

Relationships of business strategies and organizational characteristics with innovation types: Application in service companies

pp. 5-19

JHONY OSTOS MARIÑO*
ARTURO RODOLFO SAENZ ARTEAGA**
KERSTIN BREMSER***

* PhD in Management Sciences. Universidad ESAN, Lima, Peru. E-mail: jostos@esan.edu.pe. ORCID: 0000-0003-1888-7378. Google Scholar: <https://scholar.google.com/citations?hl=es&user=xaCaOocAAAAJ>.

** PhD in Management Sciences. Universidad ESAN, Lima, Peru. E-mail: asaenz@esan.edu.pe. ORCID: 0000-0002-4240-480X. Google Scholar: <https://scholar.google.es/citations?user=PWugAS4AAAAJ&hl=es&oi=ao>.

*** Dr. Oec. Hochschule Pforzheim, Pforzheim, Germany. E-mail: Kerstin.bremser@hs-pforzheim. ORCID: 0000-0002-8263-7763. Google Scholar: <https://scholar.google.es/citations?hl=es&user=zwwUgxlAAAAJ>.

COMO CITAR ESTE ARTÍCULO

How to cite this article:

Ostos, J., Saenz, A. and Bremser, K. (2019). Relationships of business strategies and organizational characteristics with innovation types: Application in service companies. *Revista Perspectiva Empresarial*, 6(2), 5-19.

Recibido: 25 de febrero de 2019

Aprobado: 08 de julio de 2019

ABSTRACT Various authors maintain that innovation practices depend on business strategies, therefore companies must configure an organizational structure that facilitates the coordination of tasks and allows objectives to be reached. In a sample of 203 service companies, an analysis was carried out of the influence of business strategies and organizational characteristics on technical innovation and administrative innovation. The results indicate that there is an important relationship between the business strategy and the technical and administrative innovations. On the other hand, organizational characteristics only had a significant relationship with technical innovation but not with the administrative innovation.

KEY WORDS Innovation types, organizational characteristics, business strategy.

Relación entre estrategias de negocios y características organizacionales con los tipos de innovación: aplicación en empresas de servicios

RESUMEN Varios autores sostienen que las prácticas de innovación dependen de las estrategias de negocio. Por consiguiente, las empresas deben configurar una estructura organizacional que facilite la coordinación de tareas y permita alcanzar los objetivos. En una muestra de 203 empresas de servicio se realizó un análisis de la influencia de las estrategias de negocio y de las características organizacionales en la innovación técnica y la innovación administrativa. Los resultados indican la existencia de una relación importante entre la estrategia de negocio y las innovaciones técnicas y administrativas. Además se encontró que las características organizacionales solo mostraron una relación significativa con la innovación técnica, pero no así con la innovación administrativa.

PALABRAS CLAVE tipos de innovación, características organizacionales, estrategias de negocio.

Relação entre estratégias de negócios e características organizacionais com os tipos de inovação: aplicação em empresas de serviços

RESUMO Vários autores sustentam que as práticas de inovação dependem das estratégias de negócio. Por consequência, as empresas devem configurar uma estrutura organizacional que facilite a coordenação de tarefas e permita alcançar os objetivos. Em uma amostra de 203 empresas de serviço se realizou uma análise da influência das estratégias de negócio e das características organizacionais na inovação técnica e a inovação administrativa. Os resultados indicam a existência de uma relação importante entre a estratégia de negócio e as inovações técnicas e administrativas. Ademais se encontrou que as características organizacionais só mostraram uma relação significativa com a inovação técnica, mas não assim com a inovação administrativa.

PALAVRAS-CHAVE tipos de inovação, características organizacionais, estratégias de negócio.

Introduction

Organizations work in different environments, which are interrelated with the type of industry in which they interact, which indicates that companies must select specific strategies to support a domain position of their products and/or services in the target market. In this respect, Miles and Snow (2003) states that the domain position of the products and/or services takes place through the adaptive cycle of the organization. Here is where companies must decide: (i) what products and/or services to offer? What market to attend to? (ii) How should the work processes be? (iii) How should the organization be configured?, and how do we facilitate innovation? These decisions are complex and not all managers make decisions in the same manner when they define their operations, many times the dilemma is whether to continue operating in the same way or to seek new opportunities. For example, if the company decides to create new products and/or search for new markets, then organizational innovation should be a vital support, for which the company should adapt its work structure and coordination in order to achieve the organizational objectives.

