Barriers to hospitality innovativeness: the Colombian case

Abstract

There is still a gap in innovation research in the hospitality sector. This work will provide new evidence of innovative behaviour in a developing country. Few studies jointly use various barriers to predict innovative behaviour and innovation capacity, and some criteria for grouping the barriers are missing. Based on this consideration, a conceptual framework is suggested that relates the following: 1) Obstacles associated with information and internal capabilities, 2) Risk obstacles, 3) Obstacles in the business environment as independent variables and three types of innovation capabilities, 4) Product innovativeness, 5) Process innovativeness and 6) Market innovativeness as dependent variables. The analysis used a second-generation structural equation method (PLS-SEM). The results prove that, aware of the obstacles, Colombian tourism companies may strategically generate innovation capabilities.

Keywords: innovativeness; obstacles; barriers; service; innovation capabilities; tourism.

1. Introduction

The hospitality sector has received unprecedented attention from scholars interested in innovation's nature and innovative practices' role in enhancing local competitiveness and growth opportunities (Chien et al., 2022; Martin-Rios and Ciobanu, 2019; Ottenbacher, 2007; Vermeulen and Van der Aa, 2003). Innovation in the hospitality sector benefits various actors such as tour operators and travel agencies, hotels, food & beverage activities, tourism transportation, entertainment, and attractions (D'Arcy and Omar, 2015). Despite the differences in size, nature, and typology across the firms composing the hospitality industry – and therefore the diversity in which these firms innovate – it is suggested that systemic investments at the local level and coordinated actions are pivotal to innovation, not just episodically but continuously and in a long-term perspective (Gomezelj, 2016).

The structuring and diffusion of innovative practices and behaviours primarily rely on enabling factors that set the stage for small and medium-sized enterprises to engage in innovative initiatives (Dionysopoulou and Tsakopoulou, 2021). Therefore, the capacity of the broader institutional context to set up an enabling infrastructure is central to overcoming barriers to innovation (OECD, 2019).

Much research on hospitality innovation assumes that digital technologies represent the infrastructure on which several types of innovation rely (e.g., Spremić et al., 2020). This research has focused on how digital transformation can trigger innovation that enhances the delivery of products and services (Nam et al., 2021; Pernsteiner and Rauseo, 2000; Shamim et al., 2021; Zsarnoczky, 2018). For instance, the *OECD Tourism Trends and Policies 2020* outlines the opportunities heralded by digitalisation for tourism, including developing new tourism products and services, the definition of new business models, access to new markets, and better positioning in global tourism (OECD, 2020).

However, much less research investigates the reasons behind slow innovation and the barriers hampering innovative activity. Pikkemaat et al. (2018) focus on innovation obstacles in Alpine destinations in Austria, an area characterised by many SMEs in the form of micro-

business, which can often be a one-person business. In such a context, local governance structures and destination governance initiatives play a significant role. Similarly, a study on the southern region in Poland sheds light on the main barriers to innovation encountered by tourism enterprises, such as organisational and institutional barriers (Najda-Janoszka and Kopera, 2014). During the COVID-19 crisis, Farías and Cancino (2021) set out to investigate the problems and obstacles that the lodging sector in Chile faces in implementing digital transformation and innovation to improve its operational activities, develop new channels of communication with customers, and thus achieve business sustainability.

The current paper examines innovation barriers within the hospitality industry, focusing on the challenges faced by this industry in Colombia. This article unfolds as follows: first, it introduces the topic within the existing literature on innovation, reflecting on transformations fueled by digital innovations and their impact on the hospitality sector. Second, it provides background on the ongoing digital transformation process and the hospitality industry in Colombia and builds a comprehensive framework on hospitality innovativeness barriers to pave the analysis of the main barriers into a theoretical model. Third, the article reports the findings of the quantitative research based on data collected through the *Technological Development and Innovation Survey of the Services and Commerce Sector* (*EDITS* for its acronym in Spanish) 2016–2017, conducted by the *National Administrative Department of Statistics of Colombian Government* (DANE, 2018). Finally, the authors discuss the findings and conclude by shedding light on the effects of diverse barriers on different types of innovativeness in Colombia.

2. Innovation and digitalisation in the hospitality industry

In recent years, research on innovation has proliferated in the hospitality industry. It has become a central topic of interest (e.g., Martin-Rios and Ciobanu, 2019). The hospitality literature, which originated within the tourism studies tradition, pays increasing attention to the influence of innovation strategy on firms' performance (Gomezelj, 2016; Ottenbacher, 2007).

The dynamics of success in hospitality innovation have led scholars to investigate the role of various forms of innovation and the many ways to operationalise it. Advancements in technology-based innovations are particularly relevant for service development, encompass product/service innovation, process innovation, and innovation in new technical capabilities. However, while technological innovation has been traditionally prominent in the hospitality industry, soft innovation is currently acquiring a central place as it contributes to redefining the overall customer experience in the direction of more customisable and memorable experiences (Martin-Rios and Ciobanu, 2019). It, therefore, becomes crucial for companies to draw from a balanced combination of technological and non-technological innovation when selecting their innovation strategy.

Innovation strategies based on digital platforms have proliferated in the hospitality sector. They have impacted various services, including accommodation, transportation, food, and travel planning. However, despite digital platforms can reach significant economic advantages, such as buoyant economies of scale, at the same time, they also pose challenges when only a few players dominate the market (Loebbecke and Picot, 2015), giving rise to what has been defined as a *'winner-takes-all'* phenomenon, with the domination of few key players. Even more evident in the hospitality sector, where some dominant online platforms

seem to have acquired a leading position. Furthermore, this can exacerbate the risk of creating a divide between large and small firms. Small players can only compete by offering visitors unique services or differentiation strategies. In this context, as the case of digital platforms shows, developing standard policies at the industry and the local and regional levels becomes essential to trigger and face the challenges associated with digital innovations. Common policy frameworks for digital transformation in the hospitality sector should involve policymakers, government organisations, and small and large firms (OECD, 2019).

3. Digital transformation and the hospitality industry in Colombia

Colombia is talking about digital transformation. It is a buzzword, and stakeholders do not have a "clear" definition. The main perceptions are that at its core is technology, but adoption is not enough. Organisations may be challenged to change their structural and cultural nature. A promise of efficiency is expected, mainly in the business process. A shortage of skilled people and a strong resistance is foresighted as decisive leadership may be put into play.

The economy in Colombia is in a transitional phase toward digitalisation. Several digital competitiveness indexes revealed an average performance in the Digital Economy. According to the *World Bank Development Report* (W.B., 2016), Colombia strives to spread Internet access among the entire population and the economic sectors. It provides tighter rules for competition, transparency to the public sector, and intermediate informational skills to its inhabitants. In an analysis of OECD innovation indicators, Malaver and Vargas (2020) point out that to provide a fair measure is necessary to build a contextual barometer that captures country specificities and barriers to foster technological and competitive upgrading.

