activities can obtain better performance (Junni et al., 2013; O'Reilly and Tushman, 2013). For example, some studies find a positive effect of organizational ambidexterity on sales growth (He and Wong, 2004), on profitability (Jansen et al., 2012), on new product development performance (Li et al., 2010; Zhang et al., 2015), or on other measures related to market share growth, return on equity or return on total assets (Lubatkin et al., 2006; Venugopal et al., 2020).

In the specific case of the hotel industry, exploitative innovations help hotels improve existing services and customers' satisfaction (Cheng et al., 2016) as a way of increasing the loyalty of customers and the chances of gaining new ones (Nicolau and Santa-María, 2013; Tang, 2014). Thus, exploitation activities can improve performance. Similarly, through exploitative innovations, hotels can improve internal service

procedures and increase the efficiency of the service offered to customers, which can have a double effect: on the one hand, improved service can reduce the costs of apology, compensation, and loss of customers; and on the other hand, it can increase customer-perceived value and lead to increased opportunity for repeat consumption (Tang, 2014). Therefore, exploitative innovations can have positive effects on hotel performance. However, without exploratory efforts hotel services can become obsolete (March, 1991). Explorative innovations help hotels develop new services (Cheng et al., 2016) as a way of responding to a dynamic customer environment, creating higher customer value, and improving hotel performance (Tang, 2014). Satisfying changes in customers' preferences through explorative innovations may lead to an improvement in operating results. Moreover, explorative innovation not only seeks to improve the experience of current customers with new services, but also to attract and satisfy new customers, increasing business opportunities and therefore, hotel performance. Consequently, explorative innovation can impact positively on hotel performance (Cheng et al., 2016; Tang, 2014). Therefore, ambidexterity capability can help hotels improve their performance.

In sum, quality management practices can lead to the introduction of explorative and exploitative innovations in processes, products and services, and facilitate the development of ambidexterity capability in the organization. Ambidexterity, in turn, can lead to enhanced hotel performance, because the joint development of exploration and exploitation activities can improve organizational processes and services and create new services simultaneously. Thus, quality management practices promote organizational ambidexterity capability, which in turn, can improve hotel performance. Therefore, quality management practices can have an indirect effect on hotel performance via organizational ambidexterity. Based on these ideas, the following hypothesis is proposed:

Hypothesis 3. Quality management practices indirectly enhance hotel performance via organizational ambidexterity.

The research model in Fig. 1 shows these hypotheses from the literature review.

3. Research method

3.1. Sample and data collection

To test the hypotheses, the population includes all 3-to-5-star hotels located in Spain in 2018. Spain was the second most important destination by international tourist arrivals and by tourism receipts in 2018 (UNWTO, 2019). All 3-to-5-star hotels were chosen because they are the most likely to be committed to quality management and the development of exploitation and exploration activities, since they might have more firm resources to afford these activities, although their quality and exploitation/exploration activities could be different. These categories have been usually selected by previous authors to examine management practices in the hotel industry (e.g., Ferraris et al., 2018; Rico et al., 2020; Ruiz-Palomino et al., 2019). Based on the Hostelmarket Database, the population of 3-to-5-star hotels was 5071 hotels (2233 3-star hotels; 2472 4-star; and 366 5-star).

First, a structured questionnaire was designed based on prior research; then, a pre-test with 14 different respondents was carried out: six hotel managers (two hotel chain CEOs, two headquarter managers of two hotel chains, and two hotel managers), two representatives of hotel associations, two representatives of national tourism knowledge transfer institutions, one representative of Spanish tourism policy, two tourism academics, and one tourism consultancy firm.

Second, the questionnaire was sent to top managers of the 5071 hotels in the population in two waves by ordinary mail, from October 2018 to February 2019. The cover letter requested that the questions about explorative and exploitative innovation and hotel performance were answered by the hotel top manager, and the questions about quality management were filled in by the person in charge of quality. This was done to avoid having only one respondent and to reduce the likelihood of common method variance.

