The mediating role of marketing management in the relationship between online presence and product innovation among SMEs

Allan Pérez-Orozco
Escuela de Administración de Empresas, Instituto Tecnológico de Costa Rica, San Carlos, Costa Rica, and
Juan Carlos Leiva and Ronald Mora-Esquivel
Escuela de Administración de Empresas, Instituto Tecnológico de Costa Rica, Cartago, Costa Rica

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Abstract

Purpose – This study explores the mediating role of marketing management in the relationship between online presence and product innovation among Small and Medium Enterprises (SMEs).

Design/methodology/approach – The sample comprises 205 Costa Rican SMEs collected by the Global Competitiveness Project during the first half of 2019. The data were analyzed using a two-stage modeling strategy for ordinary regression models to analyze mediation effects.

Findings – Marketing management as a strategic resource or capability accounts for the relationship between online presence and product innovation performance in SMEs, meaning that online presence resources require complementary organizational capabilities in marketing management to enhance product innovation.

Originality/value – This study, grounded in the resource-based view theory, contributes to the innovation field by identifying marketing management capabilities as an intermediate strategic interaction between online presence and product innovation performance in SMEs. Thus, managers should recognize the advantages of integrating marketing management principles and tactics into online presence tools to realize the value of their products by tailoring them to their client's needs.

Keywords Product innovation, Marketing management, Online presence, SMEs

Paper type Research paper

1. Introduction

Many studies have shown that the introduction of new products or services is paramount for the development of Small and Medium Enterprises (SMEs) (Rosli and Sidek, 2013; Saunila, 2020), especially in developing economies where firms operate in different contexts from developed countries (Ramadani *et al.*, 2019). Topics like rent-seeking (Sauka and Chepurenko, 2017), distance to technology frontiers (Acemoglu *et al.*, 2017), availability of specialized human capital (Capello and Lenzi, 2013) as well as societal and cultural differences (Aguinis *et al.*, 2020) justify investigating the Product Innovation in SMEs in developing countries.

Product innovation in SMEs can be influenced by different factors (Restrepo-Morales *et al.*, 2019). The most important include online presence and marketing management

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(Faradillah, 2019). On the one hand, online presence significantly affects SMEs' innovation activities, generating new spaces to start or develop innovations (Yunis *et al.*, 2017). According to Valdez-Juárez *et al.* (2018), Peñalba *et al.* (2015), and Busaidi *et al.* (2019), SMEs with a solid online presence have more significant opportunities to consolidate product innovation processes. However, it is also fair to say that not every combination of information and communication technologies benefits innovation (Santoleri, 2015).

On the other hand, according to Aziz and Omar (2013), marketing management is relevant for SMEs' innovation because it enables these firms to collect knowledge and information from their customers to make more innovative products. Indeed, Cambra-Fierro *et al.* (2011) claim that marketing management values innovation to adapt and differentiate products for customers.

However, there are significant gaps in the literature regarding a complete understanding of the potential mediating role of marketing management in the relationship between online presence and SMEs' product innovation. Most studies have centered on discussing one or two of these relationships, for example, between online presence and innovation (Adamczewski, 2016; Cuevas-Vargas *et al.*, 2015; Gálvez-Albarracín, 2014; Idota *et al.*, 2012; Okundaye *et al.*, 2019), or between marketing and innovation (Dogbe *et al.*, 2020; Ejdys, 2015; Finoti *et al.*, 2017; Jayaram and Manrai, 2015). Nevertheless, the relationship between all three variables and their impact on SMEs has been neglected, and even when studies have touched on the topic (Lopez *et al.*, 2010; Vilaseca-Requena *et al.*, 2007), they have failed to analyze the mediating role of marketing management in SMEs' online presence and product innovation.

This possible interaction is especially crucial today, when an online presence is becoming a marketing hub for SMEs in developing countries due to its potential benefits for disseminating information, building a customer base, and connecting with existing and potential customers (Bruce *et al.*, 2023). Consequently, this paper aims to fill this gap by exploring the following research question: Can marketing management mediate the relationship between online presence and product innovation?

