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The role of technological resources in the reputation of vocational education schools

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Abstract

The low reputation of vocational education in Spain requires schools to reconsider this type of education by taking advantage of its key resources and developing dynamic capabilities. Using structural equation modelling, this study analyses the impact of technological resources on two categories of dynamic capabilities: sensing capability and innovativeness, as well as the effect of these two capabilities on reputation, in a representative sample of vocational schools in tourism in Spain, with the key informants being the staff responsible for the degree (i.e., director, vice-director, head of studies, etc.). The results show that the use of technological resources provides vocational schools with the necessary capabilities to explore trends in social demands and the job market and reduce the gap between academy and industry. The findings also reveal that innovativeness has a direct influence on the schools' reputation. However, the opportunities for improvement detected through the sensing capability do not directly influence reputation; instead, they require a subsequent action, innovativeness, that favours their effective implementation.

Keywords Technological resources · Sensing capability · Innovativeness · Reputation · Vocational education

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1 Introduction

The reputation of Vocational Education and Training (VET) in Spain has improved over the last decade, but it remains low because it is still considered a pathway for less talented students that prepares them to access jobs with less social prestige (Fundae, 2018). This low prestige is probably keeping VET from achieving the same academic success in Spain as in other European countries, such as Switzerland, Austria, Denmark, and Germany (Baumeler, 2017; Stalder & Lüthi, 2022). Although the number of students enrolled in vocational education in Spain increased by 28.7% in the previous five years (Ministry of Education and Vocational Training, Government of Spain, 2023), the percentage of students who graduate is low, in contrast to their European counterparts (OECD, 2022).

Focusing on VET specializing in hospitality and tourism in Spain, the topic of this paper, the previously mentioned reasons for low reputation are joined by other more specific factors, such as curricula that do not reflect the current needs of companies and the low level of specialisation of the teaching staff (López Rouco, 2018; Ruiz-Esteban & González-García, 2021), which lead to low qualifications and lack of professionalism in the tourism sector (Marrero-Rodríguez, 2015; Roberts et al., 2018; Ubeda-García et al., 2013).

This poor outcome makes it necessary to urgently restructure this type of technical and vocational education in order to improve its reputation and reduce the negative consequences (Bathmaker, 2017; Roberts et al., 2018). To carry out this restructuring process, the education industry should consider, among other things, the key technological resources (e.g., massive online open courses -MOOC-, learning management systems, virtual learning environment) to enhance learning and share knowledge (Obienu & Amadin, 2021; Scherer et al., 2019). Likewise, the development of dynamic capabilities (Danneels, 2011; Teece, 2007) would make it possible to better detect trends in the environment and innovate in the teaching–learning process to meet the changing needs of the tourism sector.

Drawing on the resource-based view (RBV) and the dynamic capabilities approach as a theoretical framework, this study adds to the existing body of literature that explores how resources and capabilities support organizational performance. The proposed relationship between technological resources and dynamic capabilities is consistent with a stream of RBV represented by authors such as Ketchen et al. (2007), Wang et al. (2009), and Wei and Wang (2011). For these authors, certain resources are vital for competitive advantage but do not directly influence organizational performance; instead, they do so through the development of capabilities. Therefore, performance is not explained by the stock of resources the organization possesses, but rather by what it can do with these resources, that is, by its ability to deploy capabilities.

This study aims to assess the extent to which technological resources give vocational schools the ability to alter their resource base, that is, to generate dynamic capabilities, particularly sensing capability and innovativeness. In addition, it aims to assess the effect of these dynamic capabilities on the reputation of the schools. The literature review carried out did not reveal any studies that

address the relationships between technological resources, dynamic capabilities, and schools' reputation. This empirical study aims to fill this gap in the literature by analysing multiple intersected relationships of dependence among resources, capabilities, and the reputation of vocational schools in tourism in Spain.

2 Theoretical background

Our theoretical framework combines the resource-based view (RBV) and the dynamic capabilities approach because we consider them complementary theories that provide a suitable framework for investigating the relationships between technological resources, reputation, and the sensing and innovativeness dynamic capabilities of an organization.