The questionnaire was answered by 365 hotels, which entails a 7.20% response rate, and a 4.94% sampling error (confidence level of 95%, $p = q = 0.5$). The distribution of the sample by hotel category is as follows: 38.1% (3-star), 52.3% (4-star) and 8.2% (5-star). 1.4% decided not to reveal their category. The distribution by affiliation shows that 48.6% of the hotels belong to a hotel chain and the rest (51.4%) are independent hotels. The average size is 124 rooms.

Non-response bias was checked by comparing early and late respondents (Armstrong and Overton, 1977). Chi Square test and Student's t showed non-significant differences between them. In addition, common method variance was tested by applying Harman's single factor test (Podsakoff and Organ, 1986). The results showed that the first factor only explained 30% of the variance.

3.2. Measures

3.2.1. Quality management practices

These practices have been measured in previous studies as a set of items under a single construct (Hamdoun et al., 2018; Shou et al., 2020; Wei et al., 2019) or as a set of constructs under a multidimensional construct (Kharub and Sharma, 2020; Lu et al., 2019; Parvadavardini et al., 2016; Patyal and Koilakuntla, 2017). In both cases, these items and these constructs capture the extent to which organizations develop the most common quality management practices identified by prior research such as management commitment, planning, customer focus, employee management, process management, information and analysis, and supplier management (Bakotić and Rogošić, 2017; Lu et al., 2019; Molina-Azorín et al., 2009; Parvadavardini et al., 2016; Patyal and Koilakuntla, 2017). The present paper uses a 7-point Likert scale to

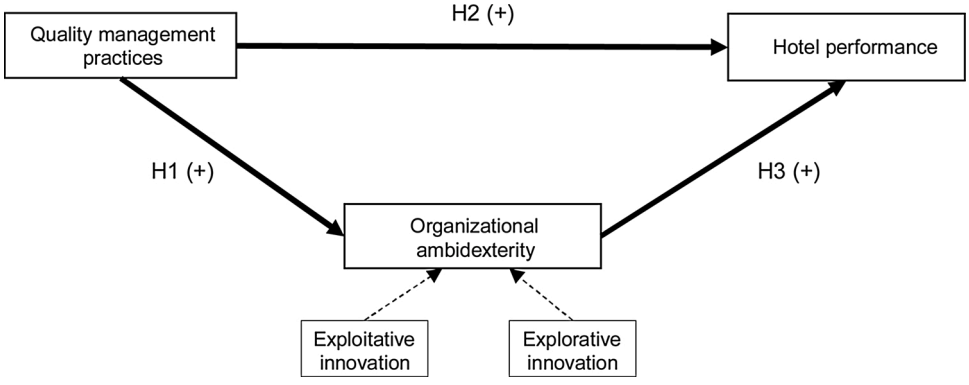

Fig. 1. Research model.

estimate the degree of agreement or disagreement on twelve items, based on Zhang et al. (2012), Moreno-Luzon et al. (2014), Patyal and Koilakuntla (2017), and Lu et al. (2019) (see Table 1). These twelve items in this construct show the extent to which hotels develop the quality management practices suggested by prior research. The Cronbach alpha for this construct is 0.938.

3.2.2. Organizational ambidexterity

Some authors measure ambidexterity as a unidimensional scale, treating exploitation and exploration as the opposite ends of a single continuum (Simsek et al., 2009; Stettner and Lavie, 2014). However, most researchers consider exploitation and exploration innovation as two distinct dimensions (He and Wong, 2004; Katou et al., 2020), measuring ambidexterity by adding (Lubatkin et al., 2006; Yang et al., 2017), multiplying (Gibson and Birkinshaw, 2004; Koryak et al., 2018) or subtracting (He and Wong, 2004) the two dimensions, or as a second-order construct (Mom et al., 2019; Pertusa-Ortega and Molina-Azorín, 2018). In the present paper, ambidexterity is measured in two steps. First, exploration and exploitation are measured with reflective items adapted from van Assen (2020), Jansen et al. (2006), and Venugopal et al. (2020). A 7-point Likert scale is used to estimate the degree of agreement or disagreement on six items for exploitative innovation and six items for explorative innovation (see Table 1). Explorative innovation captures the extent to which hotels depart from current knowledge and reach radical innovations to cover emerging customers or markets. Exploitative innovation captures the extent to which hotels build on current knowledge and reach incremental improvements as a way to satisfy existing customers' needs. In the second step, a formative second-order construct (organizational ambidexterity) is created consisting of two dimensions: exploitation and exploration (Mom et al., 2019; Pertusa-Ortega and Molina-Azorín, 2018). The Cronbach alpha for exploration is 0.877 and for exploitation is 0.915.

