Putting marketing knowledge to use: marketing-specific relational capital and product/service innovation performance

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Abstract

Purpose – The importance of integrating both internal and external knowledge into the product/service innovation process has been highly recognized in the knowledge management and innovation literature. Likewise, the role of the marketing and sales function as a driver of innovation has been stressed because of its market-facing role. However, limited research has investigated the complementarity of both internal and external knowledge regarding product/service innovation performance in a marketing context. The purpose of this paper is to analyze marketing departments’ main role in accessing internal and external knowledge resources (i.e., marketing-specific relational capital) to reach improved product and service innovation performance.

Design/methodology/approach – The analysis uses empirical evidence collected by a structured survey of 346 respondents representing marketing and sales functions in Spanish companies.

Findings – The survey revealed that marketing-specific internal relational capital at the department and interdepartment levels, as well as noncustomer external relational capital, are directly associated with product/service innovation performance. Further, the analyses show that the relationship between customer-specific relational capital and innovation performance is mediated by other types of relational capital, making it a fundamental antecedent to the innovation process. Finally, significant differences in marketing-specific relational capital subcomponents were found between B2C and B2B firms.

Originality/value – This study makes a valuable contribution to the marketing and management literature by revealing the types of social interactions in the marketing function that enable the access of knowledge sources that promote successful product/service innovation.

Keywords – relational capital, customer relational capital, intellectual capital, knowledge resources, innovation performance, marketing.

Paper type – Research paper

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1. Introduction

Product and service innovation are considered critical to a company’s financial performance over time, as shown in broad-based studies in different fields (e.g., Damanpour et al., 2009; Geroski et al., 2014; Verona and Ravasi, 2003). For this reason, researchers have sought to find the key capabilities and practices via which firms can improve product and service innovation performance. The determinant of innovation that has received the most attention from researchers is research and development (R&D) (e.g., Becheikh et al., 2006; Nijssen et al., 2006). More recently, however, the role of the marketing and sales function as a driver of innovation has increasingly been highlighted because of its market-facing role, which provides visibility to new technology trends, customer needs, and competitive environments (Atuahene-Gima et al., 2005; Danneels, 2007). Marketing tends to have a major role in accumulating and translating knowledge within a company (i.e., in the development of knowledge integration capabilities), eventually resulting in improved product and service innovation performance.

Because of the increasing amount of specialized knowledge dispersed across heterogeneous actors, it is broadly recognized that firms need to integrate both internal and external knowledge in their innovation processes (Henttonen et al., 2011; Laursen and Salter, 2006; Tsai and Ghoshal, 1998; West and Bogers, 2014). Therefore, we examine how marketing knowledge is put to use in companies, including knowledge from both internal and external sources.

From an internal perspective, different authors have demonstrated the relevance of knowledge sharing and cross-functional coordination between marketing and R&D departments in developing new products or services (e.g., Bendoly et al., 2012; Ernst et al., 2010; Tsai and Hsu, 2014). The patterned interactions between departments result in a system of “intersubjectively shared meanings” (Walsh and Ungson, 1991) that enable superior tracking, acquisition, and dissemination of information related to customers’ and competitors’ activities.

From an external perspective, many studies have highlighted the relevance of understanding current and future customer needs, competitor strategies and actions, channel requirements and abilities, and the broader business environment to innovate successfully (Atuahene-Gima et al., 2005). Indeed, it is through the ongoing monitoring of customers, their needs, and market conditions that firms can adapt, allowing them to develop and deliver the products and services that customers value (Atuahene-Gima et al., 2005; Day, 1994; Kohli and Jaworski, 1990). Moreover, interactions with external supply chain partners allow firms to discover new product opportunities and understand new market dynamics (Bendoly et al., 2012; Malhotra et al., 2005).

To reap the benefits of internal and external knowledge for product and service innovation, this knowledge needs to be integrated within the organization (Kogut and Zander, 1992). Knowledge integration involves both “the shared knowledge of individuals and the combined knowledge that emerges from their interactions” (Okhuysen and Eisenhardt, 2002, p. 371). Relational characteristics (Huang and Newell, 2003; Tell, 2011) and knowledge embedded in relationships (i.e., relational or social capital; Youndt et al., 2004) are two key factors that influence knowledge integration. Thus, we focus on relational capital (RC) by using a knowledge-based perspective on relationships (Peñalba-Aguirrezabalaga et al., 2020).

Although previous research has highlighted the importance of both internal and external RC to develop new products and/or services or improve existing ones (e.g., Chen et al., 2006; Chen et al., 2014; Hsu and Fang, 2009), no studies investigate how different types of RC complement each other and work together to enhance product/service innovation performance. This constitutes an important research gap because it implies companies lack guidance about how to manage and prioritize their social relationships and the specific networks of actors in which knowledge exchange mechanisms should be implemented to generate innovative
products and/or services that best match customers’ needs and preferences. Furthermore, we problematize the existing literature’s focus on external relationships at the firm level or within the R&D function (e.g., Laursen and Salter, 2006; Henttonen et al., 2011), which leaves a lacunae in our understanding of the potential of marketing and sales RC.

Given the pivotal role of the marketing and sales function in the development of products and services and following recent calls for a more contextual approach toward intellectual capital (IC) (Kianto et al., 2020), the current study focuses on marketing-specific RC (Peñalba-Aguirrezabalaga et al., 2020) and explores the moderating role of customer type (i.e., businesses vs. consumers) because of the important differences that exist between business-to-business (B2B) and business-to-consumer (B2C) firms regarding their marketing and selling processes (e.g., Kotler and Armstrong, 2018).

Building on survey data from 346 respondents in Spanish companies, our study contributes to the literature by revealing the role of knowledge generated through the different types of external and internal relationships held by the marketing and sales function when it comes to enhancing product/service innovation performance in B2B and B2C firms.

2. Theoretical background

The current paper focuses on two main literature streams as the foundations of RC: the knowledge-based view (Grant, 1996), which is an extension of the resource-based view (Barney, 1991; Wernerfelt, 1984), and the relational view (Dyer and Singh, 1998). In an attempt to explain the differences in firm performance, the resource-based view posits that those resources and capabilities that are rare, valuable, nonsubstitutable, and difficult to imitate allow a firm to achieve a competitive advantage over competing organizations.

In this regard, the knowledge-based view sees knowledge as the most strategically important resource of the firm due to the existing barriers to its transfer and replication, and posits that, under dynamic competition, superior profitability is likely to be associated with resource and capability-based advantages that are likely to derive from superior access to and integration of specialized knowledge (Grant, 1996). Indeed, empirical studies have found that knowledge-based resources are important for firm performance and competitiveness (e.g., McEvily and Chakravarthy, 2002; Wiklund and Shepherd, 2003).

However, it should be acknowledged that a company is always embedded in a network of relationships (Dyer and Singh, 1998). This means that a firm’s critical resources—and knowledge resources in particular (Grant, 1996)—may extend beyond firm boundaries and be embedded in interfirrm relationships and routines (Dyer and Singh, 1998). Based on this backdrop, we study how the knowledge resources embedded in the marketing and sales department’s networks of relationships (i.e., marketing-specific RC) can be an important source of competitive advantage through their contribution to product/service innovation performance.