Colombia deals with digital transformation through a governance system led by the *Ministry of Information and Communication Technology*. It provides strategic guidance, training infrastructure, and policy to foster e-commerce. The agency of this Ministry is based on the *CONPES ACT 3975* (CONPES, 2019), which endows a public policy on the 4th Industrial Revolution to citizenship, government, and business. Its foundations are based on the digital opportunity development that may provide for developing knowledge, business options, and leveraging foreign investment. It argues that adopting digitalisation tools requires companies' human capital and financing of technological development associated with Artificial Intelligence.

The *Research and Development Centre in Information Communications Technology* (known as *CINTEL* for its acronym in Spanish), associated with consulting services providers and other stakeholders, launched a *Pact for Digital Transformation.* This document highlights that the private sector must optimise its processes and open new markets. In contrast, the public sector ought to enable citizen life and facilitate interaction with the State. Their main conclusion is a significant task not just to invest in technology but to appropriate it through tool usage and implementation. It results in a disruptive change in user and business practice. In addition, the *National Business Association of Colombia* raised the topic to the government through a *Survey on Digital Transformation* (ANDI, 2018). This survey provides an acquaintance on barriers to digital transformation. The events that tend to hinder business and public entities' digital transformation were pointed out (culture, unawareness, lack of budget, change of attitude, lack of clarity in business models, and human capital shortage). In addition, digital infrastructure does not cover the entire territory due to highly complex

geography and lack of will (ranging from regulators to operators) to modernise infrastructure (Montes Cadavid, 2019).

3.1 The Colombian Tourist Sector

For Colombia, the tourist sector represents the first source of services exports and the twelfth contributor to GDP (OECD, 2018). Its figures have improved during the last decade, attracting more visitors, consolidating destinations, and enhancing its resources. Its outcomes also show improvements like generating foreign exchange, job creation, and new business releases. This sector raises high stakes not just for its economic importance but also for supplying regional development, helping national reconciliation, and improving its image (MINCIT, 2018).

The national government action on tourism proposes increasing productivity and strengthening social equity through transversal steps in the social, legal, sustainable, creative, and empowerment spheres, among other management areas in tourism. In these, it must be noticed the presence of digital transformation and innovation. Its primary purpose is to enhance the competitiveness of touristic destinations through productivity, added value, responsibility, and positioning.

All infrastructure projects must improve connectivity and provide associated services to enhance the sophistication of production facilities at the destinations. Some improvements must be made to expand the signalling of rural and urban tourism and heritage interpretation of main tourist attractions through the development of beacons and mobile apps. The digitalisation of tourism services and products and the training of service providers in new technologies will be promoted to contribute to smart destinations.

Its efficient public management implicates business intelligence to anticipate and follow demand trends. So, building capabilities on the new digital technologies such as Big Data and Analytics to identify behaviour patterns into aspects not previously considered in the government information systems shall be sought. Data collection has also been a problem for national authorities, so it envisages using Big Data to coordinate efforts with regional and local entities. Furthermore, virtual platforms should be exploited to provide e-learning (i.e., the digital entrepreneur and citizen program) and certification services.

The business environment must be improved. In entrepreneurship and small businesses, the administrative burden and excessive procedures (including accreditation and compliance with quality standards, some of which are mandatory) exert tremendous pressure to become informal enterprises, as does poor regulation of technological platforms for providing or delivering tourism services.

In this national strategy, obstacles that impede innovation and entrepreneurship in tourism are identified, such as tax burden, excessive procedures, high inputs cost, low technical assistance, and low financial leverage.

4. Innovation Capacity and Barriers in the Hospitality Industry

This work will follow the same definitions used by Durmusoglu et al. (2018) to express firm innovativeness: "as a firm overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative

behaviour and process" (Wang and Ahmed, 2004, p. 304). Nevertheless, innovativeness types will be restricted to product, process, and market. The first includes product attributes to meet market needs (Garcia and Calantone, 2002), the second, the introduction of new production or organisational methods or new technology to improve processes and, finally, the third kind, new marketing methods (market research, advertising, and promotion or other marketing techniques) to enter and exploit targeted markets (Wang and Ahmed, 2004).

The barriers to innovation can be defined as the situations or contexts that halt, setback, or block innovation activities and even prevent their progression to avoid higher costs or impracticable results (Mirow et al., 2007). It has been studied extensively through various linguistic concepts such as obstacles, hindrances, hurdles, restrictions, impediments, limitations, or difficulties (Hueske and Guenther, 2015).

There is still a gap in working with the several types of innovation or innovativeness (Gomezelj, 2016; Hjalager, 2010; Pikkemaat et al., 2019), so this work will provide new evidence on the innovative behaviour in the hospitality industry in a developing country.

Indeed, not all firms can engage in innovation. Throughout the process, some difficulties may surge and conspire against the innovative attempts. Some situations arise from the depths of the firm, reflecting self-disadvantages like debt restraints and problems in acquiring external capital, insufficient experience and managerial skills, unavailable know-how, spare time, and resources to access external sources, unavoidable risks of failure, too long pay-off periods, unresponsiveness to market needs, underqualified for risk capital. Other events are embedded in the economic, social, and political framework that seriously affects the quality, costs, and availability of resources, as well as supply, demand, and rivalry (See Table 1).

TABLE 1. IN HERE.

From 1996 onwards, Colombia began to carry out innovation surveys. In 2009 they improved their instruments and based them on the guidelines of the *Oslo Manual* (OECD, 1992, 1997, 2005) and other national experiences. Since 2005, they have incorporated items that refer to factors that hinder the achievement of the objectives of the innovation activities. In 2009, they proposed a classification of reasons: Internal and Information Capacities, Risk Reasons, and Environmental Factors. These categories have been maintained in all subsequent manufacturing and services surveys.

The basis for this classification was sought in secondary sources to guide the search for relevant literature. Since they were not found, the paper proposes the following rationale:

- Internal and Information Capabilities reflect the endogenous capacities developed to recognise and take advantage of opportunities and efficiently combine factors to form innovation activities. These factors include characteristics of the workforce and the company. Among the former are trained employees, and the latter are the financial structure and the strategy towards the market and competitors. This strategy is a function of the characteristics of the markets in which it competes or aspires to serve and of the technical information that makes it possible to devise new concepts of products, services, and production processes, to acquire or develop knowledge and skills, to invest in the acquisition of knowledge-based goods, and to reorganise management systems. It also includes knowledge of support programs and regulations to direct their capabilities towards their use and compliance.

