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Innovation as competitiveness driving force through the resources and capacities of SMEs in Costa Rica, Puerto Rico, and Dominican Republic

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ABSTRACT

Literature reflects that Latin America and the Caribbean register more SMEs and produce more entrepreneurial activity than any other place in the world. Using the Theory of Resources and Capabilities, this research explored how SMEs in Costa Rica, Puerto Rico, and the Dominican Republic managed the heterogeneity of their entrepreneurial orientation, market orientation, social and human capital resources and their impact on innovation capacity and competitiveness. With a survey of 467 SMEs and the analysis of data with the use of PLS-SEM & PLS-MGA, this study contributed new information based on resources and capacities that showed the maximum set of possible variables analyzed for a theoretical understanding and practice of the heterogeneity of resources. The results reflected a positive impact on the proposed hypothesis through the structural model. The data highlight market orientation as the most valuable resource that facilitates innovation and competitiveness in SMEs analyzed. The results revealed and contributed to the new lines of research on how differences and the degree of importance in managing resources generated high competitiveness through their capacity for innovation.

Introduction

The Theory of Resources and Capabilities analyzes how companies use rare, valuable, and inimitable resources (Cruz, 2018; García et al., 2018; Miller & Breton, 2017; Reynoso et al., 2017) in order to increase their capacity to achieve competitive advantages through their strategic adjustment (García et al., 2018; Miller & Breton, 2017; Reynoso et al., 2017). The academic literature establishes that the use of unique resources results in a greater capacity for innovation than other groups of variables (Akhtar et al., 2015; Badriyah, 2017; Bedoya & Arango, 2017; Choo, et al., 2010; Cruz, et al., 2018; Fernández Guerrero et al., 2018; Fernández Ortiz et al., 2006; Gil-Lacruz & Gil-Lacruz, 2006; Lonial & Carter, 2015; Matsuno et al., 2014; Reynoso et al., 2017; Sok et al 2017; Sok et al., 2017; Villegas et al., 2018). The capacity for innovation is also an important element for the establishment of competitive advantages in small and medium-sized enterprises (SMEs) (Villegas et al., 2018; Cruz, 2018; Pérez et al., 2018; González, 2018; Mejía-Giraldo et al., 2015; Magdaleno et al., 2015).

Arroyo (2008) argues that SMEs in Latin America and the Caribbean face an external environment of great uncertainty and high competitiveness. This level of uncertainty is related to financial crises, globalization, political and social instability, among other factors, which promote the availability of various business alternatives (Venegas, 2008; De Arruda, 2009). Therefore, the capacity for innovation is recognized as a key factor in achieving the competitiveness of SMEs. However, it is recognized that the capacity for innovation will be based on the use of resources. In few cases are the studies on innovation capacity and SMEs in Latin America and the Caribbean analyzed from the perspective of their resources and capacities. Even Fong Reynoso et al. (2017) highlight the need for studies that analyze factors such as innovation on resources and capacities in SMEs in Latin America and the Caribbean.

Currently, Latin America and the Caribbean have more SMEs compared to the rest of the world (Yang, 2017) and maintain a relevant role in the region's economy (Lederman et al., 2014; Saavedra García, 2012; Tabares, 2012). Valdez

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et al. (2017) explain that internal and external knowledge through innovation capacity will have an impact on the profitability of a SME. Therefore, the Theory of Resources and Capabilities is an ideal theoretical framework that will allow an analysis of how SMEs use their resources to impact their capacity for innovation and achieve high competitiveness.

This quantitative research explored how SMEs in Costa Rica (CR), Puerto Rico (PR), and the Dominican Republic (DR) valued their social capital (SC), entrepreneurial orientation (EO), market orientation (MO), and human capital (HC) over their capacity for innovation. Secondly, it studied how the innovation capacity in the SMEs of CR, PR, and DR could be a factor that had a positive impact on competitiveness. Finally, it investigated if there were significantly different impacts on the way in which SMEs in CR, PR, and DR valued their resources over their capacity for innovation and how the capacity for innovation had a different impact on competitiveness.

The research model was analyzed through an electronic survey of 455 SMEs in CR, PR, and DR and divided the analysis into two parts. The first part of the study employed the use of partial least squares structural equations (PLS-SEM) and the second part of the study used a multi-group analysis (PLS-MGA). The results reflected a positive impact for four of the analyzed resources, EO, MO, HC and SC, on their ability to innovate, out of which the MO was the most valued resource. The researchers also obtained positive results on the study variables. Then, using PLS-MGA, the researchers explored if the research model had a significantly different impact on the variables of interest.

The paper will present a background of the research objectives and the development of a group of hypothesis on the research model developed by the researchers through the review of literature. At the end of the study, there will be a discussion of its results and contributions, as well as its limitations and lines of future research. This study provides new literature in the face of limited studies in Latin America and the Caribbean on SMEs and the Theory of Resources and Capabilities.

Literature Review

Strategic Planning Based on the Resources of SMEs in Latin America and the Caribbean

Rogo et al. (2017) state that all performance of a SME is observed based on its available resources in order to maintain a competitive advantage. A recent study reveals that Latin America and the Caribbean register more SMEs compared to the rest of the world (Yang, 2017). It is for that reason that SMEs have an important role in the economy since they generate employment and compensate for the commercial activities left by large companies (Saavedra García, 2012; Tabares, 2012; Lederman et al., 2014). The Resource-Based Theory states that companies achieve sustainable competitive advantages only when they have valuable, rare, imperfectly imitable, and non-substitutable resources (Cruz, 2018; García et al., 2018; Miller & Breton, 2017; Reynoso et al., 2017). Ferreira & Fernandes (2017) report that an effective strategy requires the understanding of resources and capabilities with an emphasis on how these resources contribute to the formation of organizational strengths. Fong Reynoso et al. (2017), on the other hand, report that the heterogeneity of resources and the company's ability to manage them determines its competitive advantage over obtaining benefits.