2.1 Relational capital and innovation

The concept of RC has evolved within the broader discussion on IC. Initially, the focus was only on customer relationships (e.g., Bontis, 1998; Saint-Onge, 1996; Stewart, 1997). Over time, however, the scope of external relationships extended to include relationships with other external stakeholders, such as suppliers, alliance partners, shareholders, investors, or communities (e.g., Marr, 2006; Roos et al., 1998). Later, internal relationships were also included (e.g., Inkinen et al., 2017; Youndt et al., 2004). In the current study, following Youndt et al. (2004), we adopt a knowledge-based approach to IC, viewing RC as the knowledge that is accessible to a firm via its internal and external relationships.

From an innovation perspective, the interactions between different actors inside and outside a company can provide access to knowledge resources that may facilitate the development of new products and/or services (e.g., Martín-de Castro, 2015; Tsai and Hsu,
Moreover, innovation often involves a “recombinant search” (Fleming and Sorenson, 2004) of specialized, differentiated, yet complementary knowledge (Tell, 2011). From this perspective, innovation is achieved by either combining fundamental bits of knowledge in a novel manner or reconfiguring existing combinations (Henderson and Clark, 1990). Recombinations may result in completely new products and services or applying existing products to new markets and uses (Fleming and Sorenson, 2004). This process of recombinant search relies on the social relationships between individuals. As Nonaka and Takeuchi (1995) point out, to create a new product or service, a networking process is needed that stimulates the combination of different pieces of knowledge.

2.2 Marketing as a knowledge integration function for innovation: marketing-specific RC
Marketing is often associated with firms’ innovation outcomes because of its contribution to the development of new products/services (Danneels, 2007). Product/service innovation performance depends not only on technological knowledge resources, but also on the ability of firms to deploy accessible knowledge for commercially successful products (Adams et al., 2019). In this sense, marketing can play a key role in which knowledge resources gathered from within and outside the firm are integrated and deployed to create value for customers (Davcik and Sharma, 2016). Given the potential for the marketing department to integrate knowledge, we focus on the knowledge embedded in the different types of relationships that marketing and sales staff maintain with different actors—that is, marketing-specific RC (Peñalba-Aguirrezabalaga et al., 2020)—and in their potential to contribute to product/service innovation.

Following the accepted distinction in the IC literature between internal and external RC (Inkinnen et al., 2017), we define marketing-specific RC as all marketing-related knowledge that is generated, transferred, and preserved through internal and external interpersonal relationships (Peñalba-Aguirrezabalaga et al., 2020). From an internal perspective, this includes the knowledge embedded in the relationships among employees within the marketing department and between these employees and people in other departments (Tsai and Ghoshal, 1998; Yli-Renko et al., 2002). In other words, marketing-specific internal RC is the knowledge embedded in social structures within organizational boundaries (Kianto and Waajakoski, 2010). From an external perspective, marketing-specific RC includes the knowledge embedded in the relationships between employees in the marketing department and customers, and between these employees and other external actors, such as competitors, suppliers, industry associations, or any other stakeholder that may influence organizational life (Cabrita and Bontis, 2008). Put differently, marketing-specific external RC is the knowledge embedded in the relationships established by the marketing department with the outside environment (Bontis, 1999; Kogut and Zander, 1992). To sum up, we differentiate four main categories within marketing-specific RC: intradepartment RC, interdepartment RC, customer-related RC, and RC related to other external actors.

This categorization is fully consistent with the knowledge integration hierarchy put forward by the knowledge-based view. According to Grant (1996), new product development capability (i.e., product/service innovation) is a high-level capability that involves especially wide-ranging integration of specialist knowledge related to different functional capabilities (e.g., operations, R&D, marketing, and human resource management; i.e., interdepartmental knowledge integration), as well as to activity- and task-related capabilities at the functional level (e.g., market research, customer relationship management, communication, and social media management in the marketing function; i.e., intradepartmental knowledge integration), and to different external actors (e.g., customers, distributors, furnishers, complementors, and competitors). As put forward by the knowledge-based view, such multi-level knowledge
integration contributes to the development of organizational capabilities (in this case, new product development capability) that lead to superior profitability (Grant, 1996).

3. Hypothesis development
Prior to developing the research hypotheses, we first define our dependent variable—product/service innovation performance—and the overall hypothesized model. Here, we follow Griffin and Page (1993, 1996), who reported the findings of a Product Development and Management Association (PDMA) task force studying the measures of product development success and failure. Three categories of measures were identified that were equally relevant for both academics and companies: customer-related measures (e.g., customer acceptance, revenue growth, and market share), product-related measures (e.g., development costs and speed to market), and financial performance (e.g., innovation profitability), which were then labeled as customer-based success, technical performance success, and financial success (Griffin and Page, 1996). Thus, product/service innovation performance is portrayed as a combination of the above dimensions.

Our research model and hypotheses are based on our expectation of the key RC dimensions (each one representing a specific knowledge integration space) that can facilitate product and service innovation success by boosting new product development capability. Importantly, we argue that knowledge gained by marketing and sales staff through customer relationships (which constitute the core of their job) influences product/service innovation performance by fueling other types of marketing-specific RC. In other words, we consider customer-related RC as the primary input for the marketing department to exert its knowledge integration role across various types of RC to support product/service innovation performance. Figure I provides a visual summary of the research model and hypotheses that are discussed in the remainder of this section.

Figure I. Research model and hypotheses
Marketing-specific external RC (customer-related) refers to the knowledge generated, transferred, and preserved through interpersonal relationships between marketers and customers (Peñalba-Aguirrezabalaga et al., 2020). In contrast to a follower, a leading company understands what customers want in a product or service better than anyone else (Bontis, 1998). In the context of innovation, customers participate in value co-creation by playing an active role in new product development (Cui and Wu, 2016; Sofka and Grimpe, 2010). Customers could be involved as an information source, co-developers, or innovators. Involving customers in the innovation process allows for the development of products with better market acceptance (e.g., Mahr et al., 2014), and creates increased legitimacy for the new offerings provided by the firm and its ecosystem (Thomas and Ritala, 2021).

The marketing literature has recognized high-quality customer relationships as a key determinant of market performance (e.g., Boles et al., 1997). For instance, Joshi and Sharma (2004) stated that understanding customers and their preferences (i.e., customer knowledge) is essential for the creation of successful new products. Furthermore, Tsai and Hsu (2014) found that the integration of influential customers’ viewpoints into product development gives rise to higher product performance. Through relationships with customers, a marketing department gathers critical knowledge that improves the fit between new product/service features and customers’ preferences. Consequently, we hypothesize the following:

**H1**: Marketing-specific external RC (customer-related) is positively associated with product/service innovation performance.