3.2.3. Hotel performance

Based on the review of hospitality performance measurement research by Sainaghi et al. (2019), the present paper proposes a hotel performance construct measuring the perceived service by customers, market share, occupancy rate per room, revenues per available room, and gross operative profits per available room. This construct is formed by six items, adapted from Bou-Llusar et al. (2009), Dogru et al. (2020), Sainaghi et al. (2017) and Tarí et al. (2007). Respondents compare themselves with their known competitors in the last three years when evaluating each item from 1 (much worse than your competitors) to 7 (much better than your competitors) (Table 1). The Cronbach alpha for this construct is 0.866.

3.2.4. Control variables

Quality management practices, exploitation/exploration activities and hotel performance could be different in 3-to-5-star hotels because of their characteristics, since chain-affiliated hotels, larger hotels and higher category hotels could have more resources to create quality management departments in their headquarters to formalize their practices. *Chain affiliation*, *size* and *category* are included in the analysis

Table 1
Evaluation of the measurement model.

Scale items	Weight	Loadings (item reliability > 0.70)	Composite reliability > 0.70	AVE > 0.50
Quality management practices			0.947	0.596
• The manager is involved in the quality system		0.700		
• The hotel collects and analyses the current needs of the customers		0.807		
• The hotel identifies new needs and wishes of the customers		0.794		
• The hotel controls the processes of existent works		0.806		
• The hotel continuously changes and improves processes		0.789		
• The employees work as a team to identify problems in their work area		0.811		
• The employees work as a team to create new processes		0.772		
• The employees work as a team to create new services		0.748		
• The employees receive training on quality		0.717		
• The hotel cooperates with intermediaries to improve the service		0.748		
• The hotel cooperates with providers to improve the service		0.770		
• The hotel controls the fulfillment of objectives and corrects deviations		0.797		
Organizational ambidexterity (formative second-order construct)				
Exploitative innovation	0.765 (1)		0.936	0.714
• We improve the provision of current services		0.900		
• We implement small adaptations to current products and services		0.881		
• We improve current products and services for our customers		0.910		
• We improve the efficiency in the provision of our services		0.915		
• We try to expand services for current customers		0.838		
• Cost reduction in our internal processes is an important objective in our hotel		0.572		
Explorative innovation	0.330 (1)		0.907	0.622
• Our hotel accepts requests from customers that go beyond the current products and services		0.721		
• We create new products and services		0.868		
• We experiment with new products and services for our customers		0.875		
• We market new products and services for our hotel		0.808		
• The hotel is used to employ new distribution channels		0.674		
• We search for new customer segments		0.766		
Hotel performance: in comparison with known competitors			0.902	0.612
• Occupancy rate per room		0.719		
• Revenues per available room		0.876		
• Gross operative profits per available room		0.852		
• Total revenues of the hotel		0.847		
• Market share		0.826		
• Assessment on web 2.0 (Booking, TripAdvisor, etc.)		0.511		

(1) Weights with p = 0.000.

as control variables for quality management, ambidexterity and performance, as some previous studies have done (Hernández-Perlines et al., 2019; Nicolau and Santa-María, 2013; Ruiz-Palomino et al., 2019). *Chain affiliation* is measured using a dichotomous variable (0 is an independent hotel and 1 is a chain-affiliated hotel). *Size* is measured by the natural logarithm of the number of hotel rooms (it has values from 8 to 1743 rooms). *Category* is measured using a scale related to number of stars (using three categories corresponding to 3, 4 and 5 stars).

