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Mercedes Úbeda-García
Toward a dynamic construction of organizational ambidexterity: exploring the synergies between structural differentiation, organizational context, and interorganizational relations

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Abstract:
According to the literature on ambidexterity, organizations can use structural, contextual or interorganizational approaches to simultaneously explore novel opportunities and exploit existing ones. So far, however, the possibility of combining the three approaches to maximize organizational learning has not been investigated. To deepen this aspect, this paper has as its aim, on the one hand, to offer an integrated vision of organizational ambidexterity, proposing and contrasting a model which —under the dynamic capabilities approach— sees ambidexterity as the result of combining the most important antecedent factors mentioned in the literature, but which have hitherto been studied only on an individual basis. We are referring to structural differentiation, organizational context, and interorganizational relations. On the other hand, the model suggested establishes the mediation role exerted by the organizational context between structural differentiation and interorganizational relations when it comes to reaching ambidexterity. Finally, it is our intention to identify the effects of ambidexterity on performance. A variance-based structural equation modeling (Partial Least Squares) was applied to a sample of Spanish hotel firms. The results obtained show that organizational ambidexterity can be reached resolving the exploration and exploitation

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**Keywords:** Organizational Ambidexterity; Organizational Context; Structural Differentiation; Interorganizational Relations; Firm Performance
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1. Introduction

Organizational ambidexterity (i.e., a firm’s ability to simultaneously pursue exploitation and exploration as two distinct modes of learning) paradigm has received much attention in management research during the last few years. O’Reilly and Tushman (2008; 2011) conceive ambidexterity as a dynamic capability that emphasizes the role of management in the adaptation, integration, and reconfiguration of an organization’s skills and resources, in order to adapt to ever-changing environments (Teece, Pisano & Shuen, 1997; Eisenhardt & Martin, 2000; O’Reilly & Tushman, 2008).

Although March (1991) introduced exploration and exploitation as competing forces, research on ambidexterity has since identified three alternative approaches through which exploration and exploitation can thrive concurrently. Ambidexterity can be pursued structurally, with differentiated organizational units focusing on specialized exploration or exploitation activities (Jansen et al., 2009; Raisch et al., 2009; Foss et al., 2015). Alternatively, ambidexterity can be pursued contextually by creating a behavioral capacity to simultaneously explore and exploit within undifferentiated units (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008; Wang & Rafiq, 2014). Finally, the ambidexterity could be developed through inter-organizational relations through co-exploration and / or co-exploitation (Wilden et al., 2018; Kauppila, 2010, 2015; Russo & Vurro, 2010; Nosella et al., 2012).
The contributions made from the three approaches presented have mainly revolved around the static solutions derived from structural differentiation, organizational context or interorganizational relations. However, recent studies (Herhausen, 2016; Junni et al., 2015; Wu & Wu, 2016) highlight the need for further empirical research concerning the combination of several antecedents of organizational ambidexterity and its consequences.

The purpose of this study is to deal two gaps in the research. The first one of which refers to the way in which firms embrace ambidexterity because, for the time being, we have found no empirical studies dedicated to the interaction between the construction of an appropriate organizational context, structural differentiation, and interorganizational relations.

The second gap has to do with the impact that organizational ambidexterity may cause on performance. Since literature has never jointly treated all the antecedent aspects of ambidexterity, the results about its effects on performance have been disparate. As pointed out by Stettner and Lavie (2014), these inconsistencies can partly be ascribed to the restricted focus of prior research on exploration and exploitation via particular modes of operation and to the fact that organizations are regarded as being unable to explore and exploit several alternatives at the same time.

In our view, the joint analysis of the main antecedents of ambidexterity and its effects on an organization’s performance constitutes a relevant topic both from an academic point of view and in practical terms, since it presents a more holistic vision of organizational ambidexterity by proposing a context of analysis that combines the three possible antecedents of this capacity, and the interrelationships between them, which can contribute in future studies on ambidexterity defining it from a point of view dynamic.
The article is organized as follows. The next section describes the theoretical context underlying the hypotheses for the model. The research model is discussed below, to continue with the analysis of the data and the results obtained. The article ends with the conclusions and discussion.

2. Literature review and research hypotheses

2.1. Structural Differentiation

Tushman and O’Reilly (1996) suggested that organizational ambidexterity could be accomplished by establishing autonomous —structurally separated— exploration and exploitation subunits. These units must be kept together by a common strategic intent, an overarching set of values, and a targeted linking mechanism to leverage shared assets (O’Reilly & Tushman, 2004; O’Reilly et al., 2009).