When interacting with customers, marketers gain relevant insights (e.g., Jiménez-Jiménez and Cegarra-Navarro, 2007) into what customers need, what they prefer, how they react, how they use the company’s products and/or services, and how they view competitors. Later, when employees in the marketing department interact and exchange their individual insights, a richer, more complete picture emerges because of the integration of knowledge (Maure et al., 2011). This provides a better foundation for innovation efforts and marketing decisions related to the introduction of new products and/or services. Likewise, when marketers interact with people from other parts of the company (e.g., manufacturing or engineering) and exchange the insights they gained regarding how customers perceive and/or use the firm’s products, new interpretations and conclusions may emerge (Tsai and Hsu, 2014). For example, integrating these insights with the specialized technical knowledge possessed by engineers may generate a better understanding of the customer–product relationship. Again, this integrated knowledge becomes a solid foundation to guide innovation efforts. Similarly, when marketers interact with other external actors, such as distributors, and share the insights they gained about customers’ buying experiences, new ideas to improve these experiences may emerge. In this vein, Rai et al. (2006) and Rollins et al. (2011) showed the benefits derived from sharing customer knowledge through the partners of the supply chain. Based on the above, we hypothesize the following:

**H2**: Marketing-specific external RC (customer related) is positively associated with marketing-specific internal RC both at the (a) department and (b) interdepartment level and with (c) marketing-specific external RC regarding other external actors.

Continuing with internal RC at the department level, the ties between organization members serve as channels for information exchange and knowledge transfer, facilitating the mobilization of existing knowledge resources (Maurer et al., 2011). According to Allee (2003), socialization among members of the same department and conversations about everyday work are essential for encouraging knowledge sharing at the team level, helping identify the
knowledge gaps and resources needed to fill those gaps. In addition, social interaction supports the assimilation of knowledge resources by allowing organization members to exchange and combine each other’s knowledge to generate new knowledge, which is critical for innovation (Tsai and Ghoshal, 1998). Through social ties, organization members can inform their colleagues about the existence and location of relevant knowledge (Smith et al., 2004). In the marketing context, this could be knowledge about customers’ needs and preferences, or about competitors and market trends. Moreover, a greater number of direct ties between department members not only grants potential access to organizational knowledge resources, but also increases the ease and extent of knowledge transfer (Maurer et al., 2011). Knowledge transfer contributes to the reallocation of existing resources or the combination of new resources that may provide relevant insights, generating a new collective understanding that fosters innovation outcomes (Song et al., 2005). Therefore, it can be expected that marketing departments with strong internal RC are better able to contribute to firms’ product and service innovation performance. Accordingly, we hypothesize the following:

**H3:** Marketing-specific internal RC at the department level is positively associated with product/service innovation performance.

Moving on now to marketing-specific internal RC at the interdepartment level, it is well-known that interdepartmental integration and interaction are crucial for the creation and diffusion of product innovations (e.g., Kahn, 1996; Tsai and Ghoshal, 1998). In particular, knowledge transfer between departments can trigger the development of new or better products because it facilitates the integration and combination of specialized knowledge resources (Smith et al., 2014). The literature confirms the importance of knowledge sharing and collaboration between the marketing department and other firm departments in new product development. For example, Hise et al. (1990) and Salojärvi et al. (2015) found that cooperation and knowledge sharing between the marketing and R&D departments encourages the integration of market and technology knowledge, promoting the development of products that are technically superior and valuable for customers (see also Mostaghel et al., 2019). Additionally, Bendoly et al. (2012) proposed that the patterned interactions between the marketing department and other departments in a company result in a system of “intersubjectively shared meanings” (Walsh and Ungson, 1991). Based on the above, we suggest the following:

**H4:** Marketing-specific internal RC at the interdepartment level is positively associated with product/service innovation performance.

The last marketing-specific RC category is marketing-specific external relational capital (other external actors). Henottonen et al. (2011) highlighted that the knowledge required in the innovation process—especially in radical innovations—is often found outside organizational boundaries. Indeed, external networks are vital for the discovery of opportunities and testing of new ideas (Lee et al., 2001), allowing the company to gain access to the external knowledge and competences that complement internal ones and that are necessary to develop new products and/or services (Wu et al., 2007). Moreover, searching for knowledge across organizational boundaries offers the potential for new combinations that are truly innovative (Miller et al., 2007). Marketing managers are involved in significant interactions with external actors, such as suppliers, channel members, agencies, key industry players, government agencies, and even competitors (Gök and Hacioglu, 2010), all of which play proactive roles in the design of winning technologies, services, and marketing strategies. Research has also stressed the need for external relationships and networks because these can
provide new knowledge that complements existing marketing knowledge, resulting in improved innovation outcomes (Jiménez-Jiménez and Cegarra-Navarro, 2007; Martín-de Castro, 2015). Thus, we hypothesize the following:

**H5**: Marketing-specific external RC (other external actors) is positively associated with product/service innovation performance.

Firms and their marketing professionals differ markedly when it comes to the B2B and B2C sectors (Kotler *et al.*, 2006). As opposed to B2C firms (where customer relationships tend to be concentrated in the marketing and sales department), in B2B companies, relationships with customers tend to be distributed across different departments (Gummesson, 2004; Wang *et al.*, 2018): for example, it would not be unusual for machinery manufacturer engineers and maintenance teams to regularly meet with customers. Moreover, business buyers usually face more complex buying decisions than consumer buyers because business purchases often involve large sums of money, complex technical and economic considerations, and interactions among people at many levels of the buyer’s organization (Kotler and Armstrong, 2018; Wang *et al.*, 2018). Consequently, in B2B settings, the buyer and seller are often much more dependent on each other (Aarikka-Stenroos and Jaakkola, 2012). Given the larger set of contact points with customers in B2B companies, we expect that the relative relevance of customer-related RC may be somewhat diluted, whereas the degree of relevance of internal RC at the interdepartment level may be reinforced. Additionally, as demand in B2B markets constitutes a “derived demand” (i.e., it ultimately derives from the demand for consumer goods; Kotler and Armstrong, 2018) and competitors’ and complementors’ products and services tend to be less visible than in B2C markets, the relationships with distributors and direct interaction with competitors and complementors may become more relevant to identify opportunities for product/service improvement and/or differentiation.

Although we expect that B2B and B2C companies involve the above-discussed differences, the existing literature mostly provides a broad-based understanding that B2B and B2C companies might be different, but there are no specific arguments that would allow for detailed hypotheses. Therefore, we formulate an explorative contingency hypothesis regarding the moderating role of firm type (B2B vs. B2C):

**H6**: The customer type (i.e., consumers vs. businesses) moderates the relationships between marketing-specific RC and product/service innovation performance.

### 4. Research methodology

#### 4.1 Sample and data collection

The present research examines Spanish companies with at least 100 employees to guarantee that firms have a well-established marketing and sales function. The *Sistema de Análisis de Balances Ibéricos* (System of Iberian Balance Sheet Analysis; SABI) database was used to identify the companies. The search resulted in 2,346 firms that were then classified into different groups according to different combinations of manufacture/service, high-tech/low-tech, and medium-sized/large-sized firms because these characteristics may cause differences in the degree of development of knowledge resources (see Buenechea-Elberdin, 2017).

With these 2,436 companies, we calculated the sample size needed to carry out a representative study (342 firms) and then contacted the target population by phone to invite them to participate in the survey, guaranteeing total confidentiality. A stratified sampling procedure was applied to guarantee that different proportions of company types according to industry, size, and technology level were preserved as in the population. The final sample included 346 companies that answered the provided email or phone survey: 178 companies...
were manufacturing firms, of which 116 were low-techs (87 B2B and 29 B2C) and 62 high-techs (40 B2B and 22 B2C), and 168 companies were service firms, of which 129 were low-techs (58 B2B and 71 B2C) and 39 high-techs (29 B2B and 10 B2C). To distinguish between B2B and B2C firms, we examined companies’ responses about the type of clients they served. If they claimed to serve only corporate customers, we classified them as B2B (which was the case for 214 companies), and if they claimed to serve only end consumers or both corporate customers and end consumers, we classified them as B2C (which was the case for 132 firms). Regarding the respondents’ profiles, 85.26% held a managerial role in the marketing domain, 6.65% were marketing and sales technicians or assistants, 5.20% were CEOs, 1.45% were salespeople, and the remaining 1.45% did not specify their role.