4. Analysis and results

This section shows the hypotheses testing by applying Partial Least Squares (PLS) analysis and using SmartPLS 3 software (Ringle et al., 2014). In the present study, quality management practices, exploitation, exploration, and hotel performance are first-order reflective constructs. Organizational ambidexterity is a second-order formative construct. PLS can be used because the aim of this study is exploratory and the research model in Fig. 1 is complex, including first- and second-order constructs (Hair et al., 2019). The PLS approach allows the use of both formative and reflective measures, which is often not possible with covariance-based structural equation modelling techniques such as LISREL or AMOS (Chin, 1998; Fornell and Bookstein, 1982; Wold, 1982). In relation to sample size, G*Power analysis indicates that the minimum sample is 74 (effect size = 0.15, alpha = 0.05, power = 0.95). Accordingly, a sample of 365 hotels is considered appropriate and its statistical power is 0.9999 (Green, 1991; Mayr et al., 2007). Next, the evaluation of the measurement model is explained to show validity and reliability of all the measures, and then the paper presents the evaluation of the structural model to test the hypotheses.

4.1. Evaluation of the measurement model

In relation to reflective constructs, validity and reliability must be analyzed. Individual reliability is assessed by loads of items on its construct, which should be higher than 0.707 in each case (Carmines and Zeller, 1979; Hair et al., 2017) (see Table 1). Only four items are under 0.707 (see Table 1). Nevertheless, they are retained because their loads are over 0.40 and their elimination does not increase average variance extracted (AVE) (Chin, 1998; Hair et al., 2017). Construct reliability is checked by composite reliability and all the values should be higher than 0.70 (Hair et al., 2017; Werts et al., 1974) as Table 1 shows. For convergent validity, all AVE values (Table 1) are higher than 0.50 (Fornell and Larcker, 1981). For discriminant validity (Table 2), AVE values are higher than the correlation coefficients between the constructs (Fornell and Lacker criterion). In addition, Table 2 shows the results of the Heterotrait-Monotrait (HTMT) method (Henseler et al., 2015) where all the values should be under 0.85, as in this case.

For the formative construct (organizational ambidexterity in this paper), PLS provides information about the composition of the construct through the weights of each dimension and their significance (Chin, 1998). Table 1 shows that both weights of exploitative and explorative innovation are significant and therefore should be retained (Hair et al., 2017). In addition, the variance inflation factor (VIF) is estimated to investigate multicollinearity among dimensions, and the VIF of both exploration and exploitation is < 1.6 (p = 0.000) (under the common cut-off threshold of 5–10, Mason and Perreault, 1991).

4.2. Evaluation of the structural model

Fig. 2 and Table 3 show R^2, β, the t values based on a bootstrap test with 5000 subsamples, and the confidence intervals at 95%. The goodness-of-fit of the model is examined by Standardized Root Mean Residual (SRMR), which must be ≤ 0.08 (Henseler et al., 2014). In this work, SRMR = 0.063. In addition, Q^2 values are 0.392 for organizational ambidexterity and 0.123 for hotel performance. Q^2 values larger than zero are meaningful. Accordingly, Q^2 values higher than 0, 0.25 and 0.50 indicate small, medium and large predictive relevance of the model (Hair et al., 2019).

Fig. 2 shows the significant relationships and the hypotheses that are supported. According to these results, quality management practices have positive effects on organizational ambidexterity, supporting hypothesis 1. This means that quality management practices foster both exploitation and exploration activities, and help balance exploitation and exploration activities to achieve organizational ambidexterity.