The empirical work was conducted in Costa Rica, a small, open economy categorized as a developing country or an upper-middle-income economy (United Nations, 2022; World Bank, 2022). Despite having a relatively small domestic market, it has shown steady economic growth in the last two and a half decades due to an outward-oriented strategy characterized by openness to foreign investment and continuing trade liberalization (World Bank, 2023). In the five years before the COVID-19 pandemic, its Manufacturing, Commerce, and Service sectors presented average gross value-added to GDP rates of around 4.4%, 4% and ranging from 1% to 7%, respectively (in the latter case, especially in Tourism and Information and Communication Technologies, ICTs) (Costa Rica Central Bank, 2023).

In addition, specific figures for innovation and ICTs support the choice of Costa Rica as a setting for the study. Concerning the former, Costa Rica is one of the top three countries from Latin America and the Caribbean in the innovation index, along with Chile and Mexico (World Intellectual Property Organization, 2021). As for ICTs, Costa Rica was also ranked among the top countries from the region in the Networked Readiness Index, together with Chile and Uruguay (World Economic Forum, 2016). Among other aspects, Costa Rica stands out for its mobile network coverage and the use of and access to ICTs.

This paper makes two key contributions to the innovation domain. First, it shows evidence of the mediation effects of marketing management on the relationship between online presence and product innovation in SMEs operating in developing economies. Second, we urge practitioners to be aware of the benefits of integrating marketing management principles and tactics into online presence tools to create better products tailored to their clients' needs.

The remainder of this paper is structured as follows: section two analyzes the theoretical basis and formulates the hypotheses. Section three presents the methodology generated for this investigation. Section four examines the results. Finally, section five presents the conclusions, limitations, and future lines of research derived from this work.

2. Literature review

The theoretical foundation of this paper is the resource-based view of the firm (RBV), which postulates that companies acquire or develop specific resources and capabilities that interact with existing ones to be more competitive and consequently, achieve superior performance (Barney, 1991; Wernerfelt, 1984; Newbert, 2007). The RBV has been extensively employed to research product innovation (Andersen, 2021), where success is based on a firm's capability to manage a bundle of resources to differentiate its products from those of its competitors (Barney, 1991).

Regarding this paper's approach, internet presence is a crucial resource for many SMEs today (Valdez-Juárez *et al.*, 2018). In turn, marketing management involves designing creative and effective marketing strategies, and understanding and adapting to changing market needs, among other aspects (Sulistyo and Siyamtinah, 2016). From the theoretical perspective of RBV, a synergy between resources and capabilities occurs when a company combines its Internet presence resource with marketing management capabilities to generate a competitive advantage that can be difficult for competitors to imitate (Barney, 1991; Wernerfelt, 1984). For instance, an SME could use its Internet presence to capture relevant customer information through storytelling patterns that its marketing strategists produce. Those patterns, based on the company's intrinsic marketing capabilities, could generate information that can be used for innovation and to produce competitive advantages.

2.1 Online presence and product innovation among SMEs

Theoretically, an online presence can contribute to an SMEs' product innovation by enhancing the knowledge management applied to the innovation process. Specifically, an online presence can support the generation, analysis, and launch of ideas for new products, thus enabling the SME to gather and scrutinize clients' communications. This situation allows SMEs to identify needs or desires that can be satisfied through new products or modifications to existing ones (Arvanitis and Loukis, 2020), optimizing their innovation by using technology to improve customer relations and contact (Bayo-Moriones *et al.*, 2013). As rightly remarked by Cuevas-Vargas *et al.* (2020), it means knowing about their needs and requirements and the expectations of potential customers. Valdez-Juárez *et al.* (2018) also highlighted the significant influence of an online presence on capturing knowledge and its utilization in production processes. Okundaye *et al.* (2019) mention that adopting an online presence improves decision-making due to the availability of more information, and the data collected as a result.

Empirical evidence supports this relationship between online presence and innovation in SMEs. In an investigation by Gálvez-Albarracín (2014) with a sample of 1,201 Colombian companies, it was found that investments in an online presence, and the different tools and practices they entail, generate positive effects on innovation for SMEs. León-Gómez *et al.* (2022) also found a positive relationship, in this case, among 2,285 Spanish SMEs. However, it is fair to say that not all empirical evidence supports this relationship. In a sample of Chilean companies using e-commerce applications, Santoleri (2015) found that not all combinations of ICTs are beneficial for innovation. Notwithstanding this last-mentioned finding (Santoleri, 2015), based on the above evidence (Gálvez-Albarracín, 2014; León-Gómez *et al.*, 2022), we therefore propose:

H1. Online presence has a positive effect on SMEs' product innovation.

