



# High performance work system and performance: Opening the black box through the organizational ambidexterity and human resource flexibility

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## ARTICLE INFO

### Keywords:

Organizational ambidexterity  
High performance work system  
Human resource flexibility  
Firm performance

## ABSTRACT

This paper contributes to the growing research about Human Resource Management (HRM) by examining the interrelationships between High Performance Work System (HPWS) and their effects on firm performance in the hotel industry. Recent studies stress the need to delve deeper into this link considering the role that may be played by certain dynamic capabilities as mediating variables (Patel, Messersmith, & Lepak, 2013; Prieto-Pastor & Martin-Perez, 2014).

The current study proposes a multiple mediating model and tests the mediation. More specifically, this research establishes that human resource flexibility (HRF) and organizational ambidexterity (OA) play a mediating role in the HPWS-performance relationship.

A variance-based structural equation modeling (Partial Least Squares) has been applied to a sample of Spanish hotel firms. The results obtained support the mediation hypotheses according to which HRF and OA play a critical mediating role in the HPWS-performance relationship.

## 1. Introduction

The past three decades have witnessed a considerable expansion of studies and advances in our understanding of human resource management (HRM) and organizational performance. Our work starts from a key question: How does HRM impact on performance? HRM's key role in improving organizational performance lies in developing human resources to improve efficiency, productivity, and innovation (Fu, Ma, Bosak, & Flood, 2015). This goal can only be achieved if employees efficiently exploit their existing knowledge and explore new knowledge/ideas (March, 1991). In this regard, Patel, Messersmith, and Lepak (2013) develop a theoretical framework on HPWSs and organizational performance which examines the mediating role played by organizational ambidexterity (OA) in the link between HPWSs and firm performance and other authors have studied this role (Fu et al., 2015; Prieto-Pastor & Martin-Perez, 2014; Úbeda-García, Claver-Cortés, Marco-Lajara, & Zaragoza-Sáez, 2016).

Recent studies highlight the need to make further progress in this direction using not only variables related to employee results but also the role of more objective variables such as the organization's capabilities, which do not depend so heavily on the perceptions and experiences of individuals, as mediating variables in the relationship between HPWSs and performance. More precisely, HRM research has

examined the mediating role of several dynamic capabilities such as absorptive capacity (Chang, Gong, Way, & Jia, 2013) and human resource flexibility (Beltrán-Martín, Roca-Puig, Escrig-Tena, & Bou-Llusar, 2008), as well as organizational ambidexterity (Patel et al., 2013).

The conclusion reached in all these research papers is that the capability under analysis exerts a partial or total mediating role in the HPWS-organizational performance relationship.

On the basis of such conclusions, the present paper aims to make progress in this direction. The novelty of our study lies in the fact that it considers the joint mediating effect of two organizational capabilities –namely, HRF (human resource flexibility) and OA (organizational ambidexterity). A multiple mediation model for these two capabilities in the HPWS-performance relationship is proposed.

## 2. Literature review and research hypotheses

### 2.1. The relationship between HPWS and performance

There is no universally agreed definition for the term HPWS due to the significant differences between the theoretical, empirical, and practical approaches used, such as high involvement, high commitment management, or best practice HRM (Boxall & Macky, 2014). However,

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<https://doi.org/10.1016/j.jbusres.2017.12.045>

Received 19 June 2017; Received in revised form 20 December 2017; Accepted 22 December 2017  
0148-2963/ © 2017 Published by Elsevier Inc.

an HPWS can broadly be understood as including a range of innovative human resource practices and work design processes that, when used in certain combinations or bundles, are mutually reinforcing and produce synergistic benefits. HPWSs thus include a group of horizontally and vertically aligned human resource practices that impact on employees' performance through an improvement of their ability, motivation, and opportunity to perform (AMO). These practices tend to gravitate around some core areas: (a) sophisticated selection and training; (b) behavior-based appraisal; (c) contingent pay; (d) job security; and (e) employee involvement. Our conceptualization of an HPWS draws on the process view of HR practices proposed by [Ostroff and Bowen \(2000\)](#), which holds that HR systems comprise a number of different levels –including HR policies, practices and processes– which can be linked to outcomes at both employee and organizational levels ([Cafferkey & Dundon, 2015](#); [Monks et al., 2013](#)).

These employment models primarily aim to attract, retain, and motivate human resources towards the fulfilment of an organization's aims through the creation of a fit between the knowledge, skills, and capabilities of individuals and the tasks, duties, and responsibilities required by the working post. It has been consistently argued in the literature that the practices themselves do not produce a competitive advantage but rather that the resources developed by a high work performance system lead to increased performance ([Huselid, 1995](#); [Wu, Hoque, Bacon, Llusar, & Carlos, 2015](#)).

Based on the key areas which usually form part of HPWSs, our research starts from the assumption that an HPWS involves the use of selective staffing, extensive training and development, development performance appraisal, and an equitable reward system ([Beltrán-Martín et al., 2008](#); [Youndt, Snell, Dean, & Lepak, 1996](#)). Their impact on organizational performance has been widely studied in terms of improved financial outcomes ([Huselid, 1995](#)) through increased job satisfaction and productivity ([Heffernan & Dundon, 2016](#)), and reduced employee turnover ([Wang et al., 2011](#)).

The following hypothesis is posed to confirm the direct effect of HPWS on organizational performance.

**Hypothesis 1.** HPWSs are positively related to organizational performance.

Even though this causal relationship is established in the present paper, the most recent research on HPWSs and performance analyzes reverse causation; in other words, the extent to which performance leads to the implementation of basic HPWSs such as the availability of slack resources or the adaptive implementation of human resource practices ([Shin & Konrad, 2017](#)).