Studies of interest show in detail that the adequate management of resources allows a strategic adjustment through its capacity for innovation that will then positively influence the competitiveness of companies (García et al., 2018; Hernández et al., 2018; Lin & Wu, 2014). The identified literature provides four types of valuable resources (EO, MO, HC and SC) (Cruz, 2018; Domínguez et al., 2017; Ferreira & Fernandes, 2017; González, 2018; Hernández et al., 2018; Lonial & Carter, 2015; Miller & Breton, 2017; Paradkar et al., 2015; Pérez et al., 2018; Ramos et al., 2018; Sok et al., 2017; Villegas et al., 2018). However, these studies are limited only to analyzing some of these resources by business sector or specific region. Due to that, the need to study these four resources is even more relevant.

Entrepreneurial Orientation

The entrepreneurial orientation is defined as a driving force behind the organizational search that allows defining and analyzing entrepreneurial behavior (Frese et al., 2002, Sok et al., 2017). Researchers establish that the EO analyzes the entrepreneur's behavior through three dimensions: (a) innovation, (b) risk taking and (c) proactivity (Bedoya & Arango, 2017; Matsuno et al., 2014; Sok et al., 2017). The EO allows us to observe how a company faces environmental conditions, thought, and the execution of the entrepreneur's strategy (Fernández-Mesa et al., 2012) and how the three dimensions allow it to implement improvements in its innovation capacity (Elche & González, 2008). This research analyzed the EO in terms of the way that the SMEs of CR, PR, and DR used EO as a strategic resource through its three dimensions. It also studied how a strategic execution allowed them to boost their capacity for innovation.

Literature concludes that EO is an important factor that positively influences innovation capacity (Ajayi, 2016; Be-

doya & Arango, 2017; López & Contreras, 2009; Schumpeter 2000). These arguments are supported by other studies that establish that an adequate EO will allow SMEs to react more aggressively to changes in the environment and on how entrepreneurs implement improvements in their companies through their capacity for innovation (Gómez Villanueva et al., 2010; Martins et al., 2012). SMEs must remain in constant adaptation through a competitive environment in which their capacity for innovation will allow them greater competitiveness in order to evaluate their performance and obtain competitive advantages (Hernández et al., 2018). Therefore, EO appears as an important factor for SMEs to manage innovation, which has better competitiveness as a result (Silva et al., 2017; Valero & González, 2018; Vargas & Lerma, 2018; Augusta, 2018). It is established that EO is a valuable resource for SMEs since its impact on innovation capacity provides an ideal environment that brings competitiveness as a result (Augusta, 2018; Sok et al., 2017, Solano et al., 2017, Vargas & Lerma, 2018).

Market Orientation

In an analysis of the marketing variable in an SME, a substantial resource can be observed with variables such as promotion, pricing, distribution, services, development of commercial networks, and development of customer relationships (Sok et al., 2017). However, the Resource-Based Theory focuses on the strategic study of marketing in two aspects. First, it analyzes resources based on marketing support (Asikhia, 2010). This approach contributes indirectly and analyses how managers implement strategies based on their internal resources that result in a competitive advantage (Asikhia 2010; Reynoso et al., 2017). Secondly, the theory analyzes marketing resources based on their market orientation (Asikhia, 2010). Market orientation as a resource contributes directly as it can be executed immediately and results in maintaining a competitive advantage in the market (Li & Liu, 2013; Lonial & Carter, 2015; Reynoso et al., 2017; Sok et al., 2017; Villegas et al., 2018). MO is defined in the way that an organization generates superior value to customers through its strategic adjustment that will result in superior performance to the organization (Solano et al., 2017). Studies establish that MO in SMEs positively influences their capacity for innovation and is one of the relevant factors for a SME to be able to innovate successfully (Asikhia, 2010; Didonet et al., 2016). Therefore, this research analyzed marketing resources based on the direct impact that MO generated in SMEs in CR, PR, and DR in terms of their ability to innovate.

One study concluded that an approach to MO in SMEs maintained a positive impact on their capacity for innovation (Afriyie et al., 2018). Other researchers highlight that MO was a more significant factor than the other SMEs variables on average according to the sector in which they compete over their ability to innovate (García, et al., 2008; Santos et al., 2000). Didonet et al. (2016) concluded that MO is a critical factor in SMEs, which allows us to observe the success in their capacity for innovation. Therefore, the management of marketing resources based on their market orientation allows for competitive advantages and impacts their ability to innovate, which will result in higher returns (Estrella et al., 2012; Vorhies & Morgan, 2005). It is important to note that MO also has positive innovation mechanisms based on the way SMEs execute their innovation capacity (Didonet et al., 2016).

Human Capital

Warnier et al. (2013) highlight that human capital is one of the most analyzed variables throughout the Theory of Resources. Human capital is defined as all the competences and skills of human resources that result in competitive advantages beyond their structure and production processes (Choo, et al., 2010; Cruz, 2018; Fernández Ortiz et al., 2006; Fernández Guerrero et al., 2018). HC research is analyzed under two approaches: (a) specific and (b) generic. The *generic* perspective analyzes it on the general knowledge of the entrepreneur and the *specific* perspective analyzes it on the abilities of the personnel to be able to execute their work (Kato et al., 2015). This research analyzed HC under a specific perspective on how the SMEs of CR, PR & DR used their resources in order to hire qualified personnel with the ability to increase knowledge in order to improve their processes and influence their ability to innovate. Studies establish that HC has implications for SMEs since it can positively impact the results of the business (Fernández Ortiz et al., 2006; Marenzana & Abraham, 2016) and allows for an increase in innovation capacities by using it as a unique and differentiating resource among its competitors (Carson, et al., 2004, Choo et al., 2010; Marenzana & Abraham, 2016).