2.2 Marketing management and product innovation among SMEs

Marketing management involves understanding market dynamics and exchanging market knowledge with organization members. It entails the ability of organizations to develop and implement marketing mix decisions to differentiate and facilitate the commercialization of

products (Kumar *et al.*, 2011; Adams *et al.*, 2019). SMEs with adequate marketing management can capitalize on their innovation capacity to develop better products (Dogbe *et al.*, 2020; Moreno-Gómez *et al.*, 2023). Marketing management may improve product innovation through market analysis and customer interaction (Sulistyo and Siyamtinah, 2016).

Innovation is achieved by obtaining information about customer needs (Kumar *et al.*, 2011). Banterle *et al.* (2011) claim that marketing management enables SMEs to learn about the economic environment in which they operate and consequently adapt their business to market developments and consumer preferences, thus being able to offer more innovative product options. The better the marketing management of SMEs in terms of management of customer relations, market analysis, product differentiation, and customer service, the more innovation is fostered (Sulistyo and Siyamtinah, 2016).

When SMEs identify customers' needs and expectations, they can create more suitable products, predict competitors' future actions, and anticipate the market (Gómez-Villanueva *et al.*, 2010). SMEs can offer higher value based on an in-depth understanding of latent customer needs (Nasution *et al.*, 2011). According to Aziz and Omar (2013), SMEs that apply adequate marketing management promote knowledge exchange and a shared vision; therefore, they tend to acquire better innovation capacities. For example, some time ago, Maidique and Zirger (1984) showed that the success of new products depends partly on the types of resources dedicated to related marketing mix activities. Later, Langerak *et al.* (2004) showed that proficiency in marketing mix decisions related to the launch of new products directly and positively impacts their performance. More recently, Dogbe *et al.* (2020) found that customer orientation – the extent to which firms use marketing concepts to make strategic and tactical marketing decisions – positively and significantly affects new product superiority.

We therefore propose:

H2. Marketing management has a positive effect on SMEs' product innovation.

2.3 Mediation effect of marketing management between online presence and product innovation among SMEs

The scientific literature proposes that variances in innovation performance are due not only to dissimilarities in technological knowledge resources but also to differences in the capability of firms to transform that knowledge into profitable products or services (Adams *et al.*, 2019). For instance, marketing management could contribute to creating synergies that an online presence can produce, mainly related to customer cooperation, increasing the possibilities for successful innovation and the launch of new products. Marketing management could strengthen collaboration and communication between the agents involved in the product innovation process (Vilaseca-Requena *et al.*, 2007) and the customer via an online presence. Integration raises the customers' confidence and commitment, leading to a more active and cooperative role in developing new products, increasing the quantity and quality of information supplied to the company, and resulting in more significant product innovation (Lopez *et al.*, 2010).

SMEs that have adopted marketing campaigns use data compiled and analyzed with advanced algorithms to determine how to earn their customers' loyalty. They can be even more efficient if they achieve a large group of potential customers with a solid online presence (Sin-Tan *et al.*, 2010). They can also improve the development of products and rendering of services to satisfy customer preferences and requirements (Adamczewski, 2016). Likewise, according to Alam and Adeyinka (2021), SMEs that use an online presence as a marketing tool can outperform those that do not in product innovation.

Marketing management also positively influences SMEs' online presence through the possibility of addressing specific customers by using communication tools correctly (Hartoyo and Daryanto, 2016). According to Idota *et al.* (2012), SMEs use an online presence to collect

customer information and then use it in marketing management to achieve more innovative products. Cuevas-Vargas *et al.* (2015) add to the above by claiming that using tools to foster an online presence improves customer relations and contact, thus improving knowledge of their needs and requirements and favoring product innovation. Similarly, García-Canal *et al.* (2007) indicate that the regular and ongoing introduction of new products tailored to customers' changing needs is facilitated. This situation can be identified through adequate information management obtained online.

As a result, when marketing management aligns with an online presence in SMEs, the firm might obtain valuable information about the customers' needs, wishes, and expectations, which can later transform into a custom-made service or product (Hassan *et al.*, 2019). For the above reason, Dhameria *et al.* (2021) consider marketing activities based on an online presence closely related to creating competitive advantage through product innovation.

In short, knowledge resources gained from an online presence require complementary organizational capabilities in terms of marketing management in order to fully realize their value in the form of innovation. Based on the above, we establish the following hypothesis:

H3. Marketing management has a mediating effect on online presence and product innovation among SMEs.