- Risk Factors refer to an assimilation of the decision to innovate with a financial decision, which is affected by demand and expected profitability in addition to technological uncertainty and appropriability problems. They show how market signals and estimates of private profitability may be inadequate to capture the eventual gains from innovation.
- The third component is Environmental Factors, representing the conditions in which knowledge transfer and absorption occur and influence the effectiveness of linkages and information flows. They represent institutional factors ranging from legal (the intellectual property system), social (cooperation), and cultural (the propensity to imitate) as well as structural factors of the innovation system (the supply and availability of financing as well as technical support services).

It is assumed that these categories are appropriate for the Colombian context. However, they make international comparison difficult. To facilitate theoretical and empirical analysis of individual factors and their clustering, authors have used the term barrier for particular reasons and obstacles to groupings.

4.1 Conceptual Framework

From the current review, two things must be clear. Scant studies use obstacle classes to predict innovation and innovativeness, and some criteria for organising barriers are missing. The lists of factors that hamper or stimulate innovation outcomes or capabilities can be countless because this phenomenon is contextual and complex, and there are mutual influences between barriers or facilitators that compensate, reinforce, or cancel out their combined effects.

Therefore, the intuitive sense of influence should negatively affect barriers halting or impeding innovation activities to reach results or capabilities to be deployed towards strategic outcomes. Nevertheless, barriers may also modify processes, behaviours, and effects, reducing or switching them and providing feedback to organisational learning paths precluding, opening, or accumulating knowledge to innovate.

The empirical evidence is not solid to formulate hypotheses that give an idea of the positive or negative relationship between the obstacles and the types of innovativeness, nor do the contextual groupings of variables advise in this respect.

Based on the above consideration of hospitality innovativeness, a conceptual framework is suggested consisting of the following: 1) Obstacle associated with information and internal capabilities, 2) Risk obstacle, 3) Business environment obstacle as independent variables and three types of innovation capabilities, 4) Product innovation capabilities, 5) Process innovation capabilities and 6) Market innovation capabilities as dependent variables (Figure 1.)

The following hypotheses are proposed:

H1a: Information and internal capability obstacles significantly affect the product innovativeness in the Colombian hospitality sector.

H1b: Information and internal capability obstacles significantly affect the market innovativeness in the Colombian hospitality sector.

H1c: Information and internal capability obstacles significantly affect the process innovativeness in the Colombian hospitality sector.

H2a: Risk obstacles significantly affect product innovativeness in the Colombian hospitality sector.

H2b: Risk obstacles significantly affect the market innovativeness in the Colombian hospitality sector.

H2c: Risk obstacles significantly affect the process innovativeness in the Colombian hospitality sector.

H3a: Environment obstacles significantly affect product innovativeness in the Colombian hospitality sector.

H3b: Environment obstacles significantly affect the market innovativeness in the Colombian hospitality sector.

H3c: Environment obstacles significantly affect the process innovativeness in the Colombian hospitality sector.

FIGURE 1. IN HERE.

5. Methodology

This empirical study was developed under a quantitative approach, using an exploratory, non-experimental, and cross-sectional design, with tests of causal hypotheses, through the statistical technique of Partial Least Squares Structural Equations Modeling (PLS-SEM) using the statistical software *SmartPLS® 3* (Ringle et al., 2015). It should be noted that the reason this statistical technique was used is that it allows working with small samples, as is the case here, since, out of the 726 observations, only 106 were entirely answered by the firms; and second, because working with non-parametric tests solves the possible non-normality problems of the data (Hair et al., 2017). In this sense, the measurement model was first estimated to evaluate the confirmatory factor analysis (CFA), thus obtaining the reliability and validity of the scales under study. Then the structural model was assessed to contrast research hypotheses.

On the other hand, it is highlighted that PLS-SEM offers non-parametric evaluation criteria based on bootstrapping and blindfolding since it does not have a single goodness-of-fit bar to evaluate the estimations with PLS-SEM (Hair et al., 2014).

5.1 Sample design and data collection

The research design is exploratory, and data collection was based on primary and secondary data. Primary data has been collected through the *Technological Development and Innovation Survey of the Services and Commerce Sector* (*EDITS* for its acronym in Spanish) 2016–2017, conducted by the *National Administrative Department of Statistics of the Colombian Government* (DANE, 2018). Secondary data came from the research on several publications such as magazines, journals, newspapers, and web documents. The sample

framework is the population of 726 firms addressed to accommodation and food service activities with 3 billion COP revenues minimum per year and 40 employees minimum per firm; however, only 106 firms entirely responded to the survey, representing the final sample study.

5.1.1 Sample profile

In 2017, according to the sample profile, the average number of employed personnel who participated in scientific, technological, and innovation activities was 5.8, of which an average of 3.5 were men and 2.3 were women. Thirteen-point two percent of the companies hired external consulting agents to carry out this activity. Thirty-two-point one percent owns trademarks and other distinctive sign registrations, which are current as of 2017. Furthermore, 6.6% of the firms obtained trademark and other distinctive sign registrations during 2016-2017. Ten-point four percent used confidentiality agreements or contracts with other companies, and 27.4% used confidentiality agreements or contracts with employed personnel. On the one hand, 15.1% obtained process quality certifications, such as ISO-14040 or ISO-9001, during 2016-2017, while only 2.8% obtained product quality certifications with ISO-9000 during 2016-2017. On the other hand, 76.5% of companies have services or goods subject to compliance with technical regulations.

5.2 Variables

5.2.1 Innovation obstacles

Three lower-order scales (LOC) were used and taken from the *Technological Development and Innovation Survey of the Services and Commerce Sector 2016–2017* (*EDITS VI*) (DIMPE, 2018) to measure the obstacles to innovation. These allow measuring the degree of importance that obstacles had, for the introduction of new or significantly improved services or goods and/or the implementation of new or significantly improved processes, new organisational methods, or new marketing techniques in the company, during the period 2016-2017. The scales are (1) obstacles associated with information and internal capabilities, measured through six indicators; (2) obstacles associated with risks, measured through three indicators; (3) obstacles associated with the environment, measured by five indicators (See Fig. 1); in which managers or owners were asked to indicate their perception of importance. All of them were measured with a three-point Likert-type scale, where the answers indicate: 1 = null, 2 = medium, and 3 = high.