According to a number of recent research works ([Darwish, Singh, & Mohamed, 2013](#); [Katou & Budhwar, 2006](#)), people management practices do not directly affect organizational results –neither on an individual basis nor by shaping a human resource management system. These practices can influence some mediating variables which will then have some bearing on performance. It is argued that HR practices will most probably directly affect HR-related outcomes such as employee turnover, followed by organizational, financial, and market outcomes ([Dyer & Reeves, 1995](#)). The logic behind this proposition is that HR practices most directly impact on behavioral outcomes, which lead to low employee turnover and the subsequent improved organizational and financial outcomes. This can be termed as the 'black box' issue in the context of HRM-performance research. As a result, some researchers have begun to look inside the 'black box' in an attempt to understand which HR practices impact most strongly on organizational performance.

A wide range of mediating variables have been used by researchers to find an effective mechanism through which HRM can best impact on performance, including employee turnover, employee productivity, employee satisfaction, knowledge management, and organizational culture. This addresses the call of some researchers ([Dyer & Reeves, 1995](#); [Guest, 2011](#)) for the exploration of new theoretical frameworks

with different mediating variables. The theoretical progress made in the field of human resource management and high-performance systems suggests that it is necessary to incorporate additional intermediate variables to improve our understanding of the processes through which HPWSs influence the organization's results ([Boxall & Purcell, 2000](#)). The importance of HPWS should not revolve solely around the achievement of favorable performances in the present-day context but also around preparing the organization to face the challenges which may eventually appear in new contexts. In this respect, [Becker and Huselid \(2006\)](#) claim that the HPWS-performance relationship is mediated by other strategic capabilities. As anticipated in the introduction, our study will utilize two mediating variables: HRF and OA.

## 2.2. The mediating role of HR flexibility

Within the field of HRM, human resource flexibility is conceived as a capability through which the organization can more easily adapt to environmental contingency changes ([Camps, Oltra, Manzano, Vera, & Carballo, 2016](#)). [Wright and Snell \(1998\)](#) conceptualize HRF around three dimensions: behavioral flexibility; skill flexibility; and HR practice flexibility.

### 2.2.1. Behavioral flexibility

Behaviors are inflexible when employees who have applied a sequence of actions in response to repetitive situations select the same sequence to deal with new situations. By contrast, employees with flexible behaviors adapt their responses to previously unknown circumstances on the basis of improvisation rather than following pre-defined action patterns ([Bhattacharya, Gibson, & Doty, 2005](#); [Kumari & Pradhan, 2014](#); [Wright & Snell, 1998](#)).

### 2.2.2. Skill flexibility

Skill flexibility refers to the number of potential uses for the knowledge and skills owned by an employee ([Wright & Snell, 1998](#)). A flexible employee shows an ability to work on different tasks and under various circumstances, with a low cost and a short period of time being required to mobilize this employee to perform new functions ([Camps et al., 2016](#); [De Lastra, Martín-Alcazar, & Sanchez-Gardey, 2014](#)). Skill flexibility is also related to the ability of employees to develop a broad variety of skills in the future ([Wright & Snell, 1998](#)).

For example ([Way et al., 2015](#)), if a firm's customers desire a wider range of services than the firm currently offers, resource flexibility in employee skills exists when the firm's current employees possess the skills (or can quickly acquire the skills) necessary to perform a wider variety of work activities to meet the changing customer desires. While employees may have the requisite skills, resource flexibility in employee behaviors signifies that the firm's current employees are willing to perform these new work activities. When resource flexibility in both employee skills and behaviors exist, the firm can more easily expand the range of services it offers to its customers.

Human resource management *practice flexibility* represents the degree to which such practices can be adapted and applied to a variety of situations or in different organization units or sections, as well as the speed at which these adaptations and applications are likely to take place ([Beltrán-Martín et al., 2008](#); [Bhattacharya et al., 2005](#); [Kumari & Pradhan, 2014](#)). More specifically, there is flexibility in HR practices when the firm's current HR practices can be effectively applied across a variety of employees in different contexts (settings or jobs) and/or used to perform various work activities ([Way et al., 2015](#)).

Several studies have shown that employee flexibility affects business results ([Chang et al., 2013](#)). Furthermore, an HPWS appears as one of the most important mechanisms when it comes to influencing the various aspects of HRF ([Beltrán-Martín et al., 2008](#); [Bhattacharya et al., 2005](#)). Therefore, since the research carried out suggests not only that HPWSs influence HRF development but also that this capacity has an impact on organizational results; our study advocates that HRF could be

regarded as an organizational capacity that mediates between HPWS and performance, which leads us to propose the following hypothesis:

**Hypothesis 2.** Human resource flexibility positively mediates in the relationship between HPWSs and performance.

2.3. The mediating role of organizational ambidexterity

The literature on organizational ambidexterity has revolved around finding a solution to the dilemma of how to achieve a balance between simultaneous exploration-based and exploitation-based learning. Thus, O'Reilly and Tushman (2013) conceive ambidexterity as a dynamic capability which enables the firm to orient itself towards exploration and exploitation.

The existing research on OA antecedents has drawn a distinction between structural and contextual factors. Structural antecedents refer to organizational design practices which allow for exploration and exploitation to be carried out in different organizational units (Simsek, 2009; Tushman & O'Reilly, 1996; Gibson & Birkinshaw, 2004; Simsek, Heavey, Veiga, & Souder, 2009). Contextual antecedents are related to the organization's system and processes shaping employee behaviors, e.g. the human resource system (Kang & Snell, 2009; Patel et al., 2013).