VBR provides an internal approach to the organization, given that it analyses the resources that come from within the organization, without taking into account their interaction with the environment. Therefore, RBV does not explain why some firms, despite having relatively superior resources, are not able to maintain their competitive advantage over time (Eisenhardt & Martin, 2000). Furthermore, RBV is a static theory because it focuses on identifying an organization's resources at a given point in time and, therefore, is unable to explain the competitive advantages of organizations in changing environments (Priem & Butler, 2001).

The dynamic capabilities approach overcomes these limitations by analysing the organization's ability to create new resources and update or modify its resource mix in response to changes in the environment. Without these dynamic capabilities, organizations would not be able to maintain a sustainable competitive advantage in changing environments (Vijaya Sunder et al., 2019).

2.1 Resource-Based View (RBV)

The RBV focuses on the benefits derived from specific tangible and intangible resources of the organization (Barney, 1991). This approach argues that a firm's performance is determined by the type, amount, and nature of its resources, as well as its capabilities to develop these resources (Amit & Schoemaker, 1993). Likewise, the RBV states that resources and capabilities must be managed in a complementary and efficient way to achieve advantage, excellence, or superiority (Holcomb et al., 2009). Thus, some organizations can be superior to others, even though they have equivalent resources, because they make better use of these resources in developing their capabilities (Bloodgood & Chilton, 2017). Generally, the RBV has been studied in the context of the private sector. Few authors have transferred this approach to study the importance of different resources and capabilities in the education sector (Ho & Peng, 2016).

2.2 Technological resources in educational contexts

The growing process of digitalisation in today's society and the consequent demand for digital talent requires the adaptation of educational systems to these changes (Alberola-Mulet et al., 2021; Moya & Camacho, 2021). In this environment,

characterised by continuous and rapid changes, the use of technological resources is vital to make the teaching–learning method more efficient in training processes (Almerich et al., 2021; Balderas-Mireles et al., 2021; Devisakti & Muftahu, 2023). These resources, designed for educational purposes and selected by teachers, make it possible to transmit content, mediate the learning experience, provoke encounters, develop students' skills or carry out evaluations (Alberola-Mulet et al., 2021). In both face-to-face and virtual scenarios, the development of innovative technological resources is vital to significantly improve the teaching–learning process (Yangari & Inga, 2021). Consequently, technologies represent a critical strategic resource for preparing students for a better future (Al-Maskari et al., 2022) and for achieving superior organizational performance (Leal-Rodríguez & Albort-Morant, 2019; Bøe et al., 2020; Etter et al., 2019). This implies that it is necessary to reflect on how to deploy these resources in a way that is consistent with the desired educational goals and purposes (García-Gutiérrez et al., 2021).

Specifically, different studies have identified numerous benefits of using technologies in educational institutions. Thus, better use of technological resources during the COVID-19 pandemic made it possible to learn new skills and develop creativity and flexibility (Gordy et al., 2022; Saunders et al., 2022). Its importance for sharing knowledge and creating new information has also been highlighted (Fayda-Kinik & Cetin, 2022; García-Martínez et al., 2021; Chong et al., 2014). In this regard, Arif et al. (2022) argues that the likelihood of sharing knowledge through the use of technologies plays an important role in social influences, perceived reciprocal benefits, and enjoyment from helping others. Furthermore, some research finds that the use of technological resources increases students' motivation to experience new knowledge (Alberola-Mulet et al., 2021; Vasconcelos et al., 2022). Additionally, teaching students to recognise and use emerging technologies increases their impact as future employees (Milovich et al., 2020). The use of technologies in educational processes also presents some challenges. Among them, the need to improve the development of teachers' technological competences stands out (García-Romano et al., 2021; Rodríguez-Muñiz et al., 2021; Moya & Camacho, 2021). Moreover, the study by Almerich et al. (2021) suggests reviewing the integration of technological resources in the classroom because their use in this space may be more of a hindrance than a solution. Likewise, different studies have found that students make conventional and passive use of technologies, whose full potential to transform the teaching and learning process is not being harnessed (Ashour, 2019; Lacka & Wong, 2019). In this regard, Shishakly's (2021) study on the factors that influence the use of learning resources finds that instructor contributions, course content, and design are the most determinant factors, whereas peer influence and students' capability to use technology have no relevant effect.