With regard to organizational innovation, there are many types, but the study of technical innovation and administrative innovation is very important because it analyzes better the differences of the socio-technical system of the organization; furthermore, these types of innovation are widely recognized, but at the same time, they are the least researched (Damanpour, Walker and Avellaneda, 2009). Meeus and Edquist (2006) state that there is a variety of innovation types in companies, but there is also diversity of innovation results, both by type of company, as well as by economic sectors, by countries, and by continents. If innovation is based on continuous incremental activity, then it is necessary to consider the analysis of the complementary relationships that occur between the different types of innovation (Walker, 2008).

Studies of business strategies have traditionally been carried out in large corporations and in developed countries and industries, said organizations often compete internationally, therefore the conclusions arrived at may be different to studies carried out in countries and industries with smaller scale markets (Borch,

Huse and Senneseth, 1999); we extend the study in an emerging country with limited international competition.

The business strategy as a study variable was analyzed according to the proposal of Miles and Snow (1978, 2003), who maintain that companies can adapt to the environment according to different types of strategy: prospector, analyzer, or defender; in this investigation we explore the business strategy as a single variable and we do not examine it by type of strategy.

Innovation studies have mainly been carried out in companies from the manufacturing sector, which are oriented towards a new technological trajectory, since innovations in the service sector are not related to a technological line, the conclusions obtained in manufacturing organizations cannot be generalized in service organizations (Damanpour et al., 2009); therefore, the application of this study in service companies is justified to contribute to the analysis of this business sector.

The objective of the study is to analyze the influence of business strategies and organizational characteristics in the types of technical and administrative innovation; additionally, the analysis is extended exploring the influence of business strategies on organizational characteristics. Therefore, the study was structured as follows: first, we reviewed the literature of the study variables and then established the hypothesis and the proposal of the study model; second, the study model was tested with an exploratory, and then a confirmatory analysis; and finally, through a path analysis the hypotheses were empirically verified.

The analysis leads us to address questions that could be considered by academics and by entrepreneurs. For example, do business strategies influence the adoption of the types of innovation? Do organizational characteristics influence the adoption of the types of innovation? Do business strategies influence the organizational characteristics? The answers to these questions will be explored through the verification of the proposed hypotheses.

Revision of literature and hypotheses

Business strategy

The selection of a strategy defines the range of activity of the company, this involves deciding the types of products and/or services to offer and in which markets to operate (Damanpour and Aravind, 2011). One of the best known types of business strategy are those proposed by Miles and Snow (1978, 2003) who maintain that organizations must adapt their adaptive cycle of operations and resolve their organizational problems in order to maintain a type of strategy (Borch et al., 1999). The administrative problem is a frequent difficulty to be resolved, which consists of appropriately adapting and relating: (i) the structure, which is oriented towards the current activities; (ii) the innovation process, which is oriented towards future activities (Hékis et al., 2013; Miles and Snow, 2003).

Based on the adaptive cycle, Miles and Snow (1978, 2003) state that, in order to achieve competitive advantages, organizations can implement different types of business strategies. Miles and Snow describe four types of strategies: prospectors, analyzers and defenders, which are considered feasible; while reactors are considered as non-feasible. Prospectors create changes in the industry through the development of new products, introduction of new technologies, and search for new markets, among others. Analyzers are interested in developing commercial ideas and locating and exploiting new product and market opportunities. Defenders attempt to maintain a stable market share with little market exploration (Borch et al., 1999).

Prospectors continuously seek market opportunities, possess flexible technologies and are innovators; on the contrary, defenders pursue the control of a market segment and dedicate more attention to efficiency and low cost in their offering of products and/or services; analyzers take care of both the product as well as the market segment, their structures and processes are a combination of the prospectors and defenders (Blumentritt and Danis, 2006). Studies that took into account the types of strategies proposed by

Miles and Snow can be found in Desarbo et al. (2004), Kabanoff and Brown (2008), and Aragón-Correa (1998).

The strategies proposed by Miles and Snow are considered feasible and applicable because they help resolve the different business problems (Olson, Slater and Hult, 2005). The strategic typology proposed by Miles and Snow is probably the most commonly used by organizations, and it has been studied in the classic studies and its application has been proven in multiple studies (Fiss, 2011).

Technical and administrative innovation

Innovation is considered an essential component of competitiveness, which is related to the organizational structure, the strategies, the processes, and the products and/or services produced within the company (Gunday et al., 2011). Various authors such as Birkinshaw, Hamel, and Mol (2008), Seaden et al. (2003) define innovation in different ways, but they agree that it is the creation and implementation of new activities to achieve the objective of the organization.

