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The interactive effect of innovation capability and potential absorptive capacity on innovation performance



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Introduction

ABSTRACT

The current ecosystem of organisations has generated a high degree of competition amongst business actors, requiring them to develop a range of business management strategies to enhance competitiveness and sustainability. This study examined the interactive effects of innovation capability and potential absorptive capacity on a firm's innovation performance. An empirical analysis was conducted on a sample of 238 firms in cultural tourism destinations in Peru. The hypotheses were tested using the partial least squares statistical method. The results reveal the positive effect of the interaction between innovation capability and potential absorptive capacity on innovation performance. Our findings expand the theoretical background to the interactive effects of dynamic capabilities in promoting innovation, while the practical contribution will be useful in developing strategies, especially for companies located in cultural tourism destinations. © 2022 The Authors. Published by Elsevier España, S.L.U. on behalf of Journal of Innovation & Knowledge. This

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The immense competition in business ecosystems requires organisations to develop diverse strategies based on their resources and capabilities to improve their innovation, sustainability, and business performance outcomes (Córcoles-Muñoz, Parra-Requena, García-Villaverde & Ruiz-Ortega, 2022; Parra-Requena, Ruiz-Ortega, Garcia-Villaverde & Ramírez, 2020; Ruiz-Ortega et al., 2021). In this respect, it is important to highlight the role of dynamic capabilities, specifically innovation capability—to ensure success in the market (Saunila, 2020)—and absorptive capacity—given its ability to capture external knowledge. Both internal capabilities are essential antecedents for developing the new business processes and products demanded by the market (Urgal, Quintás & Arévalo, 2011). However, this has been studied directly in several previous studies (Martínez-Román, Tamayo, Gamero & Romero, 2015).

Drawing on the dynamic capabilities approach, innovation capability has been a research topic because of its potential to transform knowledge into products, processes, and systems, especially in small firms (Saunila, 2020). This capability has been studied from various perspectives as a dependant, independent, moderator, and mediator variable (Ruiz-Ortega et al., 2021; Saunila, 2020) in different areas of knowledge and with disparate findings. However, innovation capability has been reported to be insufficient for guaranteeing innovation outcomes (Lyu, Peng, Yang, Li & Gu, 2022; Santoro, Bresciani & Papa, 2020). Ruiz-Ortega et al. (2021) suggest investigating the various effects of innovation capability and absorptive and adaptive capacity on the strategic orientation of firms. Additionally, absorptive capacity is considered a dimension of dynamic capability (Brito-Ochoa, Sacristan-Navarro & Pelechano-Barahona, 2020; Cohen & Levinthal, 1990), characterised by its ability it gives firms to acquire, assimilate, transform, and exploit knowledge from the environment (Teece, 2019; Zahra & George, 2002). Furthermore, absorptive capacity has been studied using two approaches: the potential (acquisition and assimilation) and realised (transformation and exploitation) absorptive capacity of knowledge (Cruz-Ros, Guerrero-Sánchez & Miquel-Romero, 2021; Parra-Requena et al., 2020; Rodrigo-Alarcón, Parra-Requena & Ruiz-Ortega, 2020; Zahra & George, 2002). In this study, we evaluated the importance of the potential absorptive capacity for

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two reasons. First, it is essential in the process by which organisations acquire new knowledge, and second, because of its ability to assimilate information after analysing, processing, interpreting, and understanding the knowledge (Zahra & George, 2002). Moreover, external knowledge must nourish companies' learning processes (García-Sánchez, García-Morales & Martín-Rojas, 2018). In this sense, potential absorptive capacity can benefit organisations by increasing their innovation capabilities and, consequently, helping them achieve better innovation performance.

Previous literature on the determinants of innovation performance has focused only on the effect of one type of capability, namely, innovation capability or absorptive capacity (Iddris, 2019; Khan, Tao & Li, 2022; Martínez-Román et al., 2015; Medase & Abdul-Basit, 2020; Wu, 2020). García-Sánchez et al. (2018) suggest delving deeper into the interactions between organizational capabilities and innovation performance in countries with cultural differences and diverse economic environments. Furthermore, a gap has been identified in the literature concerning the analysis of the interactive effect of innovation capabilities and potential absorptive capacity on innovation performance. This leads us to the following research question: How does the interactive effect between innovation capabilities and potential absorptive capacity influence firm innovation performance?