2.3 Dynamic capabilities: Sensing capability and innovativeness

The dynamic capabilities approach is an extension of the RBV. This approach emphasizes that dynamic capabilities allow organizations to adapt, integrate, reconfigure, update, modify, and reproduce the organization's resources and capabilities

in order to anticipate and adapt to changes in the environment (Teece, 2007). This approach provides a valid perspective for understanding an organization's capacity to achieve competitive advantages through the incorporation and strategic use of technologies as a way of adapting to the specific context (Milovich et al., 2020).

This study focuses on two dynamic capabilities: sensing capability and innovativeness. Sensing capability is defined as the ability to monitor market trends and new technologies to detect and take advantage of opportunities in the environment (Pavlou & El Sawy, 2011). A dynamic environment would create difficulties for organizations that lack this ability to explore new markets and opportunities (Kim et al., 2018). Sensing capability encourages organizations to strive to acquire market information, operate to try to outwit competitors, create and maintain cordial relationships with stakeholders, and develop internal strengths in accordance with the environment (Alshanty & Emeagwali, 2019). In the case of vocational education schools, the detection capacity would enable them to collect and channel information on changes in the skills demanded by companies and would improve the recruitment of their graduates to the extent that curricula are aligned with these requirements (Olazaran et al., 2018).

Innovativeness in the educational context can be defined as any dynamic change designed to add value to the educational process that results in measurable outcomes, either in terms of stakeholder satisfaction or educational performance (OECD, 2010). Therefore, innovativeness is an intentional activity that applies and implements new ideas and is designed to benefit the institution by addressing unresolved problems through the development or improvement of a product, process, or method (Bocconi et al., 2013; Lawson & Samson, 2011). Innovations in educational institutions can be implemented through new courses, pedagogy, processes, teacher professionalisation, and the educational chain (Haelermans & Blank, 2012).

2.4 Reputation of educational institutions

Reputation can be an intangible resource that enables competitive advantage (Barney, 2016), provided it has attributes to be perceived as a scarce and valuable asset (Dierickx & Cool, 1989). The reputation of an educational institution is the external image of quality, influence, and trustworthiness for stakeholders (Vught, 2008; Wong et al., 2022). It can be defined as a collective representation of an institution's past performance and results that reflect its ability to deliver valuable results to multiple stakeholders (Shah et al., 2021). The reputation of an institution can be made visible in a ranking which, although not an ideal mechanism for measuring it, is a useful tool to show its status in an international arena (Cheung, 2022). Although the reputation and quality of an educational institution may be related, they may have different valuations because reputation can be managed in many ways, and not only by maximizing quality (Asnawi & Setyaningsih, 2020; Vught, 2008). Thus, the reputation of an educational institution has sometimes been linked to the academic reputation of a country and domestic institutions (Asnawi & Setyaningsih, 2020).

The positive reputation of an educational institution is of critical importance for students when selecting a school, given that assessing quality prior to enrolment is difficult (Alraimi et al., 2015; Azzone & Soncin, 2019). Similarly, employers use the reputation of an educational institution when looking for graduates who can integrate quickly into the workforce and provide short-term value. In this regard, several papers have identified that employers' perception of the reputation of an educational institution has a direct influence on the employability of its graduates (Alessandri et al., 2007; Finch et al., 2013). As a result, a positive reputation can have a variety of impacts, including increasing student loyalty, encouraging student retention or hindering competitors (Shah et al., 2021).

3 Research hypotheses

The model that will be tested empirically in this study is designed to investigate possible actions that improve the reputation of vocational schools in hospitality and tourism in Spain. This model proposes that technological resources promote sensing capability and innovation, which, in turn, improve the reputation of vocational school (Fig. 1). Therefore, it is based on the premise that vocational school that have and use technological resources may be more capable of identifying opportunities and introducing differentiating changes in the way education and training are provided, thus adding value to the training process, which would affect its reputation.