The final sample size was large enough to carry out a statistical study based on the partial least squares (PLS) structural equation modeling (SEM) approach. Considering the most complex regression of the model (which contained nine predictors), the minimum R² to be expected (25%), a significance level of 5%, and a statistical power of 80%, the minimum sample size was calculated, which should consist of 88 firms (Cohen, 1992). Thus, our final sample was well above the minimum threshold, which is true for the B2B and B2C subsamples as well.

Because the survey data were reported by single informants, there was a risk of common method bias (Podsakoff et al., 2003). Thus, we carried out a full collinearity test developed specifically for PLS-SEM (Kock, 2015), which involved both vertical (predictor–predictor) and lateral (predictor–criterion) collinearity analyses. According to Kock (2015), if a full collinearity test reveals all the variance inflation factors (VIFs) to be equal to or lower than 3.3, the model can be considered free of common method bias. This is the case in our research model; the highest VIF was 2.667. Therefore, our data did not feature common method variance.

4.2 Measures
Our research model included one independent variable (customer-related marketing-specific external RC), three mediating variables (the remaining marketing-specific RC subcomponents), one dependent variable (product/service innovation performance), one moderating variable (customer type: businesses vs. consumers), and four control variables (see below). Independent and dependent variables were measured using 7-point Likert scales, while the remaining variables were measured through different scales according to their nature (see Table I).

The IC perspective plays a crucial role in the development of a scale for IC subcomponents. According to Aramburu and Sáenz (2011), there are two main perspectives: holistic and knowledge based. The holistic perspective views IC as the sum of all intangible resources that make up the invisible part of the firm’s balance sheet. The knowledge-based perspective, however, is more restrictive and views IC as the sum of all knowledge that firms leverage to gain a competitive advantage (i.e., knowledge is the only intangible resource included). As previously explained, in the current research, we adopted a knowledge-based perspective because we wanted to understand how the marketing function can integrate knowledge embedded in different types of relationships. Therefore, we relied on a newly developed and validated scale for marketing-specific RC subcomponents (Peñálba-Aguirrezabalaga et al., 2020) because the existing scales in the IC literature focus on relationships instead of the knowledge derived from those relationships. The suggested scales are based on the definition of social or relational capital proposed by Youndt et al. (2004)—“knowledge resources embedded within, available through, and derived from a network of relationships” (p. 338)—on marketing-specific knowledge objects (Kotler and Armstrong, 2018; Rossiter, 2001) and on the specific context of each kind of relationship (internal—
department or interdepartment level—or external—relationships with customers or with other external actors).

The scale we used for product/service innovation performance (i.e., the dependent variable) is based on the work of Griffin and Page on product/service innovation measures that are deemed relevant in both academia and practice (1993, 1996). The measures identified by these authors were grouped into three categories: customer-based success, technical performance success, and financial success. We selected representative measures from each category, and in relation to these items, we asked managers to indicate the relative performance of their firm against major competitors (Venkatraman and Ramanujan, 1987). Even though this leaves measurement units to the respondents’ discretion (Ketovivi and Schroeder, 2004), asking informants to directly provide figures such as new product/service share in turnover would lead to high nonresponse rates (Boyer et al., 1997). Therefore, we decided to focus on perceptual performance measures compared with competitors. Moreover, Ketokivi and Schroeder (2004) demonstrated that perceptual data from senior managers (which tend to strongly correlate with objective data; Venkatraman and Ramanujan, 1987) adequately satisfy reliability and validity requirements.

RC and product/service innovation performance are fundamentally conceptual abstractions, that is, designed theoretical constructs or human-made conceptual “artifacts” (Henseler, 2017) that do not have an autonomous existence in nature as opposed to behavior, attitudes, or perceptions. When working with designed conceptual variables, researchers should apply a composite measurement model (Henseler, 2017). In composite measurement, the indicators or observable variables define or build up the conceptual variable; they do not cause it, but they make it up (i.e., it is a “definitorial” relationship). Consequently, the construct is obtained as a linear combination of its indicators without an error term, and each indicator enters the linear combination with a specific weight.

These weights can be calculated by means of correlations (mode “A” composites) or by means of multiple regression (mode “B” composites) (Sarstedt et al., 2016). Mode “A” composites involve bivariate correlations between each indicator and the construct. On the contrary, mode “B” composites involve a multiple ordinary least squares (OLS) regression of the construct or proxy variable on its associated indicators. Because of the definitorial nature of indicators in relation to the designed conceptual variables, this is the “natural” way of posing the relationships between indicators and constructs in composite measurement (Sarstedt et al., 2016). However, collinearity among indicators could cause problems in estimating indicators’ weights in mode “B” composites. Under these circumstances, using mode “A” composites should be considered (Henseler, 2017; Rigdon, 2016).

To control for possible confounding effects, we added additional variables, such as company size, year of foundation (company age), industry (manufacturing or service), and technology intensity (medium-high and high technology or medium-low and low technology).

4.3 Statistical analyses

We analyzed our research model using SEM based on PLS using SmartPLS 3.2.8 software (Ringle et al., 2015). Using PLS-SEM avoids the averaging of construct indicator values required by an OLS regression, which is problematic because the constructs become less reliable and may provoke structural model estimates to deflate, potentially triggering Type II errors (Hair et al., 2019). Conversely, Henseler et al. (2014) showed that PLS-SEM substantially reduces the effects of measurement errors, thereby increasing the reliability of construct scores. Moreover, Hair et al. (2019) showed that PLS-SEM is superior to OLS regression when the research model includes mediated relationships, as is the case in the current paper. Regression only allows for the sequential testing of model parts without taking the entire
model structure into account. However, PLS-SEM considers the entire theoretical structural model in the estimation process.

Finally, we chose PLS-SEM as opposed to covariance-based SEM based on the nature of the conceptual variables under study (see Peñalba-Aguirrezabalaga et al., 2020). As previously explained, our independent, mediating, and dependent variables are human-made conceptual “artifacts.” Thus, a composite measurement model applies. Unlike covariance-based SEM, which adopts a common factor approach implying an unobservable but really existing variable gives rise to a series of manifestations that are highly correlated because of their common origin, PLS-based SEM relies only on composites (Rigdon, 2016) (i.e., linear combinations of measures that shape the abstract concepts created by the human brain).

Moreover, a multigroup analysis was carried out by means of the PLS-MGA approach (Henseler et al., 2009) to determine the extent to which customer type moderates the hypothesized relationships.