The literature on innovation performance has advanced through the study of various strategic business management variables (Tang. Zhang, Lu, Wang & Tsai, 2020; Wu, 2020). Nonetheless, there is a need to determine and expand on the direct and indirect relational determinants especially in the context of firms in cultural tourism destinations in developing countries, such as those in Latin America (García-Villaverde, Elche, Martínez-Pérez & Ruiz-Ortega, 2017; Pikkemaat, Peters & Bichler, 2019). In this sense, our study deepens the knowledge of innovation capabilities and absorptive capacity in their potential dimension (acquisition and assimilation) as antecedents of innovation performance (Müller, Buliga & Voigt, 2021; Xie, Zou & Qi, 2018). In this line, and in order to answer the research question, our aim is to examine the interactive effect between innovation capability and potential absorptive capacity on firm innovation performance. This study made an interesting contribution. As a contribution to the theory, this is the first study to analyse the interactive effect of an organisation's internal capabilities on innovation performance, while its contribution to practice lies in the prioritisation of business strategies owing to the scarce resources available to firms.

This article is organised into four sections, the first of which is the introduction. This is followed by a review of the literature and a description of the proposed hypotheses. The third section discusses the methodology used and the fourth section analyses the results. Finally, we present a discussion, conclusions, and future research directions.

Literature and hypotheses

Firm innovation performance

Empirical studies have concluded that business innovation is the primary determinant of a firm's sustainability and competitiveness (Clauss et al., 2021; Parra-Requena et al., 2020; Ruiz-Ortega et al., 2021). Innovation performance is the result of different management strategies implemented in firms' business practices (Molina-Morales, García-Villaverde & Parra-Requena, 2014). In addition, prior studies have examined innovation performance in terms of product and process innovation (Fernández-Mesa, Alegre-Vidal & Chiva-Gómez, 2012; Prajogo & Ahmed, 2006). Product innovation performance is understood as the successful introduction of goods and services into the market (Huang, Chen, Zhang & Ye, 2018; Molina-Morales et al., 2014; Tang et al., 2020), whereas process innovation performance is

characterised by the implementation of new processes in a firm's operational activities (Fernández-Mesa et al., 2012).

The literature has analysed innovation performance in diverse economic sectors (Huang et al., 2018; Kamasak, Yavuz & Altuntas, 2016; Pan, Song, Zhang & Zhou, 2019; Tang et al., 2020; Wu, 2020; Zhang, O'Kane & Chen, 2020). However, few studies have focused on service firms (Akdogan & Kale, 2017; Singh, 2018; Tang et al., 2020; Wu, 2020). Furthermore, our interest lies in identifying the antecedents of innovation performance and delving into the interaction between dynamic capabilities as key factors in coping with dynamic environments.

Innovation capability and innovation performance

The dynamic capabilities approach has grown in importance in strategic management (Albort-Morant, Leal-Rodríguez, Fernández-Rodríguez & Ariza-Montes, 2018b). This approach, which emerged as an extension of the resource-based view (Albort-Morant et al., 2018b; Guerras-Martin, Madhok & Montoro-Sánchez, 2014), focuses on understanding the nature and implications of organizational capabilities (Schilke, Hu & Helfat, 2018). For a better taxonomic understanding, these capacities are divided into two lines of study: dynamic and operational capabilities (Cepeda & Vera, 2007; Makkonen, Pohjola, Olkkonen & Koponen, 2014; Schilke et al., 2018; Zollo & Winter, 2002). Operational capabilities refer to repetitive and continuous technical activities that firms perform in their operations (Helfat & Winter, 2011). Meanwhile, dynamic capabilities allude to capabilities linked to value creation and the introduction and development of new processes, services, and products, which, in turn, boost a firm's competitive advantage over its competitors (McKelvie & Davidsson, 2009; Zahra & George, 2002). Regarding the latter, Teece (2019) argues that dynamic capabilities have been analysed from three perspectives: adaptive capacity, absorptive capacity, and innovation capability.

Innovation capability emphasises a firm's ability to transform ideas and knowledge into unique, new products that respond to customers' demands and thus generate benefits for the organisation (Ruiz-Ortega et al., 2021; Urgal et al., 2011).

The interactions between innovation capability and innovation performance have been addressed in various economic sectors (Lau, Yam & Tang, 2010; Yeşil, Büyükbeşe & Koska, 2013). Yeşil et al. (2013) hold that knowledge-sharing abilities increase innovation capability, enhancing its effect on innovation performance. Yusr (2016) analysed the key mediating role of innovation capability in the relationship between total quality management practices and innovation performance. Its importance is also valued because of rapid changes in the life cycles of products and services. Additionally, the study by Rajapathirana and Hui (2018) argues that proper management of innovation capabilities generates greater benefits for innovation performance. In general, the findings suggest that innovation capability is a key factor in innovation performance (Irwanti, Marimin, Eriyatno & Handoko, 2020; Zhao, Song & Li, 2018).