3.1 Technological resources as the basis for the development of sensing capability and innovativeness

The use of technological resources (e.g., intranet, e-mail, software, group work program, data storage) makes it possible to capture, store, and share knowledge (Arif et al., 2022; Fayda-Kinik & Cetin, 2022). However, technologies are static and insufficient resources when the capabilities to distribute

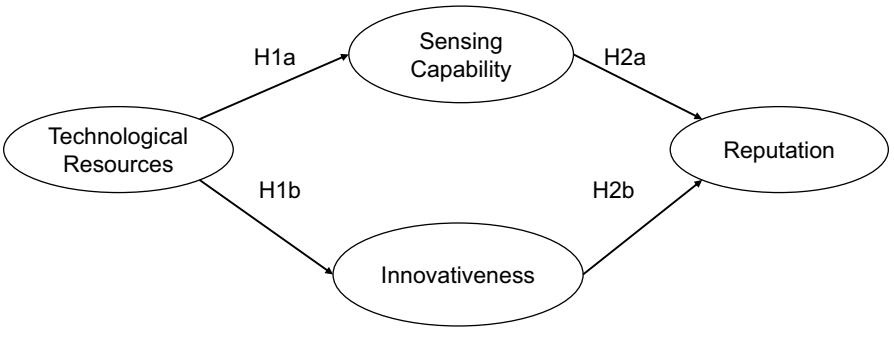

Fig. 1 Research hypotheses

or deploy them are not present (Eisenhardt & Martin, 2000). Therefore, they can be considered an antecedent that facilitates the capabilities. Consequently, technological resources can foster sensing capability and innovativeness because these capabilities require the accumulation of large amounts of information and knowledge (Ettlie & Pavlou, 2006; Pavlou & El Sawy, 2011).

Technological resources not only create the preconditions in the process of detecting new knowledge (i.e., sensing capability), but they also develop creativity and contribute to enhancing innovativeness (Patiar et al., 2017). Considering the above, this study proposes that the technological resources available to vocational schools foster sensing capability and innovation. Therefore, the following hypotheses are formulated:

Hypothesis 1a: The technological resources of vocational schools in tourism positively influence the development of sensing capability.
Hypothesis 1b: The technological resources of vocational schools in tourism positively influence innovativeness.

3.2 Sensing capability and innovativeness and their influence on the reputation of vocational schools in tourism

Vocational schools are under greater pressure than general schools to adapt their teaching and learning to the requirements of the labour market (Dormann et al., 2017; Lytvyn et al., 2020). Vocational schools with an up-to-date curriculum focused on society's demands will be better prepared to train quality graduates, and, as a result, these successful graduates will improve the schools' reputation (Chi & Gursoy, 2009). Sensing capability is essential in organizations that intend to locate, interpret, and seek opportunities in the environment. Organizations must scan the environment to obtain information about the main needs in the market, control the movements of competitors, and be aware of the emergence of new technologies related to their field of action (Pavlou & El Sawy, 2011). Likewise, innovativeness is essential if organizations want to incorporate new processes, products, services, and ideas, as well as new administrative structures or systems (Hult et al., 2004; Rhee et al., 2010).

The literature suggests that an organization achieves better results when it can improve its capacity to deal with changing environments (Shah et al., 2022; Teece, 2007). The ability to detect change and opportunities in the market, along with innovativeness, provides organizations with a strong capacity to respond quickly and flexibly to changing environments and achieve competitive advantage (Fraj et al., 2015; Rhee et al., 2010). In this case, the reputation of educational institutions would be strengthened by continuously adapting their training programs and improving the services they provide to the community (Heo & Lee, 2016; Pereda et al., 2007). Therefore, this study proposes that the ability to ascertain market needs and the capacity to transform the educational process can enhance the reputation of educational institutions. Based on these arguments, the following hypothesis is formulated:

Hypothesis 2.a: Sensing capability positively influences the reputation of vocational schools in tourism.
Hypothesis 2.b: Innovativeness positively influences the reputation of vocational schools in tourism.

4 Method

4.1 Participants

The target population of the study are 360 vocational schools specializing in hospitality and tourism in Spain. The data were obtained from the official website (http://todofp.es/) of the Spanish Government´s Ministry of Education, Culture and Sport.

