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Agility, innovation, environmental management and competitiveness in the hotel industry

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Abstract

The hotel industry is characterized by operating in a global, dynamic and uncertain environment where stakeholders' concerns on sustainable development are growing. However, there is limited research on whether hotels have flexibility and capacity for change, to develop environmental practices that meet stakeholder demands and improve their competitiveness. Through the dynamic capabilities theory, the resource-based view and the stakeholder theory, this paper develops a model that considers agility and innovation as antecedents of environmental management and competitive advantages as consequences. A Partial Least Squares analysis is carried out based on data from Spanish hotels. The results indicate that agility and innovation influence environmental management positively; agility influences innovation positively; and agility influences environmental management indirectly through innovation. Moreover, environmental management positively influences cost and differentiation competitive advantages. This study contributes to the literature by examining the role of two important dynamic capabilities and their impact on environmental management and showing how the interaction and mediation between these capabilities favors competitive advantages.

KEYWORDS
agility, competitive advantages, environmental management, hotel industry, innovation, sustainable development

1 | INTRODUCTION

The impact of environmental management on firm performance is the subject of an ongoing debate in the hotel industry, because the results obtained in the empirical literature have been inconclusive. Some studies indicate environmental management has positive impacts on firm performance (for instance, Duric & Topler, 2021; Yenidogan et al., 2021; Zhang & Xie, 2021) while other papers have not found this positive relationship (for instance, Carmona-Moreno et al., 2004;

Claver-Cortés et al., 2007). Therefore, further analysis is needed to identify and describe the factors that may be behind this relationship (Aragón-Correa & de la Torre-Ruíz, 2015). Firm performance may include competitive advantage and financial performance variables. In this study, we focus on competitiveness variables, based on the idea that the development of environmental practices may help hotels to gain competitive advantages and improve their long-term financial performance (Pereira-Moliner et al., 2015). The literature has studied different external factors that may affect this relationship, such

as stakeholders and environmental regulation (Abdel-Maksoud et al., 2016; López-Gamero et al., 2010; Ouyang et al., 2019). However, there has been little research on the existence of possible dynamic capabilities that contribute to the successful implementation of environmental management and to the achievement of competitive advantages (Hofmann et al., 2012; Pace, 2016). For instance, Leonidou et al. (2015) indicate that organizational learning, shared vision and cross-functional integration favor eco-based advantage. Singjai et al. (2018) show that learning, innovation and quality competencies help hotels to go green.

In this research, our aim is to study agility and innovation as dynamic capabilities that used jointly may favor the development of environmental management and competitive advantages in the hotel industry. The hotel industry carries out its activity in a global market, characterized by high dynamism and uncertainty (Pereira-Moliner et al., 2021). Despite the high visibility of hotel strategies that makes competitors able to quickly imitate their innovations (Fraj et al., 2015), few studies have been conducted in this industry that have examined the link between these dynamic capabilities (agility and innovation) and environmental management. Previous studies have mainly focused on studying agility (Mandal & Dubey, 2020) or innovation (Boronat-Navarro & García-Joerger, 2019; Njoroge et al., 2020). The approach is that increased market dynamism and new environmental demands force firms to have greater flexibility and change so that their environmental management may cope with these demands and continuously improve their objectives (Boronat-Navarro & García-Joerger, 2019). To achieve environmental goals, firms have to innovate, developing new ideas, which may involve organizational changes (Rajapathirana & Hui, 2018) and changes in processes, products and services (Fraj et al., 2015; Sharma et al., 2007). The firm needs to be agile so that, through innovation, it acquires and develops new knowledge and practices that contribute to the development of good environmental management (Gouda & Tiwari, 2022; Yu et al., 2020) which favor the survival of the firm and its ability to compete in a highly competitive market (El-Khalil & Mezher, 2020). We are not aware of any study that has developed a model that proposes interactions between these two dynamic capabilities and environmental management. These variables should go hand in hand to protect the natural environment and create benefits for hotels and society. Therefore, it is important to fill this literature gap.

The contributions of the paper are the following. This study develops a model that considers the dynamic capabilities of agility and innovation as antecedents of environmental management, and competitive advantages as consequences. This allows us to understand the role of dynamic capabilities in environmental management and how the interaction and mediation between these capabilities may lead to the achievement of competitive advantages. This model contributes to the intense debate on the link between environmental management and competitive advantage by examining possible internal facilitators for better environmental management. In other words, the development of successful environmental management is based on the agility and innovation practices that the firm has previously undertaken. Furthermore, this study considers agility as a prerequisite

for innovation. Through agility, the firm may detect unmet stakeholder needs and respond in an optimal way with innovation (Al-Taweel & Al-Hawary, 2021). Therefore, both dynamic capabilities, agility and innovation, combine and complement each other to favor the implementation and development of environmental management that may enhance the hotel's competitiveness. Previous literature has highlighted how these dynamic capabilities have influenced firm performance (efficiency, product quality, customer satisfaction, economic performance) (Bouguerra et al., 2021; Hu et al., 2020). This paper adds value by showing empirical evidence that these capabilities, used jointly, also positively influence hotels by decreasing their environmental impact and creating economic value for shareholders and also social value for other stakeholders (Boronat-Navarro & García-Joerger, 2019). Regarding the structure of the paper, after this introductory section, the second section presents the theories and hypotheses. In the third section, the method used to test the hypotheses is described. The fourth section shows the results. Finally, the last section presents the discussion of the results and conclusions, highlighting the theoretical and practical implications, limitations and future lines of research.

2 | THEORIES AND HYPOTHESES

2.1 | Theories

For the development of this study, we integrate and combine different theories. Specifically, we have focused on the dynamic capabilities theory, the stakeholder theory and the resource-based view. The idea is that a firm should be able to be competitive in the market while being environmentally responsible. To this end, it is essential that it has resources and capabilities whose characteristics require the involvement and collaboration of its stakeholders (Al-Shammari et al., 2022).

The study of innovation and agility as antecedents of environmental management is based on the dynamic capabilities theory. Dynamic capabilities are defined as the ability to exploit "existing internal and external firm-specific competences to address changing environments" (Teece et al., 1997, p. 510). Agility and innovation are considered dynamic capabilities (O'Reilly & Tushman, 2008; Teece & Leih, 2016), although each of them has a particular emphasis.

Agility is the firm's ability to enable the detection of changes and to respond effectively, efficiently and quickly to them (Felipe et al., 2016; Sambamurthy et al., 2003). It therefore refers to how the firm adapts by aligning its resources and capabilities (internal organizational factors) with changes in the environment (external environmental factors) (Wang & Ahmed, 2007). Agile organizations that quickly detect market changes may use the knowledge that emerges from their relationship with customers to develop environmental practices (Chen et al., 2017). For example, agility makes it easier for hotels to meet the demands of environmentally concerned customers who need a quick response at the time the customer is in the hotel by implementing an environmental management system. Some of these

demands could be the consumption of green products or participation in environmental protection initiatives.

Innovation capability is linked to a firm's ability to develop new products and services and the identification of new markets, explaining the relationship between the firm's resources and capabilities and its environment (Wang & Ahmed, 2007). Therefore, hotels will be able to adapt their strategy to changes involving the development of environmental management if they are predisposed to innovate; that is, to develop advanced knowledge about processes, services and products that they may apply to facilitate the implementation of environmental initiatives (Fraj et al., 2015).

Some authors have pointed out that environmental management may also be seen as a dynamic capability (Aragón-Correa & Sharma, 2003; Fraj et al., 2015; Pereira-Moliner et al., 2021). Environmental management—understood as a set of environmental organizational and technological practices that involve the development of sustainable product and service designs and more sustainable business models—is a dynamic capability dependent on and connected to other capabilities, such as innovation and agility indicated in this study, to ensure not only the sustainability of the hotel but also that it may adapt to the changing environment and achieve competitive advantages (Aragón-Correa & Sharma, 2003; Fraj et al., 2015), adapting to the new environmental demands from customers and other stakeholders (Pereira-Moliner et al., 2021). Therefore, firms that are agile in detecting market changes may leverage the knowledge gained from their link with customers and other stakeholders with whom they interact and innovate for the development of environmental management (Chen et al., 2017).

Along with the dynamic capabilities theory, this study theoretically integrates two perspectives: the stakeholder theory and the resource-based view, all of them interacting with each other. Moreover, this paper includes the concept of dual responsibility proposed by Al-Shammari et al. (2022), based on the idea that the hotel should attend to its environmental and economic responsibility simultaneously in order to obtain a higher performance.

The stakeholder theory studies the link between the firm and those stakeholders that may influence or are influenced by the activity carried out by the firm (Freeman, 1984). For the development of the agility and innovation dynamic capabilities and environmental management, stakeholders are key. Then there is a relationship between stakeholder and dynamic capabilities theories. Relationships with stakeholders make it possible to identify their environmental demands quickly as well as to interact with them and involve them in the firm's activities in order to be more environmentally responsible and competitive (Ahmed & Streimikiene, 2021).