Urgal et al. (2011) highlighted the role of innovation capability in mediating the relationship between knowledge-based resources and innovation performance. Similarly, Martínez-Román et al. (2015) contended that innovation capability has a positive impact on the process and product outcomes (innovation performance). Anh and Thong (2017) highlight the role of innovation in fostering and sustaining competitive value creation in the market environment and in increasing innovation performance. Several studies have emphasised the role of innovation capabilities as the basis of innovation performance (Iddris, 2019; Sari, Mahrinasari, Ahadiat & Marselina, 2019). However, the interactions between organizational capabilities, especially in service firms, must be addressed (Ruiz-Ortega et al., 2021). Based on the above, we propose the following research hypothesis:

H1. Innovation capability has a positive effect on firm innovation performance.

Potential absorptive capacity and innovation performance

Our review of the literature on absorptive capacity reveals theoretical and empirical theories in different knowledge areas (García-Villaverde et al., 2021). In the field of business management, there is considerable interest in the capacity to acquire, assimilate, transform, and exploit new external knowledge for economic ends (Müller et al., 2021; Ponce-Espinosa, Peiro-Signes & Segarra-Oña, 2020). Zahra and George (2002) distinguished between two dimensions: potential absorptive capacity and realised absorptive capacity. The former is characterised by external knowledge acquisition and assimilation capabilities and the latter by its capacity to transform and exploit external knowledge to create new products and processes.

The present study focuses on potential absorptive capacity because it is a key variable that boosts business innovation capability (Clauss et al., 2021). Traditionally, two indicators have been used to study this construct: knowledge acquisition and assimilation (Rodrigo-Alarcón et al., 2020). In this regard, Ponce-Espinosa et al. (2020) consider that acquisition is typified by an organisation's capacity to identify and acquire the knowledge required to conduct its operations, while assimilation refers to the internal process of analysing, interpreting, and understanding the information obtained in the acquisition stage (Rodrigo-Alarcón et al., 2020).

Our literature review reveals studies analysing the relationships between absorptive capacity and innovation performance (Fávero, Pereira, Gomes & De Carvalho, 2020; Guo, Sun & Wang, 2012; Xie et al., 2018). Guo et al. (2012), for example, conclude that while absorptive capacity affects innovation performance, the dimension of acquisition capacity has little impact, with utilisation capacity having a greater influence. Additionally, Fávero et al. (2020) argue that absorptive capacity affects innovation performance but not its mediating role. Xie et al. (2018) concluded that the dimensions of absorptive capacity are positively related to innovation performance, transformation, and exploration and improve the impact of knowledge acquisition and assimilation. In a recent study, Müller et al. (2021) considered that the dimension of external knowledge absorptive capacity encourages the development of innovation strategy, emerging as a key activity for exploratory and exploitative innovation.

Cruz-Ros et al. (2021) argue that the dimensions of absorptive capacity have positive effects on innovation processes. They also underline the importance of knowledge assimilation and transformation in creating a competitive advantage. Lim and Ok (2021) consider that knowledge absorptive capacity strengthens an organisation's innovation capability. These arguments suggest the importance of potential knowledge absorptive capacity (acquisition and

Potential absorptive capacity

Innovation capability

assimilation) in organisations' innovation processes. Hence, we propose the following hypotheses:

H2. Potential absorptive capacity has a positive effect on firm innovation performance.

Interactive effect between innovation capability and potential absorptive capacity

In dynamic environments within the business ecosystem, organisations rely not solely on one capability but require complementary internal and external resources and capabilities to enhance their innovation capability, especially in micro and small enterprises (Baker, Grinstein & Harmancioglu, 2015; Indarti, 2017). A review of the literature suggests that innovation capability and potential absorptive capacity have positive direct and indirect effects that favour business innovation. (Albort-Morant, Henseler, Cepeda-Carrión & Leal-Rodríguez, 2018a; Forés & Camisón, 2011). Furthermore, business research considers interaction as a bidirectional effect rather than a unidirectional causal effect (Indarti, 2017), which allows for the analysis of synergies between variables. To the best of our knowledge, no study has yet examined the interaction between these two dynamic capabilities. However, we found works that address related themes, such as that by Forés and Camisón (2011), who report that absorptive capacity has a substantive positive effect on innovation capability. In other words, the greater the acquisition and assimilation of external knowledge, the stronger the firm's innovation capability. Additionally, it has been suggested that both potential and realised absorptive capacity have positive effects on an organisation's innovation performance (Albort-Morant et al., 2018a). Thomas and Wood (2014) consider that the interaction between innovation capabilities and absorptive capacity is important in some firms because of their dependence on external knowledge. Likewise, Martínez-Pérez, Elche and García-Villaverde (2019) hold that the diversity of interorganizational relationships impacts radical innovation, and this relationship is mediated by knowledge exploration. Recently, Wu (2020) explained the mediating effect of absorptive capacity on the relationship between intellectual capital and innovation performance. In light of the above, we can infer the need to explore the interaction between innovation capabilities and potential absorptive capacity, leading us to formulate the following research hypothesis:

H3. The interaction between innovation capability and potential absorptive capacity positively affects a firm's innovation performance.

Fig. 1 shows the proposed theoretical model. Line H1(+) represents the direct effect of innovation capability on innovation performance, while line H2(+) represents the direct effect of potential absorptive capacity on innovation performance. Finally, the dotted line H3(+) represents the effect of the interaction between innovation

Innovation performance



H2 (+)

H3 (+)

H1 (+)

capability and potential absorptive capacity on a firm's innovation performance.

Methodology

Population and sample

Empirical analysis was conducted in the Peruvian tourism industry, given the significance of national and international tourism in World Heritage Cities. For example, approximately 4.8 million foreign tourists arrived in the country, representing a 9.6% increase in 2017, while growth in 2019, compared to 2017, was 8.42%. This increase is attributable to the diversity of the country's tourist attractions. Lima, Cusco, and Arequipa have been awarded the World Heritage City status and are considered the most visited destinations in the country. It is also worth highlighting the tourism industry's contribution to the GDP, with income from the sector totalling 4895 million dollars, accounting for 3.66% of Peru's GDP in 2019. Rutti, Garcia and Helms (2021) report that the tourism industry is the leading driver of Peruvian economic activity and that the promotion and development of business increases employment opportunities. This context is suitable for further advancing the determinants of innovation performance in tourism and services by using a strategic approach (Tang et al., 2020). Moreover, it responds to the demand for an analysis of the effects of capabilities on the innovation process of tourism enterprises in developing countries (Pikkemaat et al., 2019), where innovation is the key to strengthening the competitiveness of cultural tourism destinations (García-Villaverde et al., 2021).

Specifically, the study was conducted on a population of firms providing tourism services in the World Heritage Cities of Peru, namely Arequipa, Cusco, and Lima. We established parameters to exclude inactive firms and those with fewer than three employees, as, in the latter case, studying the concepts involved in our research requires a minimum organizational structure (Martínez-Pérez, García-Villaverde & Elche, 2016). This resulted in 868 enterprises (339 in Cusco, 286 in Lima, and 243 in Arequipa), following the information provided by Peru's National Superintendency of Customs and Tax Administration.

The instrument was designed following the suggestions of Dillman (2011), who surveyed the sample in phases to gather reliable responses. Data were collected during the first six months of 2019 through personal interviews with managers. These were conducted by trained survey implementers, thus ensuring that all questions were properly answered. We obtained 238 valid questionnaires from tourism firms, equivalent to a 27.42 response rate, with a 95% confidence interval, a 50% success and failure bias, and an estimated error of 5.41%. Finally, we performed Harman's single-factor test (Podsakoff, MacKenzie & Podsakoff, 2012) to determine the validity and subjectivity of the responses and analysed a random subgroup of the overall sample. We then used the same questionnaire to interview 31 other managers from the tourism firms that had initially responded, resulting in a sub-sample response that was tested for differences in means and found to be unbiased.

Variables and scales

All items for each construct were measured on a 7-point Likerttype scale, ranging from 1 (strongly agree) to 7 (strongly disagree). These were adapted from previous studies published in high-impact scientific journals.

Innovation capability. This refers to a firm's ability to transform ideas and knowledge into new unique products for the market (Ruiz-Ortega et al., 2021). To assess innovation capability, we used an adapted version of the scale proposed by Akman and Yilmaz (2008), which has been used in various studies (Rodrigo-Alarcón, García-Villaverde, Ruiz-Ortega & Parra-Requena, 2018; Ruiz-Ortega et al., 2021). Four items with a Cronbach's alpha of 0.826 were used to measure this variable.

Potential absorptive capacity. Organizational capability is characterised as a firm's ability to acquire and assimilate external knowledge and use it in business practices (Zahra & George, 2002). To measure this variable, we used an adaptation of the items designed by Flatten, Engelen, Zahra and Brettel (2011), which has been included in other studies (García-Villaverde et al., 2021; Rodrigo-Alarcón et al., 2018, 2020). The construct was measured using two items explaining information acquisition and four items referring to knowledge assimilation. These items have a Cronbach's alpha of 0.827.