Similarly, quality management practices impact on hotel performance directly, supporting hypothesis 2, and indirectly via ambidexterity, supporting hypothesis 3. This result shows that those hotels that develop quality management practices increase their performance (e.g., perceived service quality by customers, profits, etc.) not only through quality improvements, but also via exploitative and explorative innovations. In this regard, ambidexterity plays a partial mediating role (Hair et al., 2017) between quality management practices and performance. Ambidexterity represents a component that underlines the link between quality management practices and performance. Quality management practices help balance exploitation and exploration activities (ambidexterity), and ambidexterity in turn leads to enhanced performance (see Appendix).

In this context, although all quality management practices are important for ambidexterity and hotel performance, the loadings in Table 1 suggest that the greatest impacts are caused by the following practices: collection and analysis of customer needs, monitoring of the processes and objectives, and teams to identify problems. Regarding the two dimensions of ambidexterity, exploitation has a higher weight than exploration; therefore, exploitation has a greater role in this model. Thus, quality management practices have a greater impact on exploitation.

Results also show that the R^2 value for hotel performance is low (0.221). R-Squared (R^2) is a statistical measure that determines the proportion of variance in the dependent variable that can be explained by the independent variable. In this case, 22% of hotel performance variance can be explained by variance in quality management practices and organizational ambidexterity capability. This low value in R^2 means that many other variables can explain hotel performance, as found by previous studies. For example, external environment can also explain a proportion of hotel performance. Although the R^2 value for hotel performance is low, as the model shows statistically significant predictors, conclusions can be suggested about how hotel performance can change when quality management and ambidexterity improve. The value of R^2

Table 2
Discriminant validity.

	Fornell-Larker[a]				HTMT[b]		
	1	2	3	4	1	2	3
1. Quality management practices	(0.772)	—	—	—	—	—	—
2. Exploitative innovation	0.719	(0.845)	—	—	0.770	—	—
3. Explorative innovation	0.560	0.607	(0.789)	—	0.609	0.667	—
4. Hotel performance	0.407	0.407	0.377	(0.782)	0.453	0.456	0.427

[a] The values in the diagonal are the square roots of AVE. To check discriminant validity, the diagonal values must be greater than the off diagonal values.
[b] To check discriminant validity based on HTMT criterion, HTMT values should be < 0.85.

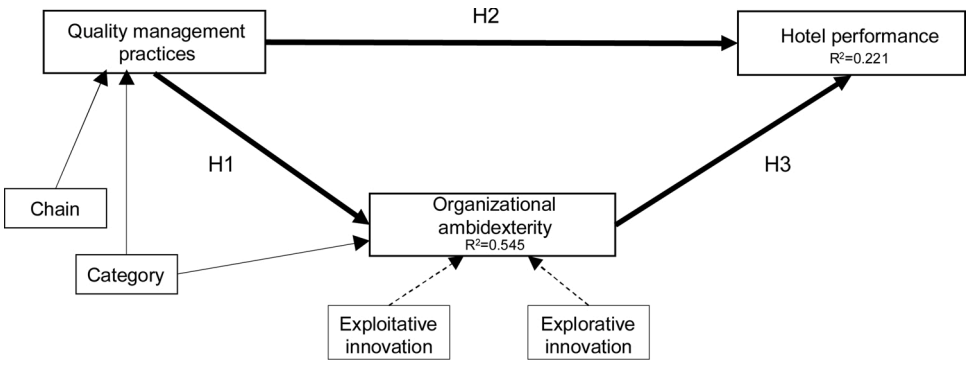

Fig. 2. Structural model results (significant relationships).

Table 3
Structural model results.

Hypotheses	β	t-value	p-value	95% Confidence interval	Is the hypothesis supported?
H1 Quality management practices → organizational ambidexterity	0.725	18.775	0.000	[0.655;0.782]	Yes
H2 Quality management practices → hotel performance	0.165	1.973	0.024	[0.029;0.303]	Yes
H3 Quality management practices → organizational ambidexterity → hotel performance	0.209	3.782	0.000	[0.120;0.300]	Yes

also depends on the context, and a low value (e.g., 0.10) can also be acceptable in some disciplines (Hair et al., 2019). Accordingly, it can be said that quality management and ambidexterity enhance hotel performance, although the impact of ambidexterity on hotel performance (β = 0.287) is stronger than the effect of quality management (β = 0.165) (see Appendix).