Sustainable competitive advantages may be also obtained from the implementation of environmental practices that require the acquisition and development of resources and capabilities that are difficult to imitate or substitute (Barney, 2001), according to the resource-based view. The development of environmental practices may increase the value of intangible assets such as knowledge or reputation, bringing significant environmental, competitive and economic benefits for hotels (González-Rodríguez et al., 2021). This theory is

therefore characterized by identifying competitive advantages as the reason for adopting environmental practices (Ratajczak, 2021) which contribute mainly to value creation for hoteliers. The resource-based view needs to be complemented by the stakeholder theory. According to the latter theory, not only economic and competitive value should be created for hoteliers; the hotel also has to take into account other groups with which it relates, collaborating in social wellbeing and economic development (Farmaki, 2019) to create social value. This is a way to gain legitimacy among stakeholders (Farha et al., 2018).

2.2 | Hypotheses

2.2.1 | Agility and environmental management

When a firm is agile, it is able to detect and respond to changes in the environment in an effective and efficient manner (Ashrafi et al., 2006). As already mentioned, agility is framed within the dynamic capabilities theory (Teece et al., 1997), being a key dynamic capability to ensure that firms survive in dynamic environments and may achieve competitive advantage (Nijssen & Paauwe, 2012).

The literature has pointed out that a greater agility of the firm may have a positive effect on the development of environmental practices in the ceramics (Mirghafoori et al., 2017) and manufacturing (El-Khalil & Mezher, 2020; Nath & Agrawal, 2020) industries. We have only found one study that analyses the link between agility and sustainability in the service industry, specifically in hotels and tour companies (Mandal & Dubey, 2020). In this study, a positive relationship between agility and sustainable tourism supply chain performance is observed. As Ciccullo et al. (2018) indicate, further studies are needed to deeply analyze the link between agility and environmental management.

To analyze this relationship, our research considers three dimensions of agility used by Sambamurthy et al. (2003) and Felipe et al. (2016): customer-related agility, operational agility and partner-related agility. According to these authors, customer-related agility is related to the speed of making and carrying out decisions to take better advantage of market opportunities and meet customer needs. Operational agility is the rapid redesign of a process to take advantage of dynamic market conditions, and partner-related agility is the need to learn from the links with partners to improve the firm's responsiveness to the market.

Different agility factors may be used for the development of environmental management, such as trust-based relationships with customers and suppliers, flexible production capability, and the willingness to learn and versatility of employees (Bathaei et al., 2019). In the hotel industry, environmental management requires flexibility and change to cope with new environmental demands and to continuously improve the achieved goals (Boronat-Navarro & García-Joerger, 2019). Customers are increasingly concerned about the environment and are beginning to demand that hotels adopt environmental practices. The operational agility of the firm may make it easier for hotels to meet the demands of these green customers who need a

quick response (Mandal & Dubey, 2020) by implementing environmental management systems. It may also help to meet more specific needs, at the time the customer is in the hotel, such as consumption of green products, participation in environmental protection initiatives or giving indications on how to be environmentally friendly inside and outside the hotel. Moreover, ways of reinventing and restructuring the hotel may be constantly sought by training employees, which may lead to new ways of saving water and energy, using renewable energy sources and developing actions that promote environmental protection. Finally, collaboration with suppliers on environmental issues and the development of collaborative agility networks may also facilitate environmental management (Chen et al., 2017). Based on previous literature, we establish the following hypothesis:

> **Hypothesis 1.** Agility positively influences environmental management.

2.2.2 | Innovation and environmental management

Innovation depends on how resources and capabilities of the firm interact, linking individual aspects of the firm, such as culture, team bonding and fostering creativity (Carlborg et al., 2014), with customer-specific, technological and organizational competences, through their involvement in the innovation and value creation process (Lokshin et al., 2009; Njoroge et al., 2020). These resources and capabilities simultaneously influence the firm's attitude towards environmental management, increasing the likelihood that firms that innovate will develop environmental initiatives (Gouda & Tiwari, 2022; Guerrero-Villegas et al., 2018; Hofmann et al., 2012). Therefore, in order to make organizational changes, such as developing environmental management, the firm should encourage innovation (Gallagher et al., 2018; Rajapathirana & Hui, 2018). To achieve environmental objectives, new ideas have to be developed, which may involve changes in processes, products and services, and business models (Fraj et al., 2015; Sharma et al., 2007).

Innovation drives the exploration and development of new ways of thinking and working (Yu et al., 2020) that contribute to the development of advanced knowledge about products, processes and technologies, enabling hotels to more efficiently adapt their strategy to changes involving the development of advanced environmental practices (Fraj et al., 2015). Innovation (incremental and/or radical) may contribute to the development of cleaner technologies, the use of renewable energy, the substitution of hazardous substances, the reduction of energy and greenhouse emissions, as well as the elimination of packaging and waste (Boronat-Navarro & García-Joerger, 2019; Gouda & Tiwari, 2022; Yu et al., 2020). This may be done in different ways such as the choice of suppliers, the selection of materials and the implementation of processes (AlNuaimi et al., 2021; Modi & Patel, 2013). Therefore, if a hotel is innovative and proactive, it is more likely to develop a higher degree of environmental management (Koch et al., 2020). This idea is also reflected in different papers that have studied the link between innovation and environmental

management empirically in the hotel industry (Boronat-Navarro & García-Joerger, 2019; Fraj et al., 2015). Then, we establish the following hypothesis:

> **Hypothesis 2.** Innovation positively influences environmental management.

2.2.3 | Agility and innovation

Agile organizations innovate and cooperate externally in innovation more than non-agile firms (Martínez-Sánchez et al., 2019). Innovation is a dynamic capability that involves harnessing new knowledge to respond to changes in the environment, using existing resources and processes. Organizations that are able to quickly recognize such changes in demand and unmet customer preferences and needs may achieve higher innovation performance (Sambamurthy et al., 2003).

The literature has studied the relationship between agility and innovation using different dimensions of analysis. For example, some papers have linked agility to business model innovation. Specifically, Mihardjo and Sasmoko (2019) link organizational agility and business model innovation in a positive and significant way. Clauβ et al. (2021) also empirically find that strategic agility (which consists of strategic sensitivity, leadership unity and resource fluidity) is positively related to all three dimensions of business model innovation: value proposition innovations, value creation and value capture. In this context, Uyun (2019)'s study focuses only on leadership agility and its relationship with organizational innovation, observing a positive and significant link. This author considers that an agile leader may lead the firm to be agile. Leaders may provoke change in their employees by making them more creative and innovative in producing interesting designs so that the product or service may be easily sold in the market.

In our research, we follow the approach of Bauer and Vocke (2019) and Shuradze et al. (2018), who study how agile organizations may contribute to the development of incremental and radical innovations. The idea is that through agility, the firm identifies the nature of environmental change and determines how to respond in an optimal way (Al-Taweel & Al-Hawary, 2021). Therefore, for innovation to exist in the organization, an optimal adjustment of processes has to be carried out to facilitate a good combination of resources for the development of all kinds of incremental and/or radical innovation in products, processes and services in order to respond to these market demands (Bauer & Vocke, 2019; Nath & Agrawal, 2020; Teece, 2017). Thus, agility is a dynamic capability that may help explain why a firm may become more successful than another in its innovations (Shuradze et al., 2018).

In the tourism industry, agility has also been found to be a complementary capability that influences innovation, as agile hotels are able to react, adapt and even anticipate the market quickly, meeting customer demand (Al-Qaralleh & Atan, 2021). According to Gutiérrez Rodríguez et al. (2020), through different strategies and processes, agility may foster innovation and creativity in services, looking for

ways to add value; for example, through the environment and cultural richness. These authors show that in the hotel industry the relationship between agility and innovation may be positive and significant at both the individual and cluster level. Then, we propose the following hypothesis:

Hypothesis 3. Agility positively influences innovation.

2.2.4 | Influence of agility on environmental management via innovation

As discussed above, agility may directly influence environmental management (El-Khalil & Mezher, 2020; Nath & Agrawal, 2020). However, this effect may also be indirect through innovation. Agility may help towards the development of innovation in products, services and business models, through different strategies and processes that may contribute to that innovation adding value in environmental protection (Koens et al., 2009).

The development of environmental practices requires dynamic capabilities, such as agility, so that firms may quickly, effectively and efficiently identify changes in the environment linked to environmental requirements and demands through their relationships with stakeholders (customers, suppliers, government, etc.) (Parera et al., 2014). Once these changes have been identified, the firm has to develop appropriate environmental products, services or practices, sometimes also requiring a change in organizational structure, management approaches and processes (Nath & Agrawal, 2020; Parera et al., 2014). Therefore, to develop good environmental management, a firm needs to have agility, which influences the generation of new knowledge and the adoption of new practices and changes in established routines through innovation, which will favor the development of environmental practices (Gouda & Tiwari, 2022; Yu et al., 2020).