Innovation performance. This variable explains a firm's efficacy in its innovation actions related to both products and processes (Chen, Lin & Chang, 2009; Prajogo & Ahmed, 2006). We used three items to measure product innovation and two to measure process innovation (Chen et al., 2009). To measure this variable, respondents rated the importance of, and their satisfaction with, the results of innovation. These items obtained a Cronbach's alpha of 0.888.

Control variables. The main variables whose interactions are examined in this study were market dynamism, firm age, firm size, and firm type. Market dynamism was used to measure the effect of the environment, for which we utilised the scales proposed by Jaworski and Kohli (1993). Firm age was measured as the time between the year they started operations and data collection; the older the firm, the more likely they were to have better performance. Firm size was measured by the number of workers, while type was typified as either family-owned or limited company.

Results

Statistical analysis was conducted using Smart PLS 3.3.3 software, by means of which we performed partial least squares structural equation modelling (PLS-SEM) (Hair et al., 2019). To determine the level of significance of the structural equation model, we used the bootstrap resampling technique with 5000 subsamples.

Descriptive results

Table 1 presents the descriptive analysis results. This includes the means, standard deviations, and correlations between the variables. The results show that the independent and dependant variables analysed are above the average of the scale, which indicates a high valuation of the variables. The standard deviation shows little dispersion of the data, although it is higher for the variables age, size, and innovation performance. Regarding correlations, innovation capability can be observed to have a significant relationship with innovation performance ($r = 0.501^{**}$; p < .01). Likewise, potential absorptive capacity is significantly related to innovation performance ($r = 0.473^{**}$; p < .01). Additionally, potential absorptive capacity has a significant relationship with innovativeness ($r = 0.645^{**}$; p < .01). Finally, all constructs showed a variance inflation factor (VIF) value of less than 3.3, which rules out collinearity between variables (Hair et al., 2019; Roberts & Thatcher, 2009).

Evaluation of the measurement model

The aim of the *partial least squares* (PLS) measurement models was to assess the reliability and validity of the variables under analysis at two points and at the construct and item levels (Hair et al., 2019).

Table 2 shows the reliability and convergent and discriminant validity of the variables. The model's reliability was evaluated using Cronbach's alpha, with the results being satisfactory, showing values ≥ 0.7 (George & Mallery, 2020). The values for composite reliability were ≥ 0.8 (Fornell & Larcker, 1981; Hair et al., 2019); thus, the acceptance criteria were met. To measure discriminant validity, we used the criteria of Fornell-Larcker (1981) and the Hetero Trait Mono

Table 1

Descriptive analysis of the study variables.

	Correlations								
	М	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Innovation capability	5.893	0.803	_						
(2) Potential absorptive capacity	5.629	0.886	0.645**	_					
(3) Innovation performance	34.225	7.869	0.501**	0.473**	_				
(4) Market dynamism	5.523	0.992	0.311**	0.273**	0.353**	_			
(5) Age	12.697	11.958	-0.111	-0.029	-0.138^{*}	-0.093	_		
(6) Size	12.887	11.863	0.053	0.002	0.071	0.088	0.225	_	
(7) Firm type	1.744	0.438	-0.158^{*}	-0.121	-0.117	-0.051	-0.022	-0.219**	_

Note: *r* =* *p* < .05, ** *p* < .01, *** *p* < .001.

Table 2 Reliability analysis, convergent and discriminant validity of the constructs.

	Internal consistency reliability		Collinearity	Convergent validity	Discriminant validity			
	Cronbach's alpha	Composite reliability	VIF	AVE		HT	MT	
	> 0.7	> 0.7	≤ 3.3	> 0.5	(1)	(2)	(3)	(4)
(1) Innovation capability	0.826	0.884	1.793	0.656	0.81	0.783	0.586	0.406
(2) Potential absorptive capacity	0.827	0.873	1.739	0.535	0.648	0.732	0.546	0.355
(3) Innovation performance	0.888	0.919		0.693	0.509	0.477	0.833	0.442
(4) Market dynamism	0.718	0.838	1.119	0.633	0.316	0.268	0.368	0.796

Note. The values in bold in the lower part of the diagonal correspond to convergent validity analysis using the Fornell and Larcker criterion. Those in the upper part of the diagonal correspond to heterotrait-monotraits (HTMT) (Henseler et al., 2015).