The implementation of dual structures requires developing idiosyncratic mindsets and mentalities in diverse areas (Gilbert 2005) and helps to defuse conflicts which may otherwise arise from the heterogeneous demands associated with heterogeneous learning modes (Benner & Tushman 2003). Additionally, specializing on exploration (e.g. in R&D) and exploitation (e.g. in manufacturing or sales) facilitates excellence in both domains. The integration of both domains has to be accomplished by the next higher hierarchical level, though. As a result, facilitating knowledge transfer between highly specialized subunits appears as one of the main challenges for top management teams in structurally ambidextrous organizations (Jansen et al. 2008). The coexistence between heterogeneous frames of reference enables firms to prepare for various future scenarios (Gilbert 2005), but at the same time requires the capacity to balance tensions and manage contradictions on the top management level (Andriopoulos & Lewis 2009; Smith & Tushman 2005; Gürttel et al., 2015).
Based on the numerous publications which aim at a positive correlation between structural differentiation and organizational ambidexterity (Jansen et al., 2006, 2009, 2012; Tushman & O’Reilly, 1996; Gupta et al., 2006; O’Reilly & Tushman, 2004; He & Wong, 2004; Raisch et al., 2009; Garaus et al., 2012; Foss et al., 2015), we can pose the following hypothesis:

**Hypothesis 1.** Structural differentiation will positively influence organizational ambidexterity.

Nevertheless, criticism about the concept of structural ambidexterity is mainly directed at the conceptualization of the top management as the main (or even only) driver of integration (O’Reilly & Tushman, 2011; Smith et al., 2010). In any case, establishing knowledge bridges at multiple hierarchical firm levels (Raisch 2008) and using formal as well as informal integration mechanisms, including cross functional teams or senior team social integration (Jansen et al. 2009; Mihalache et al., 2014) can relieve the pressure on the top level to act as an intermediary between various, highly specialized departments or business units (Gürttel et al., 2015). And even the existence of an ambidextrous organizational context might lead to this integration as will be explained in Section 2.4 of this paper.

**2.2. Contextual Ambidexterity**

Gibson and Birkinshaw (2004) proposed that the exploration/exploitation tension could be resolved at an individual level through what they termed *contextual* ambidexterity, which they defined as “the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit (p. 209).” In their view, the ability to balance exploration and exploitation rests on an organizational context characterized by an interaction of stretch, discipline, and trust and requires a supportive organizational
context that encourages individuals to make their own judgments as to how to best divide their time between the conflicting demands for alignment and adaptability.

Following Ghoshal and Bartlett’s ideas (1994), two groups of attributes can make an organization’s behavioral context appropriate for ambidexterity. The first group refers to what Gibson and Birkimshaw describe as the “social context” and reflects a combination of elements that managers build with the aim of giving support to employees (e.g. freedom of initiatives at lower levels for experimentation, feedback and assistance from middle management and technical areas toward employees in the operating line) and building a climate of trust to induce human resources at each level of the hierarchy in balancing experimentation with alignment to continuous improvement.

If managers want to implement measures that can prove effective in order to achieve innovation, they should also adopt a combination of practices, standards, and incentives to foster discipline and stretch in inducing employees to strive for continuous improvement and adaptability, i.e. the “performance management context” (Úbeda et al., 2018). Whereas performance management mechanisms encourage employees to seek high-quality results and make them accountable for their success, social support relates to providing human resources as securely and broadly as necessary to perform consistently taking advantage of their highest potential (Martini et al., 2015; Úbeda et al., 2017; Schnellbächer, Heidenreich & Wald, 2019).

Considering the literature that finds a positive correlation between organizational context and ambidexterity leads us to propose the next hypothesis:

Hypothesis 2. Organizational context will positively influence organizational ambidexterity.

Nonetheless, the studies focused on analyzing the organizational context as an antecedent of ambidexterity have also been the object of some criticism. Criticism of the
contextual ambidexterity concept is mainly directed at the limited scope of this approach, because only very few firms or units can operate in this way and adopt contextual ambidextrous organizational designs (Inkpen & Tsang 2005; Gürttel et al., 2015).

2.3. Cross-boundary ambidexterity

Researchers have only recently begun to consider that structures, management systems, and other firm-level characteristics may not suffice to fully explain organizational ambidexterity. Kang et al. (2007) suggested that, because organizations have few mechanisms available to avoid harmful conflicts between exploration and exploitation, ambidexterity might be more successfully created through the use of networks within and across firm boundaries. Similarly, alliance researchers have argued that interorganizational partners play a key role in strengthening and complementing firms’ exploration and exploitation agendas (Baum et al., 2000; Lavie & Rosenkopf, 2006; Heimeriks et al., 2007; Kauppila, 2010; Lavie et al., 2011).

Interorganizational ambidexterity implies a simultaneous development of exploration and exploitation supported on interorganizational relations (Kauppila, 2010, 2015). Parmigiani and Rivera-Santos (2011) introduced the concepts of co-exploration and co-exploitation to describe two constituent elements of an interorganizational relation. Co-exploitation can be described as a voluntary cooperative agreement to execute knowledge, tasks, functions or activities where the emphasis is placed on using and expanding the already existing knowledge. Instead, co-exploration represents a voluntary cooperative agreement to create new knowledge, tasks, functions or activities. Taking this co-exploitation and co-operation approach as a reference would make it possible to deal with the development of interorganizational relations as an antecedent to organizational ambidexterity which, in addition to being complementary to those
examined above, can also avoid the trade-offs and the learning traps that may accompany exploration and exploitation if they are exclusively based on internal factors (Kauppila, 2010).

