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THE ANALYTICAL STRATEGY AS A MEDIATOR BETWEEN ANALYTICAL LEADERSHIP AND PROCESS INNOVATION

A ESTRATÉGIA ANALÍTICA COMO MEDIADORA ENTRE A LIDERANÇA ANALÍTICA E A INOVAÇÃO EM PROCESSOS

LA ESTRATEGIA ANALÍTICA COMO MEDIADORA ENTRE EL CONTROL ANALÍTICO Y LA INNOVACIÓN EN PROCESOS

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ABSTRACT

The purpose of this paper was to identify if the analytical strategy plays a mediating role in the relationship between analytical Leadership and Process Innovation. Based on a quantitative approach with a structured questionnaire conducted in a group of respondents from companies of various segments such as banking, insurance, gas and energy companies, retail, telecommunications, services, research and education and by using PLS software in order to do the analysis, it was possible to conclude that Analytical Strategy has partial mediation effect on the relationship between Analytical Leadership and Process Innovation.

Key-words: Analytical Strategy; Analytical Leadership; Process Innovation.

RESUMO

O objetivo deste artigo foi identificar se a estratégia analítica exerce papel mediador na relação entre liderança analítica e Inovação de Processos. Este trabalho utiliza uma abordagem quantitativa com objetivo conclusivo-descritivo. O método de pesquisa foi realizado por meio da aplicação de um questionário estruturado em um grupo de respondentes de empresas de diversos segmentos, tais como bancos, seguros, gás e energia, empresas do ramo do varejo, telecomunicações, serviços, pesquisa e educação. Ao utilizar o software PLS para a realização das análises, foi possível concluir que a estratégia analítica tem mediação parcial entre Liderança Analítica e Inovação de Processos.

Palavras-chave: Estratégia analítica; Liderança analítica; Inovação em Processos.

RESUMEN

El objetivo de este artículo fue identificar se la estrategia analítica juga papel mediador en la relación entre Control Analítico e Innovación de Procesos. Este trabajo utiliza un abordaje cuantitativo con objetivo conclusivo-descriptivo. El método de investigación fue realizado por medio de la aplicación de un cuestionario estructurado en un grupo de respondientes de empresas de diversos segmentos, tales como bancos, seguros, gas y energía, empresas de venta al por menor, telecomunicaciones, servicios, investigación y educación. Utilizando el software PLS para la realización de análisis fue posible concluir que el control analítico tiene mediación parcial entre Control Analítico e Innovación de Procesos.

Palabras-clave: Estrategia Analítica; Control Analítico; Innovación en Procesos.

1 INTRODUCTION

The practice suggests that Process innovation will be more effective in organizations that succeed to associate and align leadership with strategy. The link between leadership and innovation has gained increasing attention in the literature. Some researchers proposed that leadership is one of the most influential predictors of innovation (MANZ *et al.*, 1989; MUMFORD*et al.*, 2002; ROSING; FRESE; BAUSCH, 2011).

According to Van de Ven, Angle and Poole (2000), innovation is a process that involves generation, adoption, implementation and incorporation of new ideas, practices or artifacts within the organization. Bessant (2009) mentions that innovation can be taken as recognition of opportunities for a profitable change, as well as these exploitation to adopt them. Tidd, Bessant and Pavit (2005) say that the innovation process is basically focused on the optimization of business processes and suggests that efficiency gains are much greater in a long-term horizon. Therefore, in order to achieve these efficiency gains, organizations must consider Leadership and the Strategy as critical practices in reaching these results.

Van de Ven (1986) mentioned that within the organization, leadership is critical in creating a cultural context that fosters innovation, and in establishing organizational strategy, structure, and systems that facilitate innovation. In addition to that, Lawson and Samson (2001) argue that the links amongst vision, strategy and innovation are important to effective innovation management. Strategy determines the configuration of resources, products, processes and systems that firms adopt to deal with the uncertainty existing in their environment. It requires that firms make decisions about what businesses and functions they should be performing and in what markets. Successful innovation requires a clear articulation of a common vision and the firm expression of the strategic direction. This is a critical step in institutionalizing innovation. Without a strategy for innovation, interest and attention become too dispersed (LAWSON; SAMSON, 2001).