Trait (HTMT) (Henseler, Ringle & Sarstedt, 2015), which were both accepted. The higher values in bold in the lower part of the diagonal, in both rows and columns, confirm the criterion of Fornell-Larcker (1981), whereas the values in the upper part of the diagonal are acceptable under the criterion of HTMT (Henseler et al., 2015). Lastly, we measured convergent validity using the average variance extracted (AVE), which was confirmed as the values, in all cases, were > 0.5 (Hair et al., 2019).

Table 3 shows a second analysis of the measurement model at the item level, where the cross-loadings are estimated to validate internal consistency, with factor loadings of above 0.7, with the exception of items 5 and 6, which had factor loadings of 0.669 and 0.691, respectively. However, we maintained these items since their values were close to 0.7 and were thus considered important to the analysis

(Hair et al., 2019). We also ran a *t*-test on the indicators and found that they were all significant. Complementarily, we evaluated the possible collinearity between the indicators using VIF, finding values \leq 3.3 for all of them (Roberts & Thatcher, 2009), with the exception of item 12, which was considered to be close to the accepted value. Finally, the means and standard deviations were analysed.

Evaluation of the structural model

The goodness-of-fit of the structural models was evaluated using both direct and indirect relationships. This study uses a base model and an interactive model. These values were estimated using the adjusted R^2 coefficient of determination, which shows the

 Table 3

 Analysis of the reliability of the indicators, discriminant validity and collinearity.

-	-		-	-	
	Descriptive	Discriminant validity	Collinearity		
	MD	SD	"t"	Cross-loadings > 0.7	$VIF \le 3.3$
Innovatio	n capability				
Item 1	5.924	0.986	27.978	0.819	1.952
Item 2	5.748	1.041	23.356	0.822	1.909
Item 3	5.840	0.950	31.069	0.840	1.838
Item 4	5.966	1.002	15.82	0.757	1.633
Potential a	bsorptive capa	city			
Item 5	5.563	1.274	11.137	0.669	1.362
Item 6	5.693	1.141	9.386	0.691	1.531
Item 7	5.714	1.148	16.313	0.767	1.984
Item 8	5.735	1.155	17.571	0.761	1.703
Item 9	5.609	1.181	18.024	0.769	1.901
Item 10	5.462	1.395	16.179	0.726	1.472
Innovatio	n performance				
Item 11	33.340	10.014	27.972	0.838	2.529
Item 12	34.475	9.623	42.321	0.884	3.419
Item 13	33.987	9.081	35.198	0.844	2.595
Item 14	33.382	9.579	40.389	0.847	2.314
Item 15	35.941	8.952	15.432	0.744	1.703
Market dy	namism				
Item 16	5.395	1.294	11.789	0.731	1.327
Item 17	5.584	1.187	12.326	0.792	1.563
Item 18	5.584	1.239	28.542	0.859	1.426

Table 4

Age

Size

 0^2

Firm type

Adjusted R²

Summary of direct and indirect effects.

-0.0095*

0.044

0.099

0.280

0.340***

2.086

0.721

1.637

Note: $\beta = p < .05, p < .01, p < .001$

explanatory power of the models. We also analysed their predictive power using the Q^2 value (Shmueli et al., 2019).

In Table 4, the results of Model 1 (base model) show the two direct effects of innovation capability and potential absorptive capacity on innovation performance, while the results in Table 4 show an adjusted coefficient of determination of R^2 =0.340***. Additionally, we find a predictive power of Q^2 = 0.280 (Hair et al., 2019); that is, these capabilities can moderately predict firm innovation performance. On the one hand, innovation capability is directly related to innovation performance, with a path coefficient of 0.270*** and a t value of 3.647. These results led us to accept H1. On the other hand, potential absorptive capacity has a path coefficient of 0.239*** and a t-value of 3.596. In both cases, they show a small effect on innovation performance, with f^2 values of 0.062 and 0.050, respectively (Hair et al., 2019). These results lead us to accept H2. The results are shown in Fig. 2.

Model 2 (interactive) in Table 4 shows the interactive effect of innovation capability and potential absorptive capacity on firm innovation performance. The results in Table 4 show an adjusted R^2 coefficient of determination of 0.358^{***} , representing a 5.29% increase in Model 1 (base) with significant improvements in the previous model. A considerable increase can also be observed in the predictive power of the model, with Q^2 = 0.310 (Hair et al., 2019), which is a 10.71% improvement in the predictive power of the model. In particular, the interactive model achieved a significant improvement in predictive power, similar to the coefficient of determination.