In the light of these assumptions, we suggest the following hypothesis.

Hypothesis 3. Interorganizational relations (co-exploration and co-exploitation) will positively influence organizational ambidexterity.

2.4. Organizational ambidexterity as a dynamic construction

Even though several theoretical frameworks have been utilized to explain organizational ambidexterity (e.g. organizational learning, technological innovation, organizational adaptation, strategic management, and organizational design), we continue to see the dynamic capabilities perspective as the most suitable one when it comes to understanding ambidexterity. Dynamic capabilities might be defined as the firm’s capacity to integrate, create, and reshape internal as well as external competences for the purpose of facing the rapid changes that take place in the environment (Teece et al., 1997). Dynamic capabilities become visible in those managers’ decisions which help an organization to reallocate and reshape skills and assets so that the firm can exploit the existing competences and develop new ones (O’Reilly & Tushman, 2008; Taylor & Helfat, 2009). Organizational (structural, contextual or interorganizational) ambidexterity is thus reflected on a complex set of decisions and routines which allow the organization to detect and take advantage of new opportunities through the reallocation of organizational assets. Therefore, whereas each distinct antecedent provides interesting explanations about ambidexterity, a comprehensive picture of how a firm can create ambidexterity is missing. Firms will most probably create ambidexterity through a combination of structural and contextual antecedents, and at both organizational and interorganizational levels, rather than through any single
organizational or interorganizational antecedent alone. This holistic approach to antecedent factors provides a more dynamic vision of organizational ambidexterity. The structural separation between exploration and exploitation is a necessary but not sufficient condition for organizational ambidexterity. As pointed out by Jansen et al. (2009) ambidextrous organizations need routines and processes to mobilize, coordinate, and integrate the exploration and exploitation activities which are structurally separated at every organizational level. In this sense, the contextual ambidexterity model stresses the capacity of firms to seek and embrace new knowledge, as well as to align it with the goals pursued by the organization. Consequently, organizations need to have at their disposal integration elements which can ensure adaptability and alignment (Monferrer, Moliner & Estrada, 2019).

Previous studies have revealed that an outstanding place among such integration elements corresponds to performance management and supporting contextual attributes (Gibson & Birkinshaw, 2004). Likewise, the absorptive capacity perspective strengthens even to a greater extent the importance of the ambidextrous context in those organizations which explore and exploit it in different organizational units and/or use interorganizational partnerships in their exploration and exploitation processes. Cohen and Levinthal (1990) highlighted the need for firms to have absorptive capacity in order to recognize the value of new knowledge, to assimilate it, and to apply it for commercial purposes. This absorptive capacity largely depends on the previous knowledge owned by the firm. Since contextually ambidextrous organizations carry out activities related to exploration and exploitation simultaneously, they will be able to recognize, assess, and assimilate the new exploration and/or exploitation knowledge originated both inside and outside the organization. While structural differentiation and interorganizational relations are needed to create differentiation between exploratory and exploitative
capabilities, contextual ambidexterity is required to create integration between dual structures/partnerships with behavioral and social means (Andriopoulos & Lewis, 2009; Güttel et al., 2015; Yacoub, Ojiako and Williams, 2019). As explained by Martini et al., (2015), organizations achieve more successful ambidextrous solutions when they combine structural differentiation (including external exploration and/or exploitation) with an organizational context that shows the dimensions suggested by Gibson and Birkinshaw (2004).

In view of the above, one could deduce that an ambidextrous organizational context becomes necessary to balance the exploration and exploitation derived from structural differentiation and interorganizational relations. This leads us to propose the following hypotheses:

Hypothesis 4. The organizational context acts as a mediator variable between structural differentiation and organizational ambidexterity.

Hypothesis 5. The organizational context acts as a mediator variable between interorganizational relations and organizational ambidexterity.

2.5. Organizational ambidexterity and firm performance

One of the main issues raised by the literature on organizational ambidexterity is the possible link between this capability and an organization’s performance. Yet, mixed empirical evidence exists about the effects of organizational ambidexterity (Junni et al., 2013).

Firms that achieve ambidexterity should be well-placed to overcome a success trap associated with excessive exploitation (where current capabilities, products, and services are refined to highly efficient states but remain vulnerable to new ideas and market changes), and a failure trap related to excessive exploration (where new ideas
are underdeveloped to such an extent that they do not generate enough income for the firm or they fail to resonate sufficiently with the market to be accepted).

