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The influence of organizational innovativeness on the performance of micro enterprises in the Professional Knowledge Intensive Business Services (P-KIBS) sector

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Abstract

This study analyzes the influence of organizational innovativeness on the financial and non-financial performance of knowledge-intensive professional business services companies (P-KIBS), specifically a sample of micro-enterprises in the state of Paraná, Brazil. Organizational innovativeness was operationalized with the model of Quandt, Bezerra and Ferraresi (2015), and questions on performance were adapted from the study by Avlonitis, Papastathopoulou and Gounaris (2001) and refer to the financial and non-financial performance of companies. The survey resulted in 193 valid responses, analyzed with structural equation modeling (SEM). The results indicate that organizational innovativeness positively influences both financial and non-financial performance. This suggests that organizational innovativeness is a relevant factor for performance in knowledge-intensive services.

Keywords

Microenterprises. Organizational innovativeness. Performance. Services

1 Introduction

This paper presents a study about the impact of organizational innovativeness on financial and non-financial performance of Knowledge Intensive Business Services – KIBS. The relevance of services in the economy can be demonstrated by its large share of GDP – Gross Domestic Product in most countries. The World Bank Group (2019) presented the following results of the service sector: (i) the world – considering the countries that provided data to the World Bank – Services increased its participation from 61.7% in 2007 to 64.9% in 2016, (ii) in Latin America and Caribbean Region, the growth was from 55.2% in 2007 to 60.9% in 2017, (iii) in Brazil its participation increased from 57.7% in 2007 to 62.6% in 2018.

Small and Medium Enterprises (SMEs) represent 99% of all businesses in the European Union (European Commission, 2019). In Brazil, where the research was conducted, SMEs represent 99.7% of the total businesses (IBGE, 2015). The present research focused on a subset of SMEs, the so-called “micro-enterprises”, which have less than 10 employees.

Organizational innovativeness is the ability of an organization in successfully and willingly

producing ideas, services, products or processes in search of sustained innovation development (Hurley & Hult, 1998; Lawson & Samson, 2001; Lumpkin & Dess, 2016). Financial and non-financial performance is defined here as the achievement of pre-determined objectives by a company, whether they are financial or relative to other aspect of performance (Ferraresi, 2010).

In this context, this paper pursues the answer for the following research question: What is the influence of organizational innovativeness on the financial and non-financial performance of knowledge-intensive micro-enterprises?

This paper is divided in five parts: (i) this introduction, intended to bring some relevant facts about the constructs used in the research, (ii) a brief literature review, (iii) the methodology adopted, (iv) the analysis of the collected data and (v) the conclusions and recommendations for future research.

2 Literature review

2.1. *Organizational Innovativeness*

Although the concepts of innovation and innovativeness are commonly seen as analogous, they express different ideas. Innovation reflects the results of innovative activities. Zairi (1994) defines innovation as the new ways of delivering quality to customer in a consistent and economically viable manner. Salavou (2004) points out that innovativeness reflects the willingness to try something new, to a commitment to reach state-of-the-art products or technologies. Garcia and Calantone (2002) identified fifteen constructs and 51 distinct scale items in their research about product innovativeness, in only 21 empirical studies. In this regard, the authors explain that the term innovativeness is more often used as a measure of the degree of newness of an innovation.

Therefore, organizational innovativeness is more appropriately defined as the propensity to innovate, or the organizational capacity to sustain new ideas, innovations and creative techniques that give rise to new services, processes and products (Lumpkin & Dess, 1996). For Hurley and Hult (1998), organizational innovativeness refers to openness and the ability to introduce innovations into organizations. This requires companies to be receptive to change and prepared to face new challenges

Gopalakrishnan and Damanpour (2000) adopted a time frame definition of organizational innovativeness, measured by the number of innovations the organization had adopted in the previous two years while studying the impact of organizational context on innovation adoption in commercial banks.

Wang and Ahmed (2004) used 29 items from literature review – reduced to 20 after data analysis – to identify five dimensions of organizational innovativeness in their study,; (i) behavioural, (ii) product, (iii) process (iv) market and (v) strategic.