Kato et al. (2015) identify that the specific HC is associated with the capacity for innovation based on previous experiences of innovation that the staff has had. Other studies detail that HC is a source of value creation that has a positive impact on its ability to innovate (Cruz, 2018; Martínez-Román et al., 2015; Pike et al., 2005). In addition, other studies conclude that the innovation capacity of a SME in HC results in greater competitiveness in the competing sector (Marulanda et al., 2016; Rocca et al., 2016). On the other hand, some researchers sustain that HC reflects a lesser impact or is not a factor that influences innovation capacity (Canales & Álvarez, 2017, Cruz, 2018; González,

2017; Zontek, 2016). Cruz (2018) argue that the HC has an influence on the innovation strategy, but sometimes it is not observed as a source of innovation since from their specific perspective they observe it as a resource that executes specific tasks. These antecedents establish that human capital may or may not advance innovative capacities.

Social Capital

Ramos et al. (2018) explain that social capital resources are an important factor in analyzing trade relations between different parties. The SC is defined by how organizations establish ties of collaboration, trust, and frequent reciprocity on the implementation of individual strategies (Arredondo et al., 2017; Castañeda & Bazán, 2017; Ramos et al., 2018). Studies establish that the SC is one of the variables that facilitates innovation in a positive way for SMEs and directly impacts competitiveness (Akhtar et al., 2015; Badriyah, 2017; Gil-Lacruz & Gil-Lacruz, 2006). Subramaniam & Youndt (2005) establish that SC is an important factor for SMEs since it allows increasing innovation processes more rapidly. Social capital was analyzed in this research by studying how the SMEs of CR, PR, and DR employed strategies through their collaborative networks in order to increase their capacity for innovation. The literature establishes that the SC is essential to improve the competitiveness of SMEs through their capacity for innovation (Kim & Shim, 2018). Mejía-Giraldo et al. (2015) show that SC is decisive for increasing entrepreneurial knowledge (Xu, 2011) through productive learning (Ortega et al., 2016) and results in an increase in the capacity for innovation (Badriyah, 2017). Consequently, SC is a valuable resource as it facilitates the capacity for innovation through collaboration between different parties.

Innovation Capabilities and their Impact on Competitiveness in SMEs

The capacity-based theory establishes how companies make use of various resources that allow them to obtain a competitive advantage through their strategic adjustment (Cruz, 2018; García et al., 2018; Miller & Breton, 2017; Reynoso et al., 2017). A broad body of literature has analyzed the resources on the variables of entrepreneurial orientation (Bedoya & Arango, 2017; Matsuno et al., 2014; Sok et al., 2017), market orientation (Lonial & Carter, 2015; Reynoso et al., 2017; ; Sok et al., 2017; Villegas et al., 2018), human capital (Choo, et al., 2010; Cruz, 2018; Fernández Ortiz et al., 2006; Fernández Guerrero et al., 2018), and social capital (Akhtar et al., 2015; Badriyah, 2017; Gil-Lacruz & Gil-Lacruz, 2006) as a group of important variables that facilitate innovation capacity. Innovation is defined as the generation, acceptance, and implementation of new ideas, products or services that arise through an interactive process in order to influence a market (Brunswicker & Vanhaverbeke, 2015; García & Calantone, 2002; ; Hsieh & Chou, 2018; Sahut & Peris, 2014; Zhai et al., 2018). This research analyzed the capacity for innovation in the way in which the PyMES of CR, PR, and DR implemented continuous improvements in order to improve their competitiveness in the markets they operated.

On the other hand, competitiveness was analyzed in this investigation as the set of productive processes that increased the income of a business, over its resources and capabilities. As it is detailed, competitiveness is complex because it involves a series of variables that are analyzed according to the needs of the company through its resources (Aguilera et al., 2011; Flores-Romero & González-Santoyo, 2009; Parody et al., 2016). Several studies establish that the implementation of innovation strategies in SMEs has a positive impact on competitiveness (Cruz, 2018; González, 2018; Magdaleno et al., 2015; Mejía-Giraldo et al., 2015; Pérez et al., 2018; Villegas et al., 2018;). In the search for competitiveness, SMEs can determine their competitive advantage and increase the chances of success through their resources and capabilities (Flores-Romero González-Santoyo, 2009; Montoya et al., 2010). Therefore, the capacity for innovation allows them to be more competitive in the market in which they operate (Aragón-Sánchez, & Rubio-Bañón, 2005; Jankowska, et al., 2017; Montoya et al., 2010). Brunswicker & Vanhaverbeke (2015) explain that the scope of competitiveness in SMEs is associated with a greater approach to innovation. Therefore, the innovation capacity of a SME will be determined by the development of competitive strategies over the execution of its resources and capabilities (González-Campo & Ayala, 2014; Lin & Wu, 2014).

López and Merono (2011) conclude that innovation capacity positively influences competitiveness resulting in positive performance. The capacity for innovation will allow the transformation of resources, resulting in greater competitiveness in the sector in which SMEs compete. These antecedents make the researchers pose the following hypothesis, which can be seen in Figure 1:

H1. The heterogeneous effect of the EO, MO, HC, and SC resources has a positive impact in the capacity for innovation of the SEMs in CR, PR, and DR.

H2. The capacity of innovation through the generation, acceptance, and implementation of new ideas, products or services has a positive impact in competitiveness in the mar-

kets where the SEMs of CR, PR and the DR operate.

H3. There is a significantly different impact among the SEMs of CR, PR, and the DR in the heterogeneity of the EO, MO, HC, and SC resources and their impact in the innovation capacity.

H4. There is a significantly different impact in the SEMs from CR, PR, and the DR in how the innovation capacity through the generation, acceptance, and implementation of new ideas, products or services positively impacts the competitiveness in the markets in which they operate.