Organizational ambidexterity has been positively associated with measures of firm growth and sales growth (Auh & Menguc, 2005; He & Wong, 2004; Katila & Ahuja, 2002), including longitudinally over time (Geerts et al., 2010); studies using subjective measures (Bierly & Daly, 2007; Cao et al., 2009; Gibson & Birkinshaw, 2004; Hughes et al., 2010; Lin et al., 2013; Lubatkin et al., 2006; Morgan & Berthon, 2008) and objective measures (Goosen et al., 2012; Uotila et al., 2009; Voss & Voss, 2013; Wang & Li, 2008) of firm performance have reported positive effects; and others find support for the claims made by March (1991) that ambidexterity contributes to firm survival (Cottrell & Nault, 2004; Hill & Birkinshaw, 2014; Piao, 2010).

Other scholars have found more complex effects, though. Caspin-Wagner et al. (2012) and Uotila et al. (2009) evidence an inverted U-shaped relationship between ambidexterity and financial performance. Other studies suggest that organizational ambidexterity can have further negative effects on firm performance by being duplicative and inefficient (Ebben & Johnson, 2005).

These arguments serve as the basis for our proposal of a final hypothesis which relates organizational ambidexterity to performance.

Hypothesis 6. Organizational ambidexterity will positively influence firm performance.

Figure 1 shows the theoretical model proposed, along with, the hypotheses to be tested.

3. Research method

3.1. Sample and data collection

Data from a sample of hotels belonging to Spanish hotel chains were collected to test our model. We chose this sector to carry out the present study for two reasons: (a) the
importance of this industry in Spain (12% of the GDP); and (b) because very few studies have examined the role played by organizational ambidexterity in the hotel industry.

Data collection took place through an online survey developed between January and December 2018. To deal with potential problems associated with single-informant bias and common method bias, we temporarily separated the measurement of independent and dependent variables and collected data at two different points in time.

During an initial stage, the answers given by the human resource managers of hotels in relation to the independent variables “structural differentiation” and “interorganizational relations” —as well as to the variable “organizational context”— were compiled. Six months later, the hotel managers received a questionnaire referred to the dependent variables “performance” and “organizational ambidexterity.” Out of 1,000 hotels that shaped the population under study, we received the complete set of responses from the hotel managers and human resource managers (after three reminder rounds) of 120 hotels.

This sample size can be considered adequate since, according to Reinartz et al. (2009), this number of observations may be enough to reach acceptable levels of statistical power using the PLS technique. The hotels in the sample have 60 employees on average, with an average number of 176 rooms; 30.83% are 3-star hotels, the remaining 69.17% being 4- and 5-star hotels. All the hotels in the sample belong to internationalized Spanish hotel chains.

To test for non-response bias, we examined differences between respondents and non-respondents. t-Test showed no significant differences based on control variables (size and category) either. A comparison was also drawn between early and late respondents
in terms of demographics and model variables. These comparisons did not reveal any differences \( p < 0.05 \), thus showing that non-response bias was not a problem.

3.2. Measurement of variables

We used multi-item scales that are well consolidated in the literature for construct operationalization purposes; our item measurements range on a scale from 1 (strongly disagree) to 7 (strongly agree). A full list of the scales utilized and all the associated items can be found in Appendix 1.

*Structural Differentiation* was measured by means of three items adapted from Jansen et al. (2009) through which we asked the respondents to express their level of agreement or disagreement with some statements about the extent to which organizations segment the activities involved in the exploration and exploitation process into separate units.

*Organizational Context.* This variable was regarded as a second-order construct formed by two first-order reflective constructs — *social support* and *performance management context*— that we measured with an adaptation of the scales developed by Gibson and Birkinshaw (2004) and Ghosal and Barlett (1994). The four-item measure for “social support” captures the degree to which management systems inside organizations encourage people to challenge outmoded practices and devote considerable effort in developing subordinates, pushing decisions down to the lowest appropriate level. The three-item scale for “performance management context” captures the extent to which managers use business goals and performance indicators to run their business, thus establishing clear standards and leading members to voluntarily strive to meet all expectations.

*Interorganizational Relations.* Our model contemplated this variable as a second-order construct shaped by two first-order reflective constructs — co-exploration and co-exploitation— that we measured using the scales developed by Kauppila (2015).
Organizational Ambidexterity. This variable was measured by means of the scales developed by Jansen et al. (2006, 2009), adapting them to our study population and treating these scales referred to exploration and exploitation as orthogonal variables (Gibson & Birkinshaw, 2004, Jansen et al., 2009). Similarly to the previous case, this second-order construct consists of two first-order reflective constructs (exploration and exploitation).

Performance. In this study, perception measures served to capture organizational performance. More specifically, eight items were used that try to capture, on the one hand, general performance criteria (growth of market share, brand recognition, image of the company in the market, growth of sales); and, on the other hand, performance variables more in line with hotel sector companies (income per room, average occupancy, customers’ level of satisfaction and employees’ satisfaction) (Úbeda et al., 2018).