Considering that companies seek, independently of other factors, favorable performance, the relationship between these and innovativeness is of significant relevance. In addition, a number of authors (Avlonitis, Papasthatopoulou & Gounaris, 2001; Antoni et al., 2007, Quandt, Bezerra & Ferraresi, 2015) carried out studies that discuss, theoretically and empirically, this subject, seeking evidence of this relationship.

Avlonitis, Papasthatopoulou and Gounaris (2001) studied product innovativeness and the

performance of new services. They proposed that the performance of a new service is the result of the process of its development, which is influenced by its innovation. One of its conclusions is that the main contributions of service innovations are stronger in non-financial performance. Antoncic et al. (2007) demonstrated that technological innovativeness tends to be a direct predictor of performance in terms of growth.

The ten-dimension model of organizational innovativeness proposed by Quandt, Bezerra and Ferraresi (2015) was used to measure the relationship between innovativeness and performance by Bezerra and Wronski (2015), Bezerra and Fernandes (2015) and Bezerra and Guimarães (2017). These authors found a positive relationship between the dimensions of organizational innovativeness and innovative performance.

2.1. KIBS

The seminal work of Miles et al. (1995) initiated the discussion about Knowledge Intensive Business Services, and emphasized approaches to innovation and economic growth that had highlighted KIBS role, for they promote knowledge generation, diffusion, and accumulation in the economy. The authors observe that the KIBS have some distinct characteristics, for they: (i) are highly dependent on professional knowledge, (ii) are primary sources of knowledge and information or use them to produce intermediate services for the manufacture processes of their clients and (iii) are competitive and they mainly supply for companies.

KIBS are considered private companies or organizations that operate as facilitators or innovation sources and yet perform activities that result in knowledge creation, accumulation or dissemination. KIBS contribute to study the services and the innovation concomitantly developing knowledge together with their clients (Miles et al., 1995; Hertog, 2000; Muller & Zenker, 2001).

According to the characteristics provided by Miles et al. (1995), KIBS comprise two different sets of services: (i) traditional professional services – those based on specialized knowledge in administrative and social subjects, involving abilities from legal up to statistical analyses and (ii) new technology-based services – related with the production of new technologies and their knowledge transfer to clients. These two types are commonly known as Professional KIBS (P-KIBS) and Technology-based KIBS (T-KIBS), as described in Table 1.

Table 1 - Types of KIBS

Professional Services (P-KIBS) (liable to be intensive users of new technology)	New Technology-Based KIBS – T-KIBS
Marketing/advertising;	Computer networks/telematics (e.g. VANs, on-line databases);
Training (other than in new technologies);	some Telecommunications (especially new business services);
Design (other than that involving new technologies);	Software;
some Financial services (e.g. securities and stock-market-related activities);	Training in new technologies;

Office services (other than those involving new office equipment, and excluding “physical” services like cleaning);	Design involving new technologies;
Building services (e.g. architecture; surveying; construction engineering, but excluding services involving new IT equipment such as Building Energy Management Systems));	Building services (centrally involving new IT equipment such a Building Energy Management Systems));
Management Consultancy (other than that involving new technology);	Management Consultancy involving new technology;
Accounting and bookkeeping;	Technical engineering;
Legal services;	Environmental services involving new technology; e.g. remediation; monitoring; Scientific/laboratory services;
Environmental services (not involving new technology, e.g. environmental law; and not based on old technology e.g. elementary waste disposal services).	R&D Consultancy and "high-tech boutiques"

Source: Adapted from Miles et al. (1995).

The relevance of innovation and knowledge has been approached by Figueiredo, Ferreira and Marques (2015), who performed a literature review on the subject using Scopus® database from the year 2000 up to 2014 and concluded that changes depend on incorporated knowledge of the employees, and KIBS must operate to facilitate this accomplishment. The authors identified five KIBS key dimensions: (i) knowledge, (ii) innovation, (iii) special, (iv) wealth generation and personnel qualification and (v) institutional.