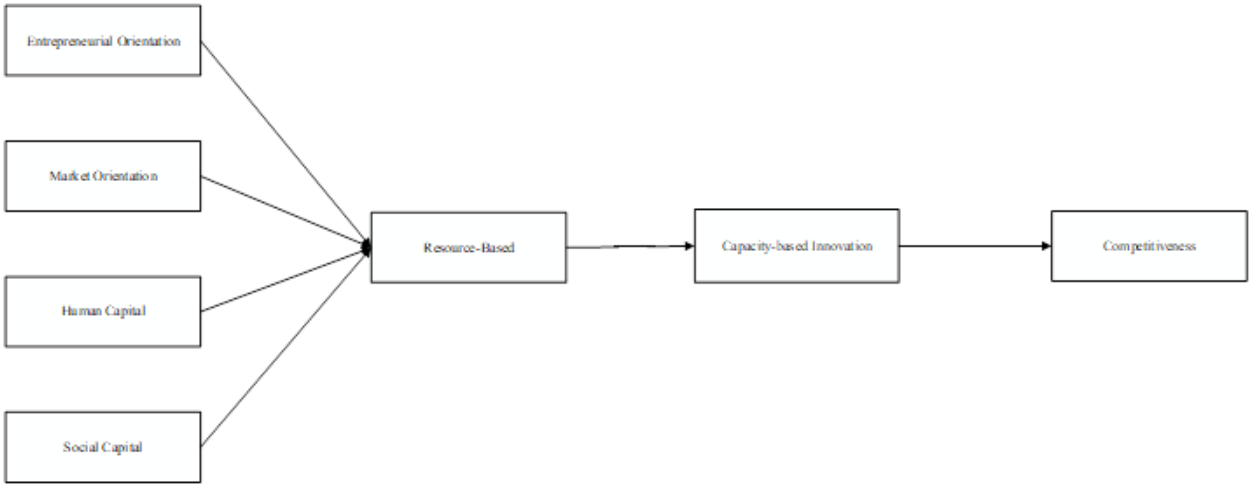

Figure 1. Research Model

Method

An electronic survey was sent to the email database of the main organizations DIGEPYME Costa Rica, the Commerce and Export Company of Puerto Rico, and the Chamber of Commerce and Production of Santo Domingo. With the support of these organizations, 659 surveys were received in which 467 were valid for the analysis. The data collection used the technique of no replacement. To comply with the rigor of the technique of no replacement, the survey was coded and protected so that it could only be accessed once. If the participant abandoned or left the survey incomplete, it was automatically rejected (Malhotra & Dash, 2016). The distribution of participants culminated with $n = 193$ from Costa Rica, $n = 141$ from Puerto Rico and $n = 121$ from the Dominican Republic.

Instrument Design

Thirty-one (31) items were used to measure the study variables. The researchers designed the items based on the review of the literature and the research objectives. The items of the instrument were designed on a five-point Likert scale where participants responded 1 as totally disagree and 5 as totally agree. The design of each item began with the variable heterogeneity of the resources that researchers configured as a second level variable through its dimensions of entrepreneurship orientation, market orientation, social capital, and human capital. To analyze the variable, the researchers used the *Hierarchical Component Models (HCM)* using the repeated indicators approach of the dimensions EO, MO, SC & HC (Ringle et al., 2012). To measure the dimensions, the variable EO had seven items, which were designed through the dimensions of innovation, risk taking, and proactivity. For this group of items, the researchers investigated how the EO allowed reacting with greater agility to the changes of the environment through its capacity for innovation. The MO had five items, which investigated how SMEs adapted their strategies in the markets in which they operated and how this allowed them to achieve competitive advantages. The SC dimension had three items that analyzed how SMEs used their collaborative network and contacts in order to establish innovations through individual strategies. The HC had two items analyzed from the specific perspective of how managers hired qualified personnel and how knowledge of their staff could improve their production processes. The innovation variable had six items that investigated the way in which innovation capacity allowed the obtaining of competitive advantages within a market and how they responded to different contingencies based on their strategy. In the end, the competitiveness variable had seven items that investigated how the tactics used by SMEs

have allowed them to respond based on their resources and capabilities.

Validity & Reliability of Research

Before analyzing the data, the researchers analyzed the validity and reliability of the study. The summary of the results can be seen in Table 1. The results show that the alpha coefficients, standardized loads, and convergent validity are according to the criterion of .70 in most of the analysis variables (Hair et al., 2011; Henseler., et al., 2009). In the HC variable an alpha of .69 was observed; however, standardized loads and convergent validity showed validity and reliability. Furthermore, composite reliability represents a better indicator for analyzing alpha coefficients. According to Chin (1998), the composite reliability is much more accurate since the received indicators are not assumed to be weighted. In the end, the AVE values reflected results over .50 that led researchers to conclude that the latent variables explained more than half of the variance on their indicators, according to the criteria of .50 by Hair et al. (2016). Thus, in turn AVE values are a measure that provides the value that a constructor obtains from its indicators. This test is ideal since it indicates that a set of indicators represents a single underlying construct (Henseler et al., 2009). This analysis led to the conclusion that the study showed high validity and reliability.

Table 1
Reliability and validity analysis

Variable	Dimensions Coding	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Competitiveness	COMP01	0.747	0.893	0.916	0.61
	COMP02	0.817			
	COMP03	0.739			
	COMP04	0.794			
	COMP05	0.783			
	COMP06	0.819			
	COMP07	0.767			
Entrepreneurial Orientation	MEEM01	0.673	0.890	0.913	0.569
	MEEM02	0.705			
	MEEM03	0.661			
	MEEM04	0.796			
	MEEM05	0.742			
	MEEM06	0.848			
	MEEM07	0.807			
	MEEM08	0.781			
Human Capital	CAPH01	0.853	0.693	0.866	0.764
	CAPH02	0.895			
Innovation	INNO01	0.795	0.899	0.923	0.667
	INNO02	0.767			
	INNO03	0.742			
	INNO04	0.807			
	INNO05	0.890			
	INNO06	0.887			
Market Orientation	MARK01	0.841	0.866	0.904	0.653
	MARK02	0.841			
	MARK03	0.814			
	MARK04	0.829			
	MARK05	0.708			
Social Capital	CAPS01	0.834	0.786	0.875	0.700
	CAPS02	0.834			
	CAPS03	0.841			

Discriminant Validity

The researchers analyzed that there was no significant variance between the different variables that could have the same meaning. The researchers analyzed the data using the *Fornaken & Laker* criterion (Table 2). According to these results, the study did not indicate problems between variables that could have the same meaning. For the Fornell-Larcker Criterion analysis, a diagonal level of the results of the square root of AVE values is observed while the rest of the cells present the correlation data between the constructs. The discriminant validity analysis allows us to justify the definition and choice of the indicators. It leads to the conclusion that there is no significant variance between the different variables that could have the same meaning (Fornell & Larcker, 1981; Luque, 2000).