A large number of studies have analyzed the way in which firms use HRM to find a balance between exploratory and exploitative learning. Some of these studies suggest that the HR policies implemented differ according to whether an exploratory or an exploitative type of learning is sought (Kang & Snell, 2009). Other recent studies argue that establishing an HPWS as the dominant HRM system intensifies both exploration and exploitation throughout the entire organization (Garaus et al., 2016; Patel et al., 2013; Úbeda-García et al., 2016).

The present study can be placed within the 'contextual factors' research strand, insofar as it is considered that HPWSs contribute to contextual ambidexterity by helping to establish a supportive organizational context (Flickinger, Gruber-Mücke, & Fiedler, 2013), seeking

to simultaneously achieve exploration and exploitation, additionally arguing that this organizational ambidexterity capacity acts as a mediating variable between HPWSs and performance. Hence the formulation of the next hypothesis.

**Hypothesis 3.** Organizational ambidexterity positively mediates in the relationship between HPWSs and performance.

In addition to the above, Junni, Sarala, Tarba, Liu, and Cooper (2015) point out that an important aspect of the HR system remains neglected in ambidexterity research; namely, the impact of HRF on ambidexterity. For this reason, while studies on HPWS highlight the importance of ensuring congruence between different HR practices to achieve ambidexterity, it is also true that HRF could facilitate ambidexterity through enhanced human resource system adaptability. As pointed out by Patel et al. (2013), organizations pursuing behavioral forms of ambidexterity should adopt practices which can help to develop resource flexibility in their employee base, so that human resources have the motivation to devote their efforts to activities associated with both exploitation and exploration (Corderoy et al., 1993; Lepak et al., 2003). This appears to be an important distinction, since flexibility does not lie in the system, but rather in the behavioral choices of the human resources asked to meet the disparate goals of their organization (Wright & Snell, 1998). Insofar as human resource flexibility makes it easier for employees to acquire skills and behavior repertoires which enable them to exploit and explore new strategic alternatives, it will also have a positive effect on organizational ambidexterity (Chang, 2015; Chebbi, Yahiaoui, Vrontis, & Thrassou, 2015; Faisal Ahammad, Mook Lee, Malul, & Shoham, 2015; Garavan, Shanahan, Carbery, & Watson, 2016; Úbeda-García, Claver-Cortés, Marco-Lajara, & Zaragoza-Sáez, 2017).

Our study incorporates these ideas through the establishment of a multiple mediating model according to which HRF influences organizational ambidexterity, and both variables sequentially mediate in the HPWS-performance relationship. This leads us to propose our next hypothesis (see Fig. 1).

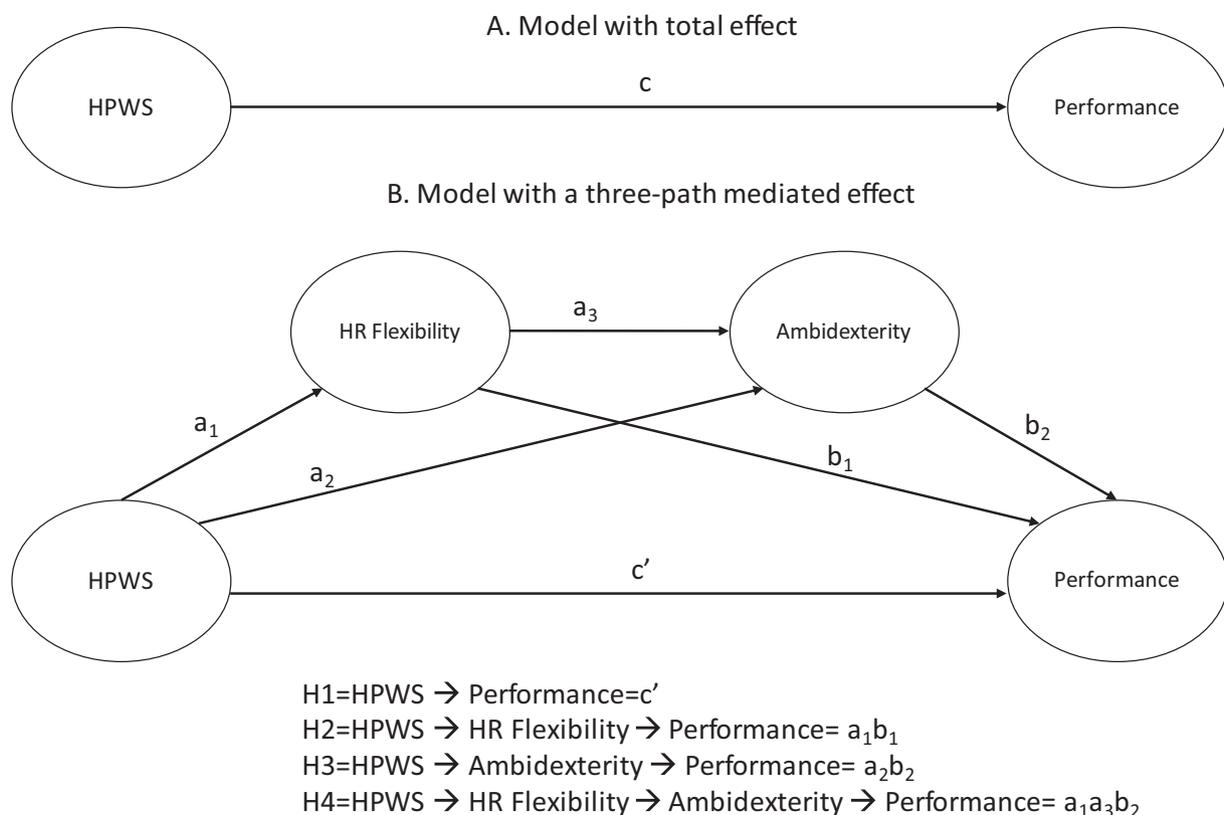


Fig. 1. Three-path mediation model.