J-Figueiredo et al. (2017) examined 230 papers for different KIBS behavior: KIBS roles and attributes. The evolution of the Service sector, specially KIBS, has been analyzed by Strat et al. (2016). The authors performed a time-series data analysis and achieved to point out the sector’s main characteristics that stimulate local economy.

European studies tend to use the *Nomenclature statistique des Activités économiques dans la Communauté Européenne* – NACE – statistic nomenclature of European Community economic activities – (Horgos & Koch, 2008; Corrocher et al., 2009) in order to identify the activities related to KIBS. In Brazil, the most common procedure to survey the activities using the codes of CNAE – the National Classification of Economic Activities (Guimaraes & Meirelles, 2014; J-Figueiredo et al., 2017). Many services cannot be considered KIBS, basically those that do not demand highly qualified labor.

2.3. Performance

In order to provide criteria to evaluate performance based on innovativeness, Quandt, Bezerra and Ferraresi (2015) proposed a theoretical model with 10 innovativeness dimensions: (i) strategy, (ii) leadership, (iii) culture, (iv) organizational structure, (v) processes, (vi) people, (vii) external relationships, (viii) technological infrastructure, (ix) measurement and (x) organizational learning.

Hansen (2014) explored the influence of innovativeness on financial performance measured by five variables: (i) Composite Performance, (ii) Return on Sales, (iii) sales growth rate, (iv) after tax

return on sales and (v) gross profit margin. Unexpectedly, as the author mentions, the difference among the companies that (i) increased innovativeness, (ii) had no change in innovativeness and (iii) decreased innovativeness was only statistically significant ($p < 0.10$) for sales growth rate comparing companies that increased innovativeness versus those that decreased.

Hatak (2015) studied the relationship of innovativeness and family-firm performance, considering the family commitment as a moderating variable. The research omitted firms with less than 50 employees in order to reduce heterogeneity in the sample. The author concludes that it is important that the family commits to their decision, either actively participating or maintaining low profile, consistency is the key. Second, firm policy makers should encourage owners to pursue long-term strategies regarding the commitment of family members.

Ferraresi et al. (2014) analyzed the influence of knowledge management on the development of strategic orientation and on innovativeness, and if these three factors positively affect performance. The authors only found statistically significant relationship between knowledge management and performance, when mediated by strategic orientation and innovativeness. A particularly interesting finding was that this empirical research did not confirm that innovativeness contributes to performance, as intuitively supposed.

An approach to the joint impact that quality and innovativeness might have on short-term product performance was presented by Molina-Castillo & Munuera-Aleman (2009). The authors concluded that interaction repercussion of quality and innovativeness is different than the isolated influence of these variables. The authors point out that given the budget limitations, it is necessary to carefully analyze the trade-off between quality and innovativeness, in order to find the optimal allocation of their resources.

3 Methodology

The companies were selected using the classification of CNAE 2.0 (IBGE, 2016a), and searched according to their activity: professional KIBS (P-KIBS). The activities analyzed are: 1) legal, 2) accounting, accounting and tax consultancy, 3) consulting and business management, 4) architecture, 5) engineering, 6) research and development in social and human sciences, 7) advertising and 8) market research and opinion .

The size of the companies was determined based on the IBGE criteria (2016b), which classifies as micro-enterprises the companies that have fewer than 10 employees.

For the data collection, a questionnaire was used with a scale of 11 points, considering that "0" represents "totally disagree" and "10" corresponds to "totally agree". Questions regarding sociodemographic information were included. The final questionnaire had a total of 44 questions, including 31 on organizational innovativeness, 8 on performance and the others seeking general information about the companies that composed the sample.

In order to verify weaknesses in the questionnaire, a pre-test was carried out with 11 managers, who were not included in the effective sample. Prior to data collection, telephone contact was made explaining the research objectives and verifying the interest and possibility of response of the company representative.

The instrument was sent using as a text document or through the online research system *Qualtrics*

as requested by the respondent. In the end of the collection period, 193 valid questionnaires were obtained.

The organizational innovativeness construct was adapted from Quandt, Bezerra and Ferraresi (2015) with 10 dimensions: strategy; leadership; culture; organizational structure; processes; people; relationship; infrastructure.