Hierarchical Component Models (HCM)

The researchers analyzed the explanatory power of the variable resources. As established in the literature, the researchers analyzed the four internal resources that were unique and difficult to imitate. To observe the heterogeneity of the resources, the researchers analyzed the variable using the *Hierarchical Component Models (HCM)*. According to Hair Jr et al. (2018), using the HCM allows researchers to reduce the number of relationships in the structural model, which makes the PLS route model more accurate and easier to understand. To achieve this, the researchers used the approach of repeated indicators for second-order constructs that made up the variable resources (Hair Jr et al., 2018; Ringle et al., 2012). The results of Figure 2 reflect a strong impact on the conformation and heterogeneity of the resources and the way in which they are valued is explained

Table 2
Analysis of discriminant validity

	Competitiveness	Entrepreneurial Orientation	Human Capital	Innovation	Market Orientation	Resources	Social Capital
Competitiveness	0.781						
Entrepreneurial Orientation	0.585	0.754					
Human Capital	0.663	0.454	0.874				
Innovation	0.729	0.638	0.53	0.816			
Market Orientation	0.764	0.586	0.573	0.683	0.808		
Resources	0.803	0.87	0.694	0.787	0.865	0.661	
Social Capital	0.701	0.504	0.605	0.718	0.646	0.78	0.836

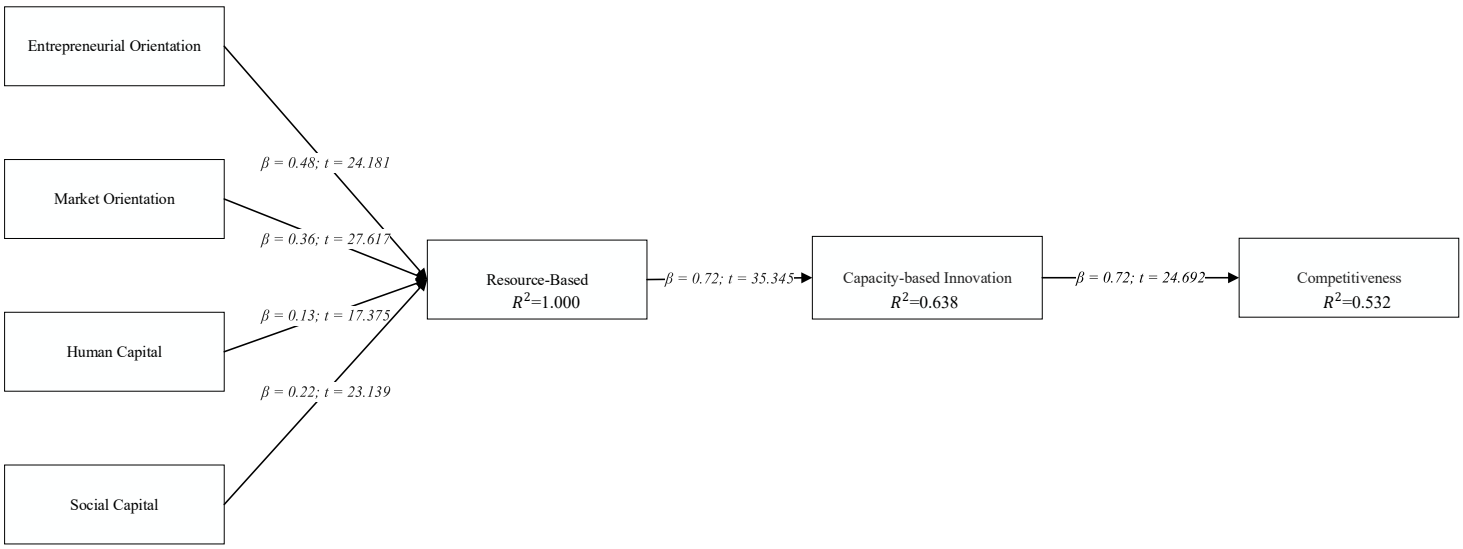

Figure 2. Hypothesis Results

first by MO (β = 0.36*; t* = 27.617), followed by EO (β = 0.48*; t* = 24.181), then SC (β = 0.22*;* t = 23.139) and finally HC (β = 0.13; *t* = 17.375).

Results

The results of the measurement model can be seen in Figure 2. These reflect a high predictive power. The analysis began by observing whether the heterogeneous effect of the EO resources (β = 0.48; *t* = 24.181), MO (β = 0.36*; t* = 27.617), HC (β = 0.13; *t* = 17.375) and SC (β = 0.22; *t* = 23.139) maintained a positive impact (H1 β = 0.72; *t* = 35.345) on the SMEs innovation capacity of CR, PR, & DR. Secondly, it was analyzed whether the innovation capacity (H2 β = 0.72; *t* = 24.692) maintained a positive impact on competitiveness. The results showed support for H1 & H3. These results demonstrate that there is a strong relationship through variable resources and variable innovation (β = 0.72) and, in the same way, another strong relationship between innovation and competitiveness (β = 0.72). Other data of interest is seen when observing the results of R^2 and Q^2. The data lead to the conclusion that the research model maintains a high predictive power. The dynamic data from the innovation variable is explained in 65% and 53% by competitiveness. This result is also supported by observing values of .30 and .40 through the blindfolding test (Q^2) so that the modified model data has a high predictive power and strengthens the discussion of the selected results.