5. Results
5.1 Measurement model evaluation
As stated by Rigdon (2012), “if there is no actual concept but only a theoretical definition, then validation cannot encompass anything more than an assessment of fidelity between the definition and the content of the measurement item” (p. 348). Thus, researchers need to analyze the convergent validity to determine the extent to which the indicators making up a construct capture the essence of the conceptual variable they are intended to represent. According to Hair et al. (2017), this requires a redundancy analysis. To perform this analysis, one indicator that summarizes the conceptual variable under study is included in the survey (see the indicators marked with an asterisk in Table I), and then, the correlation between the composite and this summary indicator can be calculated. The appropriate convergent validity requires a correlation of 0.707 or higher, which translates into 50% of the variance explained for the summary indicator (Hair et al., 2017). As we can observe in Table I, the appropriate convergent validity was found for all the constructs. The convergency values range from 0.848 in the case of external RC (customer level) to 0.888 in the case of internal RC (interdepartment level).

Potential problems in the estimation of indicators’ weights because of collinearity issues are another aspect that must be considered. Ideally, VIF values should be lower than 3 (Hair et al., 2019). As Table I reveals, several indicators in the RC constructs exceed the threshold value of 3. Therefore, to avoid problems related to the reversed signs for indicators’ weights because of collinearity, we applied a mode “A” composite (i.e., correlation weights). One indicator of product/service innovation performance, PSIP2, also showed a VIF value slightly higher than 3. However, because the sign of this indicator’s weight was not reversed, we applied a mode “B” composite.

Regarding the correlations between the latent variables, none are excessively high. The largest correlation (0.741) was found between internal RC (department level) and internal RC (interdepartment level).
<table>
<thead>
<tr>
<th>Constructs and measures</th>
<th>Item wording</th>
<th>VIF</th>
<th>Weight</th>
<th>p-val.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal relational capital (department level) (IRCD) Mode “A” composite Convergency: 0.863</td>
<td>Rate the extent (1 = not at all, 7 = very much) to which current patterns of personal interaction within your marketing and sales department(s) (e.g., regular meetings, informal talks and joint work) give rise to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRCD1</td>
<td>New and relevant insights about customers</td>
<td>3.890</td>
<td>0.147</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD2</td>
<td>New and relevant insights about competitors</td>
<td>3.609</td>
<td>0.134</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD3</td>
<td>New and relevant insights about markets</td>
<td>3.268</td>
<td>0.153</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD4</td>
<td>New and relevant insights about technological trends</td>
<td>2.341</td>
<td>0.141</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD5</td>
<td>Shared best practices</td>
<td>4.706</td>
<td>0.148</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD6</td>
<td>Mutual learning</td>
<td>5.307</td>
<td>0.159</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD7</td>
<td>Effective ways to diagnose and solve problems</td>
<td>4.396</td>
<td>0.145</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD8</td>
<td>New perspectives that challenge existing assumptions</td>
<td>3.523</td>
<td>0.150</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCD9*</td>
<td>New and relevant knowledge to improve performance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Internal relational capital (inter-department level) (IRCID) Mode “A” composite Convergency: 0.888</td>
<td>Rate the extent (1 = not at all, 7 = very much) to which current patterns of personal interaction (e.g., regular meetings, informal talks and joint work) between your marketing and sales department(s) and other functions and/or departments give rise to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRCID1</td>
<td>A truly shared vision</td>
<td>3.694</td>
<td>0.128</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID2</td>
<td>A good understanding of existing interdependencies (i.e., how our work affects and is affected by other functions and/or departments)</td>
<td>4.386</td>
<td>0.135</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID3</td>
<td>A shared understanding of problems and challenges</td>
<td>7.416</td>
<td>0.140</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID4</td>
<td>A shared understanding of system constraints</td>
<td>4.753</td>
<td>0.137</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID5</td>
<td>A shared understanding of customer needs</td>
<td>4.405</td>
<td>0.145</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID6</td>
<td>New and relevant insights about how to better integrate and/or coordinate work from different functions and/or departments</td>
<td>5.164</td>
<td>0.137</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID7</td>
<td>Effective ways to diagnose and solve problems</td>
<td>5.180</td>
<td>0.148</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID8</td>
<td>New perspectives that challenge existing assumptions</td>
<td>3.960</td>
<td>0.145</td>
<td>0.000</td>
</tr>
<tr>
<td>IRCID9*</td>
<td>New and relevant knowledge to improve performance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>External relational capital (customer-related) (ERCC) Mode “A” composite Convergency: 0.848</td>
<td>Rate the extent (1 = not at all, 7 = very much) to which current patterns of personal interaction with customers (e.g., regular meetings, visits, face-to-face events and joint work) give rise to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERCC1</td>
<td>A better understanding of customers</td>
<td>3.718</td>
<td>0.164</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC2</td>
<td>A better understanding of how customers use our products and/or services</td>
<td>4.006</td>
<td>0.164</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC3</td>
<td>The discovery of unsolved problems</td>
<td>3.292</td>
<td>0.162</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC4</td>
<td>The discovery of improvement opportunities</td>
<td>4.370</td>
<td>0.161</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC5</td>
<td>New and relevant insights about competitors</td>
<td>2.253</td>
<td>0.158</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC6</td>
<td>Effective ways to diagnose and solve problems</td>
<td>3.943</td>
<td>0.180</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC7</td>
<td>New perspectives that challenge existing assumptions</td>
<td>3.364</td>
<td>0.170</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCC8*</td>
<td>New and relevant knowledge to improve performance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Summary indicator for convergent validity assessment.
<table>
<thead>
<tr>
<th>Constructs and measures</th>
<th>Item wording</th>
<th>VIF</th>
<th>Weight</th>
<th>p-val.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External relational capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(other external actors)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode “A” composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convergency: 0.863</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERCO1</td>
<td>Rate the extent (1 = not at all, 7 = very much) to which current patterns of personal interaction (e.g., regular meetings, face-to-face events and joint work) between marketing and salespeople and other external actors (e.g., regulators, suppliers, researchers, competitors) give rise to:</td>
<td>4.299</td>
<td>0.129</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO2</td>
<td>New and relevant insights about markets</td>
<td>3.267</td>
<td>0.128</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO3</td>
<td>New and relevant insights about technological trends</td>
<td>4.296</td>
<td>0.142</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO4</td>
<td>The discovery of new opportunities</td>
<td>4.314</td>
<td>0.142</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO5</td>
<td>The discovery of potential threats</td>
<td>4.269</td>
<td>0.149</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO6</td>
<td>The discovery of new and relevant practices that could be adopted by the company</td>
<td>3.671</td>
<td>0.141</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO7</td>
<td>Effective ways to diagnose and solve problems</td>
<td>5.487</td>
<td>0.150</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO8</td>
<td>New perspectives that challenge existing assumptions</td>
<td>5.501</td>
<td>0.149</td>
<td>0.000</td>
</tr>
<tr>
<td>ERCO9*</td>
<td>New and relevant knowledge to improve performance</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Product/service innovation performance (PSIP)</strong></td>
<td>Compare your company’s performance with that of competitors regarding the following items related to product/service innovation performance (1 = much worse than competitors, 7 = much better than competitors):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode “B” composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convergency: 0.862</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSIP1</td>
<td>Customers’ acceptance of new or improved products and/or services</td>
<td>2.769</td>
<td>0.186</td>
<td>0.124</td>
</tr>
<tr>
<td>PSIP2</td>
<td>Revenue growth due to new or improved products and/or services</td>
<td>3.348</td>
<td>0.265</td>
<td>0.053</td>
</tr>
<tr>
<td>PSIP3</td>
<td>Development costs of new or improved products and/or services</td>
<td>2.281</td>
<td>0.260</td>
<td>0.025</td>
</tr>
<tr>
<td>PSIP4</td>
<td>Time to market for new or improved products and/or services</td>
<td>2.093</td>
<td>0.234</td>
<td>0.054</td>
</tr>
<tr>
<td>PSIP5</td>
<td>Profitability of new or improved products and/or services</td>
<td>2.704</td>
<td>0.238</td>
<td>0.059</td>
</tr>
<tr>
<td>PSIP6*</td>
<td>Product/service innovation performance as a whole</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company size (SIZE)</td>
<td>Natural logarithm of the number of employees</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Year of found. (YEARF)</td>
<td>Year in which the company was founded</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Industry (IND)</td>
<td>1 = Manufacturing; 0 = Services</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Technology intensity (TI)</td>
<td>1 = High-tech; 0 = Low-tech</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Customer type (CT)</td>
<td>1 = B2B; 0 = B2C</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Summary indicator for convergent validity assessment.
5.2 Structural model evaluation
Once we guaranteed the quality of the measurement model, we used bootstrapping to test the strength of the established relationships between the constructs. More specifically, we employed a one-tailed 5,000 subsample bias-corrected and accelerated (BCA) bootstrap (Hair et al., 2017). Table II shows the results.