Furthermore, the direct relationship between innovation capability and innovation performance shows a path coefficient of 0.317^{***} , with a t-value of 4.203 and an effect size of $f^2 = 0.084$ (Hair et al., 2019), which can be considered low. Potential absorptive capacity has a path coefficient of 0.303^{***} , with a t-value of 4.091 and an f^2 of 0.033, revealing robust regression coefficients and low effect size (Hair et al., 2019). Thus, Hypothesis 3 is accepted. Additionally, the model shows significant path coefficients for the control variables market dynamism (0.192^{**}), firm age (-0.075^{*}), and firm type (0.149^{**}), which suggests important theoretical and practical implications. The results are shown in Fig. 3.

-0.075*

0.017

0 149**

0.358***

0.310

1.654

0.286

2.312

Specifically, of the two models proposed, the interactive model has greater explanatory and predictive power and thus has significant theoretical implications for the literature on business management and practice in various economic sectors.

Discussion and conclusions

From the interactive perspective of complementarity, our study suggests that innovation capability and potential absorptive capacity are reciprocally beneficial and jointly influence innovation performance. It also complements and builds on previous research; for example, it shows that the higher the frequency of interaction between internal and external actors in organisations, the greater their innovation capability, and thus, the better their innovation performance (Indigarty, 2017). Moreover, to create value, firms need to



Fig. 2. Model of the direct effects of innovation capability, potential absorptive capacity, and innovation performance.



Fig. 3. Interactive model effect.

develop new strategic tasks such as the reconfiguration and integration of roles, resources, capabilities (innovation capabilities and potential absorptive capacity), and relationships with those involved in innovation processes (Norman & Ramirez, 1993; Pavlik, 1996). In addition, to influence innovation performance, information exchange between these two variables is key (Johann, Wolf & Godulla, 2021). When the interaction is repeated, knowledge acquisition, a key factor in innovation performance, is enhanced (Indarti, 2017; Yli-Renko, Autio & Sapienza, 2001). Specifically, we find that the interaction of these two variables (potential absorptive capacity and innovation capability) significantly favours innovation performance, as the former acquires and assimilates knowledge that is external to the organisation, and the latter transforms it into products and processes.

Our findings are similar to those of previous studies (Anh & Thong, 2017; Martínez-Román et al., 2015; Sari et al., 2019; Urgal et al., 2011). In this sense, innovation capability, which is characterized by its potential capacity for transforming external knowledge into novel processes and products (Urgal et al., 2011) and successfully putting them on the market (Tang et al., 2020), has a significant effect on innovation performance (Martínez-Román et al., 2015).

Our findings underline the importance of potential absorptive capacity as an antecedent of innovation performance. In other words, acquiring external knowledge is key to developing innovative ideas, which, in turn, is complemented by an organisation's ability to assimilate such information (Rodrigo-Alarcón et al., 2020). This interaction is essential for transforming ideas into new processes and products, thus enhancing tourism firms' innovation performance (Wu, 2020).

Additionally, the results reveal a series of control variables related to innovation performance, yielding a clearer understanding of the relationships between the variables explained above. For example, market dynamism has a positive and significant effect, which is consistent with the findings of previous studies (Agyapong, Kofi & Yaw, 2021; Baccarella, Maier, Meinel, Wagner & Voigt, 2022; Nie, Yu, Zhai & Lin, 2022; Wu & Nguyen, 2019), suggesting that the higher the market dynamism, the greater the development of innovation. However, to the best of our knowledge, the relationship between firm age and innovation performance has not been analysed directly. Nonetheless, it is assumed that the older the firm, the more new products and prototypes are developed, the more customer service is improved, and more price and/or quality advantages are created (Samaan, Salgado, Silva & Mello, 2012). Additionally, companies in stable or less dynamic environments often develop inertia in their operational behaviour because of the use of technology that generates dependence and/or business complacency, with subsequent negative effects (Harte, 2017). A third control variable related to innovation performance is ownership type, with the results showing that family ownership has a positive and significant effect on innovation performance. These results are in line with research by Chua, Chrisman, Steier and Rau (2012), Vrontis, Bresciani and Giacosa (2016), and Islam, Wang, Marinakis and Walsh (2022), in which the control exercised by families and family traditions in the pursuit of innovation has been shown to enhance innovation performance. It has also been shown that a variety of barriers impede these firms in their pursuit of innovation (Lorenzo, Núñez-Cacho, Akhter & Chirico, 2022).

This study contributes to the theoretical literature by providing empirical evidence on the antecedents of innovation performance. Our study proposes a model that provides a better understanding of absorptive capacity theory through a potential capacity approach (acquisition and assimilation), demonstrating the direct and indirect impacts of innovation capability and potential absorptive capacity, as proposed by Zahra and George (2002).