Figure 1 summarizes the theoretical research model to be tested empirically.

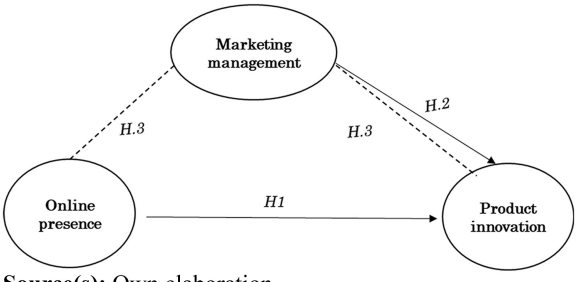
3. Method

3.1 Research design

This study follows a non-experimental, cross-sectional, and quantitative approach to examine the extent to which marketing management mediates the relationship between online presence and product innovation (Plano and Creswell, 2010). The sample for this study is drawn from a secondary data source garnered through an international research project that aims to understand business competitiveness drivers. Therefore, for the setting of the study, the data employed in this study came from a questionnaire survey completed by owners of SMEs in Costa Rica. The reasoning for country selection is driven by the high rankings in Innovation and Information and Communication Technologies (ICTs) this country has shown in Latin America. Indeed, two variables in our theoretical model to be tested are related to these two factors.

3.2 Data and variables

3.2.1 Data collection. The data used in this study comes from a secondary source, namely a dataset collected by the Global Competitiveness Project (GCP) between February and May 2019. The GCP is an international research project devoted to comprehending the drivers of



Source(s): Own elaboration

Figure 1. Theoretical model of marketing management mediation in the relationship between online presence and SMEs product innovation

business competitiveness. It involves a team of academics from six European universities (in Bosnia-Herzegovina, the Czech Republic, France, Hungary, Russia, and Spain) and four Latin American universities (Brazil, Colombia, Costa Rica, and Mexico). Further details are available at www.sme-gcp.org.

The GCP's core team of founders set out the guidelines to be followed by their fellow researchers. The criteria used by the GCP to select the sample are as follows: first, the SMEs must have been operating in the market for at least two years; and second, they should have at least two employees, including the owner. The GCP collects its data through a questionnaire comprising 112 mostly closed questions in face-to-face interviews. In companies with 20 or fewer employees, they interviewed one of the owners (only if he/she was part of the management team). In the case of companies with more than 20 employees, they interviewed a senior manager, regardless of whether they had ownership rights to the company.

Concretely, the sample we used in this research corresponds to 205 micro-, small-, and medium-sized companies whose data were compiled by the GCP team of researchers from the Costa Rica Institute of Technology, the partner university leading the GCP in this country. The sample of Costa Rican SMEs presents the following characteristics. They had an average of 25.2 employees (SD = 41.2). In terms of the OECD classification (2021), 49.3% are micro-enterprises (less than ten employees), 36.1% are small companies (between 10 and 49 employees), and 14.6% are medium-sized companies (between 50 and 249 employees). Most are companies operating in the trade and services sector (73.7%). The average years that firms have operated since their foundation is 17.0 (SD = 14.8).

3.2.2 Variables. The GCP proposes ten pillars that represent different resources and capabilities. They can be used for measuring and assessing business competitiveness from the RBV approach (Lafuente *et al.*, 2020a, b). These pillars are Human Capital, Domestic Market, Decision-Making, International Markets, Strategy, Networks, Technology, Online Presence, Marketing Management, and Product Innovation. They have been used in a variety of studies (Alonso and Leiva, 2019; Lukovszki *et al.*, 2020; Lafuente *et al.*, 2020a, b; Bayon and Aguilera, 2020; Rideg *et al.*, 2023). We employed three of these pillars to test our hypothesis because they align with our theoretical approach; concretely, Marketing Management, Online Presence, and Product Innovation. Furthermore, considering the last two pillars, as noted in the introduction section, Costa Rica has managed to rank among the top in the Latin America region in innovation, networked readiness, and access to ICT, making this country an alluring research setting. Then, we describe these three variables [1].

3.2.2.1 Dependent variable. Product innovation is a composite index measured as a normalized variable ranging from 0 to 1, following the procedure described in Lafuente *et al.* (2020a). It takes three indicators that GCP has designed to evaluate the degree of strategic importance that a business attaches to product innovation capabilities, where 0 represents no strategic value, and 1 represents low strategic value, up to 4, which represents high strategic value.