Discussion

The statistical analysis of this first part of the study provided empirical evidence on how the heterogeneity of resources was valued and how the way they were managed (Fong Reynoso et al., 2017) generated innovation capacity (Loggiodice, 2012). The Theory of Resources and Capabilities emphasizes the need for companies to develop strengths in order to achieve competitive success (Carrillo et al., 2017). The data showed how differences and the degree of importance in managing resources generated the capacity for innovation. This is how HCM data explained the heterogeneity of resources through the impact obtained on innovation capacity (Otero et al., 2018). Therefore, the results of the HCM in the conformation of the resources variable and its impact on the capacity for innovation presented valuable information about the way in which they executed and managed their resources. First, MO was listed as the most valued resource, which was managed in order to achieve superior performance for the generation of innovations in the markets in which they operated. The EO positively increased the capacity for innovation through the exploration of new strategies (Bedoya & Arango, 2017; Matsuno et al., 2014; Sok et al., 2017) and was managed as a relevant factor to innovate successfully (Asikhia, 2010; Didonet et al., 2016). On the other hand, the SC was established as a powerful determinant (Chen et al., 2011) and an element that generated the capacity for differential innovations (Kim & Shim, 2018; Li et al., 2018). Finally, the HC allowed them to hire qualified personnel and increase knowledge in order to improve processes and thus increase their capacity for innovation.

Study 2

In this second part of the work, the researchers analyzed whether there was a significantly different impact between the SME groups of CR, PR & DR through the research model. The selection of analyses of these three countries is sustained since the Hispanic Caribbean is made up of PR, DR and Cuba. Given the political and economic differences in Cuba, it is not considered comparable. Instead, PR and DR are in the Caribbean region and are neighboring countries with free trade and democratic economies. CR is now selected as a Central American country that is remarkably close to the Caribbean. In other aspects, according to the 2019 global competitiveness index, it places a CR at number 62 and DR at number 78 of 141 economic purchases (Schwab, 2019). On the other hand, PR does not appear in this report due to its territorial relationship with the United States. In addition, according to Doing Business (2020) statistics, it gives a rating of .60 for CR, PR .70, and DR .60 to the analysis of national SMEs and the ease of doing business in the country. Hence, these three ideal countries are similar enough for this study. A summary of demographic data of interest can be observed in Table 3.

Method

To determine whether there was a significantly different impact between the paths of the research model, the model was analyzed through PLS-MGA. Prior to the analysis, an invariance analysis was performed on the constructs, using the three-step Measurement Invariance of Composite Model (MICOM) test and the calculation of permutations in SMART-PLS, in order to validate whether PLS-MGA was adequate for the analysis and presentation of results (Henseler et al., 2016).

Table 3
Demographic sample summary

	Puerto Rico ***n*** **= 142**		**Costa Rica** ***n*** **= 193**		**Dominican Republic** ***n*** **= 121**	
How long has the company been established?						
One year or less	5	3.52%	5	2.59%	22	18.18%
2 to 5 years	46	32.39%	56	29.02%	48	39.67%
6 to 10 years	18	12.68%	35	18.13%	24	19.83%
11 to 15 years	22	15.49%	38	19.69%	12	9.92%
16 to 20 years	21	14.79%	23	11.92%	3	2.48%
21 years or more	30	21.13%	36	18.65%	12	9.92%
Total Employees						
7 employee or less	79	55.63%	131	67.88%	86	71.07%
8 to 25 employees	32	22.54%	44	22.80%	24	19.83%
26 or more employees	31	21.83%	18	9.33%	11	9.09%
Estimated Annual Income (US Dollars)						
$ 500,000.00 or less	77	54.23%	145	75.13%	100	82.64%
501,000.00 to $ 3,000,000.00	35	24.65%	30	15.54%	17	14.05%
$ 3,000,000.00 or more	30	21.13%	18	9.33%	4	3.31%
SEMs Type of Business						
Agriculture, forest hunting and fishing	1	0.70%	6	3.11%	4	2.48%
Mining	0	0.00%	0	0.00%	0	0.00%
Electricity, water and gas	0	0.00%	2	1.04%	3	2.48%
Construction Industry	4	2.82%	15	7.77%	11	9.09%
Manufacture	20	14.08%	11	5.70%	8	5.79%
Wholesale trade	5	3.52%	7	3.63%	12	9.92%
Retail trade	16	11.27%	68	35.23%	6	3.31%
Information's System	2	1.41%	2	1.04%	2	1.65%
Finance and Insurance	2	1.41%	0	0.00%	5	4.13%
Real Estate, rent or lease	3	2.11%	3	1.55%	1	0.83%
Professional and technical services	29	20.42%	35	18.13%	34	27.27%
Management Companies	2	1.41%	0	0.00%	1	0.83%
Administrative Services and Solid Waste	0	0.00%	0	0.00%	0	0.00%
Educational services	9	6.34%	5	2.59%	2	1.65%
Health and social assistance services	6	4.23%	2	1.04%	5	4.13%
Arts, entertainment and recreation	7	4.93%	5	2.59%	2	1.65%
Tourism and food services	4	2.82%	12	6.22%	3	2.48%
Other services (except public administration)	4	2.82%	14	7.25%	8	2.48%
Other	28	19.72%	6	3.11%	24	19.83%

MICOM Test

The first step was to establish the *Configural Invariance*. To achieve the first step, the researchers configured the PLS algorithm using the same indicators for each variable observed and the same treatment for the data on the CR n = 193, PR n = 141 and DR n = 121 groups. They concluded that the configural invariance was successfully established, so they continued with Step 2 (Henseler et al., 2016). Hair Jr et al. (2018) state that the second step is to analyze the compositional invariance using the permutation test. To determine the compositional invariance, the null hypothesis could not be rejected where H0 *c =1; 1.* It will also be observed for its level of significance of $p > 5\%$ (Hair Jr et al., 2018, Henseler et al., 2016). The summary of the results can be observed in Table 4. One thousand (1,000) permutations were executed on the study sample, leading researchers to support the hypothesis that the groups being compared showed significantly 1 scores (*c*). The data reflected that there was no invariant effect, so the grouping of the data was not necessary. This result led to the conclusion that Step 3 was not necessary, determining that PLS-MGA was appropriate for analysis purposes (Henseler et al., 2016; Hair Jr et al., 2018).