5.2.2 Innovativeness

A Higher-Order Scale (HOC) was used to measure innovativeness. It was taken from the *Questionnaire Survey on Technological Development and Innovation in the Services and Trade Sectors - EDITS 2016-2017* (*EDITS VI*) (DIMPE, 2018), which measures the degree of importance of the impact the introduction of new or significantly improved services or goods had, and/or the implementation of new or significantly improved processes, new organisational methods, or new marketing techniques, on the following aspects of the company during the period 2016-2017. It was measured through three reflective dimensions: (1) product innovativeness, measured with two indicators; (2) market innovativeness, measured with two indicators; (3) process innovativeness, measured by eight indicators (See

Fig. 1). They all measured with a three-point Likert-type scale, where the responses indicate: 1 = null, 2 = medium, 3 = high.

5.3 Reliability and validity

The PLS algorithm was applied to demonstrate the reliability and validity of the scales with which the theoretical research model was measured. The results show that the model requires some adjustments since some manifest variables do not have factor loadings greater than 0.6, as suggested by Bagozzi and Yi (1988). That is why researchers proceeded to eliminate the manifest variable X1 of the obstacles associated with the internal information and capabilities construct and indicator Y5 of the process innovativeness construct. In this way, the high internal consistency of the six lower-order reflective constructs was achieved, finding that the composite reliability (C.R.) exceeds the critical value of 0.7 recommended by Hair et al. (2017). In the same vein, Cronbach's Alpha values easily exceeded the critical value of 0.7 suggested by Nunnally and Bernstein (1994). The rho_A values for each construct were greater than 0.7, as indicated by Dijkstra and Henseler (2015). Furthermore, all the constructs exceed the value of 0.5 of the average variance extracted (AVE) (Fornell and Larcker, 1981; Hair et al., 2012), as shown in Table 2.

On the other hand, it was found that all the factor loadings of the indicators (manifest variables) are higher than 0.6 (Bagozzi and Yi, 1988). As observed in the ranges, all are statistically significant ($p<0.001$), which guarantees the communality of each manifest variable; and as the AVE values are higher than 0.5, it is guaranteed that each of the scales used in this empirical research has convergent validity (Hair et al., 2017).

TABLE 2. IN HERE

Regarding the discriminant validity of the constructs, this was evaluated through two tests, (1) using the Heterotrait-Monotrait correlations ratio test ($HTMT_{85}$) and (2) through the Fornell-Larcker criterion test, which is shown in Table 3. First, the Heterotrait-Monotrait correlations ratio test ($HTMT_{85}$) (Henseler et al., 2015) is shown above the diagonal. It is considered a better performance criterion to determine the discriminant validity of the scales (Cuevas-Vargas, 2016; Cuevas-Vargas et al., 2019; Henseler et al., 2015), since once the full Bootstrapping was calculated with 5000 subsamples, the values of the correlations between the reflective constructs turned out to be well below 0.85 (Clark and Watson, 1995; Henseler et al., 2015; Kline, 2011), indicating that discriminant validity exists. Second, using the square root of the AVE of each of the constructs -whose values in bold represent the diagonal in Table 3- the Fornell and Larcker (1981) criterion test is applied. As seen below the diagonal, these values are higher than their corresponding correlations with any other construct, thus confirming discriminant validity between the constructs. Therefore, based on these results, it can be concluded that the data of this study is reliable and valid for testing the hypotheses with PLS-SEM.

TABLE 3. IN HERE

6. Results

The descriptive statistics on the obstacles to innovation in the hospitality sector in Colombia are presented in Table 4. They indicate, firstly, that 35% of the companies consider the lack

of own resources high and 38.2% that it is medium. Secondly, 40.2% believe that there is no lack of qualified personnel. Thirdly, 56.9% say that there is difficulty complying with technical regulations and little information on markets, while 52.9% consider that there is no information on available technology and 57.8% that there is a lack of information on public support instruments.

Regarding the obstacles associated with risks, 17.6% consider that the uncertainty regarding the demand for innovative services or goods is high and 45.1% that it is medium, 13.7% state that the low profitability of innovation is high, and 51% that it is medium, 10.8% states that the uncertainty regarding the success in the technical execution of the project is high, and 54.9% that it is medium.

Regarding the obstacles related to the environment, it was found that 51% of the companies surveyed perceive that the difficulties in accessing external financing for the company are null. Only 14.7% consider it high, and 53.9% believe that the limited possibilities of cooperation with other companies or institutions are null. Only 11.8% consider them high, 52% state that the ease of imitation by third-party agents is null and only 8.8% consider it high, 66.7% indicate that the insufficient capacity of the intellectual property system to protect innovation is null, and 60.8% state that the low supply of inspection, testing, calibration, certification, and verification services is null. Therefore, these obstacles are not considered barriers by directors or owners in the Colombian hospitality sector.

TABLE 4. IN HERE.

Concerning innovativeness, descriptive statistics are shown in Table 5, starting with product innovativeness, in which it is evident that 49% state that the improvement in the quality of services or goods is of higher importance, and only 17.7 % consider it null, 29.4% think that the expansion in the range of services or goods is high and only 29.4% that it has been null.

Regarding market innovativeness, 37.3% state that their participation in their company's geographic market has been high, and only 13.7 maintain that entering a new geographic market has been high.

Regarding process innovativeness, 34.3% stated that increasing productivity was very important while reducing labour costs, and using raw materials or supplies was medium significant for 55%, 46.1%, and 47% of the companies. On the other hand, reducing electricity or other energy consumption, water consumption, communications costs, transportation costs, and maintenance and repair costs were unimportant for 47.1%, 55.9%, 45.1%, 56.9%, and 48%, respectively.

TABLE 5. IN HERE.

The structural model was evaluated using SmartPLS® 3 (Ringle et al., 2015) to test the research hypotheses through bootstrapping with 5000 subsamples. The present research outcomes indicate sufficient empirical evidence to obtain confidence intervals and thus evaluate the precision of the parameters since the structural model has predictive relevance for two main reasons (see Table 6).

On the one hand, 31.9% of process innovativeness is explained by the three obstacles (associated with information and internal capabilities, related to risks, and dedicated to the environment). Its R^2= 0.319 exceeds the critical value of 0.20 suggested by Chin (1998). Product innovativeness is explained by 12% of the obstacles assessed in this study. Its R^2=

0.120 meets the critical value of 0.1 suggested by Falk and Miller (1992). Market innovativeness is not significantly explained by any of the obstacles assessed in this study (R^2= 0.040). Nevertheless, the results infer that process and product innovativeness have explanatory power in their role as endogenous constructs. Given that their R-squared values are well above 0.10 (Falk and Miller, 1992), the model is of good quality, and its results are helpful for business decision-making.

On the other hand, when evaluating the predictive relevance of the model's endogenous constructs, using the Stone-Geisser Q^2 test (Geisser, 1974; Stone, 1974). A Q^2 value greater than zero for a specific endogenous reflective-type construct shows the predictive relevance of the path model (Hair et al., 2014). In this sense, both process and product innovativeness as endogenous variables display their predictive relevance for obtaining Q^2 values above zero (Geisser, 1974; Stone, 1974). Therefore, the model has predictive relevance for these two endogenous constructs.