Following the GCP approach, we normalized each indicator using the maximum scores obtained for the different firms in the sample, whose value represents the firms' "best practices." Subsequently, we computed the pillar as an average of the normalized values of the three indicators. Thus, the closer the product innovation competitive pillar value is to 1, the higher the strategic value of product innovation as a resource or capability for the firm relative to its competitors. The mean of this normalized index is 0.50 (SD = 0.30).

3.2.2.2 Independent variables. Online presence is computed as in the above procedure. The GCP designed three indicators to evaluate the degree of strategic importance that a business attaches to online resources or capabilities, where 0 represents no strategic value, and 1 represents low strategic value, up to 4, which represents high strategic value. As in the above procedure, these three indicators were normalized, ranging from 0 to 1. Therefore, as its value tends to one, the strategic value of an online presence as a resource or capability for the firm

relative to its competitors increases. The competitive index of online presence resources has a mean of 0.31 (SD = 0.25).

Regarding the marketing management pillar, its computation follows the procedure described below. It is composed of three items. These items assess the degree of strategic importance that a business attaches to marketing resources or capabilities, where 0 represents no strategic value, and 1 represents low strategic value, up to 4, which represents high strategic value. These items are normalized, generating a score between 0 and 1. Hence, a score close to 1 means that the strategic value of marketing resources and capabilities is higher for the firm than for its competitors. The competitive index of management marketing has a mean of 0.53 (SD = 0.19).

3.2.2.3 Control variables. Empirical evidence has shown that the following variables are linked to a firm's innovation: size, age, and sector; thus, we employ them to control our data analysis. First, we use the OECD SME criteria (2021), which considers SMEs to be companies with fewer than 249 employees. This variable was measured using the number of employees. In their meta-analysis, Khosravi *et al.* (2019) found that the company's size is a variable usually associated with innovation (a positive and statistically significant relationship of 0.28 among the studies consulted). These authors mention that the above is generally associated with larger companies having more organizational resources and being better equipped for effective managerial decision-making, coordination, and exchange of ideas (Khosravi *et al.*, 2019). However, literature reviews have observed mixed results (Crossan and Apaydin, 2010; Khosravi *et al.*, 2019). For example, Uhlaner *et al.* (2013) found that smaller SMEs generate more innovation than larger companies. Jimenez-Jimenez and Sanz-Valle (2011) claim that organizational learning has a more significant positive effect in smaller companies than in large ones. Although large companies have more significant resources to innovate, they may be less dependent on organizational processes than smaller ones. For this reason, it is necessary to control for this variable.

The firm's age variable is expressed as the number of years that the company has been operating since its creation. A more extended existence might help a company to develop organizational routines that make its innovative activities more efficient (Jiménez-Jiménez and Sanz-Valle, 2011). Furthermore, company size and market experience are relevant variables commonly associated with scale economy production capacity and learning processes, respectively (Lafuente *et al.*, 2020a, b). The variables for company size and age were both logged to reduce skewness.

Finally, a dummy variable was introduced to account for the firm's economic sector (1 = commerce and service, 0 = manufacturing). Empirical evidence has shown that economic sectors are directly related to SMEs' innovation activities (Gault, 2018). The study by Shin *et al.* (2022) found that the characteristics of the innovative services integrated into a product could explain differences in innovation types and their efficiencies among industries.

3.3 Analytical procedures

Baron and Kenny (1986) noted that when estimating a mediation with conventional three-regression equations, this involves regressing the dependent variable on the independent variable, and the mediator presents an econometric problem. Since the independent and mediator variables are correlated, the estimation of this regression would be exposed to multicollinearity problems. It could overestimate the independent variable's effect and underestimate the mediator variable's impact. Thus, these authors suggested that some two-stage estimation or structural modeling procedure might provide a possible solution.

For this reason, this research uses the adaptation suggested by Surroca *et al.* (2010) to the latter regression, which uses an instrumental variable calculated on the independent variable. The steps for testing our cross-sectional mediation method require estimation of the equations suggested by Baron and Kenny (1986), as follows:

$$MM_i = \beta_o + \beta_1 OLP_i + \beta_j Controls_i + \varepsilon_i, j = 2,3,4\, i = 1,,2,\ldots,N \quad (1)$$

In equation (1), we regress the mediator on the independent and control variables. Thus, β_o represents the intercept, β_1 corresponds to the coefficient estimate computed for firm online presence, and β_j are the estimated coefficients for each of the *j*th control variables in the model (firm size, firm age, and sector). ε_i is the normally distributed error term, corresponding to the *N*th business. MM is the dependent variable. In equation (1), β_1 must be statistically significant ($\beta_1 > 0$) to contribute to the mediation testing.