Innovation management depends on the adoption of various types of innovation instead of applying just one (Damanpour et al., 2009). Jansen, Van Den Bosch and Volberda (2006) indicate that the management of each type of innovation requires the adaptation of different internal factors of the organization.

There are various types of innovation, but when organizational configurations are analyzed, technical innovation and administrative innovation are the most important, because they analyze the differences of the socio-technical system of the organization (Damanpour et al., 2009). Technical innovation is directly related to the main activity of the organization and produces changes in the operating systems (Damanpour and Evan, 1984; Walker, Damanpour and Devece, 2011), these changes include: products, service, and technologies and processes used to produce

products and/or services (Crossan and Apaydin, 2010).

Administrative innovation is related to the changes carried out in the administrative management systems, which occur indirectly of the main activity of the organization (Damanpour and Evan, 1984; Walker et al., 2011); these changes are more specifically related to managerial aspects, the organizational structure, administrative processes, and human resource management (Crossan and Apaydin, 2010; Damanpour et al., 2009; Walker et al., 2011). Administrative innovation has various denominations, such as organizational innovation, management innovation, and managerial innovation (Damanpour and Aravind, 2011).

Seaden et al. (2003) carried out a study that related business strategies to innovation in construction companies, the conclusions indicated that there was a significant relationship between the type of business strategy and the capacity for innovation of the company. There are studies that relate business strategies with innovation, specifically Pittino and Visintin (2009) relate the business strategies of Miles and Snow with the innovation variable, said study was oriented towards family companies and concluded that there are differences between the strategic posture of the company and the type of innovation. Depending on the type of strategy adopted by an organization, it is expected that each company will have: a varied intensity of innovation practices, different design of organizational configuration, and different form of managing its human resources (Bozkurt and Kalkan, 2014).

Due to all of the above, the following hypotheses are proposed:

H1: The business strategy has a direct and positive influence on technical innovation.

H2: The business strategy has a direct and positive influence on administrative innovation.

Organizational characteristics

Various authors, such as Daft (2008) and Mintzberg (1993), state that the organizations must configure their structure depending on the environment which they are in, they must also align their organizational characteristics to promote or regulate the processes through which they will perform the work and the strategic objectives will be reached. Daft (2008) states that in an environment of rapid changes, the organization needs to operate with organizational characteristics that prioritize flexible procedures, decentralization in decision making, and horizontal coordination, among others; on the contrary, in a stable environment, emphasis must be placed on vertical control, standardized procedures, and centralization in decision making.

There is little analysis of the relationship of organizational characteristics with the types of organization; however, much emphasis has been placed on the study of centralization, formalization, and complexity as dimensions of organizational characteristics, the reason is that they have a strong influence on the making of strategic decisions (Fredrickson, 1986). An analysis of organizational characteristics is observed in the studies of Olson et al. (2005), who evaluated formalization, centralization and specialization as organizational characteristics.

With regard to formalization, Daft (2008) and Mintzberg (1993) state that formalization is the design parameter by which work processes are standardized, through rules, procedures, policy manuals, job descriptions, work instructions, etc. Decentralization refers to the decision making that is transferred to the lower levels of the organization, when decision making is maintained in the upper level of the organization it is denominated centralized (Daft, 2008). Specialization is the degree to which tasks are divided in the organization and the degree to which workers have control in the performance of tasks (Olson et al., 2005).

Companies place emphasis on certain types of structure when they resolve their organizational configuration problems, which are required to apply business strategies. There are publications that relate the way in which the company is

structured with the type of business strategy; in this respect, Castro and Higgs (2008) state that the organizational performance is best explained when there is a close alignment between the business strategy and human resource management. The adoption of strategies is determined by the characteristics of the resource of the organization and the way in which they are combined, also fundamental are the age, the size, the type of industry and the environment in which the company is located (Borch et al., 1999).

The managers who pursue different types of business strategy must coordinate the works in a differentiated manner, for example, prospectors require different knowledge to execute their tasks with regard to the defenders, because they seek and serve a broader and more dynamic market, and they must also be flexible in decision making (Kabanoff and Brown, 2008).