TABLE 6. IN HERE.

Regarding the testing of the hypotheses, Table 6 shows the outcomes obtained through PLS-SEM. Firstly, in the first hypothesis, H1a, the findings indicate that the obstacles associated with information and internal capabilities have a non-significant influence on product innovation capacity (β=0.054, N.S.); therefore, H1a is rejected. These results coincide with the non-significance of the barriers found by several authors such as Martínez-Román et al. (2015) (size), Tejada and Moreno (2013) (size and chain membership), Najda-Janoszka and Kopera (2014) (lack of qualified personnel), López-Fernández et al. (2011) (lack of skilled personnel, lack of market and technical information), and Styvén and Wallström (2019) (lack of I.T. personnel and strategy).

Regarding H2a, the results indicate that the obstacles associated with risks have been considered non-significant in product innovativeness (β=0.066, N.S.). Therefore, H2a is rejected. The scant literature on this point does not support current findings, whereas a significant relationship is encountered by Aguilar-Olaves et al. (2012) (on market uncertainty) and Martínez-Román et al. 2015 (on risk-taking).

Regarding hypothesis H3a, the outcomes indicate that the obstacles associated with the environment have positive and significant effects on the product innovativeness of companies in the hospitality sector in Colombia (β=0.266, $p<0.05$), therefore, H3a is accepted, as it has been found that the obstacles associated with the environment have a significant impact of 26.6% on the product innovativeness of these types of companies. This issue harmonises with Durmusoglu et al.'s (2018) findings on the effects of external barriers on product innovativeness.

Concerning H1b, the findings indicate that the obstacles associated with information and internal capabilities have no significant influence on market innovativeness (β=0.024, N.S.); therefore, H1b is rejected. These findings agree with the irrelevance of the barriers presented by Najda-Janoszka and Kopera (2014) (lack of qualified personnel), Tejada and Moreno (2013) (size and chain membership), Divisekera and Nguyen (2018) (qualified personnel).

Regarding H2b, the results indicate that the obstacles associated with risks have been considered non-significant in market innovativeness (β=0.097, N.S.). Therefore, H2b is rejected. In a similar direction, Aguilar-Olaves et al. (2012) present an insignificant relationship between market uncertainty and diversification.

Regarding hypothesis H3b, the outcomes indicate that the obstacles associated with the environment have non-significant effects on companies' market innovation in Colombia's hospitality sector (β=0.112, N.S.); therefore, H3b is rejected. This outcome accords with the trivial consequences of external barriers on market innovativeness displayed in Durmusoglu et al.'s (2018) work.

About H1c, the findings indicate that the obstacles associated with information and internal capabilities positively and significantly influence process innovativeness (β=0.312, $p<0.01$), therefore, H1c is accepted since the empirical evidence shows that the obstacles associated with information and internal capabilities perceived by companies in the hospitality sector in Colombia have a significant impact of 31.2% on the process innovativeness of this type of firms. These outcomes are confronted by Durmusoglu et al. (2018), whose conclusions certify a negative relationship between internal obstacles and process innovativeness.

With H2c, the results indicate that the obstacles associated with risks do not significantly affect process innovativeness (β=0.118, N.S.). Therefore, H2c is rejected; Martínez-Román et al. (2015) arrived at similar conclusions by measuring the effect of risk-taking on process innovativeness.

Finally, concerning hypothesis H3c, the results indicate that the obstacles associated with the environment have positive and significant effects on process innovativeness in companies in the hotel sector in Colombia (β=0.221, $p<0.1$). Therefore, H3c is accepted. According to the managers' perception, the obstacles associated with the environment significantly impact 22.1% of process innovation. In this sense, Tejada and Moreno (2013) stated that some obstacles related to the environment positively affect process innovation, such as formal and informal cooperation.

7. Discussion

The lack of own resources is a top limitation to innovation. Nevertheless, it has been statistically removed from the model presented here. In the Greek case, this barrier with the family-owned property and the traditional management has been identified as a structural barrier to innovation through digital transformation. A package of measures has been established to confront them orchestrated by central governance headed by the national authority. The solely overcoming of this barrier implies financial aid plus a digital skill-building policy, supporting entrepreneurship, fostering innovation to market, and improving e-government (Dionysopoulou & Tsakopoulou, 2021). This research contributes to pointing findings of the current paper on the hierarchy and synergies of barriers and empowers the threat of poor public support diffusion and the paramount collaborative arrangements for improving the innovativeness of the Colombian hospitality sector.

In the model depicted in this communication, the main influence on the information and internal obstacle for innovativeness is the poor market information. This barrier has been signalled for the Indian micro-enterprise as the most important for precluding innovation, causing a limited availability of resources and a lack of market sense and foresight (Raghuvanshi et al., 2022). Thus, explaining a feedback effect on market information and scarce resources on one side, and on the other, the negligible importance of risk obstacles and market innovativeness, the first concerning uncertainty and low profitability, and the second market calculations on share and positioning, shedding light on the lack of project

management knowledge and capability as the improbable customer-oriented marketing strategies present in the Colombian case.

Nonetheless, literature signals the customer as critical for innovating and adopting new technologies in the hotel industry (Nam et al., 2021). In the present communication, market information is an essential component of the information and internal obstacle and only influences process innovation. So it is expected that overcoming this barrier helps adopt technology and innovations to improve efficiency, not product strategies. If customers fail to address product innovation, other factors may lead. In the Colombian case, certifications and cooperation may act as the customer wants and needs drivers. Thus, accreditation of standards and ratings, together with formal and informal cooperation with stakeholders, may signal customers' preferences and trends to incorporate value proposals on the innovativeness efforts of Colombian hospitality businesses.

In the case Colombian case, according to data presented in this paper, few businesses have a stake in certification and collaboration to innovate. For certification, there are several compulsory accreditations to comply with as quality standards aligning with a concern of efficiency matching major impacts of process innovativeness on reducing resources and costs. To this end, digital transformation must prove useful. Even current policy on this matter promotes virtual platforms to deliver certifications easily and with major coverage and to supply e-learning of digital skills. The implementation may suffer resistance. Still, a cultural change is possible with transformational leadership, developing employees' commitment, and aligning with value proposals (Farías and Cancino, 2021). The stake is worth, as demonstrated by Shamim et al.'s (2021) paper that relates big data capabilities development to higher ratings on quality and added value through innovativeness.