**Hypothesis 4.** Human resource flexibility and organizational ambidexterity sequentially mediate in the relationship between HPWSs and performance.

### 3. Methodology

#### 3.1. Data collection and procedure

Both the theoretical model and the hypotheses proposed were tested using a sample of Spanish hotels. The hotel industry was chosen firstly because it is an important sector of the Spanish economy, with 11.2% of the country's GDP. Furthermore, the dynamism that characterizes this industry imposes on these firms the need to not only adapt to events but also to anticipate them (following an exploration learning format), while the characteristic hostility within this sector simultaneously forces them to offer a good price and, consequently, to follow an exploitation learning scheme. In other words, it is a sector where organizations need to cultivate ambidexterity to face the pressures associated with exploration and exploitation. HRF also plays a key role in this sector as, apart from being labor-intensive, it is strongly affected by seasonality (Yaduma, Williams, Lockwood, & Park, 2015). Finally, few studies have focused on analyzing the effect of HRM on hotel performance through the mediation of two organizational capabilities. Instead, most of the works which have used dynamic capabilities as mediators between HPWSs and performance have studied other sectors (Caniëls & Veld, 2016; Chang, 2015; Fu et al., 2015; Malik, Pereira, & Tarba, 2017; Patel et al., 2013).

Our analysis focused on hotels with three or more stars in the Valencian Autonomous Region (Spain); more precisely, a total of 415 establishments included in various databases (among others, the municipal tourism supply, Turespaña, or the Iberian Balance Sheet Analysis System (SABI)).

With regard to the basic features of the study population, 62% of the employees have a permanent contract, and 81% are full-time. The prevailing approach to human resource management is the so-called 'hard version' of human resource practices, which entails a short-term perspective on managerial decision-making and strategy and, consequently, a low-cost strategy (Marco-Lajara & Úbeda-García, 2013).

A questionnaire addressed to an HR manager of the company or a reasonable substitute such as the CEO (mainly for smaller hotels) was designed to obtain all the necessary information (Appendix 1 provides a summary of the items included in the final questionnaire). A total number of 100 valid questionnaires were collected, which covered 24.1% of the population under study. The analysis of differences between respondents and non-respondents served to test the non-response bias and the *t*-test showed no significant differences based on control variables (size and management type).

#### 3.2. Measurement

##### 3.2.1. HPWSs

Our measurements of high performance human resource practices are based on the scales developed by Beltrán-Martín et al. (2008) and Huselid (1995), which contain items related to selective staffing, comprehensive training, developmental performance appraisal, and an equitable reward system (see Appendix 1). This paper sees HPWSs as a second-order construct shaped by four first-order reflective constructs. It is a Type-A composite model, since it considers that the four human resource practices are different aspects that jointly shape human resource utilization systems.

##### 3.2.2. Organizational ambidexterity

This variable was measured using the scales developed by Jansen et al. (2006 and 2009) (see Appendix 1). As with HPWS, this second-order construct consists of two first-order reflective constructs

(exploratory and exploitative innovation) that reflect different aspects and constitute organizational ambidexterity when appearing together.

##### 3.2.3. Human resource flexibility

The measurement scales proposed by Volverda (1998), Bhattacharya et al. (2005) and Beltrán-Martín et al. (2008) were adapted for the measurement of this variable (see Appendix 1). It is also a second-order construct shaped by three first-order reflective constructs which comprise the three types of flexibility described in the theoretical section.

##### 3.2.4. Performance

This study has utilized perception measurements to capture organizational performance taking the works written by Gibson and Birkinshaw (2004) as its reference. More specifically, eight items were used in an attempt to capture both general performance criteria (market share growth, brand recognition, firm market image, and sales growth), and performance variables specific to hotel sector firms (revenues per room, average occupancy, customer satisfaction level, and employee satisfaction) (see Appendix 1). The research additionally monitors possible alternative explanations for the relationships set forth in the theoretical model through the inclusion of the relevant control variables: size and management type (regardless of whether it is an independent or a chain hotel).

#### 3.3. Statistical procedure

Prior to estimating the measurement models we considered common method variance, since all the variables included in our research were appraised by a single person within each organization. According to Harman's single factor test (Podsakoff, MacKenzie, & Podsakoff, 2012), if common method variance existed, a factor would emerge from a factor analysis with all research indicators. This test must be preceded by a confirmatory factor analysis (CFA) estimate that includes all the indicators from every scale to determine the extent to which most of the variance in the model is explained by a general factor (Podsakoff et al., 2012). Ten factors were identified, the main factor accounting for 43.8% of variance. None of the factors explains > 50% of variance, which suggests that no common method variance exists in the present study, because these indices do not reach the values considered acceptable.

##### 3.3.1. Partial Least Squares (PLS)

Partial Least Squares (PLS) was the data analysis method used in our paper for the following reasons (Sosik, Kahai, & Piovosso, 2009): 1) It is an emergent theoretical approach (no studies have so far jointly analyzed two organizational capabilities to explain the link between human resources and performance); 2) The work is carried out with a small sample; and 3) Subjective construct assessment constitutes our starting point.

##### 3.3.2. Mediation analysis

In accordance with the research model (Fig. 1B), H2, H3, and H4 represent mediation hypotheses which posit how an independent variable (HPWSs) affects a dependent variable (performance) through mediating variables or mediators (HRF and OA) (Preacher & Hayes, 2008). This study specifically tests a three-path mediation model (Hayes, 2009; Taylor, MacKinnon, & Tein, 2008).