Considering the strategies proposed by Miles and Snow (1978, 2003) the companies that practice prospective strategies introduce new products and/or services, develop new technologies, and seek new markets, among others,

said organizations work with little formalization and decentralized decision making. Analyzing companies develop business ideas only if there is a favorable feasibility, their source of innovation is often imitation. Defender companies attempt to maintain a known portion of the market and in order to maintain this position they tend to formalize tasks and make centralized decisions (Fiss, 2011).

Due to all of the above, the following hypotheses are proposed:

H3: Organizational characteristics have a direct and positive influence on technical innovation.

H4: Organizational characteristics have a direct and positive influence on administrative innovation.

H5: Business strategy has a direct and positive influence on organizational characteristics.

Figure 1 shows the proposed study model with its corresponding hypotheses.

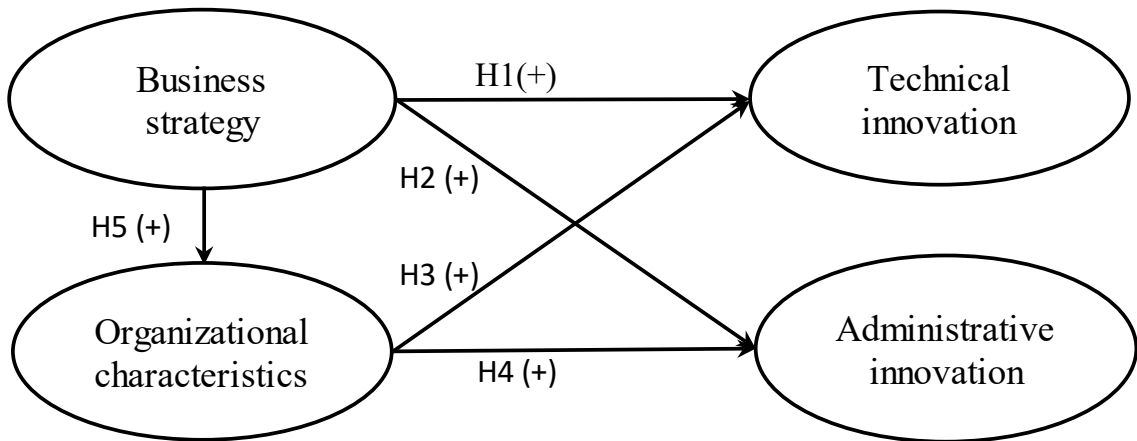


Figure 1. Proposed research model. Source: author's own elaboration.

Investigation design

We focus the study on service companies, which have activity in various subsectors, such as: tourism, banking, insurance, commerce, transport, and education among others. Nowak (2017) states that the size of the companies influences the creation and exploitation of new knowledge, a study that addresses all sizes could generate heterogeneous results, therefore this study included companies with 50 workers or more; in other words, micro and small companies were excluded.

In order for the sample to have a similar context of survey respondents and for the results of the study to be representative, the collection of data was carried out in person from professionals who attended various postgraduate programs in a prestigious Latin American university; in this respect, numerous studies have carried out the collection of data in university centers which can be found in Pearce (2013), Bravo and Ostos (2017), and Gefen, Straub and Boudreau (2000). In order to minimize any bias in the data collection, the participants were told that there were no correct or incorrect answers and that the confidentiality of the data would be maintained, emphasis was placed on the fact that honest answers were required.

The participants of these postgraduate programs came from companies of different sectors, and occupied various management and executive positions in their organizations; a total of 248 surveys were collected in person, from which the surveys with blank or incomplete answers had to be deleted, finally obtaining a total of 203 valid surveys. 164 survey respondents occupied managerial and executive positions, while 39 were executive and management analysts without personnel reporting to them.

The questionnaire was divided into four parts, which corresponded to: business strategies, organizational characteristics, technical innovation, and administrative innovation. All of the constructs were measured on five-point Likert scale. The definition of each variable is as follows: (i) business strategy, is the manner of adaptation of the organization to the behavior of the environment (Hambrick, 2003; Miles and

Snow, 2003); (ii) technical innovation, is the implementation of changes in the products and/or services, and the production processes, which are directly related to the basic work activity of the organization (Crossan and Apaydin, 2010; Damanpour, 1996); (iii) administrative innovation is the implementation of changes in the organizational structure, human resources, and administrative processes, which are indirectly related to the basic work activity of the organization (Crossan and Apaydin, 2010; Damanpour, 1996); (iv) organizational characteristics, are work coordination parameters in an organization, such as formalization, centralization, specialization (Fredrickson, 1986; Olson et al., 2005).