Table II. Structural model evaluation (full sample)

<table>
<thead>
<tr>
<th>Effects</th>
<th>STDEV</th>
<th>t statistics</th>
<th>p-values</th>
<th>5%</th>
<th>95%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct relationships regarding product/service innovation performance (R² = 32.8%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.065</td>
<td>0.046</td>
<td>1.421</td>
<td>0.078</td>
<td>-0.139</td>
</tr>
<tr>
<td>Year of foundation</td>
<td>-0.037</td>
<td>0.046</td>
<td>0.810</td>
<td>0.209</td>
<td>-0.112</td>
</tr>
<tr>
<td>Industry</td>
<td>-0.010</td>
<td>0.050</td>
<td>0.206</td>
<td>0.418</td>
<td>-0.094</td>
</tr>
<tr>
<td>Technology intensity</td>
<td>-0.040</td>
<td>0.055</td>
<td>0.729</td>
<td>0.233</td>
<td>-0.133</td>
</tr>
<tr>
<td>Customer type</td>
<td>-0.030</td>
<td>0.054</td>
<td>0.564</td>
<td>0.286</td>
<td>-0.119</td>
</tr>
<tr>
<td>Internal RC (department level)</td>
<td>0.170</td>
<td>0.084</td>
<td>2.021</td>
<td>0.022</td>
<td>0.025</td>
</tr>
<tr>
<td>Internal RC (inter-department level)</td>
<td>0.220</td>
<td>0.089</td>
<td>2.483</td>
<td>0.007</td>
<td>0.066</td>
</tr>
<tr>
<td>External RC (customer-related)</td>
<td>0.022</td>
<td>0.075</td>
<td>0.289</td>
<td>0.386</td>
<td>-0.103</td>
</tr>
<tr>
<td>External RC (other external actors)</td>
<td>0.256</td>
<td>0.068</td>
<td>3.757</td>
<td>0.000</td>
<td>0.140</td>
</tr>
<tr>
<td><strong>Direct relationships between external RC (customer-related) and other types of RC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct relationship with internal RC (department-level) (R² = 39.7%)</td>
<td>0.630</td>
<td>0.042</td>
<td>14.935</td>
<td>0.000</td>
<td>0.553</td>
</tr>
<tr>
<td>Direct relationship with internal RC (inter-department level) (R² = 36.3%)</td>
<td>0.606</td>
<td>0.047</td>
<td>12.935</td>
<td>0.000</td>
<td>0.517</td>
</tr>
<tr>
<td>Direct relationship with external RC (other external actors) (R² = 31.3%)</td>
<td>0.559</td>
<td>0.048</td>
<td>11.722</td>
<td>0.000</td>
<td>0.475</td>
</tr>
<tr>
<td><strong>Indirect relationships between external RC (customer-related) and product/service innovation performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect relationship via internal RC (department level) (1)</td>
<td>0.107</td>
<td>0.054</td>
<td>1.979</td>
<td>0.024</td>
<td>0.016</td>
</tr>
<tr>
<td>Indirect relationship via internal RC (inter-department level) (2)</td>
<td>0.134</td>
<td>0.055</td>
<td>2.439</td>
<td>0.007</td>
<td>0.043</td>
</tr>
<tr>
<td>Indirect relationship via external RC (other external actors) (3)</td>
<td>0.143</td>
<td>0.039</td>
<td>3.654</td>
<td>0.000</td>
<td>0.079</td>
</tr>
<tr>
<td>Total indirect relationship (1+2+3)</td>
<td>0.384</td>
<td>0.056</td>
<td>6.903</td>
<td>0.000</td>
<td>0.296</td>
</tr>
<tr>
<td><strong>Total degree of association between external RC (customer-related) and product/service innovation performance (Direct + Indirect)</strong></td>
<td>0.406</td>
<td>0.056</td>
<td>7.298</td>
<td>0.000</td>
<td>0.304</td>
</tr>
</tbody>
</table>

RC: relational capital

Even though external RC (customer level) did not show a significant direct relationship with product/service innovation performance (i.e., providing no support to H1), the results show that external RC is strongly related to the other RC subcomponents. Hence, hypotheses H2a, H2b, and H2c are supported. Customer-related external RC explains 39.7% of the variance for internal RC (department level), 36.3% for internal RC (interdepartment level), and 31.3% for external RC (other external actors).

Additionally, marketing-specific internal RC (both at the department and interdepartment levels) and marketing-specific external RC (other external actors) are positively and significantly related to product/service innovation performance. Thus, hypotheses H3, H4, and H5 are supported. According to the obtained path coefficients, external
RC (other external actors) is the RC subcomponent showing the largest direct relationship with product/service innovation performance ($\beta = 0.256$), followed by internal RC (interdepartment level) ($\beta = 0.220$) and internal RC (department level) ($\beta = 0.170$). In terms of explanatory power, 32.8% of the variance is explained for the dependent variable (i.e., product/service innovation performance).

Because the indirect relationship between external RC (customer level) and product/service innovation performance via these subcomponents is statistically significant in all cases ($p$-values are well below 5%) and the direct relationship between external RC (customer level) and product/service innovation performance is not relevant, full mediation applies. In other words, customer-related, marketing-specific external RC relates to product/service innovation performance through its link to the other types of marketing-specific RC.

Regarding total effects, it should be noted that external RC (customer level) is the RC subcomponent with the strongest degree of association with product/service innovation performance (0.406 vs. 0.170 for internal RC at the department level, 0.220 for internal RC at the interdepartment level, and 0.256 for external RC regarding other external actors).