Fig. 1A describes the total effect of HPWSs on performance, *c* being the path coefficient. This total effect may be arrived at via a variety of direct and indirect forces (Hayes, 2009). More precisely, Fig. 1B expresses the total effect of HPWSs on performance as the sum of direct and indirect effects, the latter being estimated by the product of path coefficients for each of the paths in the mediational chain. Thus,  $c = c' + a_1b_1 + a_2b_2 + a_1a_3b_2$ , with the last three terms being specific indirect effects and their sum representing the total indirect effect

(Hayes, 2009), while  $c'$  constitutes the direct effect of HPWS on performance (H1), controlling both mediators (HRF and OA) (Taylor et al., 2008). The advantage of this approach lies in the fact that it can isolate the indirect effect of both mediating variables, i.e. HRF (H2:  $a_1b_1$ ) and OA (H3:  $a_2b_2$ ). This approach also allows for the analysis of indirect effects passing through both of these mediators in a series (H4:  $a_1a_3b_2$ ).

The bootstrapping method—a nonparametric resampling procedure that does not impose the assumption of normality on the sampling distribution (Preacher & Hayes, 2008)—was used to test the significance of indirect effects.

## 4. Results

### 4.1. Measurement model assessment

Our assessment of the measurement model for reflective indicators in PLS is based on individual item reliability, construct reliability, convergent validity, and discriminant validity (Hair, Sarstedt, Ringle, & Mena, 2012). Individual item reliability is considered adequate when an item has a factor loading above 0.7 in its respective construct. The loadings of our indicators exceed 0.7 (Table 1) except for one: the equitable reward system. In this case, a decision was made to verify the remaining measurement indices for the HPWS construct, namely: composite reliability (CR); average variance extracted (AVE); and discriminant validity. As will be seen below, all these indicators are appropriate, which makes us consider that the item has an adequate reliability level.

This first stage must also include the evaluation of scales through Cronbach's  $\alpha$  and the composite reliability (CR) index; and the existence of convergent validity could be verified through the analysis of the average variance extracted (AVE). Table 2 shows that both the alpha value and the CR index exceeded the critical value of 0.7 in every variable; and the value of AVE was situated above 0.5 (Fornell & Larcker, 1981). Finally, the analysis of the measurement model requires verifying the existence of discriminant validity. In this respect, the most widely accepted method in PLS consists in drawing a comparison between the AVE value in each construct and the square of the correlation between the construct and each variable. Therefore, if AVE exceeds the squared correlation, it can be accepted that each construct relates more intensely to its own measurements than to those of other variables. Table 2 presents the square root of AVE in the diagonal, and the correlations estimated for each pair of constructs in the elements outside the diagonal. This information confirms the existence of discriminant validity in constructs.

**Table 1**  
Loadings and cross-loadings for the measurement model.

	HPWS	HRF	OA	Performance
Selective staffing	0.805			
Developmental performance appraisal	0.930			
Comprehensive training	0.883			
Equitable reward system	0.663			
Skill flexibility		0.951		
Behavior flexibility		0.966		
Practice flexibility		0.939		
Exploratory innovation			0.923	
Exploitative innovation			0.933	
P1				0.892
P2				0.933
P3				0.912
P4				0.859
P5				0.866
P6				0.834
P7				0.889
P8				0.859

**Table 2**  
Construct reliability, convergent and discriminant validity coefficients.

	AVE	Composite reliability	Cronbach's alpha	HPWS	HRF	OA	P
HPWS	0.683	0.895	0.840	<b>0.826</b>			
HRF	0.906	0.967	0.948	0.752	<b>0.952</b>		
OA	0.861	0.926	0.839	0.854	0.825	<b>0.928</b>	
P	0.776	0.965	0.959	0.711	0.723	0.798	<b>0.881</b>

HRF, HR flexibility; OA, organizational ambidexterity; P, performance. Diagonal elements (bold) are the square root of the variance shared between the constructs and their measures (average variance extracted). Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

### 4.2. Structural model assessment

Fig. 2 shows the most important results obtained with the structural model.

The algebraic sign, magnitude, and significance of the structural path coefficients, the  $R^2$  values and the  $Q^2$  test for predictive relevance permit an evaluation of the structural model. Bootstrapping (5000 resamples) was used to generate standard error and t-statistics. This will make it possible to assess the significance of path coefficients (Hair et al., 2012). The confidence intervals of standardized regression coefficients were also calculated. According to Henseler, Ringle, and Sinkovics (2009), if a confidence interval for an estimated path coefficient  $w$  does not include zero, the hypothesis that  $w$  equals zero is rejected. More specifically, we decided to use a percentile approach—which has the advantage of having completely free distribution (Chin, 2010). Four of the six direct effects described in Fig. 2B are significant because they exceed the minimum level by a Student's t-distribution with one tail and  $n-1$  ( $n$  = number of resamples) degrees of freedom (Table 3). The same result occurs with a 95% percentile bootstrap confidence interval. H1 cannot be supported in the light of these results. The direct effect of HPWSs on performance ( $c'$ ) is not significant and its confidence interval includes zero.

Moreover, the research model proposed has a predictive value suited to all dependent variables (Table 3). More precisely, organizational ambidexterity presents the highest explained variance ( $R^2 = 0.806$ ). The structural model was also evaluated using the cross-validated redundancy index ( $Q^2$ ) for endogenous reflective constructs (Chin, 2010). This measure examines the predictive relevance of a theoretical/structural model. A  $Q^2$  greater than zero implies that the model has predictive relevance. The findings shown in Table 3 confirm that the model suggested has a satisfactory predictive relevance for all three dependent variables—HRF; OA; and performance.

As can be seen in Table 3, the management type control variable exerts a significant positive influence on performance: hotels which belong to a chain outperform those which do not—an outcome that is in tune with those achieved in other research works (O'Neill & Carlbäck, 2011).