Regarding control variables, results show that quality management practices are affected by category and affiliation to a chain. This means that, in general terms, quality management practices are a little more developed in higher category hotels and chain-affiliated hotels. Category also influences the development of organizational ambidexterity, as higher category hotels can develop exploitation and exploration activities in an easier way. In contrast, size has no influence either on the development of quality management practices nor on ambidexterity, and it is not a relevant determinant for hotel performance (see Appendix).

5. Discussion and conclusions

The results show that quality management practices facilitate the development of organizational ambidexterity, that is, they help balance exploitation and exploration activities, and this contributes to improved hotel performance. This implies that quality management practices can create an organizational context in which hotel employees, managers and other stakeholders, such as suppliers and customers, interact and share information and knowledge in order to simultaneously develop both service/process improvements (exploitative innovations) and service/process innovations (explorative innovations). Quality management practices facilitate feedback from customers, the training of employees in order to develop competences for exploitation and exploration activities, and cooperation with suppliers to favor both the fit to current needs and the development of resources to face new needs in the market. Quality management practices, with management commitment, make it possible to effectively exploit what customers want and simultaneously explore new business opportunities (Behmer et al., 2016; Fundin et al., 2017; Koryak et al., 2018). Thus, quality practices can balance exploitation and exploration activities in the hotel industry.

These results support the contextual approach of ambidexterity due to the supportive organizational context for exploitation and exploration activities created by quality management practices (e.g., customer focus, employee management, supplier management …). Quality management leads to a learning process in which the resources and capabilities developed for either of the two types of innovations will be of value for the other type. Thus, quality management creates a work environment that helps understand the importance of operating in both dimensions of ambidexterity. Consequently, this paper supports the emergent approach of quality management proposed by Backström (2017) and Fundin et al. (2017) in which quality management practices should be enabling and not coercive in order to favor both effectiveness and efficiency with current and future customers in mind.

In addition, organizational ambidexterity partially mediates the relationship between quality management practices and hotel performance. That is, quality management practices improve hotel performance, and the development of exploitation and exploration activities by quality practices leads to ambidexterity and then to improvements in hotel performance. This means that quality management practices, as an antecedent of contextual ambidexterity, impact directly on performance and also indirectly on performance via ambidexterity.

In this context, it can be added that quality management practices are important for hotels, although some practices have a stronger impact on their performance than others (Bakotić and Rogošić, 2017; Kharub and Sharma, 2020; Parvadavardini et al., 2016). In the present study, collecting and analyzing customer needs, managing processes, and working in teams to identify problems have the strongest link with ambidexterity and hotel performance. Moreover, the influence of quality management practices is higher on exploitative innovation than on explorative innovation.

5.1. Theoretical implications

The results of this study contribute to theory in three areas. First, in relation to those works that examine the relationship between quality management and ambidexterity, this empirical study supplements theoretical studies about this topic (Asif, 2019; Asif and De Vries, 2015; Moreno Luzon and Valls Pasola, 2011). The few empirical studies that examine this relationship consider only one of the quality practices, such as customer focus (Tang, 2014) or process management (Moreno-Luzon et al., 2014), and do not analyze the effect of quality on organizational

ambidexterity, but the effect of quality on the individual variables of exploration and exploitation (Álvarez Santos et al., 2018; Khan and Naeem, 2018; Tang, 2014). The present paper extends these previous studies by examining the effects of all of the quality management practices on organizational ambidexterity, by showing that quality management practices help balance exploration and exploitation activities, leading to organizational ambidexterity.

Second, the contextual approach to ambidexterity has achieved great relevance nowadays in explaining how organizations can perform both exploration and exploitation activities simultaneously. The present paper supports this approach by showing that quality management can be a way to create that supportive work environment that encourages people to develop and integrate exploration and exploitation activities (Gibson and Birkinshaw, 2004). Therefore, quality management can be considered as a relevant determinant of contextual ambidexterity.