In order to obtain the information of the study variables, a questionnaire based on the measurement scale used by other authors was designed; the items corresponding to business strategies were adapted from Blumentritt and Danis (2006); the items corresponding to organizational characteristics were adapted from Olson et al. (2005), the items that comprise technical innovation and administrative innovation were adapted from Yamakawa and Ostos (2013).

In order to examine the validity of the measurement instrument, we followed the study model of Olmedo-Cifuentes and Martínez-León (2014). In order to ensure that the items correspond to each construct, we used a testing process that involved evaluating the reliability and validity results, this was carried out through: (i) convergent validity, through an exploratory factor analysis, the items that were grouped in each construct were identified; and (ii) discriminant validity, through a correlation analysis between constructs it was verified that each one measured different concepts. The validity of the study proposal was confirmed through the estimate of a structural equation model; the constructs were examined by a confirmatory factor analysis, and then the structural model was estimated to identify the relationships that existed between the constructs.

Results

The software used for the analysis of the model was the IBM SPSS AMOS version 24. The constructs of the model were tested in reliability and validity using the confirmatory factor analysis (CFA). The measurement model includes 12 items that were grouped into four constructs: business strategy (BS); organizational characteristics (OC); technical innovation (TI); administrative innovation (AI).

The convergent validity was verified by an exploratory factor analysis of principal components, table 1 shows four obtained

constructs: TI, is composed of three items of which the factor loading was: 0.901, 0.882, and 0.821; AI, is composed of three items of which the factor loading was: 0.931, 0.887, and 0.858; OC, is composed of three items of which the factor loading was: 0.868, 0.850, and 0.721; BS, is composed of three items of which the factor loading was: 0.923, 0.890, and 0.789. The results obtained in each item show highly reasonable factor loadings which confirm the justification and the uni-dimensionality of the four constructs formed.

Table 1. Exploratory Factor Analysis: Rotated Component Matrix

| Items | Items code | Components | | | |
|---|------------|------------|---------|---------|---------|
| | | TI | AI | OC | BS |
| Methods and work techniques | TI19 | 0.901 | 0.047 | 0.172 | 0.155 |
| Processes to produce products | TI18 | 0.882 | -0.026 | 0.144 | 0.164 |
| Work automatized systems | TI20 | 0.821 | 0.072 | 0.124 | 0.233 |
| Frequency of job changes | AI25 | -0.010 | 0.931 | -0.038 | 0.043 |
| Changes in organizational structure | AI24 | 0.017 | 0.887 | 0.036 | 0.034 |
| Changes in the roles of jobs | AI26 | 0.073 | 0.858 | -0.104 | 0.091 |
| The works can be flexible in procedures | OC33 | 0.084 | -0.055 | 0.868 | 0.193 |
| Decision making can be flexible in procedures | OC34 | 0.077 | -0.023 | 0.850 | 0.246 |
| Company has specialized workers | OC38 | 0.322 | -0.038 | 0.721 | 0.066 |
| Enter new products to the market frequently | BS47 | 0.137 | 0.065 | 0.101 | 0.923 |
| Make innovations frequently | BS46 | 0.200 | 0.015 | 0.211 | 0.890 |
| Promotes technological changes frequently | BS48 | 0.261 | 0.126 | 0.255 | 0.789 |
| Variance explained | | 20.95 % | 20.71 % | 20.20 % | 18.29 % |
| Reliability (Cronbach's alpha) | | 0.887 | 0.875 | 0.806 | 0.901 |

Extraction method: Main component analysis.

Rotation method: Varimax with Kaiser normalization.

a The rotation has turned into 5 iterations

Source: author's own elaboration.

After the exploratory analysis, we carried out a confirmatory factor analysis obtaining acceptable results from the model. Table 2 shows the data of reliability on the scale, both the values of the Cronbach alpha and of the composite reliability are above the value of 0.7 recommended by Hair et al. (2010) for all the constructs. In addition, the average variance extracted (AVE) results are shown, of which the data of each construct are above the minimum accepted value of 0.5 by Fornell and Larcker (1981).