Testing the mediation hypotheses (i.e. H2, H3 and H4) was possible thanks to the analytical approach put forward by Hayes and Scharkow (2013). The indirect effects are specified and contrasted with the mediators (HRF and OA) (Table 4).

Attention was also paid to the total effect ( $c$ ) and the direct effect (H1:  $c'$ ) of the independent variable (HPWS) on the dependent variable (performance). Chin (2010) suggests a two-stage process to test mediation in PLS: 1) using the specific model—including both the direct and indirect effects—and performing  $N$  bootstrap resampling, in addition to explicitly calculating the product of the direct paths that form the indirect path under assessment; and 2) Estimating significance by means of percentile bootstrap (Williams & MacKinnon's, 2008). This generates a 95% confidence interval (CI) for mediators: HRF (H2); OA (H3); and HRF and OA (H4). If the interval for a mediation hypothesis does not

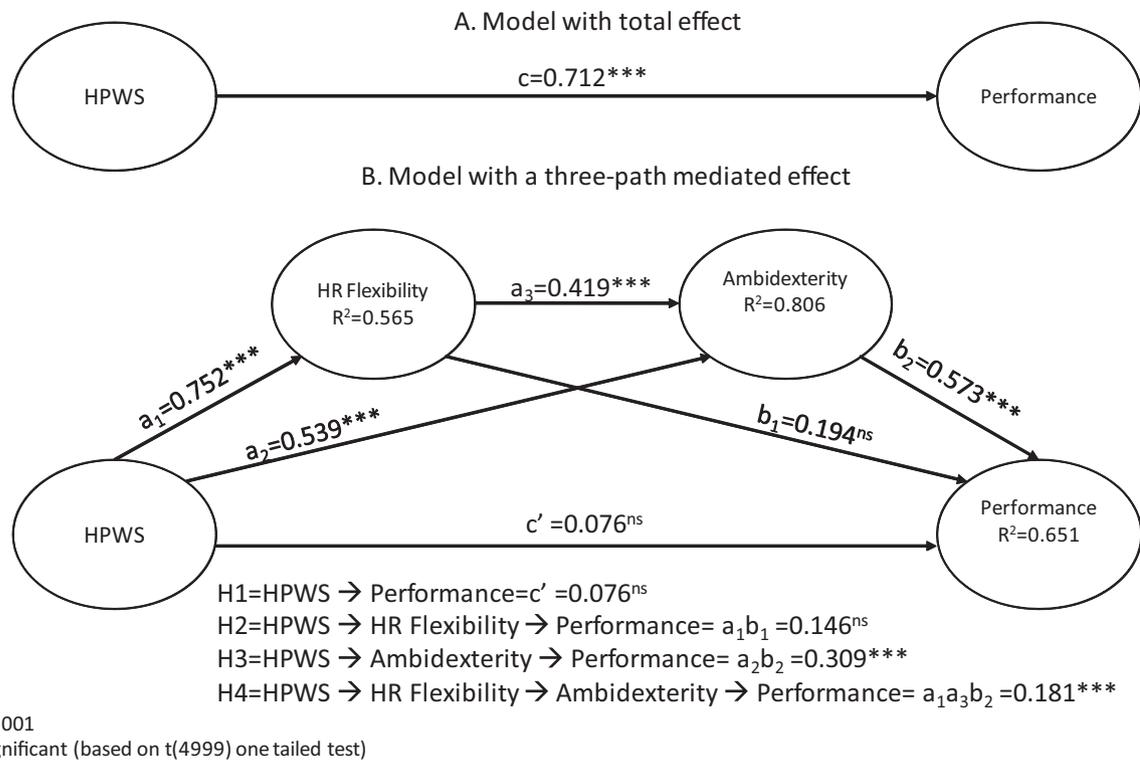


Fig. 2. Results three-path mediation model.

Table 3  
Effects on endogenous variables

Effects on endogenous variables	Direct effect	t-Value (bootstrap)	Percentile 95% confidence intervals	Explained variance
HR flexibility R <sup>2</sup> = 0.565/ Q <sup>2</sup> = 0.508				
HPWS	0.752***	16.680	[0.678;0.823] Sig.	56.5%
Ambidexterity R <sup>2</sup> = 0.806/ Q <sup>2</sup> = 0.677				
HPWS	0.539***	8.409	[0.442;0.652] Sig.	46%
HR flexibility	0.419***	6.267	[0.299;0.517] Sig.	34.6%
Performance R <sup>2</sup> = 0.651/ Q <sup>2</sup> = 0.530				
HPWS	0.076	0.720	[- 0.098;0.247] Nsig	4%
HR flexibility	0.194	1.566	[- 0.007;0.4] Nsig	12.3%
Ambidexterity	0.573***	3.954	[0.331;0.800] Sig.	35.8%
Size	- 0.037	0.751 <sup>a</sup>	[- 0.138;0.057] Nsig	- 0.42%
Type management	0.249**	3.172 <sup>a</sup>	[0.084;0.389] Sig.	12.5%

t(0.05, 4999) = 1.645, t(0.01, 4999) = 2.327, t(0.001, 4999) = 3.092. Sig. denotes a significant direct effect at 0.05; Nsig. denotes a nonsignificant direct effect at 0.05(based on t(4999), one-tailed test).

\*\* p < 0.01.

\*\*\* p < 0.001

<sup>a</sup> For the control variables that do not specify the direction of the relation of the variables, the two-tailed Student t has been used: t(0.05, 4999) = 1.960, t(0.01, 4999) = 2.577, t(0.001, 4999) = 3.292.

contain the zero value, the indirect effect significantly differs from zero at a 95% confidence level.