Similar to the current presentation, a recent study from Saudi Arabia tries to group and rank obstacles to green innovation (Chien et al., 2022). Amid their major findings are that barriers are contextual and trajectory dependent on each region and territory. The six obstacles identified are political, managerial, technical, information, economic, and market. A few technologies know-how, scarcity of technology, or a dynamic market for green technologies negatively affect innovation capacity. Major sub-barriers identified include lack of subsidies and financial rewards, market inefficiencies, insufficient knowledge and understanding, lack of government policy for upgrading, scarcity of technical data, and technical and market uncertainty. These results are under the findings presented on the importance of market and technology information accessibility (and thereof the respective capabilities development) and public support availability to harness process innovativeness conformed with sustainable performance indicators.

Resuming the idea about the contextual and trajectory-dependent (Chien et al., 2022), the model depicted for Colombia shows that only three of two obstacles may explain innovation behaviour and capacity. Thus, just information and internal and business environment obstacles may demonstrate innovativeness. Regarding types of innovativeness, the best represented in the model solution was process innovation. This situation may reflect that Colombian hospitality industry strategies are more oriented toward achieving internal efficiency. In the search for barriers to adopting Artificial Intelligence solutions in Dubai's hotel industry, Nam et al. (2021) find the hotels display either a strategy of greater

personalisation through enhancing services or orientation toward optimisation and reduction of costs according to brand and service strategies.

The single obstacle with no power explanation on any kind of innovativeness was the one concerning risk. More than half of hospitality businesses in Colombia considered this obstacle of medium to high importance, concentrating their perception on the medium scale. In the statistical interpretation of this obstacle, the technological project uncertainty is medullary, followed by demand and profitability uncertainty. The no relation to innovativeness may be explained in terms of the lack of capacities (project management), the narrowing of the type of innovativeness considered (including institutional or organisational innovation), or poor management of intangibles as knowledge may be. Thus, critical to innovation is knowledge, which organisations may face risks to avoid losing from external sources (sharing practices such as accreditations and collaboration) or internal (knowledge loss, forgetting, knowledge hiding and hoarding, knowledge waste) (Durst and Zięba, 2017) A future research on the Colombia case may consider these knowledge barriers on the experimentation array.

Innovativeness is closely related to sustainability performance in the Colombian hospitality industry, so overcoming innovation barriers may surpass sustainability barriers, as suggested by Souto (2022). Despite this situation, the COVID-19 lessons showed that even if small tourism hotels were more aware of sustainability and, therefore, innovation, they prefer to look back on Normalcy strategies for survival instead of going forward to implement a sustainable (and innovative) agenda (Toubes et al., 2021).

A final comment on the COVID-19 affection on the capacity of businesses to innovate can be made. Following the current paper results, the audience must expect that more disturbed (aware) businesses are the most prone to innovate. That is what the author Gorzelany-Dziadkowiec (2021) found in her research on the Polish case.

8. Conclusions

The results prove that Colombian tourism companies aware of the obstacles may generate purposeful innovation capacities. Nevertheless, there are differences between types of obstacles and types of innovativeness.

Among the three types of obstacles studied, the only exception uncorrelated with innovation capacity is the type of risk obstacle, which is not significantly associated with any innovation capacity, either product, process, or market.

None of the proposed obstacles has shown any influence on the market innovativeness. All components of the obstacles, ranging from knowledge/skills, uncertainty, and inadequacy services barriers, are irrelevant in explaining the ability to advance new marketing methods that enable the entry and exploitation of market objectives.

The findings highlighted in the results section on the catalytic effect of environmental barriers on product innovativeness and the trivial impact on marketing innovation capacity are validated in the emergent literature. In contrast, the stimulating effect of internal information and capacity barriers is confronted.

Product portfolio cost, quality, and expansion may trigger product innovativeness since productivity is dropped from the system (it may be a worry at a higher level of the economy but not for the tourism sector). At the same time, sustainability and down-costing may prompt process innovativeness.

The current analysis on barriers to innovativeness revealed not exclusively focus on cost but on information, skills and knowledge, services, cooperation, and appropriability practices.

Companies aware of information barriers in Colombia's tourism industry may be competent to achieve cost-saving innovation. In contrast, those aware of insufficient services, cooperation, and protection may be qualified to improve innovations' scope, quality, and frugality. To be rapidly adopted, digital transformation technologies must demonstrate their effectiveness in cost reduction business processes (mainly operational ones, including environmental management) and all alternatives for improving product/service development and expanding the portfolio from service delivery and the perceived uniqueness of experience with attention to quality and frugality.

The government should advocate for investment to encourage innovation and investment in ICTs. With horizontal and vertical policies, given the circumstances of tourism innovation, the particularities (related to partnership and networking efforts and their responsiveness to changing customer demands and destination knowledge and infrastructure provision) can detonate the innovation capacity of those already innovative in the Colombian hospitality business and its destinations, considering the lack of connectivity and the current coordination capacities of local authorities.

Theoretical implications

The model developed in this work proves a statistically robust model for grouping barriers to innovativeness. Some variables were rejected from the model, even when literature shows an important background on the rationale to avoid innovation efforts or to sustain some competitiveness outcomes, i.e., lack of own resources as a barrier or increasing productivity as an expected outcome from process innovativeness. This rejection may be explained by model redundancy or a subtle contextual situation in the Colombian hospitality industry. For example, financing innovation with own capital may be contrary to business practices and idiosyncrasy. At the same time, public support or financial services are expected to warrant this investment. This situation may be expressed on the barrier of difficult access to external financing grouped on the business environmental obstacle. Therefore, it may manifest redundancy in self-financing.

In the model analysis, the loadings of barriers on the composite obstacle have been an important interpretative tool. Thus, some barriers seem to present prominence over others. There appears to be a hierarchy among barriers in the information and internal capabilities obstacle, top-ranked by limited market information, disregard for public support, and scarce information on technological developments. In contrast, in the business environment obstacle, the low offer of certification and verification services and the weak possibility of cooperation are the heading barriers. Or superior barriers are more complex and require some accomplishment with the lower, or there may be a synergistic effect. The MICMAC technique for analysing driving forces and dependencies may prove useful as the interpretative structural modelling to explore in this research line.

Practical implications

When looking at internal and information obstacles, one of the main barriers is the lack of personnel to innovate. Still, poor market information, weak public support, and difficult access to available technology must be paramount. Innovators are more aware of these three barriers that affect process innovativeness. A similar situation occurs in the business environment obstacles where most companies rank the difficulty of access to internal finance and the ease of copying as overriding. The greatest influence on innovativeness is found in the limited supply of certification and validation services and the few opportunities for cooperation. Noteworthy, these variables affect the product and process innovativeness simultaneously.