Control variables. Our research work additionally monitored possible alternative explanations for the relations set forth in the theoretical model through the inclusion of the relevant control variables, namely: hotel size; and hotel category. Firstly, because large organizations are likely to own more resources but they also may lack the flexibility required to be ambidextrous, it was decided to include the number of full-time employees as an indicator of firm size, insofar as greater size has traditionally been associated with inertia and difficulties in processing information—these being aspects related to change of resources and the failure to adapt to ever-changing conditions (Tushman and Romanelli, 1985); On the other hand, higher star ratings are generally associated with higher efficiency (Assaf et al., 2012).

4. Analysis and results
Variance-based structural equation modeling (PLS) helped us to test the proposed relationships. Since the PLS technique does not permit to directly represent second-order factors, the latter cannot be created without previously calculating the factor scores of first-order constructs (latent variable scores) — subsequently regarded as indicators of second-order factors (Chin et al., 2003). Thus, in an initial stage, the first-order factors which constitute organizational context, interorganizational relations, and organizational ambidexterity were included in the model on a separate basis with their respective indicators. A second step consisted in estimating a model which used the factor scores (latent variable scores) calculated during the first step for each one of the first-order components. Once the final model was constructed, we proceeded to evaluate it following the two basic stages of evaluation in PLS models: i.e. evaluation of the measurement model; and evaluation of the structural model.

The model suggested shows a standardized root mean square residual (SRMSR?) of 0.070<0.08 (Hu & Bentler, 1998), which means that it has a good overall fit.

4.1. Measurement model assessment

For reflective constructs in the PLS context, this first stage was evaluated analyzing not only the individual reliability of indicators but also the reliability and validity of the scale. We evaluated the indicators for individual reliability through the value of their loadings (λ). In this sense, all loads exceeded the value of 0.7 as recommended in the literature. This first phase should also include scale evaluation by means of Cronbach’s α index and the composite reliability index, along with, Dijkstra-Henseler’s (rho_A) indicator. The existence of convergent validity could also be verified through the examination of extracted mean variance (AVE). As shown in Table 1, both the alpha value, composite reliability, and rho_A exceeded the critical value of 0.7 in every variable; and the AVE value was situated above 0.5 (Fornell & Lacker, 1981).
Finally, the analysis of measurement models requires verifying the existence of
discriminant validity. In this sense, the most widely accepted method in PLS is the
verification between the AVE value of each construct with the square of the correlation
of that same construct with each one of the variables. Thus, if AVE is greater than the
squared correlation, it clearly means that each construct is related more strongly to its
own measures than to other variables (Fornell & Larcker, 1981). Furthermore, the
Heterotrait-Monotrait Ratio (HTMT) criterion has a threshold of 0.85 (Kline, 2011).
Table 2 shows the results obtained and how they confirm discriminant validity.

4.2. Structural model assessment

In order to assess the structural model, we firstly evaluated the possible co-linearity
problems. According to Hair et al. (2014), there will be signs of co-linearity when the
variance inflation factor (VIF)>5. VIF values never exceeded the maximum value in
this study.

A second analysis focused on the algebraic sign, magnitude, and significance of the path
coefficients which show the estimates of structural model relationships, i.e. the
hypothesized relationships between constructs. In order to assess the significance of
these coefficients, the non-parametric bootstrapping technique of 5,000 samples was
used to obtain the $t$ statistics and the confidence intervals (see Table 3). The four direct
effects described in Figure 1 turned out to be significant because they exceeded the
minimum level of a Student’s $t$ distribution with a tail and n-1 (n = number of
resamples) degrees of freedom. The same result is obtained in 95% confidence intervals.
Therefore, structural differentiation ($\beta=0.29$, $p<0.001$), organizational context ($\beta=0.32$,
$p<0.001$), and interorganizational relations ($\beta=0.37$, $p<0.001$) positively influence
organizational ambidexterity, which leads to confirm Hypotheses 1, 2, and 3. In turn, organizational ambidexterity ($\beta=0.49$, $p<0.001$) has a positive impact on organizational performance, which means that Hypothesis 6 is corroborated (see Table 3). We also assessed the value of $R^2$, which is 0.250 for the variable “organizational performance,” 0.400 for the variable “organizational ambidexterity,” and 0.16 for “organizational context” (see Table 3).

The structural model was also evaluated using the Stone-Geisser test ($Q^2$) and following a blindfolding procedure (Chin, 1998). A $Q^2$ greater than zero implies that the model has predictive relevance. The findings shown in Table 3 confirm that the suggested model has a satisfactory predictive relevance for all dependent variables.

4.3. The mediation analysis

According to the research model (Fig. 1), H4 and H5 represent mediation hypothesis which posit how, or by what means, an independent variable (structural differentiation and interorganizational relations) affects a dependent variable (organizational ambidexterity) through a mediator variable (organizational context) (Preacher & Hayes, 2008). The total effect of structural differentiation and interorganizational relations on organizational ambidexterity shown in Fig. 1 can be expressed as the sum of the direct effects and the indirect ones, the latter being estimated through the multiplication of the path coefficients by each of the paths in the mediational chain. Concerning Hypothesis 4, total effect = $c' + ab$, with the last term representing the specific indirect effect, while $c'$ is the direct effect (H1), controlling for the mediator (organizational context). As for Hypothesis 5, total effect = $c''+db$, where the first addend represents the direct effect (H3) caused by interorganizational relations on organizational ambidexterity; and the
second one reveals the indirect effect through the mediation of the organizational context.