Fig. 2A and Table 4 reveal that an HPWS has a significant total effect on performance. When the mediating variables are introduced

(Fig. 2B), HPWSs stop having a significant effect on performance (H1: c'). This means that HRF and OA fully mediate the influence of HPWSs on performance and, as already mentioned above, Hypothesis 1 cannot be accepted; expressed differently, HPWSs do not exert a direct positive influence on hotel performance according to our model. Results additionally show that HRF is not a mediating variable between HPWSs and performance, thus explaining why H2 (a<sub>1</sub>b<sub>1</sub>) was not accepted. However, H3 (a<sub>2</sub>b<sub>2</sub>) –which reflects the mediating effect that OA has in the relationship between HPWSs and performance– was accepted. Organizational ambidexterity can thus indeed be regarded as a mediator variable between human resource management and performance. Finally, it follows from the results that HPWSs are positively associated with higher HRF and OA, which relates to higher levels of organizational performance (H4: a<sub>1</sub>a<sub>3</sub>b<sub>2</sub>). In view of the above, it can be concluded that both human resource flexibility and organizational ambidexterity exert a sequential mediation in the HPWS-performance relationship.

## 5. Discussion

The aim of the present study is to delve deeper into the relationship between HPWS and organizational performance through the application of a statistical study which analyzes how two organizational capabilities –HRF and OA– mediate in this relationship. The results obtained, which make it clear that these two capabilities fully mediate the effect of HPWSs on performance, have theoretical as well as practical consequences.

### 5.1. Theoretical implications

The most important theoretical implications of this study can be placed in two fields: firstly, the research works dedicated to analyzing the influence of human resources on organizational ambidexterity development; and secondly, works which have recently tried to open ‘the black box’ of the HPWS-performance link.

With regard to the impact of human resource management on

**Table 4**  
Summary of mediating effect test.

Total effect of HPWS on P (c)		Direct effect of HPWS on P		Indirect effects of HPWS on P				
Coefficient	t value	Coefficient	t value	Point estimate	Percentile bootstrap 95% confidence interval			
					Lower	Upper		
0.712***	17.346	H1 = c'	0.076 <sup>ns</sup>	0.720	Total	0.076	-0.098	0.299
					H2 = a <sub>1</sub> b <sub>1</sub> (via HRF)	0.146	-0.005	0.303
					H3 = a <sub>2</sub> b <sub>2</sub> (via OA)	0.309***	0.172	0.477
					H4: a <sub>1</sub> a <sub>3</sub> b <sub>2</sub> (via HRF + AO)	0.181***	0.097	0.262

HRF, HR flexibility; OA, organizational ambidexterity; P, performance.

ns – Not significant (based on t(4999), one-tailed test).

t(0.05, 4999) = 1.645158499, t(0.01, 4999) = 2.327094067, t(0.001, 4999) = 3.091863446.

\*\*\*  $p < 0.001$ .

organizational ambidexterity development, this study contributes to the identification of OA antecedent factors, since the results obtained confirm that the adoption of an HPWS helps to create a suitable context for ambidexterity, both directly (HPWSs explain 46% of OA variance) and indirectly by means of HRF (see Table 3). Such findings represent a new contribution to the existing bibliography that relates human resource practices to the simultaneous development of exploration and exploitation learning capabilities (Garaus et al., 2016; O'Reilly & Tushman, 2013; Patel et al., 2013). The present work has additionally incorporated a variable –human resource flexibility– which had so far never been treated in studies linking HRM and organizational ambidexterity. The findings of our research thus support the hypothesis formulated by Junni et al. (2015), insofar as human resource flexibility could also facilitate ambidexterity through the enhancement of HPWS adaptability.

With regard to theoretical implications in the study field relating to the HPWS-performance relationship, the conclusions reached suggest that OA is a mediating variable in this relationship, thus corroborating results obtained in previous research works (Patel et al., 2013; Prieto-Pastor & Martín-Perez, 2014). With regard to HRF, it was not possible to confirm its mediating effect, as found in other studies (Beltrán-Martín et al., 2008). However, the results obtained in the mediation model jointly applied to both capabilities (Fig. 2B) suggest that together they exert a total mediation. One could consequently draw the conclusion that the relationship between HRM and performance has a higher degree of complexity than that hitherto described. Several capabilities may mediate at the same time (as happens in this case). Thus, despite the impossibility of accepting H2 about HRF mediation, the result that H4 about double mediation was confirmed could suggest that human resource flexibility exerts its influence on performance because of its contribution to the simultaneous development of exploration and exploitation learning.

These findings open a new path in the development of human resource management research, insofar as it is necessary to propose more complex models where several organizational capabilities might play a role, mediating in the relationship with performance.

## Appendix 1. Summary of the questionnaire.

### High performance work system

#### Selective staffing

S1 How extensive is the employee selection process for a job in this department? (1 = not extensive: use of few staffing techniques; 7 = very extensive: use of many different techniques)

S2 How long does it take to select someone for a position in this department once the job opportunity appears? (1 = short: < 1 week; 4 = medium: about 6 months; 7 = long: > 1 year)

S3 How many people are involved in the selection decision? (1 = 1 person; 7 = 7 people)

S4 How much money is generally spent on selecting people for a job, as a percentage of the firm's profits? (1 = very little; 4 = a moderate amount; 7 = a great deal)

S5 How many applicants are screened for each person hired for a job (1 = 1; 7 = 20 or more)

**Comprehensive training**

CT1 How formal or structured is the training processes in this department? (1 = *highly unstructured*; 7 = *highly structured*)

CT2 What percentage of employees in your department has received training this past year? (1 = 0%; 4 = 50%; 7 = 100%)