Based on the information provided by this portal, a database of vocational education schools throughout Spain that offer hotel and tourism modules was created. The initial population was composed of 388 vocational schools in tourism and, after refining the data, the final population consisted of 360 schools. This population includes all types of schools (public, private, and subsidized). The research method chosen was the survey, implemented through a self-administered questionnaire. This questionnaire was submitted to a pre-test with several specialists from the educational sector in hotel and tourism. Specifically, the questionnaire was pre-tested by seven directors of vocational schools in hospitality and tourism, one member of the Institute of Educational Evaluation of the Ministry of Education and Culture, two university professors with previous teaching experience in the field of vocational schools, two professionals from hospitality and tourism companies, and two graduates of vocational schools in hospitality and tourism. This allowed some items to be refined to ensure that they adequately represented the constructs used and to assess the correct understanding of the questionnaire. The data collection process took place between November 2015 and April 2016. During this period, the vocational education schools that made up the population were contacted up to six times by email or telephone. The data collection process yielded a total of 148 returned questionnaires, of which 139 were considered valid, representing a response rate of 38.61% and a margin of error of 6.5% (for a confidence level of 95% and a p-value of 0.5). This rate is slightly higher than the average response rate in online surveys, which is approximately 37%, according to the meta-analysis by Daikeler et al. (2020). Furthermore, responses were checked for response bias by applying the Kolmogorov–Smirnov test statistic comparing the percentages of the number of vocational schools in tourism by territory (19 territories) and by typology (public, private, and subsidized) in the population and in the sample. The results reveal that there are no significant differences, indicating that the sample obtained is a good representation of the population studied.

The study's demographic data show that most of the respondents hold the position of school principal (58.3%) and have a tenure of at least ten years (57.6%), which guarantees the quality of the data obtained. Regarding the characteristics of the vocational schools in the sample, most are public (79.1%) and have fewer than

300 students (85%) and fewer than 30 teachers (91%) in the specialties of hospitality and tourism.

4.2 Measurement

The item and scale selection phase began with an exhaustive review of the literature to identify existing measurement instruments related to the proposed research model. All the variables were measured using Likert scales. Respondents were asked to indicate their level of agreement with the items, using a scale ranging from 1 = strongly disagree to 7 = strongly agree. The scales used were adapted from those proposed by different authors and endorsed by their publication in prestigious journals. To measure the technological resources, the scale proposed by Chong et al. (2014) was adapted. Sensing capability was measured by adapting the scale from the study by Pavlou and El Sawy (2011). Innovativeness was measured with the scale proposed by Rhee et al. (2010). Finally, the scale proposed by Finch et al. (2013) was used to measure the reputation. Table 1 reports all the items on these scales.

4.3 Data analyses

This article uses the structural equations modelling methodology to test the proposed hypotheses. SPSS statistical software and the maximum likelihood estimation method were used. Structural equations modeling techniques make it possible to estimate multiple dependency relationships, represent unobservable concepts in these relationships, and take the measurement error into account in the estimation process (Hair et al., 2014). The study follows the two-stage procedure recommended by Anderson and Gerbing (1988). In the second phase, after performing confirmatory factorial analysis (CFA), the measurement model was specified to test the goodness of fit of the different scales used.

5 Results

All the measurement scales presented adequate psychometric properties (Table 1). Three indicators were used to evaluate their viability: Cronbach's alpha statistic, which is above 0.93 in all cases; composite reliability, which shows values above 0.93; and the average variance extracted (AVE), which presents values above 0.79 for all the variables.

Additionally, all the standardized estimators of each variable on their respective indicators are statistically significant, positive, and greater than 0.73, suggesting the convergent validity of the scales.

Likewise, the discriminant validity of all the variables in the model was assumed, given that the AVE of each variable was greater than the square of the correlation between them, as Table 2 shows.