Finally, as far as moderation effects are concerned, Table III shows the results of the multigroup analysis.
Table III. Comparison between B2C and B2B firms

<table>
<thead>
<tr>
<th>Direct relationships</th>
<th>$\beta_{B2C}$</th>
<th>$\beta_{B2B}$</th>
<th>Difference</th>
<th>p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct relationships regarding product/service innovation performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>$\dagger$-0.101</td>
<td>-0.044</td>
<td>0.058</td>
<td>0.719</td>
</tr>
<tr>
<td>Year of foundation</td>
<td>-0.068</td>
<td>-0.086</td>
<td>0.018</td>
<td>0.428</td>
</tr>
<tr>
<td>Industry</td>
<td>$\dagger$-0.122</td>
<td>0.022</td>
<td>0.144</td>
<td>0.914</td>
</tr>
<tr>
<td>Technology intensity</td>
<td>0.078</td>
<td>-0.091</td>
<td>0.169</td>
<td>0.073</td>
</tr>
<tr>
<td>Internal RC (department level)</td>
<td>***0.487</td>
<td>0.050</td>
<td>0.438</td>
<td>0.008</td>
</tr>
<tr>
<td>Internal RC (inter-department level)</td>
<td>0.127</td>
<td>*0.224</td>
<td>0.097</td>
<td>0.720</td>
</tr>
<tr>
<td>External RC (customer-related)</td>
<td>0.131</td>
<td>-0.035</td>
<td>0.167</td>
<td>0.176</td>
</tr>
<tr>
<td>External RC (other external actors)</td>
<td>0.022</td>
<td>***0.370</td>
<td>0.348</td>
<td>0.976</td>
</tr>
<tr>
<td><strong>Direct relationship between external RC (customer level) and internal RC (department level)</strong></td>
<td>***0.689</td>
<td>***0.608</td>
<td>0.081</td>
<td>0.149</td>
</tr>
<tr>
<td><strong>Direct relationship between external RC (customer level) and internal RC (inter-department-level)</strong></td>
<td>***0.757</td>
<td>***0.531</td>
<td>0.226</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>Direct relationship between external RC (customer level) and external RC (other external actors)</strong></td>
<td>***0.634</td>
<td>***0.512</td>
<td>0.122</td>
<td>0.094</td>
</tr>
<tr>
<td><strong>Indirect relationships</strong></td>
<td>$\beta_{B2C} \cdot \beta_{B2C}$</td>
<td>$\beta_{B2B} \cdot \beta_{B2B}$</td>
<td>Difference</td>
<td>p-values</td>
</tr>
<tr>
<td>Total indirect degree of association between external RC (customer level) and product/service innovation performance</td>
<td>***0.446</td>
<td>***0.339</td>
<td>0.107</td>
<td>0.212</td>
</tr>
<tr>
<td><strong>Total degree of association between external RC (customer-related) and product/service innovation performance</strong></td>
<td>Total $\beta_{B2C}$</td>
<td>Total $\beta_{B2B}$</td>
<td>Difference</td>
<td>p-values</td>
</tr>
<tr>
<td>Direct relationship + Indirect relationships</td>
<td>***0.577</td>
<td>***0.303</td>
<td>0.274</td>
<td>0.011</td>
</tr>
<tr>
<td>Variance explained</td>
<td>$R^2_{B2C}$</td>
<td>$R^2_{B2B}$</td>
<td>Difference</td>
<td>p-values</td>
</tr>
<tr>
<td>Internal RC (department level)</td>
<td>47.5%</td>
<td>37.0%</td>
<td>0.105</td>
<td>0.150</td>
</tr>
<tr>
<td>Internal RC (inter-department level)</td>
<td>57.3%</td>
<td>28.2%</td>
<td>0.291</td>
<td>0.002</td>
</tr>
<tr>
<td>External RC (other external actors)</td>
<td>40.2%</td>
<td>26.2%</td>
<td>0.140</td>
<td>0.094</td>
</tr>
<tr>
<td>Product/service innovation performance</td>
<td>50.3%</td>
<td>29.3%</td>
<td>0.210</td>
<td>0.007</td>
</tr>
</tbody>
</table>

RC: relational capital

Customer type moderates several of the hypothesized relationships (thus, H6 is partly supported). For B2C companies, internal RC (department level) is the only subcomponent that directly and significantly relates to product/service innovation performance. For B2B firms, internal RC (interdepartment level) and external RC (other external actors) both directly and significantly relate to the dependent variable. Moreover, the multigroup analyses reveal that the differences in the path coefficients regarding the relationships between internal RC (department level) and product/service innovation performance, on the one hand, and between external RC (other external actors) and product/service innovation performance, on the other hand, are statistically relevant. Furthermore, even though the direct relationship between external RC (customer level) and the other types of RC is statistically significant for all subcomponents and both groups of firms, the relationships between external RC (customer level) and internal RC (interdepartment level) and between external RC (customer level) and external RC (other external actors) are much stronger in B2C companies. Finally, both the indirect and overall relationships between customer-related RC and product/service innovation performance are positive and significant for both firm groups. However, the total association
between external RC (customer level) and product/service innovation performance is much stronger in B2C companies.

Regarding the explanatory power of the model, the amount of variance explained by product/service innovation performance is much higher in B2C firms (50.3%) than in B2B firms (29.3%). The same was observed for internal RC at the interdepartment level (57.3% for B2C, 28.2% for B2B) and external RC regarding other external actors (40.2% for B2C, 26.2% for B2B).

6. Discussion
The current paper analyzed how marketing-specific RC affects product/service innovation performance. The literature has largely overlooked how different types of knowledge generated through and embedded in the relationships involving marketers inside and outside organizational boundaries complement each other and help develop new products and/or services. As a result, managers lack guidance about how to combine and prioritize these relational sources of knowledge. The current study confirms the relevance of knowledge embedded in external and internal relationships while demonstrating that each category of marketing-specific RC (or knowledge integration space; Grant, 1996) has a different role in enhancing product/service innovation performance.

First, marketing-specific external RC (other external actors) shows the strongest direct relationship with product/service innovation performance. In line with Jiménez-Jiménez and Cegarra-Navarro (2007) and Martín-de Castro (2015), bringing new products or services to the market usually involves the participation of several actors outside the company, such as technological partners that collaborate in the innovation process, suppliers, and/or complementors that provide the inputs needed to produce the new product or service or to complement and/or enrich the offering. Additionally, distributors are required to make the final product and/or service accessible to users. Therefore, it is important to integrate knowledge from external actors to guarantee that the new product/service reaches the market successfully.

Second, marketing-specific internal RC (interdepartmental level) shows the second largest direct relationship with product/service innovation performance. This confirms the general argument that cross-functional interactions encourage the sharing and creation of specialized knowledge resources relevant to the success of product/service innovation (Smith et al., 2014; Tsai and Ghoshal, 1998). Collaboration with other departments (Bendoly et al., 2012), such as R&D or manufacturing (Mostaghel et al., 2019; Salojärvi et al., 2015), allows the marketing department to create better products and services and, thus, a higher value for customers.

Third, marketing-specific internal RC (department level) shows the lowest (but still significant) direct relationship with product/service innovation performance. It is important for employees in the marketing department to socialize to exchange and combine knowledge (Allee, 2003; Maurer et al., 2011). This could improve the understanding of customers’ needs and preferences, generate new insights about market and technological trends, and produce improved marketing practices, leading to the development of better ideas for new products and/or services and ways to communicate about these offerings to the market.

Finally, we did not find support for the hypothesis that external RC (customer level) is directly related to product/service innovation performance. Rather, the knowledge generated through customer relationships is a key input for the generation of new knowledge in the other three marketing-specific RC categories, which fully mediate the relationship between marketing-specific external RC (customer level) and product/service innovation performance.