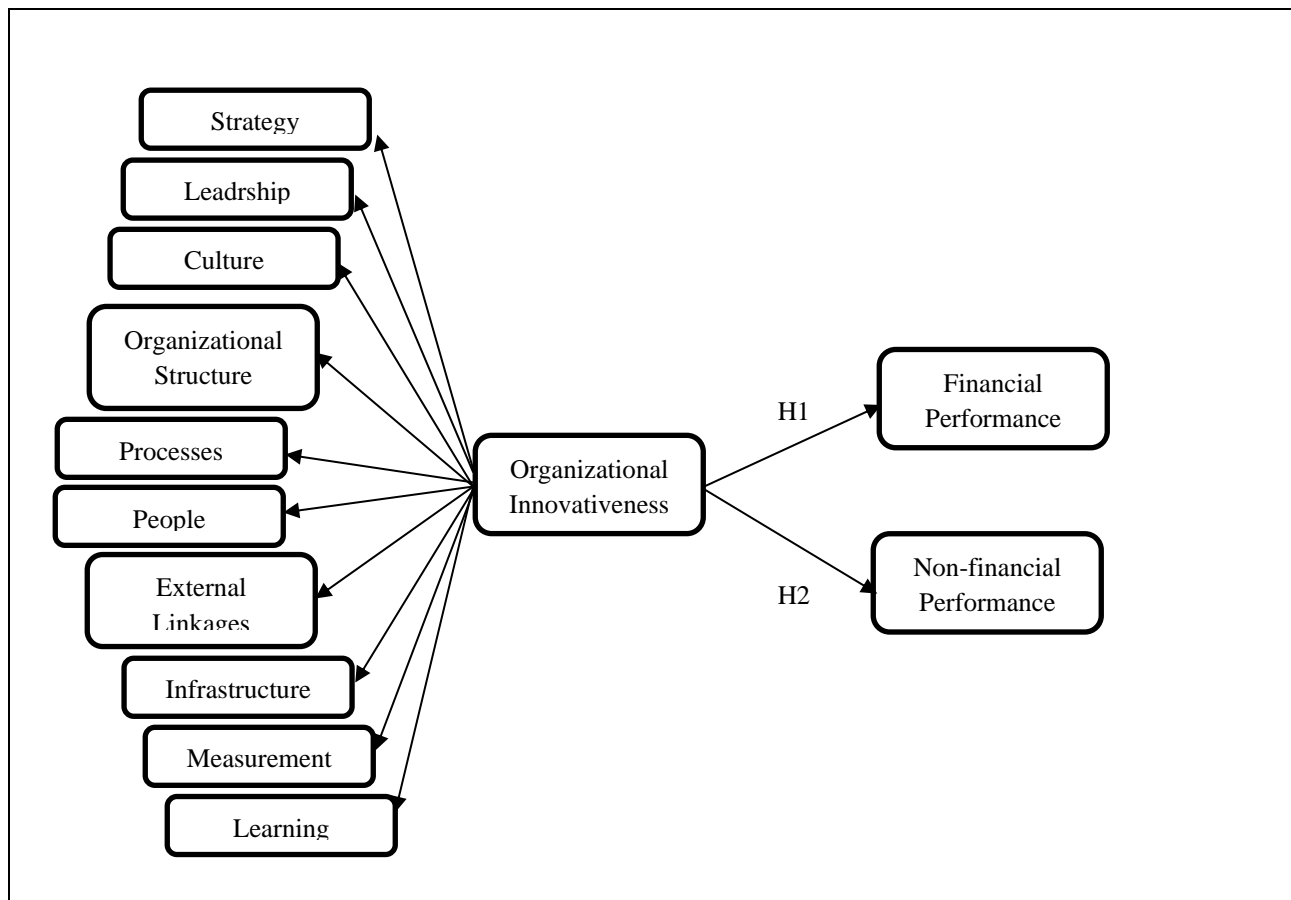
Questions on Performance were adapted from the study by Avlonitis, Papastathopoulou and Gounaris (2001) and refer to the financial and non-financial performance of companies.