Oliveira *et al*. (2016) suggest that Business Analytics must be taken as a management tool that gives the necessary support to managers in order to innovate. According to Bronzo *et al.* (2013), the intensive use of analytics results in substantial changes in the way business processes are seen within organizations. Increasingly, companies need

to have the ability to rebuild routines and eliminate inefficient and obsolete procedures and adopt behaviors that are more efficient and better aligned with the organizations objectives. Cokins (2013) discuss that the analytical approach can help organizations in order to make decisions and implement measures. Therefore, leadership and analytical strategy suggest a conductive environment for process innovation.

Rosing, Frese and Bausch (2011) developed a meta-analysis paper aiming to identify previous studies that have addressed the relationship amongst leadership and the various types of innovation. In their article, several relationships were found, but none specifically for the relationship between Analytical Leadership and process innovation. More specifically, they have not found empirical work addressing the analytical strategy as a mediator of the relationship between Leadership and Process Innovation. In this sense, considering that strategy can play an important role in the relationship between leadership and innovation, the purpose of this paper is to identify if the analytical strategy exercises a mediating role in the relationship between Analytical Leadership and Process Innovation.

This paper is organized as follows: Introduction, theoretical references about analytical leadership, analytical strategy and process innovation, methodology with the data analysis, results, and final considerations.

2 ANALYTICAL LEADERSHIP

According to Ng and Wyrick (2011), commitment can be defined as a *state of being* in which individuals are required for their actions and through these actions, that their beliefs sustain their involvement in their activities. On the other hand, the leadership has been identified as ethical standards that create organizational systems which support their own values. Leadership is vital to attract the best talent and leverage skills and knowledge within the organization (WALLACE; CHERNATONY; BUIL, 2011).

Davenport (2006) considers that the most difficult factor to put into practice for a company to become an analytical competitor is the demand from leadership to an analytical culture. The author argues that the adoption of a broad business analytical approach

requires changes in culture, processes, behaviors and skills to several employees. Such changes should be conducted by the organizational leadership as, an example, by senior executives committed to a culture of analysis and decision making based on facts and data.

Ideally, the leading advocate of this process is the CEO, and in fact, Davenport (2006) found several key executives who were driving the change in their companies to the analytical approach. Without the *pressure from above*, the author states that it is seldom to find a company that does the necessary cultural changes to become an analytical competitor.

According to Poon and Wagner (2001), most studies recognize the importance of a sponsor which is both sufficiently committed to the investment of time and effort for project development and in the process change. In addition, they have a realistic understanding of the capabilities and limitations of the process. In this sense, for a company becomes an analytical competitor, there must be indeed a commitment from leadership, so that the analytical approach begins to be widespread in organizations.

3 ANALYTICAL STRATEGY

Davenport and Harris (2007) argue that for a company becomes an analytical competitor it will require a clear business strategy optimized with data and analysis. Executives should start considering that the main processes and strategic initiatives would be far more advanced if they had an analytical approach available. The purpose of business strategy is to create competitive advantages in the industry in which the company operates with a strategy that represents the way companies make their decisions (PORTER; MILLAR 1985).

According to Davenport (2006), most companies in most industries have excellent reasons to pursue strategies shaped by analysis. All organizations that have been identified as aggressive analytics competitors are clearly leaders in their segments and they attribute much of their success to efficient and effective use of data.

In this sense, Cokins (2013) guesses how organizations can gain a competitive advantage. According to him, it can be achieved through a more agile and intelligent

decision-making process; consequently, through skills, Analytics can provide in the long run period, the creation of an aimed strategy focused in a culture for metrics and analytics.

The research of Kaplan and Norton (1996) indicated that most organizations, whether for-profit, public or non-profit purposes, may formulate effective strategies, but on the other hand, only some of them would be able to implement the strategy effectively in the new economy. They found that the most successful organizations are those that are able to run a good effective and coherent strategy, focusing creatively to align their executive teams, business units, human resources, information technology and financial resources to the central strategy of the organization in order to *produce a non-linear performance improvement*.