Chin (2010) proposes a two-stage process to test mediation in PLS: 1) using the specific model with the inclusion not only of the direct effects but also of the indirect ones, performing N bootstrap resampling, and explicitly calculating the product of the direct paths that form the indirect path under assessment; and 2) estimating significance by means of percentile bootstrap bias-corrected (Hayes & Scharkow, 2013). This generates a 95% confidence interval for the mediator variable. If the interval for a hypothesis does not contain the value zero, it means that the indirect effect is significantly different from zero at a 95% confidence level.

Table 4 allows us to check that structural differentiation and interorganizational relations have a significant total effect on organizational ambidexterity. When the mediator variable is introduced, structural differentiation continues to impact significantly on the dependent variable (H1:c’); or expressed differently, the organizational context mediates the relationship between structural differentiation and organizational ambidexterity. Instead, the mediation effect is smaller when it comes to interorganizational relations, even though it remains significant.

Insert Table 4

We calculated Variance Accounted For (VAF)\(^1\) to know whether mediation is partial or total. VAF value is 0.312 for Hypothesis 4 and 0.01 for Hypothesis 5. The value is lower than 0.8 in both of them, which allows us to say that the mediation is partial and complementary in these two cases, insofar as the values of b, d, c’ and c” show the

\(^1\) VAF=(Indirect effect)/(Total effect)
same positive direction. In other words, Hypotheses 4 and 5 can be deemed as confirmed.

5. Conclusions and discussion

On the basis of previous conceptual and empirical research works which suggest an integrated vision of ambidextrous organizations (Kauppila, 2010; Chang & Hughes, 2012; Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013), we have proposed a model to conceptualize the ambidextrous organization through the combination of the three antecedent factors most often used in the literature: structural differentiation; organizational context; and interorganizational relations and the effect of such ambidexterity on organizational results.

With regard to the influence exerted by ambidexterity on firm performance, this study reveals a positive effect in line with the findings of other works (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006; Hughes et al., 2010; Lin et al., 2013). Therefore, the simultaneous search for exploration and exploitation activities —both internally (structural differentiation and organizational context) and from an external point of view (interorganizational relations)— minimizes the risks associated with the success trap and/or the failure trap, since the possibility exists to exceed the risk of rigidities and the obsolescence of excessive exploitation and, at the same time, that of failing to obtain the yields derived from exploration.

According to the results achieved, organizational ambidexterity would be reached resolving the exploration and exploitation tensions across different organizational units (structural differentiation), as well as using the resolution of such tensions through the search for exploration and exploitation outside the firm’s boundaries (interorganizational relations) and the availability of an organizational context which
permits to carry out the integration of the various knowledge sources. The findings of this work make it possible to embrace a conception of organizational ambidexterity from the dynamic capabilities approach, seeing it as a capacity thanks to which organizations can not only mobilize, coordinate, and integrate scattered exploration and exploitation knowledge but also allocate, reassign, combine and recombine resources and assets in dispersed exploratory and exploitative units both inside and outside the organization (O’Reilly & Tushman 2013; Teece 2007; Kauppila, 2010; Chang & Hughes, 2012; Birkinshaw & Gupta, 2013; Zhang, Wang & Wei, 2019). This study consequently helps in the recent debate which highlights that no evidence has been provided that any individual mode (i.e. contextual, structural or cross-boundary ambidexterity) outperforms the others (Almahendra & Ambos, 2015).

Our findings encourage future research to go beyond the static conception of organizational ambidexterity considering a single antecedent and suggest that the studies undertaken in the coming years should examine the role played by the organizational context not only as an essential factor in contextual ambidexterity but also in terms of its function as a mechanism for the integration of exploration and exploitation originated in separate organizational units or of the relations maintained by the organization with other firms.

This research has revealed that the effects of structural differentiation and interorganizational relations on ambidexterity is both direct and indirect, operating through the organizational context characterized by social support and performance management. In this respect, our study makes a contribution to the previous literature that theorized on the link which had to exist between structural, interorganizational, and contextual ambidexterity (Kauppila, 2010; Im & Rai, 2008; Lin et al., 2007). Organizational context has been proved to act as a mechanism of integration not only
between internal exploratory and exploitative units but also between external exploration and exploitation, thus opening a new research path along such lines.

In any case, it is worth highlighting that, despite being significant, the mediation effect of the organizational context when it comes to interorganizational relations is limited. This might be due to the fact that, in most cases, hotel firms have resorted to internal exploration rather than to the external one. To which must be added that, as pointed out by Kauppila (2010), in interorganizational exploitation relations, it is generally sufficient for the different partners to have a shared reference framework which allows them to acknowledge and assess the relevant external knowledge; instead, the integration of exploratory partnership requires related internal knowledge, for which the firm needs to have a greater capacity to assimilate and apply external knowledge.