CT3 On average, how many hours of formal training does a typical member of your department receive per year? (1 = 0 h; 7 ≥ 60 h)

CT4 How many different kinds of training does a typical member of your work unit receive per year? (1 = *very few*; 7 = *a wide variety*)

CT5 How much money is generally spent on training individuals, as a percentage of the firm's profits? (1 = *very little*; 4 = *a moderate amount*; 7 = *a great deal*)

CT6 Do you feel training is viewed as a cost or as an investment in your department? (1 = *viewed as a cost*; 7 = *viewed as an investment*)

**Developmental performance appraisal**

DPA1 What percentage of employees is covered by performance appraisal systems? (1 = 10% of employees or less; 4 = 40% of employees; 7 = 70% of employees or more)

DPA2 How would you describe performance standards in your hotel? (1 = *fixed*; 7 = *flexible*)

DPA3 To what extent do employees participate in goal setting and appraisal? (1 = *very little*; 4 = *moderately*; 7 = *a great deal*)

DPA4 Do discussions focus on present performance or future performance? (1 = *present*; 7 = *future*)

DPA5 When performance is discussed with employees in your hotel, how much emphasis is placed on finding avenues of personal development for an employee? (1 = *very little*; 4 = *a moderate amount*; 7 = *a great deal*)

DPA6 How closely are pay rises, promotions, etc. related to performance appraisal? (1 = *not closely*; 4 = *moderately*; 7 = *very closely*)

DPA7 How would you describe the approach used to discuss performance? (1 = *tell/sell*; 4 = *tell/listen*; 7 = *problem solving*)

DPA8 How many people provide input to the performance appraisal of each employee in the department? (1 = 1; 7 = 7 or more)

**Equitable reward system**

RS1 How would you rate pay levels in this unit relative to other firms? (1 = *low*; 4 = *the same*; 7 = *high*)

RS2 How would you rate pay levels in this unit relative to past years? (1 = *lower than past*; 4 = *the same*; 7 = *higher than past*)

RS3 How wide is the pay range across members in this firm? (1 = *narrow*; 4 = *moderate*; 7 = *very wide*)

**Performance-Based Pay**

RS4 How closely is pay tied to individual performance in terms of salary percentage? (1 ≤ 10%; 2 = 10%–20%; 3 = 20%–30%; 4 = 30%–40%; 5 = 40%–50%; 6 = 50%–60%; 7 ≥ 60%)

**Human resource flexibility**

**Behavioral flexibility** (1 = I totally disagree; 4 = I neither agree nor disagree; 7 = I totally agree)

BF1 The flexibility of our employees' work habits helps us change according to market demands.

BF2 People in our firm change their work habits in response to changes within the competitive environment.

BF3 Our employees respond to changing situations within a short period of time.

BF4 People in our firm readily change their work habits as demanded by changes within the working environment.

BF5 Most of our employees are flexible enough to adapt to dynamic work requirements.

BF6 Our employees adapt to changing work requirements within a short period of time.

BF7 Our employees' response to the changing nature of their jobs helps us remain competitive in the market.

BF8 People in our firm change their behavior in response to customers' requirements.

**Skill flexibility** (1 = I totally disagree; 4 = I neither agree nor disagree; 7 = I totally agree)

SF1 Our firm can shift employees to different jobs when necessary.

SF2 Our employees can switch to new jobs in our company within a short period of time.

SF3 Our employees are capable of putting new skills to use within a short period of time.

SF4 Our firm is capable of meeting the demand(s) for new skills by retraining or shifting its existing employees.

SF5 We employ people who own a broad variety of skills.

SF6 Many employees in our firm have multiple skills that are used in various jobs.

SF7 People in our firm can learn new skills within a short period.

**Human resource practice flexibility** (1 = I totally disagree; 4 = I neither agree nor disagree; 7 = I totally agree)

PF1 The flexibility of our HR practices helps us adapt to the changing demands of the business environment.

PF2 Our firm modifies its HR system to keep pace with the changing competitive environment.

PF3 Our HR practice parameters have been designed in such a way that they can quickly adapt to changes in business conditions.

PF4 We introduce frequent changes in our HR practices in order to align the HR system with the changing work requirements.

PF5 Changes in our HR practices enable us to remain competitive in the market.

PF6 Our HR practices meaningfully adapt to changed business scenarios.

PF7 As a whole, our HR practices are flexible.

**Organizational ambidexterity**

**Exploitative innovation** (1 = I totally disagree; 4 = I neither agree nor disagree; 7 = I totally agree)

**Exploitative 1** We frequently carry out small adjustments in our existing products and services

**Exploitative 2** We improve efficiency in our product and service provision

**Exploitative 3** We increase economies of scales in existing markets

**Exploitative 4** Our organization expands services for existing clients

**Exploratory innovation** (1 = I totally disagree; 4 = I neither agree nor disagree; 7 = I totally agree)

**Exploratory 1** Our organization accepts demands that go beyond the existing products and services

**Exploratory 2** We commercialize products and services that are completely new to our organization

**Exploratory 3** We frequently take advantage of new opportunities in new markets

**Exploratory 4** Our organization regularly uses new distribution channels

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

P1 The growth in my firm's market share relative to competitors during the last three years has been...

P2 My firm's brand recognition relative to competitors during the last three years has been...

- P3 My firm's image relative to competitors during the last three years has been...
- P4 The average growth in my firm's sales relative to competitors during the last three years has been...
- P5 My hotel's average occupancy relative to competitors during the last three years has been...
- P6 Customers' satisfaction level relative to competitors during the last three years has been...
- P7 Employees' satisfaction level relative to competitors during the last three years has been...
- P8 Revenues per room in my hotel relative to competitors during the last three years has been...

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