Table 2. Confirmatory Factor Analysis Results

| Construct | Items | Standardised factor loading | Standard error (S.E.) | Critical ratio (C.R.) | Cronbach's alfa | Composite reliability | Variance extracted |
|-------------------------------------|-------|-----------------------------|-----------------------|-----------------------|-----------------|-----------------------|--------------------|
| Technical innovation (TI) | TI20 | 0.771 | 1 | | 0.887 | 0.891 | 0.732 |
| | TI19 | 0.931 | 0.089 | 13.563 | | | |
| | TI18 | 0.857 | 0.086 | 12.985 | | | |
| Administrative innovation (AI) | AI26 | 0.770 | 1 | | 0.875 | 0.881 | 0.713 |
| | AI25 | 0.950 | 0.113 | 12.845 | | | |
| | AI24 | 0.802 | 0.100 | 12.126 | | | |
| Organizational characteristics (OC) | OC38 | 0.628 | 1 | | 0.806 | 0.815 | 0.599 |
| | OC34 | 0.835 | 0.163 | 8.751 | | | |
| | OC33 | 0.840 | 0.158 | 8.757 | | | |
| Business strategy (BS) | BS48 | 0.780 | 1 | | 0.901 | 0.905 | 0.761 |
| | BS47 | 0.890 | 0.080 | 14.111 | | | |
| | BS36 | 0.940 | 0.083 | 14.624 | | | |

Source: author's own elaboration.

Table 3 shows the values of the quality summary of model fit, all the indexes exceed the limits recommended by Hair et al. (2010), the X2 ratio was below 3, the RMSA was below 0.08, and the other indexes: CFI, IFI, and TLI were above 0.9, commonly accepted.

Table 3. Quality Summary of Model Fit

| Fit index | Recommended value | Observed value |
|---|-------------------|----------------|
| CMIN/DF (X2 ratio) | ≤ 3 | 1.694 |
| Comparative Fit Index (CFI) | ≥ 0.90 | 0.977 |
| Normed Fit Index (NFI) | ≥ 0.90 | 0.945 |
| Bollen's Incremental Fit Index (IFI) | ≥ 0.90 | 0.977 |
| Tucker-Lewis index (TLI) | ≥ 0.90 | 0.968 |
| Root Mean Square Error of Approximation (RMSEA) | ≤ 0.08 | 0.059 |

Source: author's own elaboration.

Then, the discriminant validity correlations were analyzed (table 4). The obtained values are below 0.8 recommended by Hair et al. (2010), therefore the discriminant validity was confirmed.

Table 4. Means, Standart Deviation, and Correlations between Constructs

| Construct | Items | Mean | Standard Deviation | Correlations | | | |
|--------------------------------|-------|-------|--------------------|--------------|--------|-------|--------|
| | | | | TI | AI | OC | BS |
| Technical innovation | TI | 3.576 | 0.910 | 1.000 | | | |
| Administrative innovation | AI | 2.816 | 0.979 | 0.066 | 1.000 | | 1.000 |
| Organizational characteristics | OC | 4.275 | 0.620 | 0.372** | -0.063 | 1.000 | -0.063 |
| Business strategy | BS | 3.371 | 0.923 | 0.436** | 0.131 | 1.000 | 0.131 |

Source: author's own elaboration.

Table 5. Path Analysis Results

| Regression | | Unstandardized regression weight | Standardized regression weight | P value | Hypotheses |
|-----------------------------------|-----------------------------------|--|-----------------------------------|---------|----------------------|
| Business strategy | Technical innovation | 0.326 | 0.332 | < 0.01 | H1 (supported) |
| Business strategy | Administrative innovation | 0.169 | 0.176 | < 0.05 | H2 (supported) |
| Organizational characteristics | Technical innovation | 0.310 | 0.228 | < 0.05 | H3 (supported) |
| Organizational characteristics | Administrative innovation | n.a. | n.a. | n.a. | H4 (no supported) |
| Business strategy | Organizational characteristics | 0.339 | 0.470 | < 0.01 | H5 (supported) |

Model Fit X2: 1.664; CFI:0.977; IFI:0.977, TLI:0.969; RMSA: 0.57

Source: author's own elaboration.

Conclusions

Considering that the objective of the study is to analyze the relationship of the business strategies and the organizational characteristics in the types of technical and administrative innovation, in general it is confirmed that business strategies have a significant relationship in both types of innovation, whereas organizational characteristics only have one partial relationship, in other words it has a significant relationship with technical innovation but not with administrative innovation. Furthermore, it is also verified that business strategies have a positive and significant relationship with organizational characteristics.