For example, in the current pandemic situation due to Covid-19, hotels may develop customer-related agility, based on being quick to make and implement appropriate decisions to cope with changes in the environment caused by the pandemic and meet the needs of customers through innovations such as mass-counting cameras; web-based or automatic check-in installed in lobbies; digital keys through mobile devices; and sensory taps and lights (Jian et al., 2020; Robina-Ramírez et al., 2021). These innovations may contribute to the development of actions to save water and energy, reduce material consumption and waste, and use environmentally friendly products, among others (Pereira-Moliner et al., 2021).

Based on these ideas, agility may lead to the development of incremental and/or radical innovations in products, services and processes. In addition, innovation may, in turn, favor the implementation of environmental practices in the hotel, since through innovation it contributes to the development of advanced knowledge in technologies, processes and products required to carry out advanced environmental practices. Therefore, agility may have an indirect effect on environmental management through innovation. We propose the following hypothesis:

Hypothesis 4. Innovation mediates the relationship between agility and environmental management.

2.2.5 | Environmental management and competitive advantages

Inconclusive results are observed in the study of the relationship between environmental management and firm performance. Some studies show a positive link (e.g. Duric & Topler, 2021; Yenidogan et al., 2021; Zhang & Xie, 2021) and other papers do not observe such a positive or significant link (e.g., Carmona-Moreno et al., 2004; Claver-Cortés et al., 2007). We focus on competitiveness variables to measure firm performance. In this case, the literature indicates that environmental management may positively influence the hotel's competitiveness (Duric & Topler, 2021; López-Gamero et al., 2020; Martínez et al., 2019). We have not found any study that indicates a negative or non-significant relationship in the hotel industry. The development of advanced environmental management in the hotel may contribute to reduced operating costs and greater efficiency in cost control, enhanced brand reputation and image, and increased customer satisfaction (Abdou et al., 2020; Duric & Topler, 2021). These advantages may be categorized into cost and differentiation competitive advantages (López-Gamero et al., 2020; Singjai et al. 2018).

In terms of costs, different studies have emerged in recent years that put forward proposals on how to minimize them. For example, Al-Aomar and Alshraideh (2019) highlight that in order to minimize the total cost of materials management, hotels should develop environmental practices linked to the purchase of ordinary and environmentally friendly materials, the way in which these materials are processed in the services offered and the interaction with the customer. These practices will contribute not only to reducing financial costs, but also to improving environmental performance (Chen et al., 2018), as these materials are more durable and more recyclable and reusable (Al-Aomar & Alshraideh, 2019). In addition, they contribute to the consumption of fewer resources, using less water and energy (Han et al., 2018; Nam et al., 2020), and produce less emissions and waste (Duric & Topler, 2021). Therefore, we establish the following hypothesis:

Hypothesis 5. Environmental management positively influences cost competitive advantage.

The literature suggests that environmental management contributes to an advantage in differentiation in terms of reputation and brand image (Chen et al., 2018;), customer satisfaction and behavioral intentions (Ali et al., 2019; Martínez et al., 2019) and trust (Palacios-Florencio et al., 2018). Hoteliers enhance their legitimacy via differentiation by emphasizing their good environmental reputation (Heikkurinen, 2010). In other words, environmental practices may create a good hotel image (López-Gamero et al., 2020). This image may influence the behavior of customers in making positive
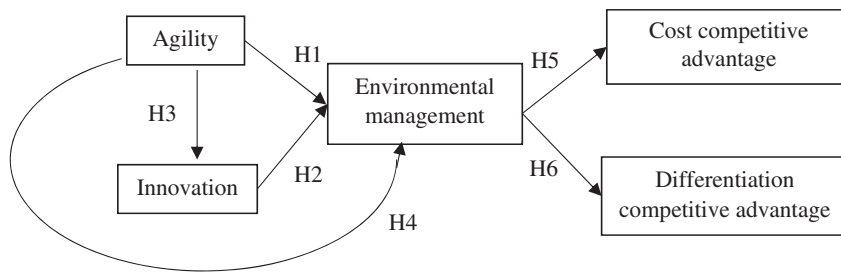
FIGURE 1 Theoretical model

recommendations to other potential customers and make them interested in paying a premium (Lee et al., 2010; Martínez et al., 2019). Moreover, through environmental management, better quality service may be provided by generating new experiences that enhance customer satisfaction and trust (Chen et al., 2018; Yenidogan et al., 2021) and engage customers in environmental initiatives (Han et al., 2018). We propose the following hypothesis:

> **Hypothesis 6.** Environmental management positively influences differentiation competitive advantage.

Figure 1 shows the research model that captures all the hypotheses presented.

3 | METHOD

3.1 | Population and sample

This paper focuses on the hotel industry as a key industry for the Spanish economy. According to the latest data available for the pre-Covid period, in 2019 the proportion of Gross Domestic Product (GDP) associated with tourism was 154.487 billion euros, which accounted for 12.4% of GDP and 12.9% of total employment (Instituto Nacional de Estadística, 2020). Therefore, the hotel industry is characterized by its important contribution to the country's economic growth, but also by its impact on the natural environment through high consumption of resources, waste production and pollution, and endangering quality of life in tourist destinations (Martínez et al., 2019; Suárez-Cebador et al., 2018). The hotel industry is also characterized by its potential to reduce this environmental impact. In recent years, there has been increasing interest in reducing its carbon footprint, seeking to align itself with the Sustainable Development Goals set out in the United Nations 2030 Agenda.

The population consists of all 3- to 5-star hotels located in Spain in 2018. In total there are 5071 hotels that were obtained from the Alimarket database (2018). Specifically, 2233 are 3 star hotels, 2472 are 4 star hotels and 366 are 5 star hotels. This database was used because it provides the email and postal addresses to allow the survey to be sent to each hotel individually. Prior to sending the survey, a pre-test was carried out with 14 people: two tourism researchers, one tourism consultant, one representative of Spanish tourism policy, two delegates of tourism knowledge transfer institutions, two

representatives of hotel associations and six hotel managers. A structured survey was then sent in two waves to the population between October 2018–February 2019. The survey could be answered by post and email. 365 hotels responded correctly to the survey, with a response rate of 7.2% and a sampling error of 4.94%.

To check for possible non-response bias, the sample was split into three equal parts taking into account when the surveys were received. The hotels that responded last were considered to be the most similar to the non-respondents (Armstrong & Overton, 1977). To compare the responses received in the first and last third, Student's t-tests and Pearson's χ^2 tests were used. No significant differences were found between them. To decrease the probability of common bias variance, the cover letter of the survey indicated that the questions on agility, innovation and competitive advantages were answered by the hotel manager, and the questions on environmental management by the environmental manager. Moreover, the Harman test (Podsakoff & Organ, 1986) was conducted, which indicated that the first factor explained only 30% of the total variance.

3.2 | Variables

Agility is a second-order composite construct consisting of three first-order reflective constructs: operational agility (three items), customer-related agility (three items) and partner-related agility (three items), drawn from studies of Sambamurthy et al. (2003) and Felipe et al. (2016, 2020) (Table 1). Items were measured with a seven-point Likert opinion scale (1 = "Strongly disagree"; 7 = "Strongly agree").

Innovation is a second-order formative construct formed by two first-order reflective constructs: incremental innovation (five items) and radical innovation (six items), obtained from studies of Jansen et al. (2006) and Pertusa-Ortega and Molina-Azorín (2018) (Table 1). Each item was measured with a seven-point Likert opinion scale (1 = "Strongly disagree"; 7 = "Strongly agree").

Environmental management is a reflective construct that was measured with a 12-item scale drawn from Garay and Font (2013)'s study (Table 1). Items were measured with seven-point Likert opinion scale (1 = "Strongly disagree"; 7 = "Strongly agree").