Table 4
Configural invariance (MICMO TEST step 2)

Country Comparison	CR vs PR			CR vs RD			PR vs RD			
Configural Invariance	c=1	5%	p < .05	c=1	5%	p < .05	c=1	*95%*	*p < .05*	CV
Competitiveness	1.000	0.999: 1.000	0.543	1.000	0.998:1.000	0.834	0.998	0.996:1.000	0.332	YES
Entrepreneurial Orientation	0.999	0.999:1.000	0.420	0.999	0.995:1.000	0.613	0.999	0.999:1.000	0.386	YES
Human Capital	0.999	0.995:1.000	0.081	0.999	0.995:1.000	0.436	0.999	0.994:1.000	0.465	YES
Innovation	1.000	0.999:1.000	0.517	1.000	0.999:1.000	0.473	0.999	0.999:1.000	0.110	YES
Market Orientation	1.000	0.999:1.000	0.685	1.000	0.999:1.000	0.893	1.000	0.999:1.000	0.972	YES
Resources	0.999	0.998:1.000	0.326	1.000	0.998:1.000	0.922	0.999	0.997:1.000	0.501	YES
Social Capital	1.000	0.998:1.000	0.921	1.000	0.998:1.000	0.983	1.000	0.997:1.000	0.988	YES

Results PLS-MGA

PLS-MGA is a non-parametric one-tailed test where $p < .05$ values indicate whether the coefficient of the route is significantly higher in the first group and is compared with the second group (CR, PR & DR) on the results of Bootstrapping (Hair Jr et al., 2018). In analyzing more than three groups, the researchers conducted a preliminary test through an *Omnibus Test of Group Differences* (OTG) proposed by Sarstedt et al. (2011). The OTG allows the researchers to analyze more than three groups of CR, PR & DR simultaneously and offers an acceptable level of statistical power without relying on distribution assumptions. The OTG test is not available through PLS-SEM. To calculate the OTG, the researchers used a spreadsheet for OTG designed by Chan (2014). Through the spreadsheet, the researchers placed the estimates of 1000 bootstrapped generated by PLS-SEM. Preliminary results showed no significant differences between CR, PR & DR to be compared (Table 5). After this preliminary evaluation, the PLS-MGA was executed and the results in Table 5 led researchers to reject the hypothesis for H3 and H4 as there was no significantly different impact through the measurement model.

Discussion

The results in Table 5 reflect that there was no significantly different impact on the variables throughout the research model, so H3 and H4 were rejected. The results of this second part allowed the researchers to deepen their knowledge and provided additional information in the way in which the resources and capacities presented in Study 1 were managed. Although the results showed similarity in the way they managed resources, the results of the *t-test* reflected some interesting data. CR reflected impacts greater than PR and DR in the way in which they managed their resources, but it was DR that managed to take greater advantage of its capacity to innovate (Innovation Competitiveness; t = 17.861) than CR and PR in order to develop strengths to achieve competitive success. It is interesting to note that in DR its most valued resource is the EO (t = 11.966) and in PR the second most valued resource is SC (t

Table 5
PLS-MGA results

Country Path	CR β	PR β	DR β	CR *t*	PR *t*	DR *t*	CR vs PR PLS-MGA *p* <.05	CR vs PR PLS-MGA *p* <.05	PR vs DR PLS-MGA *p* <.05	CR vs PR *OTG* *p*<.05	CR vs PR *OTG* *p*<.05	PR vs DR *OTG* *p*<.05
Entrepreneurial Orientation→ Resources	0.446	0.544	0.492	**19.415**	12.528	11.966	0.981	0.835	0.193	0.981	0.837	0.192
Human Capital→ Resources	0.133	0.127	0.141	**12.878**	8.836	6.411	0.367	0.637	0.711	0.499	0.538	0.541
Innovation→ Competitiveness	0.752	0.695	0.739	16.961	12.940	**17.861**	0.207	0.403	0.735	0.448	0.467	0.528
Market Orientation→ Resources	0.358	0.341	0.37	**22.266**	14.959	10.881	0.267	0.614	0.762	0.499	0.538	0.541
Resources → Innovation	0.803	0.793	0.76	**23.330**	21.999	18.804	0.419	0.210	0.272	0.515	0.438	0.432
Social Capital→ Resources	0.213	0.22	0.229	**17.137**	14.089	9.942	0.63	0.724	0.62	0.501	0.524	0.522

= 14.089). This second part of the study provided valuable information on the different thinking perspectives of the SME administrators in the region and the degree of importance in managing resources and capacities in the markets in which they operate.

Conclusion

The theory states that the heterogeneity and the way in which resources and capabilities are managed persist over time and provide a competitive advantage, as long as they are valuable and rare, in order to maintain a sustainable advantage over time (Cruz, 2018; García et al., 2018; Matsuno et al., 2014; Miller & Breton, 2017; Reynoso et al., 2017). This study explored how CR, PR and DR SMEs tailored their EO, MO, SC, and HC resources and their impact on their innovation capacity. Secondly, it explored how innovation capacity appeared as a component for the generation of competitive advantages and its impact on competitiveness. Finally, it explored if there was a significantly different impact on the SMEs of CR, PR, and DR through the proposed research model.