Of the five proposed hypotheses, four hypotheses are supported and one hypothesis is not supported. The relationship between business strategies and technical and administrative innovations (hypotheses 1 and 2 respectively), had positive and significant statistical results which are explained by the fact that when companies carrying out the planning of their business strategies they define the intensity of the innovation to be carried out, in other words they define: (i) if they will create new products or

if they will maintain the same ones?, if they are going to seek new markets or if they will exploit the same ones?, if they will change the production processes or if they will maintain the same ones?; and (ii) If they will change the organizational structure or if they will keep it the same?, if they will change human resource management or if they will keep it the same? If the company plans to operate in the market adopting a proactive position it will encourage a greater intensity of innovation, whereas if the company plans to operate adopting a defensive position, it will discourage innovation, instead seeking efficiency as a work pattern.

With regard to organizational characteristics, there was only a significant relationship with technical innovation (hypothesis 3) but not with administrative innovation (hypothesis 4), this is explained by the variation of perception in the work coordination of the organizations, this means that the managers or executive of the service companies will attribute greater importance to the form of coordination of the works when they develop technical innovations but not when they develop administrative innovations. In this respect, Daft (2008) maintains that in order to implement technical innovations

it is best for the organization to adopt an organic rather than a mechanical structure model; the organic structure, since it is more flexible, allows innovative ideas to be more easily transferred from the lower level to the upper level, whereas to implement administrative innovations it is best for organizations to adopt a mechanical rather than an organic structure model, since the mechanical structure is more rigid, it allows employees to accept changes more easily.

Business strategies have a positive and significant statistical relationship with organizational characteristics (hypothesis 5), this confirms that organizations comply with the two first stages of the administrative process (plan – organize) in a coherent manner. In this respect, Fiss (2011) and Miles and Snow (2003) state that the organizational adaptation and configuration process depends on the type of business strategy chosen by managers. This proposal is reinforced by Bozkurt and Kalkan (2014) and Castro and Higgs (2008) who indicate that business strategies define the design of the organization and the way of managing human resources to obtain better organizational performances. This means that if companies plan a business strategy with a proactive tendency, it is necessary to maintain flexible work coordination, with little formalization, decentralized decisions, and high specialization. Whereas, if companies plan a business strategy with a defensive tendency, it is necessary to maintain rigid work coordination, with high formalization, centralized decisions, and low specialization.

The results of the research can help managers to improve the company's innovation management. Although it is true that managers are assigning great importance to the prior activities required to carry out technical innovations, it is observed that the same does not happen with administrative innovations, it is necessary to adequately design the work coordination when administrative innovations are implemented.

Regardless of the above, this work has limitations. Depending on the authors, there are different types of strategies, this study only specifically covered the strategic typology of Miles and Snow; however, the study can be expanded to the strategic proposals of other authors. The same occurs with the types of innovation, there are

various types, which can be analyzed in a future study, for example: innovation of products and processes.

Another limitation is that one representative per company was surveyed in the sample, this means that the answers obtained for each company depend on a single person, sometimes people can have a bias at the time of filling out the survey, which depends on their feeling towards the company, we have tried to reduce this limitation, surveying the students of Master's programs, who occupied managerial positions and had extensive work experience.