Competitive strategies were measured as two reflective constructs using nine items (three linked to cost competitive strategy and six to differentiation competitive strategy), drawn from studies of Beal (2000), Govindarajan (1988), Lee and Miller (1996) and Miller (1988) (Table 1). Items were measured with seven-point Likert scales

TABLE 1 List of items and evaluation of the measurement model

Constructs/items	Loadings >0.707	Construct reliability >0.7	Ave >0.5
Agility		0.889	0.728
Operational agility	0.850	0.889	0.728
We meet the requirements of our customers who need a quick response, as well as their special needs, as they occur	0.843		
We may quickly adjust our supply capability according to fluctuations in demand (e.g. seasonality)	0.854		
Even if there are problems with the receipt of products or services from our suppliers, we may quickly make internal adjustments	0.862		
Customer-related agility	0.909	0.941	0.841
We are quick to develop decisions that respond to market changes and meet customer needs	0.895		
We are continually investigating how to reinvent or restructure our firm to better serve our customers and market	0.932		
We act quickly to consider market changes as opportunities for improvement	0.923		
Partner-related agility	0.798	0.886	0.726
We obtain detailed information from suppliers of services and products	0.915		
We quickly utilize the resources and capabilities of our suppliers in order to increase the quality of services and products	0.944		
We switch suppliers quickly if we may benefit from lower costs, higher quality or improved delivery times	0.672[a]		
Innovation	Weight		
Radical innovation	0.473[b]	0.907	0.622
We accept customer requests beyond the services and products it already offers	0.721		
We develop new services and products for our customers	0.871		
We test new services and products for our customers	0.881		
We market new products and services	0.817		
We normally use new distribution channels	0.662[a]		
We explore new types of customers for our hotel	0.757		
Incremental innovation	0.640[b]	0.954	0.805
We improve the development of the services currently offered	0.908		
We make minor adjustments to the services and products currently offered	0.898		
We improve the services and products that the hotel currently offers to its customers	0.919		
We increase the efficiency in the realization of the services offered by the hotel	0.919		
We seek to increase services for existing customers	0.839		
Environmental management		0.946	0.595
The hotel assesses its environmental impact	0.749		
The hotel develops practices to reduce energy and/or water	0.717		
The hotel recycles waste	0.741		
The hotel uses products that respect the natural environment	0.756		
The hotel selects suppliers that respect the natural environment	0.793		
The hotel provides environmental training for its employees	0.834		
The hotel encourages its guests to reduce water and/or energy consumption	0.734		
The hotel encourages its guests to consume green products	0.725		
The hotel encourages its guests to participate in environmental initiatives	0.780		
The hotel encourages its guests to respect the natural environment inside the hotel	0.815		
The hotel encourages its guests to respect the natural environment surrounding the hotel	0.765		
The hotel develops practices that help to protect the natural environment	0.831		

(Continues)

TABLE 1 (Continued)

Constructs/items	Loadings >0.707	Construct reliability >0.7	Ave >0.5
Cost competitive advantage		0.894	0.737
Overheads are minimized	0.844		
Productivity improvements are sought	0.863		
Efforts are made to achieve economies of scale	0.868		
Differentiation competitive advantage		0.911	0.632
Development of a brand image	0.728		
A better quality service is provided than that by competitors	0.822		
The number of complementary services offered to the customer that add value is higher	0.835		
A better experience is offered than that by its competitors	0.831		
Efforts are made to exceed customers' expectations	0.748		
Relevant service innovations are incorporated	0.799		

[a]Factor loadings <0.707.
[b]Weights with $p = 0.000$.

TABLE 2 Discriminant validity—Fornell–Larcker

	1	2	3	4	5	6	7	8
1. Agility	(0.853)	–	–	–	–	–	–	–
2. Innovation	0.580	n.a.	–	–	–	–	–	–
3. Environmental management	0.351	0.355	(0.771)	–	–	–	–	–
4. Cost competitive advantage	0.434	0.268	0.228	(0.859)	–	–	–	–
5. Differentiation competitive advantage	0.592	0.568	0.301	0.501	(0.795)	–	–	–
6. Chain	0.065	0.124	0.185	0.190	0.148	(1)	–	–
7. Category	0.109	0.246	0.129	0.072	0.232	0.235	(1)	–
8. Size	0.035	0.085	0.168	0.172	0.086	0.374	0.287	(1)

Note: Values of the diagonal (in parentheses) are the square roots of the AVE. The other values in the matrix are the correlations between the constructs. To test discriminant validity, values on the diagonal have to be greater than the off-diagonal values.

(1 = "Not using the strategy at all"; 7 = "The strategy was very important for the hotel").

Moreover, three control variables are included in order to improve the explanatory power of the model: number of stars (3, 4, and 5 stars); chain membership (0 = independent hotel; 1 = chain-affiliated hotel); and size (number of rooms). The idea is that agility, innovation, environmental management practices and competitive strategies may be different due to the characteristics of 3- to 5-star hotels.

4 | RESULTS

Hypotheses were tested from structural equations using the partial least squares (PLS) approach, SmartPLS software version 3.3.2 (Ringle et al., 2014). This technique is good for validating hypotheses for the following reasons (Hair et al., 2019). First, the study is exploratory in nature. Second, it allows the use of non-normal data using bias-corrected and accelerated bootstrapping (BCa). Third, thanks to PLS it is possible to include reflective and formative constructs in the same model, which is not always possible with covariance-based structural equation modeling techniques (Chin, 1998). Finally, PLS does not require very large sample sizes as in the covariance-based approach. In this sense, the sample size is ideal as the study sample is 365 hotels, exceeding the minimum sample size needed to apply the analyses with 99% explanatory power. This minimum is 107 hotels, calculated from the G*Power software (effect size $f^2 = 0.15$; probability of error $\alpha = 0.05$) (Green, 1991; Mayr et al., 2007).

4.1 | Measurement model

A distinction has to be made between reflective and composite constructs and formative constructs. Regarding reflective constructs and the second-order composite construct (agility), reliability and validity have to be studied. Individual reliability is analyzed by means of item

TABLE 3 Discriminant validity—HTMT

	1	2	3	4	5	6	7
1. Agility	–		–	–	–	–	–
2. Innovation	n.a.	–	–	–	–	–	–
3. Environmental management	0.384	n.a.	–	–	–	–	–
4. Cost competitive advantage	0.533	n.a.	0.245	–	–	–	–
5. Differentiation competitive advantage	0.686	n.a.	0.311	0.595	–	–	–
6. Chain	0.072	n.a.	0.187	0.198	0.150	–	–
7. Category	0.122	n.a.	0.135	0.078	0.245	0.235	–
8. Size	0.045	n.a.	0.167	0.185	0.083	0.374	0.287

Note: To test discriminant validity based on the HTMT criterion, HTMT values should be <0.85 (Henseler et al., 2015).

loadings on their construct, which must have values above 0.707 in each case (Hair et al., 2017). Two items are below 0.707. However, it is decided to keep them because their loadings are higher than 0.60 and their removal does not increase the average variance extracted (AVE) (Hair et al., 2017) (Table 1). To assess the construct reliability, composite reliability is used, and all values should be greater than 0.70 (Hair et al., 2017), as is the case (Table 1). As for convergent validity, all AVE values must be greater than 0.5 (Fornell & Larcker, 1981), as shown in Table 1. Discriminant validity is assessed using two techniques: the Fornell-Larcker criterion and the Heterotrait-Monotrait method (HTMT). As for the Fornell-Larcker criterion, AVE values are higher than correlation coefficients between constructs (Table 2). Moreover, the results of the HTMT method indicate that all values are below 0.85 (Henseler et al., 2015) (Table 3). Therefore, discriminant validity exists.

Regarding the formative construct (second-order innovation), PLS gives us information on how the construct is composed through weights of each dimension (Chin, 1998). Weights for incremental innovation and radical innovation are significant, as seen in Table 1; therefore, they should be maintained (Hair et al., 2017). To see if there is multicollinearity between dimensions, the variance inflation factor (VIF) is calculated. In both cases, VIF = 1.581 (p = 0.000) < 3.3 (threshold set by Diamantopoulos & Siguaw, 2006).

4.2 | Structural model

Table 4 shows coefficients of determination R^2, regression coefficients, Student's t values, p values and confidence intervals obtained in a Bootstrap analysis with 5000 samples. The goodness of fit of the model is measured by SRMR, which has to be less than 0.08 (Henseler et al., 2014). In this study, the first-order SRMR for the saturated model is 0.062 and for the second-order saturated model it is 0.067. Moreover, the value of the cross-validated redundancy measure Q^2 for each construct is greater than 0, indicating that the model has predictive relevance across all constructs (Hair et al., 2019). Finally, collinearity is not a problem of the model, as VIF values are less than three in the second-order structural model.

The results (Table 1 and Figure 2) indicate that agility and innovation positively affect environmental management, supporting hypotheses 1 and 2. Moreover, agility positively and significantly influences innovation, supporting hypothesis 3. Agility is indirectly related to environmental management via innovation, supporting hypothesis 4. Finally, environmental management positively and significantly influences cost and differentiation competitive advantages, supporting hypotheses 5 and 6. Considering control variables, the results indicate that agility and innovation are positively influenced by category; environmental management is positively influenced by chain and size; cost competitive advantage is positively influenced by chain and size; and differentiation competitive advantage is positively influenced by category.

5 | DISCUSSION AND CONCLUSIONS

5.1 | Theoretical implications

This study analyses the role of agility and innovation in the environmental management - firm performance relationship in order to contribute to the intense debate that arises around this relationship due to its inconclusive results. It adds value to the dynamic capabilities theory by empirically demonstrating that environmental management is founded on the interaction and mediation of dynamic capabilities of agility and innovation. Moreover, from the resource-based view, environmental management may favor the creation of some resources and capabilities, such as brand image, experience and quality service, that are valuable to gain sustainable competitive advantages. This study is also relevant to the stakeholder theory because it shows as internal and external stakeholders influence and are influenced by the activity carried out by the hotel. The theoretical integration of these three theories, which interact with each other (as shown below) is another important contribution of this research.