Kaplan and Norton (1996) observed five common principles in the operation of all successful organizations focused on strategy. These principles are: *Translating the strategy to operational terms*, *Aligning the organization to create synergies*, *Making the strategy the daily work of all*, *Making the strategy a continuous process*, and *Mobilize Change through Leadership executives*. When Kaplan and Norton (2000) speak about *translate strategy into operational terms*, they are mentioning the use of BSC (Balanced Scorecard), a world known tool used by the organization to provide a framework to describe and communicate strategy coherently and visible for all.

When it comes to align the organization to the strategy, according to Kaplan and Norton (2000), organizational performance is greater than the individual strategies, so that it needs to be connected and integrated. Generally, the obstacles to implementing the strategy are actually due to communication problems and coordination between the various functional areas in which each one has its own language, culture and knowledge.

Authors argue also that organizations needs to transform strategy into everyone's job, i.e., all organizations employees must understand the strategy and conduct their daily tasks in order to contribute to the success of corporate strategy. In this sense, executives can take advantage of the Balanced Scorecard as communication tool (KAPLAN; NORTON, 2000). Bronzo *et al*. (2013) states also that the BSC (KAPLAN; NORTON, 1996) encourages a proactive dimension of performance, helping companies to express their strategies,

objectives with balanced and aligned indicators, in addition to expanding its range of relevant competitive factors to ensure competitive advantage.

Analyzing these concepts of Davenport and Harris (2007), Kaplan and Norton (1996) and Bronzo *et al.* (2013) what can be concluded is that, in fact, if a company wants to become an analytical competitor, the business strategy should be based on analytical practices and making decisions based on facts and data.

4 PROCESS INNOVATION

According to Van de Ven, Angle and Poole (2000), innovation is a process that involves generation, adoption, implementation and incorporation of new ideas, practices or artifacts within the organization. For Bessant (2009), innovation is the recognition of opportunities for profitable change and the exploitation of these opportunities to their adoption in practice. McFadzean, O'Lougchlin and Shaw (2005) conceptualize innovation as a process that provides added value to a new level for the organization and its suppliers and customers through the development of new procedures, solutions, products and services.

According to Bessant (2009), processes innovation may involve the improvement of systems already adopted, such as reducing waste, increasing efficiency or change in mode of operation, such as using digital instead of paper correspondence. According to Tidd, Bessant and Pavit (2005), the process innovation is basically focused on the optimization of business processes and suggests that efficiency gains are much greater in a long-term horizon. The stronger the innovation capability possessed by a company, the more effective your performance in innovation (LAWSON; SAMSON, 2001). The literature also indicates a positive relationship between innovation performance and improved business performance (BRONZO *et al*., 2013).

5 METHODOLOGY

This paper uses a quantitative approach to a descriptive and a conclusive goal. The survey method was applied through the application of a structured questionnaire using a 5 points Likert scale in a group of respondents from companies in various segments such as

banking, insurance, gas and energy companies, retail, telecommunications, services, research and education.

In this study, the questions were divided into blocks according to the dimensions of the research analysis. The questions were formulated in the form of *statements*, considering 1 for *Strongly Disagree* and 5 for *Strongly Agree*; or 1 for Never and 5 for *Always*; or comparable to the competition, to 1 *Behind* and 5 *Leader*.

This research used a sample of respondents belonging to the client list of an American subsidiary company in Brazil, known as a leading provider of analytic software in the world. Medium and large companies have been selected for sending a structured questionnaire with 30 questions. The maximum number of questions was determined by the company, which required an effort to seek a more parsimonious instrument from the analysis of the researcher.

The questionnaire was sent to the entire list of the enterprise customers, amounting to a total of 3,156 professionals working in these companies. From this total, 81 respondents from different companies completed and returned the questionnaires, which corresponds to a rate of 2.6% of respondents. Despite being a relatively low response rate, the sample was considered sufficient for statistical testing since it meets the requirements of the PLS – Partial Least Squares algorithm (RINGLE; WENDE; WILL, 2005). The requirement is that the minimum sample size is ten times the number of indicators of the construct with the largest number of indicators. The construct with the largest number of indicators has 7 indicators, so the minimum sample size for using the PLS algorithm would be 70.

The respondents occupy different positions in their companies: Senior Analyst, Advisor, Actuary, Consultant, Coordinator, Administrator, Director and Specialist. These people were identified as capable and knowledgeable enough to represent their companies in order to complete the questionnaire.