Regarding the moderating role of customer type, the results revealed that our model has much stronger explanatory power for B2C firms than B2B firms. This finding suggests that product/service innovation success is much more dependent on purely marketing-related
decisions (e.g., decisions related to product/service distribution or accessibility, pricing, or communication aspects) in B2C companies than B2B firms. This idea is reinforced by the fact that the total effects of marketing-specific external RC (customer level) and marketing-specific internal RC (department level), which are mostly related to marketers’ core work, are significantly stronger in B2C firms than B2B companies. Indeed, internal RC (department level) is completely nonsignificant in B2B firms. This might be because of the fact that B2C firms have access to more sophisticated tools for customer and market data analysis because of their much larger customer and consumer base (see, e.g., Kannan and Li, 2017), making their input much more relevant than for B2B firms.

The lower (but still significant) relevance of marketing-specific external RC (customer level) in B2B companies compared with B2C firms may reflect the fact that in the latter, only the marketing department tends to create relationships with customers, whereas in B2B firms, these relationships may be distributed across different departments. Because relationships may be handled by a variety of actors from different departments with different functions, the role of marketing-specific, customer-related RC in B2B companies becomes diluted (see, e.g., Kohtamäki and Partanen, 2016). Similarly, this RC category is less related to the development of marketing-specific internal RC (interdepartment level) and marketing-specific external RC (other external actors).

Conversely, external RC (other external actors) shows a much stronger association with product/service innovation performance in B2B firms than B2C companies; in fact, its role in the latter case is completely nonsignificant. Because many B2B firms may be selling their products to end users via external distributors, sharing knowledge with distributors and engaging in subsequent knowledge integration may be much more relevant for B2B firms than B2C firms to guarantee the success and acceptance of new offerings. Moreover, competitors’ and complementors’ products and services tend to be less “visible” and accessible in B2B industries than B2C ones. Thus, interacting with competitors and complementors at fairs and similar events may be one of the best ways for marketers to understand the features of their offerings and identify opportunities for product/service improvement and/or differentiation.

Finally, although the difference is not statistically relevant, the role of marketing-specific internal RC (interdepartment level) is slightly stronger in B2B firms than B2C companies (in which it is not statistically significant). This finding is consistent with the fact that in B2B firms, customer knowledge tends to be distributed between different departments, making the integration of such knowledge at the interdepartment level more necessary.

7. Implications, limitations, and future research
Currently, there is a lack of understanding about how the knowledge embedded in different types of internal and external relationships related to marketing functions contributes to product/service innovation performance. This makes it difficult for marketing managers to decide which types of socialization processes need to be reinforced. Hence, this study addressed how the knowledge generated through interaction with different actors both inside and outside a company complement each other and lead to successful product/service innovation. We examined four types of marketing-specific RC and found that each has an important and distinct role in this process. The results contribute to several streams of literature from both theoretical and practical viewpoints.

7.1 Theoretical implications
First, marketing plays a key role in translating customer demands into insights that can lead to product and service innovation (Bontis, 1998; Cui and Wu, 2016; Mahr et al., 2014); however, there are few studies on the knowledge generated through different types of relationships involving the marketing department. Our results provide explicit evidence regarding this
phenomenon, demonstrating how this integrative role might be structured via access to internal and external knowledge resources. The knowledge generated through customer interaction acts as a major input of the knowledge created by interacting with other internal and external actors, the latter of which is an essential antecedent of good product/service innovation performance. In other words, focusing on customer interaction is not enough; the marketing function must be \textit{relationally embedded} in a network of ties to internal and external stakeholders. This helps clarify the strategic role and positioning of marketing (Danneels, 2007; Vorhies and Morgan, 2005) as part of a firm’s overall product/service innovation activities. In addition, our study demonstrated that B2B and B2C companies differ in terms of how they can utilize RC in product and service innovation, highlighting that innovation initiatives depend on the type of customers the firm is serving. This is also an important opportunity for future research.

Second, our study contributes to the innovation literature by examining the benefits of diverse knowledge sources for innovation (e.g., Henttonen \textit{et al.}, 2011; Laursen and Salter, 2006). In particular, our results support the integration and recombination arguments that highlight the benefits of combining diverse sources of knowledge for innovation (Grant, 1996; Kogut and Zander, 1992; Savino \textit{et al.}, 2017), including cross-functional collaboration (Tsai and Hsu, 2014) and across organizational boundaries with external stakeholders (West and Bogers, 2014). We have shown how this integrative role can be adopted within a particular function of the firm (marketing and sales) that operates at the interface of external and internal stakeholders. The results call for more research on the recombinatory dynamics of knowledge accessed via different relational sources and on the specific capabilities of different firm departments and functions to combine and apply that knowledge.

Finally, our results have implications for the RC literature as part of the larger discourse on IC. We adopted a knowledge-based perspective on RC (Aramburu and Sáenz, 2011; Peñalba-Aguirrezabalaga \textit{et al.}, 2020), demonstrating how the knowledge generated through and embedded in different types of relationships is an important part of a firm’s IC. Interactions with different actors—not only customers—provides firms with access to valuable, complementary knowledge resources that contribute to firm-level innovation performance. With our empirical focus on marketing-specific RC, we respond to the calls for more contextuality when measuring the benefits of different types of IC (Kianto \textit{et al.}, 2020).

\textit{7.2 Managerial implications}

From a practical perspective, our results show that marketing personnel and departments benefit from active networking with both internal and external stakeholders. The classic notion that the “customer is king” is supported, as knowledge generated by customer interaction plays a key role in the generation of new knowledge by interacting with other actors. Thus, both marketing and general managers should focus on fostering socialization not only with customers but also within the marketing department, with other departments within the company, and with other external actors. However, it should be noted that the relationships that must be reinforced vary depending on whether the company is B2C or B2B and based on other contingency factors.

By understanding that all these relational sources of knowledge matter, marketing departments should try to adopt an explicit role as knowledge integrators within their firms. It is known that holding inter-department knowledge sharing meetings is a best practice, but it might be even more beneficial to facilitate gatherings in which lead customers meet with important internal constituents (e.g., from the R&D department). In these gatherings, marketers could serve as translators, disseminating customer insights to both internal and external stakeholders and thus enabling improved innovation processes in external partnerships and internal development.
7.3 Limitations and future research

The current study has a number of limitations that may be addressed in future research. First, survey responses were collected only from Spanish firms. Future research could extend the analysis to other national contexts. Second, a key informant in each company reported the data collected through the structured cross-sectional survey. This allowed us to access firm-level perceptual data and test our hypotheses, but there may be limitations regarding the scope of the informants’ knowledge and ability to draw causal inferences. Moreover, regarding the dependent variable, even if using a perceptual measure of performance vis-à-vis competitors is a good substitute for objective data, using multiple information sources would be preferable. Future studies could adopt different types of measurement approaches and combine them with various information sources to measure innovation and other types of performance over time. In this regard, it would be interesting to adopt a configurational approach and analyze how the different components making up marketing-specific RC may be combined in different, multiple and complex ways to produce product/service innovation performance. Finally, we noted some interesting differences between B2C and B2B firms. Future research could go further in distinguishing the differences among these types of firms in terms of how they utilize internal and external relational capital.

References