Regarding the relationship between agility and environmental management, agility is a key dynamic capability that provides flexibility and adaptability to change in developing environmental practices to respond to stakeholder demands. The results indicate that

TABLE 4 Significance analysis of the structural model

R²	Agility 0.005[a]	Innovation 0.365	Environmental management 0.176	Cost competitive advantage 0.072 Is the hypothesis	Differentiation competitive advantage 0.123
Hypotheses	β	t value	p value	supported?	Confidence interval 95%
H1: Agility → Environmental management	0.222	3.368	0.000	Yes	[0.111;0.329]
H2: Innovation → Environmental management	0.204	3.085	0.001	Yes	[0.091;0.310]
H3: Agility → Innovation	0.558	13.138	0.000	Yes	[0.482;0.621]
H5: Environmental management → Cost competitive advantage	0.190	3.309	0.000	Yes	[0.085;0.277]
H6: Environmental management → Differentiation competitive advantage	0.270	4.730	0.000	Yes	[0.166;0.355]
Hypothesis—mediation					
H4: Agility → Innovation → Environmental management[b]	0.114	2.775	0.006	Yes	[0.037;0.199]
Control variables					
Chain → Agility	0.046	0.860	0.195	n.a.	[−0.044;0.131]
Chain → Innovation	0.048	0.922	0.178	n.a.	[−0.042;0.127]
Chain → Environmental management	0.107	2.044	0.021	n.a.	[0.020;0.188]
Chain → Cost competitive advantage	0.121	2.205	0.014	n.a.	[0.025;0.205]
Chain → Differentiation competitive advantage	0.067	1.160	0.123	n.a.	[−0.031;0.159]
Category → Agility	0.102	1.901	0.029	n.a.	[0.009;0.186]
Category → Innovation	0.174	3.719	0.000	n.a.	[0.095;0.248]
Category → Environmental management	0.000	0.008	0.497	n.a.	[−0.090;0.093]
Category → Cost competitive advantage	−0.009	0.157	0.438	n.a.	[−0.100;0.085]
Category → Differentiation competitive advantage	0.192	3.841	0.000	n.a.	[0.108;0.270]
Size → Agility	−0.012	0.208	0.418	n.a.	[−0.106;0.076]
Size → Innovation	−0.003	0.064	0.474	n.a.	[−0.067;0.060]
Size → Environmental management	0.103	2.129	0.017	n.a.	[0.023;0.180]
Size → Cost competitive advantage	0.098	2.002	0.023	n.a.	[0.014;0.175]
Size → Differentiation competitive advantage	−0.039	0.687	0.246	n.a.	[−0.138;0.048]

[a]Agility variable has R^2 because we are studying the effect that the control variables (chain, category and size) have on agility. Its value is low because only the category has an effect on agility, and there are other variables (not included in this model) that may have an effect on agility.
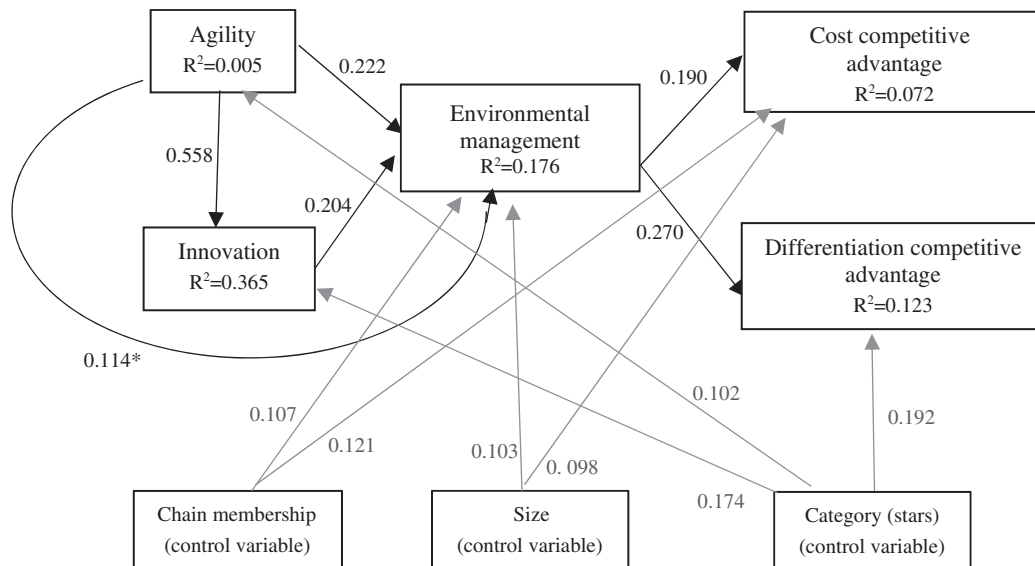
[b]This analysis is done using significance levels for the two-tailed t test. The rest of the analysis is done using significance levels for the one-tailed t test.

customer-related agility has the highest loading, followed by operational agility and finally partner-related agility. The hotel develops customer-related agility, enabling it to identify and use customer feedback to develop environmentally friendly services and products; partner-related agility, gaining knowledge from its collaboration with suppliers who are involved in its environmental initiatives; and operational agility, redesigning its processes in all areas to meet the environmental demands of a dynamic environment. These results are consistent with those previously shown in other industries (El-Khalil & Mezher, 2020; Mirghafoori et al., 2017; Nath & Agrawal, 2020).

We also find that innovation has a positive impact on environmental management. The results indicate that environmental management requires a predisposition to innovate on the part of the hotel that must be shared by all employees and departments (Fraj et al., 2015) in order to carry out environmental practices that allow, for example, saving water and/or energy, recycling waste and consuming environmentally friendly products, among other actions. Our results are in line with those obtained by Boronat-Navarro and García-Joerger (2019) and Koch et al. (2020).

This study also contributes to the literature considering agility as a prerequisite for innovation. Through agility the hotel may detect stakeholder demands and respond according to their needs by developing incremental and/or radical innovation. The results show that incremental innovation has more weight than radical innovation in our

FIGURE 2　Structural model results (significant relationships)

study. Agile hotels may favor the development of incremental innovations, for example, introducing improvements to existing products and services for customers and trying to expand services and improve efficiency in service delivery. Hotel agility may also contribute to the development of radical innovations such as accepting customer requests that go beyond existing products and services, and developing and marketing products and services that are completely new to the hotel. Our results are in line with those obtained by Bauer and Vocke (2019) and Gutiérrez Rodríguez et al. (2020).

Another important contribution to the literature is the demonstration of an indirect relationship between agility and environmental management through innovation. In order to adapt quickly to the changing environment and customer needs, hotels develop innovations in their establishments. Some of these innovations are based on the establishment of sensory taps and lights, web-based check-in, and digital keys via mobile devices. These innovations contribute to the development of actions to use environmentally friendly products and avoid overexploitation of natural resources.

This study shows that environmental management is a powerful tool for achieving cost and differentiation competitive advantages. These results are in line with those obtained by Al-Aomar and Alshraideh (2019) and Chen et al. (2018). This demonstration contributes to the resource-based view and the stakeholder theory, which interact with each other. It may be said that the development of environmental practices and the involvement of stakeholders in these practices may contribute to minimizing the hotel's costs, achieving economies of scale and improving its productivity. Moreover, the quality of service and customer experience may be improved, reinforcing the brand image. The development of good environmental practices may

enhance the hotel's reputation and legitimacy in the eyes of the stakeholders with whom it interacts, which is an important differentiating element with respect to its competitors.

Moreover, this research is particularly relevant for the hotel industry because it considers the particularities of this industry based on the study of category, chain membership and size. The results indicate that higher category hotels have more resources to be more agile, develop incremental and radical innovation activities and gain a differentiation competitive advantage. Moreover, environmental management practices are more developed in hotels that belong to a chain and are larger in size. It may be said that belonging to a chain may have a positive impact on the implementation of environmental actions, as the chain may set environmental standards that are common to all affiliated hotels with the aim of ensuring a unified brand image with respect to the environment and more efficient resource management (Carmona-Moreno et al., 2004; López-Gamero et al., 2020). This efficient resource management may have a positive impact on achieving a cost-competitive advantage, as we observed in this study.

Finally, this study adds value to the literature because it shows empirical evidence that agility and innovation, used jointly, contribute to the hotel reducing its environmental impact while creating economic value for shareholders and social value for stakeholders, generating a win-win situation.

5.2 | Practical implications

Hoteliers should understand that an environment of dynamic capabilities, where activities that contribute to the development of agility and

innovation are performed, contributes positively to the development of environmental management in the hotel. Hoteliers should consider customer-related agility, operational agility and partner-related agility to meet the environmental demands of stakeholders. To this end, hoteliers may identify and include the information obtained through contact with their customers and partners in their activity, and redesign their processes.