Then, we regress the dependent variable on the independent variable and control variables as follows:

$$PI_i = \beta_o + \beta_{1A} OLP_i + \beta_j Controls_i + \varepsilon_i, \mathrm{j} = 2,3,4\, i = 1,,2,\ldots,N \quad (2)$$

In equation (2), β_o represents the intercept, β_{1A} corresponds to the coefficient estimate computed for firm online presence, β_j are the estimated coefficients for each of the *j*th control variables in the model; ε_i is the normally distributed error term, and *i* corresponds to the *N*th business. PI represents the dependent variable. In equation (2), β_{1A} must be statistically significant ($\beta_{1A} > 0$), meaning the direct effect, and contribute to the mediation testing.

The following equations are the suggestions Surroca *et al.* (2010) made to accomplish a two-stage estimation of the third equation of Baron and Kenny's (1986) testing mediation. Firstly, Surroca *et al.* (2010) suggest the computation of an instrumental variable for the independent variable (OLP in this study) as follows:

$$OLP_i = \beta_o + \beta_1 MM_i + \beta_j Controls_i + \varepsilon_i, j = 2,3,4\, i = 1,,2,\ldots,N \quad (3a)$$

$$OLP_i^{Instr} = OLP_i - \beta_1 MM_i \quad (3b)$$

In equation (3a), we regress the independent variable (OLP) on the mediator (MM) and the control variables. Then, in equation (3b), the suggestion is to subtract the predicted effect of the mediator from the independent variable, thus resulting in the computation of a residual of the independent variable (now, OLP^{instr}). Our instrumental variable represents the part of the firm's online presence that is not explained by marketing management.

In a second stage, Surroca *et al.* (2010) recommend computing the third Baron and Kenny (1986) equation utilizing the instrumental variable resulting from applying equation (3b), as follows:

$$PI_i = \beta_o + \beta_{1B} OLP_i^{Instr} + \beta_{2B} MM_i + \beta_j Controls_i + \varepsilon_i, j = 2,3,4\, i = 1,,2,\ldots,N \quad (3c)$$

In equation (3c), we regress the dependent variable on the independent instrumental variable, the mediator, and the control variables. Thus, β_o represents the intercept, β_{1B} corresponds to the coefficient estimate computed for the firm's online presence as an instrumental variable, β_{2B} represents the coefficient estimate calculated for the firm's marketing management, β_j are the estimated coefficients for each of the *j*th control variables in the model, ε_i is the normally distributed error term, and *i* corresponds to the *N*th business. PI is the dependent variable. In equation (3c), if the effect of the instrumental variable vanishes ($\beta_{1B} = 0$) when the mediator is introduced to the equation, and its coefficient β_{2B} is statistically significant ($\beta_{1B} > 0$), an entire mediation hypothesis should be held. To run our models, we utilize the Stata 17.0 software. A cutoff of 10 for the variance inflation factor (VIF) was used to assess multicollinearity (Field, 2013).

4. Results

Table 1 shows descriptive statistics of the variables and bivariate correlations between the variables in the study. Our independent and mediator variables showed a significant

Variable	Media	D.S.	Min	Max	1	2	3	4	5
1.Sector	0.74	0.44	0	1					
2.Firm size	2.58	1.08	1.10	5.46	−0.11				
3.Business years	2.59	0.80	0.69	4.77	−0.11	0.40***			
4.Marketing management	0.53	0.19	0.00	0.92	0.05	0.26***	−0.00		
5.Online presence	0.31	0.25	0.00	0.93	0.06	0.36***	0.05	0.52***	
6.Product innovation	0.50	0.30	0.00	1.00	−0.09	0.20**	0.06	0.42***	0.29***

Note(s): Sector is categorized as 1 = Commerce and Services and 0 = Manufacturing; firm size corresponds to the natural logarithm of the number of firm employees; business years to the natural logarithm of company years of activity; marketing management is marketing management's pillar; online presence is online presence's pillar; product innovation is product innovation's pillar
Regarding the three competitive pillars, it should be noted that these variables are normalized ranging from 0 to 1 when interpreting their mean and standard deviation. Significance level *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): Own elaboration

Table 1.
Descriptive data and correlations among variables, N = 205

moderate positive correlation. In addition, they were significantly and positively correlated with our dependent variable. Table 2 shows the results of the three regression models. As shown in Table 2, the *F*-test values are significant, indicating that the models present a good fit. Besides, VIF values are also under the cutoff point (10), so they do not pose multicollinearity problems. Regarding the control variables, firm size, firm years, and sector are not linked to product innovation in all the models.