Third, the present paper makes a contribution to organizational ambidexterity theory by empirically analyzing both an antecedent (quality management practices) and a consequence (hotel performance) of ambidexterity in the particular case of the hotel industry. The findings of this study support previous research that shows that innovation is one of the determinants of organizational performance in the hotel industry (Hernández-Perlines et al., 2019; Nicolau and Santa-María, 2013). It also extends the study by Martínez-Ros and Orfila-Sintes (2009) by showing that the two types of innovations may be developed simultaneously in hotels that focus on quality management. In addition, the findings of this study extend previous theory by showing ambidexterity as a partial mediator between quality management and performance. Therefore, quality management can be considered a management system that not only helps in the provision of higher quality services for customers, but also in the development of new services and processes for improving hotel performance (Tang, 2014).

5.2. Managerial implications

Hotel managers should be aware that in a dynamic environment, such as the hotel industry, the simultaneous development of exploitation and exploration activities is not only possible but necessary to enhance hotel performance. They must consider both exploration and exploitation as necessary issues that reinforce each other, instead of competing activities. Organizational ambidexterity is required to satisfy current customers and stakeholder needs and to go beyond trying to satisfy future needs. Managers can use the potential inherent in quality management practices to integrate exploration and exploitation activities and improve hotel performance. Hotel managers often think that the simultaneity of both explorative and exploitative innovation could be restrained because of the limited resources available. However, they should know that the investment in quality management practices can facilitate the achievement of organizational ambidexterity.

Through quality management practices hotel managers can promote not only the improvement of current services and processes but also the development of new services or new business opportunities, and then increase hotel performance in the long term. Accordingly, quality management practices can create a work environment to integrate exploitation and exploration activities and help managers leverage improvements across exploitative and explorative innovations in a continuous improvement circle. They have an essential role as leaders to create an organizational context in which exploration and exploitation activities are encouraged simultaneously through quality practices (mainly through collecting and analyzing customer needs, managing processes, and working in teams).

5.3. Limitations and future research

One of the limitations of this study is that it is a cross-sectional research study. Although an attempt has been made in the questionnaire to estimate the evolution of the company in several years, it may be still a short period of time. Therefore, future research should develop longitudinal studies. In addition, this study has considered the most common quality management practices into a single construct as many authors have measured in previous studies. Future studies could consider them as a multidimensional construct in order to examine the influence of each dimension of quality on organizational ambidexterity and on performance in more detail. Future research could also address other quality initiatives, techniques and/or tools, such as the ISO 9001 standard, excellence models or lean six sigma. The study also considers ambidexterity as a mediator variable. Due to parallels between quality and sustainability issues, future studies could examine the relationships between quality management, sustainability, ambidexterity, and performance. Finally, this paper is focused on the hotel industry in Spain and future works could consider other service sectors and/or other contexts.

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

Appendix A. Direct effects

	β	t-value	p-value	95% Confidence interval	
Quality management practices → Organizational ambidexterity	0.725	18.775	0.000	[0.655	0.782]
Quality management practices → Hotel performance	0.165	1.973	0.024	[0.029	0.303]
Organizational ambidexterity → Hotel performance	0.287	3.767	0.000	[0.165	0.413]
Category → Organizational ambidexterity	0.081	1.912	0.028	[0.013	0.152]
Category → Hotel performance	0.084	1.583	0.057	[−0.006	0.168]
Category → Quality management practices	0.181	3.515	0.000	[0.098	0.269]
Chain → Organizational ambidexterity	−0.037	0.944	0.173	[−0.100	0.028]
Chain → Hotel performance	0.041	0.783	0.217	[−0.046	0.126]
Chain → Quality management practices	0.129	2.349	0.009	[0.039	0.221]
Size → Organizational ambidexterity	−0.019	0.595	0.276	[−0.072	0.032]
Size → Hotel performance	0.044	0.974	0.165	[−0.028	0.121]
Size → Quality management practices	0.026	0.506	0.307	[−0.061	0.109]

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