In terms of innovation, hoteliers should develop incremental innovation and radical innovation, with incremental innovation seeming to have the greatest weight. Some incremental innovations may be improvements in the delivery of existing services and efficiencies in existing services, as well as the implementation of small adaptations to products and services. However, the hotel may also make radical innovations based on experimentation and commercialization with new products and services, the use of new distribution channels or the search for new customer segments. Both agility and innovation may contribute to the development of environmental practices aimed at reducing the hotel's environmental impact and conserving the natural environment. To this end, for hoteliers it is key to involve employees, customers and suppliers in their environmental initiatives; for example, by training employees on environmental issues; involving customers in energy and water saving practices and the consumption of environmentally friendly products; and selecting environmentally friendly suppliers.

Finally, hoteliers should take environmental actions because they create greater environmental wellbeing that benefits society in general, but also because environmental protection favors the achievement of cost and differentiation competitive advantages. Hoteliers may make significant cost savings through the reduction of materials, water and energy, better waste management, recycling and reuse; and they may also differentiate themselves from their competitors through improved image, customer loyalty, higher quality of service and better customer experience.

5.3 | Limitations and future lines of research

One limitation is that this study is cross-sectional. A longitudinal study should be performed to analyze the direction of causality of the relationships raised. Another possible limitation is that the survey collects perceptions of managers. Future research may collect secondary data to measure the variables used. Moreover, the study was conducted in the hotel industry in Spain. It could be interesting to analyze other less studied subindustries such as holiday homes, restaurants or travel agencies.

This study has shown that agility has a positive impact on innovation. It would also be interesting to analyze whether innovation may have an impact on agility. In this sense, Ravichandran (2018) indicates that innovative firms are more likely to be involved in adaptations to the environment and, therefore, firm innovativeness is an important complementary capability that could explain the variation in agility. Finally, in this study we have posited agility and innovation as antecedents of environmental management, but it may also be interesting to posit them as consequences, as this would emphasize the dynamic

nature of the relationship between these variables. Environmental management may promote innovation (Wu et al., 2020). Moreover, some of the aspects specific to environmental management (employee involvement and training, collaboration with stakeholders, continuous improvement) may foster an attitude of rapid adaptation to changes in the environment (Ciccullo et al., 2018).

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REFERENCES

Abdel-Maksoud, A., Kamel, H., & Elbanna, S. (2016). Investigating relationships between stakeholders' pressure, eco-control systems and hotel performance. *International Journal of Hospitality Management*, *59*, 95–104. https://doi.org/10.1016/j.ijhm.2016.09.006

Abdou, A. H., Hassan, T. H., & El Dief, M. M. (2020). A description of green hotel practices and their role in achieving sustainable development. *Sustainability*, *12*(22), 9624. https://doi.org/10.3390/su12229624

Ahmed, R. R., & Streimikiene, D. (2021). Environmental issues and strategic corporate social responsibility for organizational competitiveness. *Journal of Competitiveness*, *13*(2), 5–22. https://doi.org.10.7441/joc.2021.02.01

Al-Aomar, R., & Alshraideh, H. (2019). A service-oriented material management model with green options. *Journal of Cleaner Production*, *236*, 117557. https://doi.org/10.1016/j.jclepro.2019.07.032

Ali, H. Y., Dnish, R. Q., & Asrar-Ul-Haq, M. (2019). How corporate social responsibility boosts firm financial performance: The mediating role of corporate image and customer satisfaction. *Corporate Social Responsibility and Environmental Management*, *27*(1), 1–12. https://doi.org/10.1002/csr.1781

Alimarket (2018). *Hoteles. Base de Datos*. Alimarket. https://www.alimarket.es/hoteles

AlNuaimi, B. K., Singh, S. K., & Harney, B. (2021). Unpacking the role of innovation capability: Exploring the impact of leadership style on green procurement via a natural resource-based perspective. *Journal of Business Research*, *134*, 78–88. https://doi.org/10.1016/j.jbusres.2021.05.026

Al-Qaralleh, R. E., & Atan, T. (2021). Impact of knowledge-based HRM, business analytics and agility on innovative performance: Linear and FsQCA findings from the hotel industry. *Kybernetes: The International Journal of Systems & Cybernetics*, *51*(1), 423–441. https://doi.org/10.1108/K-10-2020-0684

Al-Shammari, M. A., Banerjee, S. N., & Rasheed, A. A. (2022). Corporate social responsibility and firm performance: A theory of dual responsibility. *Management Decision*, *60*(6), 1513–1540. https://doi.org/10.1108/MD-12-2020-1584

Al-Taweel, I. R., & Al-Hawary, S. I. (2021). The mediating role of innovation capability on the relationship between strategic agility and organizational performance. *Sustainability*, *13*(14), 7564. https://doi.org/10.3390/su13147564

Aragón-Correa, J. A., & de la Torre-Ruíz, J. M. (2015). Sustainability issues and hospitality and tourism firms' strategies: Analytical review and future directions. *International Journal of Contemporary Hospitality Management*, *27*(3), 498–522.

Aragón-Correa, J. A., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of Management Review*, *28*(1), 71–88. https://doi.org/10.2307/30040690

Armstrong, J., & Overton, T. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396–402. https://doi.org/10.1177/002224377701400320

Ashrafi, N., Xu, P., Kuilboer, J.P., & Koehler, W. (2006). Boosting enterprise agility via IT knowledge management capabilities. *Proceedings of the 39th Hawaii International Conference on System Sciences*. https://doi.org/10.1109/HICSS.2006.77

Barney, J. B. (2001). Is the resource-based view a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26(1), 41–56. https://doi.org/10.2307/259393

Bathaei, A., Mardani, A., Balezentis, T., Awang, S. R., Streimikiene, D., Fei, G. C., & Zakuan, N. (2019). Application of fuzzy analytical network process (ANP) and VIKOR for the assessment of green agility critical success factors in dairy companies. *Symmetry*, 11(2), 250. https://doi.org/10.3390/sym11020250

Bauer, W., & Vocke, C. (2019). Transforming to an agile enterprise—How to handle the challenge of organizational ambidexterity. In J. I. Kantola, S. Nazir, & T. Barath (Eds.), *Advances in human factors, business management and society, AHFE 2018. Advances in intelligent systems and computing* (Vol. 783, pp. 415–423), Springer. https://doi.org/10.1007/978-3-319-94709-9_40

Beal, R. M. (2000). Competing effectively: Environmental scanning, competitive strategy, and organizational performance in small manufacturing firms. *Journal of Small Business Management*, 38(1), 27–47.

Boronat-Navarro, M., & García-Joerger, A. (2019). Ambidexterity, alliances and environmental management system adoption in Spanish hotels. *Sustainability*, 11(20), 5815. https://doi.org/10.3390/su11205815

Bouguerra, A., Gölgeci, I., Gligor, D. M., & Tatoglu, E. (2021). How do agile organizations contribute to environmental collaboration? Evidence from MNEs in Turkey. *Journal of International Management*, 27, 100711. https://doi.org/10.1016/j.intman.2019.100711

Carlborg, P., Kindström, D., & Kowalkowski, C. (2014). The evolution of service innovation research: A critical review and synthesis. *The Service Industries Journal*, 34(5), 373–398. https://doi.org/10.1080/02642069.2013.780044

Carmona-Moreno, E., Céspedes-Lorente, J., & De Burgos-Jiménez, J. (2004). Environmental strategies in Spanish hotels: Contextual factors and performance. *Service Industries Journal*, 24(3), 101–130. https://doi.org/10.1080/0264206042000247786

Chen, L., Zhao, X., Tang, O., Price, L., Zhang, S., & Zhu, W. (2017). Supply chain collaboration for sustainability: A literature review and future research agenda. *International Journal of Production Economics*, 194, 73–87. https://doi.org/10.1016/j.ijpe.2017.04.005

Chen, S., Chen, H. H., Zhang, K. Q., & Xu, X. L. (2018). A comprehensive theoretical framework for examining learning effects in green and conventionally managed hotels. *Journal of Cleaner Production*, 174, 1392–1399. https://doi.org/10.1016/j.jclepro.2017.10.321

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum.