This study offers several contributions to literature. According to Barney et al. (2011) and Bedoya and Arango, (2017), the new direction of resource-based studies should contemplate the analysis of the maximum set of variables to present a theoretical and practical understanding of the heterogeneity of resources. Historically, the resource-based study only contemplates one to two variables in which the literature reveals positive impacts on innovation capacity (Ajayi, 2016; Asikhia, 2010; Bedoya & Arango, 2017; Canales & Álvarez, 2017; Cruz, 2018; Didonet et al., 2016; González, 2017; López & Contreras, 2009; Schumpeter 2000; Zontek, 2016). When contemplating the set of most analyzed variables (EO, MO, SC and HC) in the literature through the HCM, it presents a valuable contribution of how the heterogeneity in the variable resources is observed. The theory supports the idea that the effects of valuable resources must be observed heterogeneously to determine the performance of the company. This study offers more extensive information about how the resource variable is composed and how it is used to manage innovation capacity.

Secondly, the results add to what Cuervo (1993) states, who establishes that competitiveness is determined by external variables and by the internal actions of managers to generate resources and capacities in which heterogeneity will explain the competitive advantages and success of the company. The adequacy of resources and the way the managers of SMEs obtain their innovation capabilities translate into a positive impact on competitiveness, thus demonstrating that they are valuable, rare, inimitable, and non-substitutable (Barney et al., 2011; Bedoya & Arango, 2017). Then, when determining the factors in their competitive environment, innovation capabilities, together with the way in which they manage and select their resources, explain competitiveness (García et al., 2018; Hernández et al., 2018; Lin & Wu, 2014). The resources are not the ones that generate the competitive advantage, but the combination of resources through their strategic adjustment generates value through their capacity for innovation, thus allowing them to achieve greater competitiveness.

The data reflected that the way SMEs of CR, PR and DR adapted their resources is explained firstly by their MO, followed by EO, SC and HC. It is distinctive to note that the

three countries show the same order and level of importance to each resource. This implication is valuable and supports what was exposed by Priem et al. (2001), who explains that the application of strategies requires an understanding of how resources are adapted according to their level of importance and how they contribute to capacity building as the innovation. In this sense, each resource contributes to the capacity for innovation in diverse ways. For example, MO is listed as a resource that can be immediately deployed in the market (Ferreira & Fernandez, 2017). The EM explains the participation and the business through its practices and processes (Sok et al., 2017). This is how SC, through its network of contacts, increases processes in an accelerated way (Subramaniam & Youndt, 2005). Finally, the HC affects how the entrepreneur implements its strategy and how the human resource contributes its knowledge and skills to the business results (Fernández Ortiz et al., 2006; Marenzana & Abraham, 2016). Therefore, the degree of importance of these resources and the way in which the owners of the SMEs of CR, PR and DR execute their strategies more quickly allow the innovation of products and services that results in greater competitiveness within their local and international market.

However, the adequacy of the resources of the SMEs of CR, PR and DR reflect an impact on their capacity for innovation and competitiveness. For example, at the level of government policies, the three countries have incentives, training programs for entrepreneurs, the strengthening of business networks and the improvement of productivity that strengthen the efficiency of SMEs. This involvement is valuable since the resources and capacities for innovation and competitiveness are similar in CR, PR, and DR, so at the country level there is a strong SME base focused on innovation resulting in greater competitiveness. This is how competitiveness strengthens the economy, becoming a source of competitive advantage. On the other hand, considering the current context of a constantly changing market, these results have management implications for SMEs in the three countries. With MO, owners must identify and promote value creation for their clients so that they do not lose the loyalty of those who are part of their target market and take advantage of the opportunity to attract new ones with innovative products or services in the new social and market reality. In relation to the EO, the strategic thinking of these owners allows for practice to adapt more easily to changes, and in this way, a culture of innovation is strengthened. The SC promotes collaborative alliances to increase the competitiveness of SMEs. Suppliers of raw materials or finished products support and innovate. In this way, they manage to stay on the market. Finally, the HC is the one that materializes the strategic thinking of the owners of SMEs. Contributions of ideas by collaborators improve products and services, making them more attractive and responsive to customer needs.

For the owners and administrators of SMEs, once the external factors that lead them to be competitive are determined, the results provide valuable information on how internal action generates resources and capabilities. Therefore, the way they manage heterogeneity produces sustainable competitive advantages. SMEs that want to be more competitive should take into account the resources analyzed in this study in order to establish more innovative companies through their management of products and services, internal processes, collaboration, and staff development which will allow them to differentiate themselves from their competitors.

Limitations

First, this research used data collection through a cross-sectional design, which can result in bias problems through sample selection. To solve these limitations, researchers recommend the use of a longitudinal design in order to observe if there are changes over time and thus reduce bias problems. Secondly, the researchers did not analyze other control variables such as company size, established time, among others. Aranguren Peraza (2007) argues that to overcome these limitations there should be a focus on the degree of simplification of experience, training, and socialization done by the researchers through the recommended methodology. Finally, future research should consider each country's analysis in more detail to determine differences and similarities depending on where SMEs are located.

Future Research & Final Considerations

One of the recommendations is to expand the model by analyzing variables such as company size, established time, and differences between SMEs of services and those of products. This analysis will allow researchers to analyze in greater depth the impact that the Theory of Resources and Capabilities has on innovation strategies or which sector takes more advantage of the adequacy of its resources. The final recommendation is to do research comparing SMEs between local business models and export activities. The research model proposed in this study advances current knowledge by suggesting that in order to achieve competitiveness over innovation capacity, it is necessary to use all available resources effectively.

In the end, the results of the model reveal that the implementation of their innovation capabilities, the adequacy of the heterogeneity of the resources, and the degree of im-

portance with which they are managed will result in greater competitiveness within their sector.

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