This study comprised the following hypotheses:

- H1: Organizational innovativeness influences in a positive way the financial performance of P-KIBS micro and small enterprises.
- H2: Organizational innovativeness positively influences the non-financial performance of P-KIBS micro and small enterprises.

The conceptual model of the study is shown on Figure 1.

Figure 1- Conceptual model of research



Source: the authors

The consistency of the scales was verified using the Cronbach's alpha test considering acceptable values above 0.60 (Hair et al., 2005; Netemeyer, Bearden & Sharma, 2003). In order to analyze normality, the Kolmogorov-Smirnov test and the asymmetry and kurtosis were calculated, followed by the Structural Equation Modeling analysis.

The study adopted values of 0.50 for AVE (Average Variance Extracted) (Netemeyer et al., 2003; Hair et al., 2005) and 0.70 for Composite Reliability (Hair et al., 2005). The discriminant validity was verified by checking the correlation index between the variables and checking the difference between the square of these correlations and the calculated AVE and by means of the chi-square difference with the formation of all the pairs of the model (Bagozzi & Yi, 1998). Finally, the adjustment indices of the model were analyzed and the relationships between the constructs.

4 Data analysis and discussion of results

The sample consisted of 193 KIBS companies in the state of Paraná. Only P-KIBS – professional knowledge-intensive service companies – were selected, not considering technological services (T-KIBS). The activities that comprise the sample are legal activities, accounting and auditing with 124 companies, architecture and engineering with 33 companies, advertising with 27 companies, and the remaining are other consulting activities and other scientific professionals.

The data normality test, Kolmogorov-Smirnov, indicate that the data distribution was not normal. Considering that one of the points that need to be considered in the assumption of normality is asymmetry and kurtosis, the variables of the organizational innovations and performance constructs presented acceptable values. Therefore, bootstrapping (Hair et al., 2005) was used as an alternative for the analysis of non-normal data. *Amos* version 24 software was used.

The Cronbach's alpha test was used to analyze the reliability of the scales, as presented in Table 1.

Table 1 – Construct Reliability: Cronbach's Alpha test

Construct	Dimension	Cronbach's alpha
Organizational innovativeness	Strategy	0.703
	Leadership	0.783
	Culture	0.710
	Organizational structure	0.701
	Processes	0.741
	People	0.612
	External relationship	0.711
	Infrastructure	0.731
	Measurement	0.876
	Learning	0.650
Financial performance		0,889
Non-financial performance		0.930

Source: The authors

The dimensions presented values within the acceptable standard, all above 0.60, indicating that the scale is reliable. A first-order CFA (Confirmatory Factor Analysis) was performed in the organizational innovation construct to verify the fit indices of the model, which are presented in Table 2.

Table 2 - First-order CFA adjustment indexes of the construct organizational innovativeness

Indexes	Values
Absolute adjustment measures	
X^2	934.90
Df	389
X^2 / Df	2.403
RMSEA	0.085
Incremental Adjustment Measures	
IFI	0.818
CFI	0.813
NFI	0.724
TLI	0.777

Source: The authors

The first-order CFA values of organizational innovativeness are considered acceptable and adequate, being close to or greater than 0.80. The RMSEA value of 0.085 indicates a good fit of the model. The AVE values of organizational innovativeness were satisfactory. However, the dimensions of strategy (AVE 0.46), Culture (AVE 0.48), organizational structure (AVE 0.46), infrastructure (AVE 0.43), people (AVE 0.21), learning (AVE 0.41), deviate slightly from the recommended one, which is 0.50, indicating that more than 50% of the variance is not explained by the latent variable, but are sufficient for the study. The AVE values of financial and non-financial performance are above 0.50, also considered satisfactory.

In the composite reliability of organizational innovation and financial and non-financial performance, the values are acceptable, indicating that there is convergent validity between the indicators and the dimensions proposed in these constructs. In the discriminant validity, correlation values were satisfactory, all below 0.90 in both organizational innovativeness and financial and non-financial performance.

In the analysis of the square of the correlations, some dimensions presented higher values than the AVE, so the third test was performed, observing the difference between the chi-squares, with analyzes with free covariance and fixed at a value of 1. All values of the differences of these chi-squares presented statistically significant values ($p < 0.001$), indicating the discriminant validity for all dimensions of the study.