Currently, tourism faces a great challenge toward the greening of the industry. Purposefully addressing innovation through certification may accomplish a sustainable performance in the economic and environmental dimensions. They are expressed in process innovativeness that reduces consumption and saves resources. Meanwhile, product innovation is manifested through higher quality, diversified offerings, and a better image, which impacts nature and people through, for example, the reduction of biodiversity loss or the reflection of effective cultural heritage management.

Complementary cooperation can be sought to harness supply-demand-led innovation expressed in a better knowledge of market and technology and leverage through public support. There are opportunities to cooperate in the communication and transportation facilities and the greening of utilities and amenities. This innovation may be digital-enabled and collaborative through stakeholder engagement in developing, implementing, and adopting digital technologies. This networked innovation may be led by a destination governance organisation of the hospitality industry as in the European case for coastal tourism or the Spanish case of Innovation Business Groups. This mechanism must seek the active participation of stakeholders in top-down and bottom-up initiatives to increase destinations' competitiveness.

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Tables, figure captions, and figures

Table 1. Critical factors to innovation in Latin America, Hospitality and Digital Transition Adoption.

Cost factors Difficulties in obtaining financing and high costs **Knowledge factors** Lack of qualified personnel and information on markets and technology	Arce-Rodríguez et al. (2018)	Latin America
Shortage of own resources **Lack of qualified personnel** **Complying with regulations**	López-Fernández et al. (2011), Aguilar-Olaves et al. (2012), Divisekera and Nguyen (2018), Martínez-Román et al. (2015). Bergin-Seers et al. (2008), Durmusoglu et al. (2018), Divisekera and Nguyen (2018), Fernández et al. (2011), Martínez-Román et al. (2015).	Hospitality/Tourism Industries (Spain, Australia, U.K., Turkey, Netherlands, Slovenia, Poland)

Information on available technology	Bergin-Seers et al. (2008), Fernández et al. (2011), Den Hertog et al. (2011).	
Information about markets	Fernández et al. (2011), Durmusoglu et al. (2018), Aguilar-Olaves et al. (2012)	
Information on public support instruments	Fernández et al. (2011), Čivre and Gomezelj Omerzel (2015), Aguilar-Olaves et al. (2012).	
External finance	Martínez-Román et al. (2015).	
Cooperation	Divisekera and Nguyen (2018), Martínez-Román et al. (2015).	
I.P. protection	Tejada and Moreno (2103), Durmusoglu et al. (2018), Divisekera and Nguyen (2018), Jiménez-Zarco et al. (2011) Aguilar-Olaves et al. (2012), Martínez-Román et al. (2105).	
	Najda-Janoszka and Kopera (2014), Martínez-Román et al. (2015).	
National Infrastructure	Lama et al. (2018).	Digital Transformation in Hospitality/Tourism Industries (Nepal, Jordan, Sweden, Greece, Egypt, United Arab Emirates)
Financial resources	Alrawadieh et al. (2020), Styvén and Wallström (2019), Buhalis and Deimezi (2004), Abou-Shouk et al. (2013), Zaidan (2017).	
Lack of qualified personnel	Styvén and Wallström (2019), Buhalis and Deimezi (2004), Zaidan (2017), Lama et al. (2018).	
Complying with regulations	Abou-Shouk et al. (2013), Zaidan (2017).	
Technology and Knowledge	Buhalis and Deimezi (2004), Abou-Shouk et al. (2013), Zaidan (2017), Lama et al. (2018).	

Public Support **Lower profits** **Lack of Board Interest**	Buhalis and Deimezi (2004), Zaidan (2017), Lama et al. (2018). Buhalis and Deimezi (2004). Alrawadieh et al. (2020), Lama et al. (2018).	

Source: Own elaboration based on Arce-Rodríguez et al. (2018), Styvén and Wallström (2019), and the current study.