Table 1 Exploratory and confirmatory factor analysis

Items[a]	Factorial load	Standardized estimator
Scale 1: Technological resources Cronbach's alpha = 0.949; Composite reliability = 0.9595; AVE = 0.8267		
TEC_1 The School has Information Technology and Communication (ICT) tools that are not obsolete and are accessible to students and teachers (Wifi, intranet, specific management software, presence in social networks, forums, blogs, etc.)	0.920	0.919
TEC_2 In this School, both teachers and students make use of virtual tele-training platforms (Moodle, e Twinning, educational platforms, etc..)	0.809	0.732
TEC_3 The School's ICTs are appropriate for both teachers and students to share relevant information and knowledge	0.955	0.946
TEC_4 The School's ICTs (Wifi connection, educational platforms, specific software, etc.) make it easier for teachers and students to find relevant information and knowledge	0.947	0.938
TEC_5 The School's ICTs make it easier for students and teachers to contact each other	0.922	0.922
Scale 2: Sensing capability Cronbach's alpha = 0.960; Composite reliability = 0.9626; AVE = 0.8658		
DET_1 The School strives to frequently analyse/explore the environment to identify trends in the labour market and incorporate the necessary changes in the contents and methodologies of each job profile	0.930	0.914
DET_2 The School frequently reviews the contents and methodologies it uses in the training to ensure that they are in line with the real demands of society	0.960	0.945
DET_3 The School frequently reviews the outcomes of the changes it makes in learning content and methodologies to ensure that they are in line with what society demands	0.962	0.980
DET_4 The School dedicates a lot of time to the exploratory analysis of ideas that can lead to an innovation or improvement in its teaching–learning processes	0.926	0.880
Scale 3: Innovativeness Cronbach's alpha = 0.946; Composite reliability = 0.9553; AVE = 0.8104		
INN_1 Innovation is easily accepted in the School	0.903	0.924
INN_2 The School leadership actively looks for innovative ideas	0.887	0.843
INN_3 Innovation in the educational projects and programs is easily accepted	0.933	0.890
INN_4 Our teachers are recognized for the innovative proposals and ideas they present	0.880	0.888

Table 1 (continued)

Items[a]	Factorial load	Standardized estimator
INN_5 In this School, innovation is perceived as beneficial*	0.932	0.888
Scale 4: Reputation Cronbach's alpha = 0.932; Composite reliability = 0.9380; AVE = 0.7912		
PRES_1 The School has a brilliant track record in teaching Vocational Training	0.908	0.833
PRES_2 The School has a good reputation among companies	0.907	0.829
PRES_3 The School attracts intelligent and motivated students *	0.914	0.904
PRES_4 The School 's teachers have high prestige	0.919	0.916

a To fit the measurement model, two items were dropped; these are marked "*"

Table 2 Statistical summary of the constructs: means, standard deviations, and correlations ($N = 139$)

	Mean	Standard deviation	(1)	(2)	(3)	(4)
(1) Technological resources	4.5839	1.44908	0.9093			
(2) Sensing capability	4.6175	1.37548	0.576[a]	0.9305		
			(0.000)			
(3) Innovativeness	4.8898	1.14842	0.643[a]	0.756[a]	0.8775	
			(0.000)	(0.000)		
(4) Prestige	4.8627	1.05171	0.477[a]	0.557[a]	0.641[a]	0.8895
			(0.000)	(0.000)	(0.000)	

[a] Correlations are significant at the 0.01 level (two tailed)

The square root of the average variance extracted (AVE) appears along the diagonal

Different indices were used to evaluate the model fit. The chi-square likelihood ratio (CSR) tests the null hypothesis that the observation matrix and the estimated matrix are equal, and its minimum recommended value is 0.05. The RMSEA value represents the goodness of fit that could be expected if the model were estimated in the population. This index should have values below 0.08, and it is considered optimal when it is below 0.05. The Tucker-Lewis index (TLI), normal fit index (NFI), and comparative fit index (CFI) are measures of incremental fit that compare the proposed model with a null model. On these indices, values greater than 0.9 indicate a good fit. Moreover, values below 2 on the normalized chi-square statistic (CMIN/DF) indicate that the model presents a good fit to the data.

To evaluate the proposed hypotheses, three models were analysed that reflect the proposed theoretical relationships:

- Model 1: corresponds to the basic theoretical model proposed in the hypotheses, in which sensing capability and innovativeness mediate the relationship between technological resources and reputation (see Fig. 1).
- Model 2: a direct relationship between technological resources and reputation is added to Model 1.
- Model 3: a relationship between sensing capability and innovation is added to Model 1 (see Fig. 2).