References

- Aragón-Correa, J. (1998). Strategic proactivity and firm approach to the natural environment. *Academy of Management Journal*, 41(5), 556-567.
- Birkinshaw, J., Hamel, G. and Mol, M. (2008). Management Innovation. *Academy of Management Review*, 33(4), 825-845.
- Blumentritt, T. and Danis, W. (2006). Business strategy types and innovative practices. *Journal of Managerial Issues*, 18(2), 274-291.
- Borch, O., Huse, M. and Senneseth, K. (1999). Resource configuration, competitive strategies, and corporate entrepreneurship an empirical examination of small firms. *Entrepreneurship Theory and Practice*, 24(1), 49-70.
- Bozkurt, O. and Kalkan, A. (2014). Business strategies of SME's innovation types and factors influencing their innovation: Burdur model. *Ege Akademik Bakış Dergisi*, 14(2), 189-198.
- Bravo, E. and Ostos, J. (2017). Performance in computer-mediated work: the moderating role of level of automation. *Cognition Technology and Work*, 19(2-3), 529-541.
- Castro, L. and Higgs, M. (2008). How the alignment of business strategy and HR strategy can impact performance. *Journal of General Management*, 33(4), 13-33.
- Crossan, M. and Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: a systematic review of the literature. *Journal of Management Studies*, 47(6), 1154-1191.
- Daft, R. (2008). *Organization Theory and Design*. Massachusetts, USA: Cengage Learning.
- Damanpour, F. (1996). Organizational complexity and innovation: Developing and testing multiple contingency models. *Management Science*, 42(5), 693-716.
- Damanpour, F. and Aravind, D. (2011). Managerial innovation: conceptions, processes, and antecedents. *Management and Organization Review*, 8(2), 423-454.
- Damanpour, F. and Evan, W. (1984). Organizational Innovation and Performance: The Problem of "Organizational Lag". *Administrative Science Quarterly*, 29(3), 392-409.
- Damanpour, F., Walker, R. and Avellaneda, C. (2009). Combinative Effects of Innovation Types and Organizational Performance: A Longitudinal Study of Service Organizations. *Journal of Management Studies*, 46, 650-675.
- Desarbo, W. et al. (2004). Revisiting the Miles and Snow strategic framework: Uncovering interrelationships between strategic types, capabilities, environmental uncertainty, and firm performance. *Strategic Management Journal*, 26, 47-74.
- Fiss, P. (2011). Building better causal theories: a fuzzy set approach to typologies in organization research. *Academy of Management Journal*, 54(2), 393-420.
- Fornell, C. and Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39-50.
- Fredrickson, J. (1986). The strategic decision process and organizational structure. *Academic of Management Review*, 11(2), 280-297.
- Gefen, D., Straub, D. and Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4, 1-76.
- Gunday, G. et al. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics*, 133, 662-676.
- Hair, J. et al. (2010). *Multivariate Data Analysis*. London, United Kingdom: Pearson, Prentice Hall.
- Hambrick, D. (2003). On the staying power of defender, analyzers, and prospectors. *Academy of Management Executive*, 17(4), 115-118.
- Hékis, H. et al. (2013). Evaluation of organizational behavior - An application of the typology of Miles and Snow in the hotel sector

Florianópolis - Santa Catarina - Brazil. *Revista de Globalización, Competitividad & Gobernabilidad*, 7(2), 26-43.

Jansen, J., Van Den Bosch, F. and Volberda, H. (2006). Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Management Science*, 52(11), 1661-1674.

Kabanoff, B. and Brown, S. (2008). Knowledge structures of prospectors, analyzers, and defenders: content, structure, stability, and performance. *Strategic Management Journal*, 29, 149-171.

Meeus, M. and Edquist, C. (2006). Introduction to Part I: Product and process innovation. In Hage, J. and Meeus, M. (Ed.), *Innovation, Science and Institutional Change. A Research Handbook* (pp. 23-37). Oxford, England: Oxford University Press.

Miles, R. and Snow, C. (1978). *Organizational strategy, structure, and process*. New York, USA: McGraw-Hill.

Miles, R. and Snow, C. (2003). *Organizational strategy, structure, and process*. California, USA: Stanford Business Classics.

Mintzberg, H. (1993). *Structure in fives: Designing effective organizations*. New Jersey, USA: Prentice-Hall Inc.

Nowak, R. (2017). Demystifying absorptive capacity: Focus on firm size and employee empowerment. *International Journal of Innovation Management*, 21(06), 1-19.

Olmedo-Cifuentes, I. and Martinez-León, I. (2014). Influence of management style on employee views of corporate reputation. Application to audit firms. *Business Research Quarterly*, 17, 223-241.

Olson, E., Slater, S. and Hult, T. (2005). The performance implications of fit among business strategy, marketing organization structure, and strategic behavior. *Journal of Marketing*, 69(7), 49-65.

Pearce, J. (2013). Using Social Identity Theory to Predict Managers' Emphases on Ethical and Legal Values in Judging Business Issues. *Journal of Business Ethics*, 112, 497-514.

Pittino, D. and Visintin, F. (2009). Innovation and strategic types of family SMEs: A test and extension of Miles and Snow's configurational model. *Journal of Enterprise Culture*, 17(3), 257-295.

Seaden, G. et al. (2003). Strategic decisions and innovation in construction firms. *Construction Management and Economics*, 21(6), 603-612.

Walker, R. (2008). An empirical evaluation of innovation types and organizational and environmental characteristics: Towards a configuration framework. *Journal of Public Administration Research & Theory*, 18(4), 591-615.

Walker, R., Damanpour, F. and Devece, C. (2011). Management Innovation and Organizational Performance: The Mediating Effect of Performance Management. *Journal of Public Administration Research & Theory*, 21, 367-386.

Yamakawa, P. and Ostos, J. (2013). The Influence of the Environment on Organizational Innovation in Service Companies in Peru. *Revista Brasileira de Gestão de Negócios*, 15(49), 582-600.