To test the hypotheses in this paper, a structural equation model was used. According to Hair *et al.* (2005), it is very common when researchers face a set of interrelated issues in their research. However, no other multivariate technique can address all issues in a

single comprehensive method because they all share the limitation of examining a relationship at a time.

In order to design the data collection instrument, the theoretical framework of this research was used. The questions concerning the construct Process Innovation were adapted from the work of Prajogo and Mcdermott (2012), which include items such as the speed of adoption of new technologies, the technological competitiveness of the firm, how update are the technological process and the degree of technological change in the Company. Questions from the work of Gunday et al (2011) questionnaire were also used, which is based on the classical concept of Oslo Manual (2005).

The methodology of this paper is a quantitative approach based on a Multivariate Statistical Analysis, more specifically using the Structural Equation Modeling. In order to proceed the structural equation modeling, it was used the Smart PLS software (Partial Least Squares), since PLS has some characteristics that are peculiar to the nature of the data (Hair Jr. *et al*., 2014): the PLS works efficiently for small samples, is very efficient for ordinal data (categorical) and can work simultaneously with both formative and reflective constructs.

According to Hair *et al.* (2014), by using SEM (Structural Equation Modeling), which is a very general, linear and cross-sectional statistical modeling technique, it requires a systematic approach of nine stages:

Stage 1 - Specification of the structural model

Stage 2 - Specification of the measurement model

Stage 3 - Collection and analysis of data

Stage 4 - Estimation of paths model

Stage 5 - PLS Evaluation of reflexive measurement models results

Stage 6 - Evaluation of PLS of formative measurement models results

Stage 7 - Evaluation of the structural model results

Stage 8 - Advanced PLS Analysis

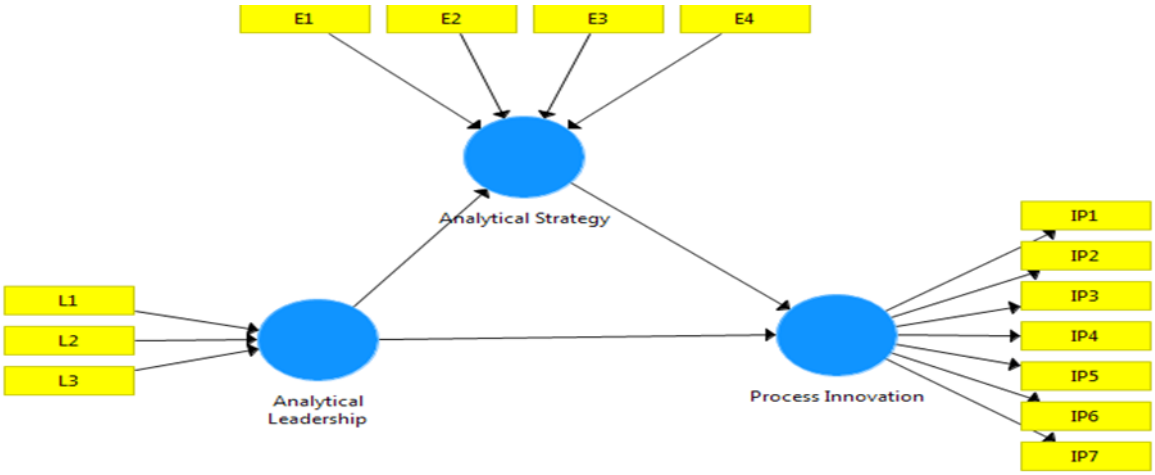
Stage 9 - Interpretation of the results and preparation of conclusions.

The hypothesis in this research is as follows:

H1: Analytical Strategy exercises mediating role in the relationship between Analytical Leadership and Process Innovation.

In this sense, the Structural model was designed as below:

Figure 1 - Structural model from PLS



Source: From the authors (2016).

The model indicators are shown as follows:

E1 - The business strategy of your organization is optimized with data analysis (DAVENPORT; HARRIS, 2007).

E2 - Your organization believes that information technology contributes to a competitive strategy (DAVENPORT, 2006; COKINS, 2013)

E3 - Does your organization communicate the strategy effectively to all employees? (KAPLAN; NORTON, 1996).