Of the three models proposed, Model 3 obtains the best fit to the data (see Table 3). In this model, the relationships are positive and significant, except for the relationship between sensing capability and reputation, and the level of statistical significance (p) is 0.10, which exceeds the recommended minimum value (0.05). More specifically, technological resources positively influence both sensing capability (β: 0.581; $p < 0.001$) and innovativeness (β: 0.300; $p < 0.001$). In turn, sensing capability is positively related to innovativeness (β: 0.570; $p < 0.001$). Finally, innovativeness has a positive influence on reputation (β: 0.579; $p < 0.001$). The results do not show a significant relationship between sensing capability and reputation, which seems to indicate that sensing capability alone does not determine reputation;

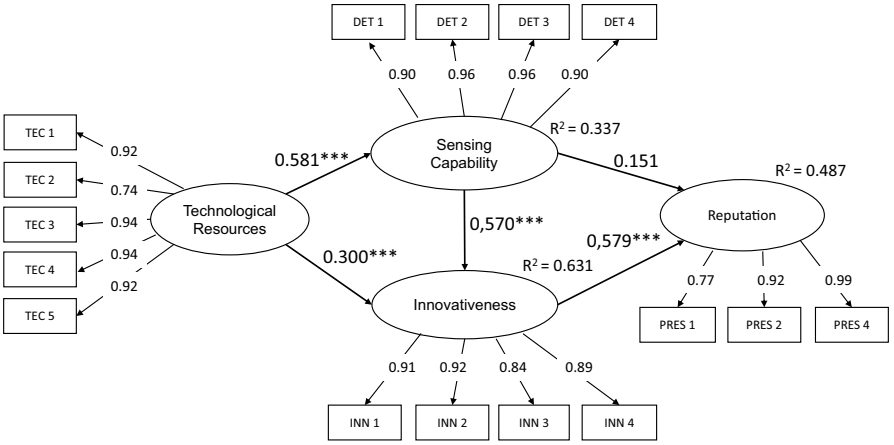

Fig. 2 Structural equations model

Table 3 Goodness of fit of the structural models

	CMIN	DF	p-valor	RMSEA	TLI	NFI	CFI	CMIN/DF
Model 1	159.304	92	0.000	0.073	0.965	0.939	0.973	1.732
Model 2	158.254	91	0.000	0.073	0.964	0.939	0.973	1.739
Model 3	108.539	91	0.101	0.037	0.991	0.958	0.993	1.193

instead, it requires the mediating effect of innovativeness. Therefore, hypotheses H1a, H1b, and H2b are accepted, and there is no empirical evidence for H2a.

As Fig. 2 shows, the model has adequate fit indices. Likewise, the values of the squared multiple correlation coefficients (R2) for the dependent variables sensing capability (0.337), innovativeness (0.613), and reputation (0.487) indicate that the model has satisfactory explanatory power.

6 Discussion and conclusion

The theoretical framework adopted in this study is a model based on the integration of the RBV and the dynamic capabilities approach, which propose that technological resources influence performance because they favour the organization's ability to deploy strategic capabilities. As a result, this research builds a model designed to analyse the mediating role of sensing capability and innovativeness in the relationship between technological resources and the reputation of vocational schools in tourism. The study provides a novel perspective by looking at technological resources from the point of view of schools. Previous research on the use of technology in education has had a limited focus because most studies address the perspective of students or teachers rather than that of educational organizations. The results show the importance of the technologies available to vocational schools in tourism,

as well as their strategic use by both teachers and students. Taking advantage of the potential offered by technologies is critical to order to explore trends in social demands and the job market, with the aim of reviewing contents and methodologies that make it possible to adapt to the changes detected. Therefore, technological resources give vocational schools the capabilities to detect the needs of employers and respond to them by reviewing, transforming, or updating the teaching–learning processes. Technologies also foster new forms of interaction among students and between students and teachers, thus promoting the exchange of knowledge, an activity the literature views as a critical antecedent of innovation. The findings therefore suggest that schools benefit from complementary capacities to make their valuable resources effective.

The results also reveal that innovativeness has a significant influence on the reputation of vocational schools in tourism. These data indicate that vocational schools that establish innovative educational projects and programs and have teachers who can propose innovative ideas have a higher reputation and are able to attract better students. In summary, the findings suggest that schools with the potential to create innovative teaching styles adapted to the needs of society are perceived as prestigious educational institutions.