Our research examined the interactive relationships between two internal capabilities, which, in practice, occur together. However, their interactive nature has not yet been analysed, although there are studies that relate innovation capacity (Martínez-Román et al., 2015; Tang et al., 2020) and potential absorptive capacity (Rodrigo-Alarcón et al., 2020; Wu, 2020) directly with innovative performance. The present study expands this theory by considering their interaction, which develops synergies that have a significant effect on innovation performance. Specifically, we highlight our contribution to the study of how linkages between different types of dynamic capabilities explain innovation performance.

Another important contribution of this study is the finding that age, market dynamism, and family ownership affect innovation performance. Other studies have addressed the influence of these variables, relating them mainly to financial and investment performance (Maji, De & Gunardi, 2020) and operational performance (Kar & Jena, 2019; Vaz, Selig & Viegas, 2019).

In conclusion, this study contributes to the literature on innovation in tourism in three ways (García-Villaverde et al., 2021; Martínez-Pérez et al., 2019; Ruiz-Ortega et al., 2021). First, it delves deeper into the new determinants of innovation, which is a key strategic factor for tourism competitiveness in developing countries. Second, it focuses on cultural tourism destinations at the firm level, as opposed to works that address tourism destinations as units of analysis. Third, the effect of the interaction between innovation capacity and potential absorptive capacity on the innovation performance of tourism firms is demonstrated empirically.

The results have the following practical implications for tourism firms: First, considering that tourism firms in developing countries have a greater need to boost their innovation capabilities to improve their competitiveness and sustainability (Parra-Requena et al., 2020; Ruiz-Ortega et al., 2021), we suggest that executives in such firms should improve their management of potential absorptive capacity as a means to enhance innovation performance. Second, we propose the joint management and development of innovation capability and potential absorptive capacity, as these capacities are complementary synergies and would then improve tourism firms' innovation performance. For example, given the quality of gastronomy enterprises in Arequipa, UNESCO has recognised the destination as a city of creative gastronomy. In these firms, their innovation capability interacts with their potential absorptive capacity, whereby they acquire and assimilate international gourmet cuisines by combining them with their own traditional gastronomy. This mixture of flavours, known as novoandina cuisine, is in high demand for both national and international tourists. This interaction has also been transferred to liqueur production.

This study had some limitations. First, it was conducted over a specific cross-sectional period. Second, the study has a geographical limitation as it considers specific locations and elements specific to cultural tourism, factors that might reveal differences if analysed in other locations (limiting extrapolability) and other time periods. We propose future lines of research that analyse how the direct and indirect relationships between internal factors such as organizational flexibility and managerial support influence the link between innovation capability and innovation performance. Furthermore, firm age is a controversial factor that, to the best of our knowledge, has not been the subject of in-depth analysis. It has been reported that it can behave as a driver and, conversely, as a deterrent, especially in family firms, for the variables analysed in this study, namely innovation capacity, potential absorptive capacity, and innovative performance.

Declaration of Competing Interest

No potential conflict of interest was reported by the author(s).

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None.

Appendix

Innovation capability

- Item 1: We can use knowledge from different resources for product development activities efficiently and rapidly.
- Item 2: Our firm is able to reflect changes in market conditions to its own products and processes as soon as possible.
- Item 3: Our employees are supported and encouraged to participate in activities such as product development and innovation process improvement and to produce new ideas.
- Item 4: We are able to continuously evaluate new ideas from customers, suppliers, etc., and try to use these ideas in product development activities.

Potential absorptive capacity

- Item 5: The search for relevant information concerning our industry is an everyday business in our firms.
- Item 6: Our management motivates employees to use information sources in the industry.
- Item 7: In our firm, ideas and concepts are communicated across departments.
- Item 8: Our management emphasizes cross-departmental support to solve problems.

- Item 9: In our firm, there is quick information flow; for example, if a business unit obtains important information, it communicates this information promptly to all other business units or departments.
- Item 10: Our management demands periodic cross-departmental meetings to interchange new developments, problems, and achievements.

Innovation performance

- Item 11: Number of product or service innovations.
- Item 12: Profitability of new products or services.
- Item 13: Sales of new products or services.
- Item 14: Number of business process innovations.
- Item 15: Flexibility owing to improved operational processes.

Market dynamism

- Item 16: In our business, customer demand and product preferences change rapidly.
- Item 17: New customers tend to have product needs that differ considerably from those of existing customers.
- Item 18: Our customers tend to constantly look for new products.

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