Ciccullo, F., Pero, M., Caridi, M., Gosling, J., & Purvis, L. (2018). Integrating the environmental and social sustainability pillars into the lean and agile supply chain management paradigms: A literature review and future research directions. *Journal of Cleaner Production*, 172, 2336–2350. https://doi.org/10.1016/j.jclepro.2017.11.176

Clauβ, T., Abebe, M., Tangpong, C., & Hock, M. (2021). Strategic agility, business model innovation, and firm performance: An empirical investigation. *IEEE Transactions on Engineering Management*, 68, 767–784. https://doi.org/10.1109/TEM.2019.2910381

Claver-Cortés, E., Molina-Azorín, J. F., Pereira-Moliner, J., & López-Gamero, M. D. (2007). Environmental strategies and their impact on hotel performance. *Journal of Sustainable Tourism*, 15(6), 663–679. https://doi.org/10.2167/jost640.0

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management*, 17(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Duric, Z., & Topler, J. P. (2021). The role of performance and environmental sustainability indicators in hotel competitiveness. *Sustainability*, 13(12), 6574. https://doi.org/10.3390/su13126574

El-Khalil, R., & Mezher, M. A. (2020). The mediating impact of sustainability on the relationship between agility and operational performance. *Operations Research Perspectives*, 7, 100171. https://doi.org/10.1016/j.orp.2020.100171

Farha, A. K. A., Al-Kwifi, O. S., & Ahmed, Z. U. (2018). Deploying partial least squares to investigate the influence of managerial assumptions on corporate social responsibility in the hotel industry. *Journal of Hospitality and Tourism Technology*, 9(3), 471–486. https://doi.org/10.1108/JHTT-09-2017-0099

Farmaki, A. (2019). Corporate social responsibility in hotels: A stakeholder approach. *International Journal of Contemporary Hospitality Management*, 31(6), 2297–2320. https://doi.org/10.1108/IJCHM-03-2018-0199

Felipe, C. M., Leidner, D. E., Roldán, J. L., & Leal-Rodríguez, A. L. (2020). Impact of IS capabilities on firm performance: The role of organizational agility and industry technology intensity. *Decision Sciences*, 51, 575–619. https://doi.org/10.1111/deci.12379

Felipe, C. M., Roldán, J. L., & Leal-Rodríguez, A. L. (2016). An explanatory and predictive model for organizational agility. *Journal of Business Research*, 69, 4624–4631. https://doi.org/10.1016/j.jbusres.2016.04.014

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models in unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. https://doi.org/10.2307/3151312

Fraj, E., Matute, J., & Melero, I. (2015). Environmental strategies and organizational competitiveness in the hotel industry: The role of learning and innovation as determinants of environmental success. *Tourism Management*, 46, 30–42. https://doi.org/10.1016/j.tourman.2014.05.009

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pittman.

Gallagher, V. C., Hrivnak, M. W., Valcea, S., Mahoney, C. B., & LaWong, D. (2018). A comprehensive three-dimensional sustainability measure: The 'missing P' of 'people'—A vital stakeholder in sustainable development. *Corporate Social Responsibility and Environmental Management*, 25, 772–787.

Garay, L., & Font, X. (2013). Corporate social responsibility in tourism small and medium enterprises evidence from Europe and Latin America. *Tourism Management Perspectives*, 7, 38–46. https://doi.org/10.1016/j.tmp.2013.03.002

González-Rodríguez, M. R., Díaz-Fernández, M. C., Shi, F., & Okumus, F. (2021). Exploring the links among corporate social responsibility, reputation and performance from a multi-dimensional perspective. *International Journal of Hospitality Management*, 99, 103079. https://doi.org/10.1016/j.ijhm.2021.103079

Gouda, G. K., & Tiwari, B. (2022). Talent agility, innovation adoption and sustainable business performance: Empirical evidences from Indian automobile industry. *International Journal of Productivity and Performance Management*, 71(6), 2582–2604. https://doi.org/10.1108/IJPPM-02-2021-0071

Govindarajan, V. (1988). A contingency approach to strategy implementation at the business-unit level: Integrating administrative mechanisms with strategy. *Academy of Management Journal*, 31(4), 828–153. https://doi.org/10.2307/256341

Green, S. B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavior Research*, 26, 499–510. https://doi.org/10.1207/s15327906mbr2603_7

Guerrero-Villegas, J., Sierra-García, L., & Palacios-Florencio, B. (2018). The role of sustainable development and innovation on firm performance. *Corporate Social Responsibility and Environmental Management*, 25, 1350–1362. https://doi.org/10.1002/csr.1644

Gutiérrez Rodríguez, A. J., Johanna Barón, N., & Guaita Martínez, J. M. (2020). Validity of dynamic capabilities in the operation based on new sustainability narratives on nature tourism SMEs and clusters. *Sustainability*, *12*(3), 1004. https://doi.org/10.3390/su12031004

Hair, J., Risher, J., Sarstedt, M., & Ringle, C. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(4), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Jr., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage Publications.

Han, H., Lee, J.-S., Trang, H. L. T., & Wansoo, K. (2018). Water conservation and waste reduction management for increasing guest loyalty and green hotel practices. *International Journal of Hospitality Management*, *75*, 58–66. https://doi.org/10.1016/j.ijhm.2018.03.012

Heikkurinen, P. (2010). Image differentiation with corporate environmental responsibility. *Corporate Social Responsibility and Environmental Management*, *17*, 142–152. https://doi.org/10.1002/csr.225

Henseler, J., Dijkstra, T. J., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., Ketchen, D. J., Hair, J. F., Hult, G. T. M., & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, *17*, 182–209. 10.1177%2F1094428114526928.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing*, *43*, 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hofmann, K. H., Theyel, G., & Wood, C. H. (2012). Identifying firm capabilities as drivers of environmental management and sustainability practices—Evidence from small and medium-sized manufacturers. *Business Strategy and the Environment*, *21*, 530–545. https://doi.org/10.1002/bse.739

Hu, X., Danso, B. A., Mensah, I. A., & Addai, M. (2020). Does innovation type influence firm performance? A dilemma of star-rated hotels in Ghana. *Sustainability*, *12*(23), 9912. https://doi.org/10.3390/su12239912

Instituto Nacional de Estadística (2020). Cuenta Satélite del Turismo de España (CSTE). Revisión Estadística 2019. https://www.ine.es/prensa/cst_2019.pdf

Jansen, J. J. P., van den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, *52*(11), 1661–1674. https://doi.org/10.1287/mnsc.1060.0576

Jian, Y., Yu, I. Y., Yang, M. X., & Zeng, K. J. (2020). The impacts of fear and uncertainty of COVID-19 on environmental concerns, brand trust, and behavioral intentions toward green hotels. *Sustainability*, *12*(20), 8688. https://doi.org/10.3390/su12208688

Koch, J., Gerdt, S. O., & Schewe, G. (2020). Determinants of sustainable behavior of firms and the consequences for customer satisfaction in hospitality. *International Journal of Hospitality Management*, *89*, 1–11. https://doi.org/10.1016/j.ijhm.2020.102515

Koens, J. F., Dieperink, C., & Miranda, M. (2009). Ecotourism as a development strategy: Experiences from Costa Rica. *Environment, Development and Sustainability*, *11*, 1225–1237. https://doi.org/10.1007/s10668-009-9214-3

Lee, J., & Miller, D. (1996). Strategy, environment and performance in two technological contexts: Contingency theory in Korea. *Organization Studies*, *17*(5), 729–750. 10.1177%2F017084069601700502.

Lee, J.-S., Hsu, L.-T., Han, H., & Kim, Y. (2010). Understanding how consumers view green hotels: How a hotel's green image can influence behavioural intentions. *Journal of Sustainable Tourism*, *18*(7), 901–914. https://doi.org/10.1080/09669581003777747

Leonidou, L. C., Leonidou, C. N., Fotiadis, T. A., & Aykol, B. (2015). Dynamic capabilities driving an eco-based advantage and performance in global hotel chains: The moderating effect of international strategy. *Tourism Management*, *50*, 268–280. https://doi.org/10.1016/j.tourman.2015.03.005

Lokshin, B., Van Gils, A., & Bauer, E. (2009). Crafting firm competencies to improve innovation performance. *European Management Journal*, *27*(3), 187–196. https://doi.org/10.1016/j.emj.2008.08.005

López-Gamero, M. D., Molina-Azorín, J. F., & Claver-Cortés, E. (2010). The potential of environmental regulation to change managerial perception, environmental management, competitiveness and financial performance. *Journal of Cleaner Production*, *18*, 963–974. https://doi.org/10.1016/j.jclepro.2010.02.015

López-Gamero, M. D., Pereira-Moliner, J., Molina-Azorín, J. F., Tarí, J. J., & Pertusa-Ortega, E. M. (2020). Human resource management as an internal antecedent of environmental management: A joint analysis with competitive consequences in the hotel industry. *Journal of Sustainable Tourism*, 1–22. https://doi.org/10.1080/09669582.2020.1841216

Mandal, S., & Dubey, R. K. (2020). Role of tourism IT adoption and risk management orientation on tourism agility and resilience: Impact on sustainable tourism supply chain performance. *International Journal of Tourism Research*, *22*, 800–813. https://doi.org/10.1002/jtr.2381

Martínez, P., Herrero, A., & Gómez-López, R. (2019). Corporate images and customer behavioural intentions in an environmentally certified context: Promoting environmental sustainability in the hospitality industry. *Corporate Social Responsibility and Environmental Management*, *26*, 1382–1391. https://doi.org/10.1002/csr.1754