Structural, contextual, and interorganizational factors can mutually reinforce one another, working at higher levels —through the creation of separate organizational units for exploration and exploitation or resorting to external agents to explore or exploit, or to choose the combination of antecedents best suited to the organization at each moment— as well as at lower levels —pushing employees to be accountable for their results and creating a climate where managers support employees’ development. The model proposed in this research which illustrates the joint action of all these elements not only enables a holistic and dynamic view of the ambidextrous organization by examining the co-alignment of structural, contextual, and interorganizational antecedents but also shows the multilevel nature of organizational ambidexterity, thus making a contribution to the scarce literature which deals with ambidexterity from different organizational levels (Raisch et al., 2009; Simsek, 2009; Kauppila, 2010; Birkinshaw et al., 2016; Kassotaki et al., 2018).
Such evidence highlights the relevant practical contributions that this paper provides to managers as well. Based on its results, firm managers can resolve the tension between exploration and exploitation through structural differentiation, and creating an appropriate organizational context which stimulates people to solve problems and to assume responsibility for their objectives, as well as through collaboration with other organizations. This broader conception of ambidexterity offers managers the opportunity to understand that the development of this capacity goes beyond the use of a single antecedent factor and also that the combination of all factors can achieve a better organizational performance.

The model proposed in this paper on the basis of considering the three antecedents of ambidexterity is an incipient work which faces limitations that may pave the way for future research initiatives. Firstly, the dynamics regarding how structural, contextual, and interorganizational solutions interact and complement one another inside an organization to achieve ambidexterity still remains unexplored and could open the door to future works. Secondly, the organizational context appears as an important component in the achievement of ambidexterity both directly and in an indirect manner, but it remains to be known how that context acts to help reshape the knowledge obtained from structurally separated units or coming from other firms. Thirdly, further research would be needed to shed light on the way in which each antecedent of ambidexterity is managed across multiple organizational levels. And finally, because the study refers to Spanish hotel firms, it seems more than advisable to compare the results through the implementation of research in other activity sectors and other territories.

6. References


Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 382*-388.


Appendix 1. Variables Measurement (1=I totally disagree; 4=I neither agree nor disagree; 7=I totally agree)

Structural Differentiation

1. Our organization has separate units to enhance innovation and flexibility.
2. We have units that are either focused on the short term or the long term.
3. The line and staff departments are clearly separated within our organization.

Organizational Context

Social Support

1. Managers in my organization devote considerable effort to developing subordinates
2. Managers in my organization push decisions down to the lowest appropriate level
3. Managers have access to the information they need to make good decisions
4. Managers in my organization issue creative challenges to their people instead of narrowly defining tasks

Performance Management Context

1. Managers in my organization use business goals and performance measures to run their business
2. Managers in my organization hold people accountable for their performances
3. Managers in my organization encourage and reward hard work through incentive compensation

Interorganizational Relations

Co-exploration

1. In our innovation-related activities, we pursue collaboration with universities and research centers
2. The intent of our interorganizational collaboration is to create groundbreaking innovations
3. Our interorganizational collaboration enables creating innovations that our firm would not be able to create on its own
4. The search for new opportunities is a key motivation for our firm’s interorganizational collaboration

Co-exploitation

1. We use subcontracting to rationalize our business operations
2. Suppliers have an important role in the development of our new products/services
3. Our interorganizational collaboration enables increased efficiency
4. Complementary resources are an important driver of our interorganizational collaboration

Organizational Ambidexterity

Exploitation

1. We frequently carry out small adjustments in our existing products
2. and services
3. We improve efficiency in our product and service provision
4. We increase economies of scales in existing markets
5. Our organization expands services for existing clients

Exploration
1. Our organization accepts demands that go beyond the existing
2. We commercialize products and services that are completely new to our organization
3. We frequently take advantage of new opportunities in new markets
4. Our organization regularly uses new distribution channels

Performance (1=much worse; 4=the same; 7=much better)

1. The growth in my firm’s market share relative to competitors during the last three years has been …
2. My firm’s brand recognition relative to competitors during the last three years has been …
3. My firm’s image relative to competitors during the last three years has been …
4. The average growth in my firm’s sales relative to competitors during the last three years has been …
5. My hotel’s average occupancy relative to competitors during the last three years has been …
6. Customers’ satisfaction level relative to competitors during the last three years has been …
7. Employees’ satisfaction level relative to competitors during the last three years has been …
8. Revenues per room in my hotel relative to competitors during the last three years has been …
Figure 1. Theoretical model and hypotheses