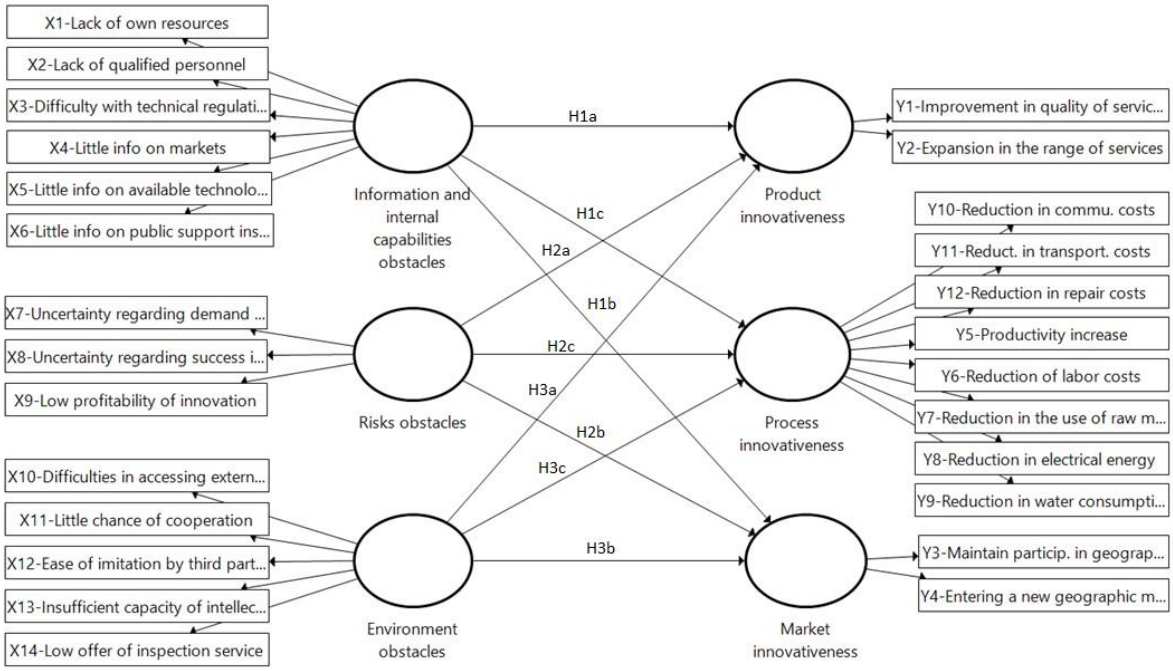

Figure 1. Theoretical Model and Research Hypotheses

Table 2. Reflective Measurement Model Assessment

Lower Order Constructs	Convergent Validity		Internal consistency Reliability			
	Indicators (Manifest variables-CFA Loadings)	**Outer Loadings t-values**	**Cronbach's Alpha >0.7**	**Rho_A >0.7**	**CR >0.7**	**AVE >0.5**
Information and internal capabilities obstacles	X2 - 0.651 X3 - 0.676 X4 - 0.837 X5 - 0.755 X6 - 0.775	7.199 8.293 20.421 10.565 15.067	0.794	0.802	0.859	0.550
Risks obstacles	X7 - 0.830 X8 - 0.910 X9 - 0.728	14.201 39.407 8.021	0.768	0.836	0.865	0.682
Environment obstacles	X10 - 0.724 X11 - 0.813 X12 - 0.713 X13 - 0.801 X14 - 0.832	9.834 15.778 10.508 15.279 18.126	0.840	0.862	0.884	0.605
Product innovativeness	Y1 - 0.882 Y2 - 0.884	17.611 14.288	0.718	0.718	0.876	0.780
Market innovativeness	Y3 - 0.948 Y4 - 0.610	3.928 2.616	0.709	0.713	0.769	0.635
Process innovativeness	Y6 - 0.732 Y7 - 0.751 Y8 - 0.819 Y9 - 0.825 Y10 - 0.735 Y11 - 0.750 Y12 - 0.694	12.605 14.594 16.928 21.289 14.564 13.423 9.994	0.877	0.879	0.905	0.577

NOTE: The t-values of every single outer loading were significant ($p<0.001$)

Source: Own contribution from results obtained with SmartPLS® 3. Ringle et al. (2015)

Table 3. Discriminant Validity

Constructs	LOC1	LOC2	LOC3	LOC4	LOC5	LOC6
AVE	0.550	0.682	0.605	0.780	0.635	0.577
Inform. and internal capab. obstacles (LOC1)	**0.742**	0.695	0.799	0.339	0.263	0.617
Risks obstacles (LOC2)	0.564	**0.826**	0.714	0.315	0.232	0.484
Environment obstacles (LOC3)	0.646	0.543	**0.778**	0.410	0.270	0.554
Product innovativeness (LOC4)	0.263	0.241	0.337	**0.883**	0.681	0.468
Market innovativeness (LOC5)	0.151	0.171	0.180	0.434	**0.797**	0.358
Process innovativeness (LOC6)	0.521	0.414	0.487	0.373	0.241	**0.759**

NOTE: The diagonal numbers (**in bold**) represent the square root of the AVE values (for reflective constructs). Above the diagonal, the $HTMT_{.85}$ correlations ratio test is presented; below the diagonal, the Fornell-Larcker criterion test is given.

Source: Own contribution from results obtained with SmartPLS® 3. Ringle et al. (2015)

Table 4. Descriptive Statistics of the Innovation Obstacles in the Colombian Hospitality Sector

Constructs	Manifest variables	Null	Medium	High
Obstacles associated with information and internal capabilities	X1-Lack of own resources	25.7%	38.2%	34.3%
	X2-Lack of qualified personnel	40.2%	51.0%	8.8%
	X3-Difficulty in complying with technical regulations	56.9%	41.2%	2.0%
	X4-Little information on markets	56.9%	37.3%	5.9%
	X5-Little information on available technology	52.9%	44.1%	2.9%
	X6-Little information on public support instruments	57.8%	29.4%	12.7%
Obstacles associated with risks	X7-Uncertainty regarding the demand for innovative services or goods	37.3%	45.1%	17.6%
	X8-Uncertainty regarding success in the technical execution of a project	34.3%	54.9%	10.8%
	X9-Low profitability of innovation	35.3%	51.0%	13.7%
Obstacles associated with the environment	X10-Difficulties in accessing external financing	51.0%	34.3%	14.7%
	X11-Little chance of cooperation with other firms or institutions	53.9%	34.3%	11.8%
	X12-Ease of imitation by third party agents	52.0%	39.2%	8.8%
	X13- Insufficient capacity of the intellectual property system to protect innovation	66.7%	28.4%	4.9%
	X14-Low offer of inspection, testing, calibration, certification, and verification services	60.8%	34.3%	4.9%

Source: Own contribution from results obtained with IBM SPSS Statistics® v23

Table 5. Descriptive Statistics of the Innovativeness in the Colombian Hospitality Sector

Constructs	Manifest variables	Null	Medium	High
Product innovativeness	Y1-Improvement in quality of services or goods	17.7%	33.3%	49.0%
	Y2-Expansion in range of services or goods	29.4%	41.2%	29.4%
Market innovativeness	Y3-Maintaining participation in the geographic market	11.8%	51.0%	37.3%
	Y4-Entering a new geographic market	41.2%	45.1%	13.7%
Process innovativeness	Y5-Productivity increase	15.7%	50.0%	34.3%
	Y6-Reduction of labor costs	37.3%	51.0%	11.8%
	Y7-Reduction in the use of raw materials or supplies	42.2%	46.1%	11.8%
	Y8-Reduction in consumption of electrical energy or other energy	47.1%	44.1%	8.8%
	Y9-Reduction in water consumption	55.9%	36.3%	7.8%
	Y10-Reduction in costs associated with communications	45.1%	44.1%	10.8%
	Y11-Reduction in transportation costs	56.9%	38.2%	4.9%
	Y12-Reduction in maintenance and repair costs	48.0%	43.1%	8.8%

Source: Own contribution from results obtained with IBM SPSS Statistics® v23

Table 6. PLS-SEM Results of the Structural Model

Hypotheses	Path	Standardised Coefficient β	*t-value*	p-value	Decision	Q^2	R^2
H1a	Information and internal capabilities obstacles → Product innovativeness	0.054 NS	0.398	0.690	Not supported		
H2a	Risks obstacles → Product innovativeness	0.066 NS	0.495	0.621	Not supported	0.064	0.120
H3a	Environment obstacles → Product innovativeness	0.266**	2.107	0.035	Supported		
H1b	Information and internal capabilities obstacles → Market innovativeness	0.024 NS	0.139	0.889	Not supported		
H2b	Risks obstacles → Market innovativeness	0.097 NS	0.627	0.531	Not supported	-0.028	0.040
H3b	Environment obstacles → Market innovativeness	0.112 NS	0.668	0.504	Not supported		

H1c	Information and internal capabilities obstacles → Process innovativeness	0.312***	2.596	0.009	Supported		
H2c	Risks obstacles → Process innovativeness	0.118 NS	1.109	0.268	Not supported	0.163	0.319
H3c	Environment obstacles → Process innovativeness	0.221*	1.695	0.090	Supported		

Significance: *** = p<0.01; ** = p<0.05; * =p<0.1

R^2 values: >0.10 (Falk and Miller, 1992); >0.20 = weak; >0.33= moderate; >0.67 = substantial (Chin, 1998).

Q^2: >0 = The model has predictive relevance for a specific endogenous construct (Stone, 1974)

Source: Own contribution from results obtained with SmartPLS® 3. Ringle et al. (2015)