In Model 1, the results show that the higher the strategic value of online presence regarding the SMEs' competitors, the higher the strategic importance of marketing management compared to their competitors. This relationship is statistically significant ($\beta 1 = 0.361$; $p < 0.001$). This model explains 28.3% of the variability in marketing management. Testing Hypothesis 2 and Hypothesis 3 requires the result of the preceding model, along with the result of Model 3, to be presented subsequently. Model 2 indicates that online presence is positively related to product innovation, whose effect is statistically significant ($\beta 1A = 0.311$; $p < 0.001$), explaining 10.5% of the variability in product innovation. This result supports Hypothesis 1.

Model 3 shows a positive and statistically significant effect of marketing management on product innovation ($\beta 2B = 0.651$; $p < 0.001$). This result means that the higher the strategic

	Model 1 Marketing management (Eq.1)	Model 2 Product innovation (Eq.2)	Model 3 Product innovation (Eq. 3c)
Online presence	0.361***	0.311***	
Online presence (instrumental)			0.096
Marketing management			0.651***
Sector	0.012	−0.062	−0.069
Firm size	0.019	0.028	0.017
Business years	−0.016	−0.002	0.007
Constant	0.401***	0.382***	0.145
F-test	23.21***	6.54***	11.35***
R2 (adjusted)	0.283	0.105	0.204
VIF mean (min.-max.)	1.20 (1.03–1.40)	1.20 (1.03–1.40)	1.17 (1.03–1.42)
Observations	205	205	205

Note(s): Significance levels, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): Own elaboration

Table 2.
Regression models results, N = 205

value of marketing management regarding SMEs' competitors, the greater the strategic value of product innovation of SMEs compared to competitors. This result confirms Hypothesis 2. Furthermore, the effect of the instrumental online presence variable on innovation vanishes (β1B = 0.096; $p > 0.05$) when the marketing management variable is added to this model. Model 3 explains 20.4% of the variability in product innovation. The results of Model 1 and Model 3 corroborate a cross-sectional mediation of marketing management in the relationship between online presence and product innovation, thus supporting Hypothesis 3.

The above means that an increase in the strategic value of an SME's online presence relative to competitors will increase the strategic value of product innovation relative to its competitors. As a result of the tendency of those SMEs to attach greater strategic importance to an online presence, they also tend to perceive greater strategic value in market management (β1 is positive), which, in turn, translates into the attachment of greater strategic value to product innovation in this SME relative to its competitors (β2B is positive).

5. Discussion

5.1 Theoretical implications

This study provides two main contributions to the SME innovation field from the theoretical perspective of the RBV. First, the results confirm the positive effect of online presence and marketing management on product innovation in SMEs. This result confirms previous findings in this direction (Cuevas-Vargas *et al.*, 2021; Okundaye *et al.*, 2019).

The study's second and most important contribution is the mediation effect of marketing management on the relationship between online presence and product innovation. Whereas previous studies have found that an online presence alone does not always have a significant impact on an SME's product innovation (Santoleri, 2015), the present study shows that if used in conjunction with marketing management, then a strategic value does tend to be generated in terms of product innovation. In general terms, marketing management can enhance online presence to generate a more profound understanding of their customers' latent needs and may enable firms to be more innovative (Salavou *et al.*, 2004; Nasution *et al.*, 2011).

In other words, from the theoretical perspective of the RBV, the synergistic combination of Internet resources and marketing management capabilities will produce innovations that will give companies competitive advantages that will be difficult for their competitors to imitate (Barney, 1991; Wernerfelt, 1984). Thus, the present research brings a more detailed comprehension of how SMEs can create customer value expressed in innovation by considering information and insights from their presence on the Internet aligned with their marketing management practices. By confirming the hypothesized mediation role of marketing management on the relationship between online presence and innovation performance, the study provides additional support for the relevance of the RBV in the context of product innovation for SMEs in developing countries.