- H1: Structural Differentiation \(\rightarrow\) Organizational Ambidexterity = \(c'\)
- H2: Organizational Context \(\rightarrow\) Organizational Ambidexterity = \(b\)
- H3: Interorganizational Relations \(\rightarrow\) Organizational Ambidexterity = \(c''\)
- H4: Structural Differentiation \(\rightarrow\) Organizational Context \(\rightarrow\) Organizational Ambidexterity = \(a^*b\)
- H5: Interorganizational Relations \(\rightarrow\) Organizational Context \(\rightarrow\) Organizational Ambidexterity = \(d^*b\)
- H6: Organizational Ambidexterity \(\rightarrow\) Performance = \(f\)
Table 1. Summary of measurement models

<table>
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<tr>
<th></th>
<th>Cronbach’s α</th>
<th>rho_A</th>
<th>Composite reliability</th>
<th>AVE</th>
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<td>0.720</td>
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<td>0.843</td>
<td>0.923</td>
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<td>0.729</td>
<td>0.877</td>
<td>0.782</td>
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<tr>
<td>Structural Differentiation</td>
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<td>0.843</td>
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<td>Performance</td>
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Table 2. Discriminant validity

<table>
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<tr>
<th></th>
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<th>OC</th>
<th>IR</th>
<th>SD</th>
<th>P</th>
</tr>
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<tbody>
<tr>
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<td>Organizational Context</td>
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<tr>
<td>Interorganizational Relations</td>
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<td>Structural Differentiation</td>
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<td>-0.047</td>
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<tr>
<td>Performance</td>
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<td>0.454</td>
<td>0.147</td>
<td>0.260</td>
<td>0.830</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>OA</th>
<th>OC</th>
<th>IR</th>
<th>SD</th>
<th>P</th>
</tr>
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<tbody>
<tr>
<td>Organizational Ambidexterity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Context</td>
<td>0.596</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interorganizational Relations</td>
<td>0.529</td>
<td>0.074</td>
<td></td>
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<tr>
<td>Structural Differentiation</td>
<td>0.504</td>
<td>0.458</td>
<td>0.105</td>
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<tr>
<td>Performance</td>
<td>0.595</td>
<td>0.505</td>
<td>0.210</td>
<td>0.285</td>
<td></td>
</tr>
</tbody>
</table>

OA: Organizational Ambidexterity; OE: Organizational Context; IR: Interorganizational Context; SD: Structural Differentiation; P: Performance
Table 3. Effects on endogenous variables

<table>
<thead>
<tr>
<th>Effects on endogenous variables</th>
<th>Direct effect</th>
<th>t-Value (bootstrap)</th>
<th>Percentile 95% confidence interval (bias-corrected)</th>
<th>Hypothesis confirmation</th>
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<tbody>
<tr>
<td>Organizational Ambidexterity</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2 = 0.400/Q^2 = 0.278$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Differentiation</td>
<td><strong>0.29</strong>*</td>
<td>3.462</td>
<td>[0.144;0.413]</td>
<td>Yes</td>
</tr>
<tr>
<td>H1. Struct. Diffe &gt; OA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Context</td>
<td><strong>0.32</strong>*</td>
<td>3.921</td>
<td>[0.178;0.447]</td>
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<tr>
<td>$R^2 = 0.16/Q^2 = 0.124$</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>H2. Org. context &gt; OA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interorganizational Relations</td>
<td><strong>0.37</strong>*</td>
<td>5.221</td>
<td>[0.262;0.497]</td>
<td>Yes</td>
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<td>H3. Interorg. relations &gt; OA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
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<tr>
<td>$R^2 = 0.250/Q^2 = 0.148$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H6. OA &gt; Performance</td>
<td><strong>0.49</strong>*</td>
<td>5.240</td>
<td>[0.375;0.682]</td>
<td>Yes</td>
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<tr>
<td>Size</td>
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<td>[-0.067;0.120]</td>
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<td>Category</td>
<td>0.065</td>
<td>0.596</td>
<td>[-0.135;0.225]</td>
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$t(0.001, 4999) = 3.0912 \quad ***p < 0.001$
## Table 4. Summary of the mediating effect test

<table>
<thead>
<tr>
<th>Total effect of Structural Differentiation on OA (c')</th>
<th>Direct effect of Structural Differentiation on OA</th>
<th>Indirect effect of Structural Differentiation on OA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>T value</td>
<td>Coefficient</td>
</tr>
<tr>
<td>0.416***</td>
<td>5.240</td>
<td>H1=c'</td>
</tr>
<tr>
<td>0.395***</td>
<td>5.781</td>
<td>H3=c''</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total effect of Interorganizational Relations on OA (c'')</th>
<th>Direct effect of Interorganizational Relations on OA</th>
<th>Indirect effect of Interorganizational Relations on OA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>T value</td>
<td>Coefficient</td>
</tr>
<tr>
<td>H4=a*b</td>
<td>0.13</td>
<td>0.06</td>
</tr>
<tr>
<td>H5=d*b</td>
<td>0.025</td>
<td>0.004</td>
</tr>
</tbody>
</table>

\[ t(0.001, 4999)=3.0912 \quad ***p<0.001 \]
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