Martínez-Sánchez, A., Vicente-Oliva, S., & Pérez-Pérez, M. (2019). Agile production, innovation and technological cooperation: Overlapping priorities of manufacturing firms. *Baltic Journal of Management*, *14*(4), 597–615. https://doi.org/10.1108/BJM-12-2018-0410

Mayr, S., Buchner, A., Erdfelder, E., & Faul, F. (2007). A short tutorial of GPower. Tutorials quant. *Methods in Psychology*, *3*(2), 51–59. https://doi.org/10.20982/tqmp.03.2.p051

Mihardjo, L. W. W., & Sasmoko, R. A. N. (2019). Customer experience and organizational agility driven business model innovation to shape sustainable development. *Polish Journal of Management Studies*, *20*, 293–304. https://doi.org/10.17512/pjms.2019.20.1.26

Miller, D. (1988). Relating Porter's business strategies to environment and structure: Analysis and performance implications. *Academy of Management Journal*, *31*(2), 280–308. https://doi.org/10.2307/256549

Mirghafoori, S. H., Andalib, D., & Keshavarz, P. (2017). Developing green performance through supply chain agility in manufacturing industry: A case study approach. *Corporate Social Responsibility and Environmental Management*, *24*, 368–381. https://doi.org/10.1002/csr.1411

Modi, A. G., & Patel, J. D. (2013). Classifying consumers based upon their pro-environmental behaviour: An empirical investigation. *Asian Academy of Management Journal*, *18*(2), 85–104.

Nam, H. V., Lo, A., Yeung, P., & Hatter, R. (2020). Hotel ICON: Towards a role-model hotel pioneering sustainable solutions. *Asia Pacific Journal of Tourism research*, *25*(5), 572–582. https://doi.org/10.1080/10941665.2020.1746367

Nath, V., & Agrawal, R. (2020). Agility and lean practices as antecedents of supply chain social sustainability. *International Journal of Operations & Production Management*, *40*(10), 1589–1611. https://doi.org/10.1108/IJOPM-09-2019-0642

Nijssen, M., & Paauwe, J. (2012). HRM in turbulent times: How to achieve organizational agility? *International Journal of Human Resource Management*, *23*(16), 3315–3335. https://doi.org/10.1080/09585192.2012.689160

Njoroge, M., Anderson, W., & Mbura, O. (2020). Innovation strategy and economic sustainability in the hospitality industry. *The Bottom Line*, *32*(4), 253–268. https://doi.org/10.1108/BL-03-2019-0080

O'Reilly, C., & Tushman, M. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, *28*, 185–206. https://doi.org/10.1016/j.riob.2008.06.002

Ouyang, Z., Wei, W., & Chi, C. G. (2019). Environmental management in the hotel industry: Does institutional environment matter?

International Journal of Hospitality Management, 77, 353–364. https://doi.org/10.1016/j.ijhm.2018.07.015

Pace, L. A. (2016). How do tourism firms innovate for sustainable energy consumption? A capabilities perspective on the adoption of energy efficiency in tourism accommodation establishments. *Journal of Cleaner Production*, 111, 409–420. https://doi.org/10.1016/j.jclepro.2015.01.095

Palacios-Florencio, B., García del Junco, J., Castellanos-Verdugo, M., & Rosa-Díaz, I. M. (2018). Trust as mediator of corporate social responsibility, image and loyalty in the hotel sector. *Journal of Sustainable Tourism*, 26(7), 1273–1289. https://doi.org/10.1080/09669582.2018.1447944

Parera, S., Soosay, C., & Sandhu, S (2014). Does agility foster sustainability: Development of a framework from a supply chain perspective. *Proceedings of the 12th ANZAM Operations, Supply Chain and Services Management Symposium*, pp. 1–19. http://docs.business.auckland.ac.nz/Doc/Perera-anzamsymposium2014_submission_128-final.pdf

Pereira-Moliner, J., Font, X., Tarí, J. J., Molina-Azorín, J. F., López-Gamero, M. D., & Pertusa-Ortega, E. M. (2015). The holy grail: Environmental management, competitive advantage and business performance in the Spanish hotel industry. *International Journal of Contemporary Hospitality Management*, 27(5), 714–738.

Pereira-Moliner, J., Molina-Azorín, J. F., Tarí, J. J., López-Gamero, M. D., & Pertusa-Ortega, E. M. (2021). How do dynamic capabilities explain hotel performance? *International Journal of Hospitality Management*, 98(103023), 1–9. https://doi.org/10.1016/j.ijhm.2021.103023

Pertusa-Ortega, E.M., & Molina-Azorín, J.F. (2018). A joint analysis of determinants and performance consequences of ambidexterity. *BRQ Business Research Quarterly*, 21, 84–98. https://doi.org/10.1016/j.brq.2018.03.001

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544. 10.1177%2F014920638601200408.

Rajapathirana, R. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge*, 3(1), 44–55. https://doi.org/10.1016/j.jik.2017.06.002

Ratajczak, P. (2021). The mediating role of natural and social resources in the corporate social responsibility—Corporate financial performance relationship. *Managerial and Decision Economics*, 42, 100–119. https://doi.org/10.1002/mde.3216

Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *Journal of Strategic Information Systems*, 27, 22–42. https://doi.org/10.1016/j.jsis.2017.07.002

Ringle, C. M., Wende, S., & Becker, J. A. (2014). *SmartPLS 3*. SmartPLS. http://www.smartpls.de

Robina-Ramírez, R., Medina-Merodio, J. A., Moreno-Luna, L., Jiménez-Naranjo, H. V., & Sánchez-Oro, M. (2021). Safety and health measures for COVID-19 transition period in the hotel industry in Spain. *International Journal of Environmental Research and Public Health*, 18(2), 718. https://doi.org/10.3390/ijerph18020718

Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS Quarterly*, 27(2), 237–263. https://doi.org/10.2307/30036530

Sharma, S., Aragón-Correa, J. A., & Rueda, A. (2007). The contingent influence of organizational capabilities on proactive environmental strategy in the service sector: An analysis of north American and European ski resorts. *Canadian Journal of Administrative Sciences*, 24, 268–283. https://doi.org/10.1002/cjas.35

Shuradze, G., Bogodistov, Y., & Wagner, H. T. (2018). The role of marketing-enabled data analytics capability and organisational agility for innovation: Empirical evidence from German firms. *International Journal of Innovation Management*, 22, 1–32. https://doi.org/10.1142/S1363919618500378

Singjai, K., Winata, L., & Kummer, T-F. (2018). Green initiatives and their competitive advantage for the hotel industry in developing countries. *International Journal of Hospitality Management*, 75, 131–143. https://doi.org/10.1016/j.ijhm.2018.03.007

Suárez-Cebador, M., Rubio-Romero, J. C., Pinto-Contreiras, J., & Gemar, G. (2018). A model to measure sustainable development in the hotel industry: A comparative study. *Corporate Social Responsibility and Environmental Management*, 25, 722–732. https://doi.org/10.1002/csr.1489

Teece, D. (2017). Towards a capability theory of (innovation) firms: Implications for management and policy. *Cambridge Journal of Economics*, 41, 693–720. https://doi.org/10.1093/cje/bew063

Teece, D., & Leih, S. (2016). Uncertainty, innovation, and dynamic capabilities: An introduction. *California Management Review*, 58(4), 5–11. 10.1525%2Fcmr.2016.58.4.5.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

Uyun, M. Q. (2019). Leadership agility, the influence on the organizational learning and organizational innovation and how to reduce imitation orientation. *International Journal for Quality Research*, 13, 467–484. https://doi.org/10.24874/ijqr13.02-14

Wang, C. I., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31–51. https://doi.org/10.1111/j.1468-2370.2007.00201.x

Wu, W., Liang, Z., & Zhang, Q. (2020). Effects of corporate environmental responsibility strength and concern on innovation performance: The moderating role of firm visibility. *Corporate Social Responsibility and Environmental Management*, 27, 1487–1497. https://doi.org/10.1002/csr.1902

Yenidogan, A., Gurcaylilar-Yenidogan, T., & Tetik, N. (2021). Environmental management and hotel profitability: Operating performance matters. *Tourism & Management Studies*, 17(3), 7–19. https://doi.org/10.18089/tms.2021.170301

Yu, W., Chavez, R., Jacobs, M., & Wong, C. Y. (2020). Innovativeness and lean practices for triple bottom line: Testing of fit-as-mediation versus fit-as-moderation models. *International Journal of Operations & Production Management*, 40(10), 1623–1647. https://doi.org/10.1108/IJOPM-07-2019-0550

Zhang, D., & Xie, J. (2021). Uncovering the effect of environmental performance on hotels' financial performance: A global outlook. *Current Issues in Tourism*, 24(20), 2849–2854. https://doi.org/10.1080/13683500.2020.1852197