The study helps to shed light on how the use of technological resources supports the performance of educational institutions, particularly vocational schools. In particular, the results suggest that some valuable resources do not directly influence performance, but instead require strategic capabilities to be fully effective. The results are consistent with the study by Shah et al. (2021), for whom social media technologies do not directly affect university reputation, but rather do so through the mediating role of social customer relationship management capabilities. Similarly, research by Khaw and Teoh (2023) finds that strategic agility enhances the influence of big data analytics technological on the performance of educational institutions. The data also supports previous research, conducted in other organizational contexts, which proposes that resources influence performance by enhancing the organization's ability to develop dynamic capabilities (Nieves & Osorio, 2019; Wang et al., 2009; Wei & Wang, 2011).

The relationship between sensing capability and reputation is no supported by the results, perhaps because the ability to detect trends in the environment must be complemented by organizations' implementation of the necessary changes to respond to these trends (i.e., innovating). This result suggests that when the school dedicates efforts both to explore the environment and to evaluate whether its methodologies and contents are in line with social demands, it improves its ability to incorporate new educational projects and programs. In short, the findings show that the ideas and opportunities detected through sensing capability do not directly influence reputation, but instead require a subsequent action that favours their implementation (i.e., innovativeness). Therefore, the data suggest that the effectiveness of sensing capability is based on the fact that it allows capturing information and knowledge of the environment, which is a useful guide to favour the introduction of the changes demanded by students and companies in the sector. These results are in line with Alshanty and Emeagwali (2019), who argue that market sensing ability can generate high market knowledge that positively influences the knowledge creation process.

Consequently, the results reveal an indirect influence of sensing capability on reputation through innovativeness. These innovations make it possible to adapt the teaching and learning to the business reality, thus improving the students' professional competences, which determines the reputation of the vocational school.

This study has led to a series of conclusions that help to extend the academic literature and provide practical implications. From a theoretical perspective, this study combines the RBV and the dynamic capabilities approach to provide a framework that serves as a basis for future studies interested in understanding how the performance, in general, and the reputation, in particular, of educational organizations can be improved. Although the role of resources and capabilities as predictors of performance is well established in the literature, there is a broad typology of both resources and capabilities, and less is known about the complex relationships between them in driving organizational outcomes. In fact, the results of the study do not exactly match the theoretical framework adopted, which proposed a sequential resources-capabilities-outcomes relationship. It shows that some capabilities require complementary capabilities to be effective. This shows that, despite the spectacular dissemination, and the considerable theoretical and empirical development of RBV, more studies are needed to advance and refine the knowledge of this academic domain.

Regarding the practical implications, the findings suggest that the educational administration and principals of vocational schools should be aware that the acquisition and strategic use of technologies make it possible to develop dynamic capabilities that promote schools' reputations. Therefore, those responsible for vocational schools should be aware that technological resources help to detect the necessary changes to meet the changing needs of the educational system (i.e., sensing capability) and, in turn, favour an environment of acceptance of novel projects and programs adapted to the changing conditions (i.e., innovativeness). The development of these dynamic capabilities will help to adjust the curriculum and the teaching–learning process to the true labour needs of the tourism sector. In summary, vocational schools in tourism face the challenge of developing these dynamic capabilities, relying on technological resources to improve their social reputation and, thus, attract better students and ensure that their graduates have more opportunities to access the labour market.

7 Limitations and avenues for future study

Some of the limitations of this study suggest possibilities for future research. First, the study is developed in Spanish territory, which makes it impossible to extrapolate the results to educational systems in other countries. In this regard, possible lines of future research could analyse vocational schools in other countries, applying similar models. In addition, the results of the study are limited to the specific resources incorporated in the model. Therefore, there may be other factors that were not considered and could determine the development of capabilities and be included as variables in future models.

Finally, it would be interesting for future studies to analyse the establishment of alliances between agents, as well as new training models that enhance the relevance

of professional training and strengthen employability. These new models could involve the use of on-the-job training and the outsourcing of the practical teaching.

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Declarations

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