5.2 Policy/managerial implications

The results of this investigation have practical implications for SME managers and policymakers. Managers should be aware of the benefits of integrating marketing management principles and tactics into online presence tools to create products that are better tailored to their clients' needs and are, hence, more innovative. Therefore, SME decision-makers should pay particular attention to the benefits of online technologies when introducing marketing management processes such as customer relations and engagement; they should adapt their businesses to consumer preferences developments, enhancing their product innovation.

For instance, companies should develop specific marketing management skills to maximize their online presence. In other words, their online presence should fully align with

their marketing strategy. To this end, SMEs can consider investing in training or consulting in market management and online strategies to improve their online presence and their ability to innovate.

For policymakers, our results suggest facilitating the adoption of best practices in this domain for SMEs through actions like training, resources, collaboration, and information. For example, the creation of resource centers where SMEs can access information, tools, and advice. Also, the collaboration between SMEs, research institutions, and large companies could be promoted to encourage good practices in this area. Finally, awareness campaigns and certification programs could encourage the adoption of standards and best practices in the field.

Although our study used information from a specific country, Costa Rica, it is worth noting that the results can be applied to other Latin American countries, which are more homogeneous from a cultural and demographic point of view than, for instance, Asia, Africa, or Europe. Countries in this region share a similar colonial history that is reflected in their common languages (i.e. mostly Spanish and Portuguese), religion (i.e. Christian, mainly Roman Catholic), and legal structures (i.e. based on the Napoleonic Code) (Vassolo *et al.*, 2011).

5.3 Limitations and future research agenda

Like all research, ours has limitations. First, this study's results should be considered exploratory due to the sample size. According to the Statistics Office of the Costa Rican Central Bank, available at https://www.bccr.fi.cr/indicadores-economicos/estadísticas-empresariales, in 2019, there were a total of 139,229 SME businesses. Computing the minimum sample size with a 95% confidence level, a 5% margin of error, and expected probability ($p = 0.50$), the estimated minimum sample size is 384 SMEs, which is above the 205 SMEs forming our sample size.

Second, its theoretical model was only tested on the data and variables collected by one of the countries in the international GCP project. Cultural, entrepreneurial ecosystem, or digital transformation-related country effects could have influenced the model analysis. Therefore, future studies could undertake a cross-country approach to verify the hypothesized relationships in conjunction with contextual country variables, as Khattak (2022) recommended. Thirdly, this study is cross-sectional, meaning that data relating to dependent and independent variables were collected simultaneously at one point in time. Our analysis is characterized by a recursive model that prevents the assessment of possible feedback loops between product innovation and marketing management.

Future studies could consider longitudinal research designs to understand factors involved in reciprocal relationships between study variables. For example, the literature indicates an important reference variable to consider in such innovation studies: how organizational learning impacts SMEs' product innovation, as pointed out by Fernández-Mesa *et al.* (2013). Therefore, this study could be complemented by including the organizational learning variable to measure its effects on SME innovation.

6. Conclusion

This study sought to investigate the interaction between marketing management, online presence, and product innovation among SMEs, paying attention to the context of a developing country given conditions like rent-seeking (Sauka and Chepurenko, 2017), distance to technology frontiers (Acemoglu *et al.*, 2017), availability of specialized human capital (Capello and Lenzi, 2013) as well as societal and cultural differences (Aguinis *et al.*, 2020) that characterize this type of country. This paper aimed to fill the knowledge gap about the potential mediating role of marketing management in the relationship between online

presence and product innovation. This issue is especially relevant in the current context, where the online presence is becoming a marketing hub for SMEs.

The theoretical premises of the RBV tend to indicate that when marketing management is aligned with an online presence in SMEs, the firm might obtain valuable information about its customers' needs, wishes, and expectations, which can later be translated into a custom-made service or product (Hassan *et al.*, 2019). Using a two-stage modeling strategy for ordinary regression models in 205 Costa Rican SMEs, this article corroborates the theoretical assumptions that marketing management mediates between online presence and product innovation among SMEs. Consequently, we argue that knowledge resources gained from an online presence require complementary organizational capabilities in terms of marketing management in order to achieve their value in the form of innovation.

Notes

1. Tables with evidence of the reliability and validity of every pillar are available upon request by emailing the contact author.

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Corresponding author
Juan Carlos Leiva can be contacted at: jleiva@itcr.ac.cr