In the second-order CFA of the organizational innovation construct, the model fit values were acceptable: chi-square = 1,055,516, df = 421, p-value < 0.000 , NFI = 0.688, RFI = 0.656, IFI = 0.786, TLI = 0.760, CFI = 0.783 and RMSEA = 0.08. After these analyzes of the suitability indexes of the model, the structural relationships were analyzed and the hypothesis test was performed, presented in Table 3.

Table 3 - Structural relations and hypotheses

Hypothesis	Structural relationship		Coefficient	Result	
H1	Organizational innovativeness	=>	Financial performance	0,465 *	Accepted
H2	Organizational innovativeness	=>	Non-financial performance	0.544 *	Accepted

* significant results at the level of 1%

Source: The authors

Hypothesis H1 (Organizational innovativeness positively influences the financial performance of KIBS) and H2 (Organizational innovativeness positively influences the non-financial performance of KIBS) were accepted. This result confirms the findings of Bezerra and Fernandes (2015), Bezerra and Wronski (2015), Bezerra and Guimarães (2017). In order to study the relationship between organizational innovativeness and innovative performance, Bezerra and Fernandes (2015) approached trading companies, industries and services and Gonçalves (2014) studied exporting companies in the manufacturing industry.

Bezerra and Wronski (2015) studied the organizational innovativeness and innovative performance of pubs, restaurants and nightclubs, identifying that firms with a stronger perceived innovativeness exhibit a higher innovative performance. Bezerra and Guimarães (2017) also studied the innovative performance of advertising companies, which are also classified as KIBS. All of these studies that used the Quandt, Bezerra and Ferraresi (2015) scale addressed the innovative performance of several types of companies, not focusing on other types of performance.

It also confirms other studies (Avlonitis, Papasthatopoulou & Gounaris, 2001, Antoncic et al., 2007, Kumar et al., 2013, Akgün et al., 2014; Hatak et al., 2016) that approached varied scales to measure innovation and used several types of performance, finding a positive relation between both. Kumar et al. (2013) point out that innovation is only achieved by inserting its results into the company's internal processes or new products placed on the market.

This result also corroborates with the study by Akgün et al. (2016) and Acar and Özşahin (2018) who had as one of their results that organizational innovativeness is positively related to financial performance. Although these studies confirm the results of this research, no one was found that specifically addresses KIBS companies.

5 Final considerations

This study aimed to analyze the influence of organizational innovativeness on the financial and non-financial performance of micro-enterprises within knowledge intensive business services (P-KIBS). These companies are characterized by having few employees, but this does not indicate that they have a small workload. Because they carry out knowledge-intensive services, they may involve large revenues and considerable volume of activity.

This study concludes that organizational innovativeness positively influences both financial and

non-financial performance. This indicates that to improve the resources of these companies, they need to be attentive to organizational innovativeness. The peculiar characteristics of these companies allowed this study to shed light on questions such as the operationalization for constructs aimed at them and the importance they have for the region in which they are installed. Because they are KIBS companies, employee knowledge is vital to the activity.

Among the contributions of this study is the use of research tools adapted to the reality of such type of companies and the analysis of financial and non-financial performance separately. Another contribution is in addressing the KIBS as performed by micro-enterprises. The information provided by this study can assist managers in improving their performance in changing environments.

The study has some limitations, such as the ones related to sample size and diversity of activities; therefore, the sample is not homogeneous and some types of activity have more respondents than others. It is also important to consider the subjectivity of the answers, considering that it is based on the perceptions of the respondents and each one has a professional training and culture.

Some suggestions arise with these limitations, such as the need to better understand these companies by separating them by activity and increasing the sample. Another suggestion is to expand studies to other regions and analyze the differences between them. The scales need to be improved, especially the organizational innovativeness, which could include a qualitative component to confirm the results with the managers of these companies. The analysis of micro-enterprises in the T-KIBS subsector would also contribute to a better understanding of the impacts of organizational innovativeness on financial and non-financial performance.

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