E4 - Does your organization translate the strategy to operational levels? (KAPLAN; NORTON, 1996).

L1 - Executives of your organization make decisions based on facts and data (DAVENPORT; HARRIS, 2007).

L2 - Your organization have committed executive with intelligent systems (intelligent systems are designed to solve complex problems), so that they invest time and effort to provide guidance in the development of these systems (DAVENPORT, 2006).

L3 - Improvements in the process of your organization are driven from the top down (from senior executives) (DAVENPORT, 2006).

IP - To what extent the following process innovations have been implemented in your organization in the last three years? (PRAJOGO; McDERMOTT, 2012). IP1- Determining and eliminating activities that do not add value in the organization's processes (PRAJOGO; McDERMOTT, 2012).

IP2 - Increasing the output quality of the organization's processes.

IP3- To what extent the new processes of your organization are often seen as innovative by customers? (PRAJOGO; McDERMOTT, 2012).

Please rate your organization's relative performance against key competitors in your industry with regard to the following: (1 - Behind, 3 - comparable, 5 - leader).

IP4 - The technological competitiveness of your company is [. . .] (PRAJOGO; McDERMOTT, 2012).

IP5 - The speed with which your organization adopts the latest technological innovations in processes is [. . .]. (PRAJOGO; McDERMOTT, 2012).

IP6 - Updating or new technologies used in the processes of your organization is [. . .]

IP7 - The degree of change in processes, techniques and your organization's technology is [. . .] (PRAJOGO; McDERMOTT, 2012).

6 DATA ANALYSIS

Evaluating the measurement model of the Process Innovation reflective construct, the composite reliability varies between 0 and 1 with higher values indicating higher reliability levels. Specifically, reliability values composed from 0.60 to 0.70 are acceptable for

the research and between 0.70 and 0.90 can be regarded as satisfactory. Cronbach's Alpha is a statistical tool that estimates on a scale 0-1, the reliability of a questionnaire. The minimum acceptable value to be considered a reliable questionnaire is 0.7, so the value of 0,898 is acceptable.

Table 1 - Composite Reliability from PLS

CONSTRUCTS	**COMPOSITE RELIABILITY**
Process Innovation	0,919

Source: From the authors (2016).

Table 2 - Conbrach's Alpha from PLS

CONSTRUCTS	**CONBRACH'S ALPHA**
Process Innovation	0,898

Source: From the authors (2016).

Convergent validity is the extent to which indicators are positively related to measures of the same construct. Assessing the AVE, the model was shown adequate with values greater than 0.5, the value of 0.553 for Process Innovation (GARSON, 2009).

Table 3 - Outer Loadings from PLS

CONSTRUCTS	**AVERAGE VARIANCE EXTRACTED (AVE)**
Process Innovation	0,553

Source: From the authors (2016).

Also, commonly referred as indicator of reliability, it is necessary that, at a minimum, all outer the loadings indicators must be statistically significant. The rule established in this case is that outer loadings must have the equivalent of 0.708 or above. All indicators remained by having outer loadings above 0.708.

Table 4 - Outer Loadings from PLS

INDICATOR	**Analytical Leadership**	**Process Innovation**	**Analytical Strategy**
E1			0,863
E2			0,674
E3			0,836
E4			0,784
IP1		0,837	
IP2		0,838	
IP3		0,748	
IP4		0,781	

IP5		0,784	
IP6		0,720	
IP7		0,789	
L1	0,871		
L2	0,718		
L3	0,742		

Source: From the authors (2016).

To access the discriminant validity, the overloading of an indicator associated with a construct must be greater that all loads in the other construct, the cross loading. Analyzing the column of Process Innovation, it is observed that the loads are higher than the other indicators, both in the line analysis and in the column analysis (in bold).

Table 5 - Cross Loadings Analysis from PLS

INDICATOR	Analytical Leadership	Process Innovation	Analytical Strategy
E1	0,660	0,659	0,863
E2	0,490	0,540	0,674
E3	0,672	0,605	0,836
E4	0,613	0,585	0,784
IP1	0,596	**0,837**	0,669
IP2	0,740	**0,838**	0,782
IP3	0,457	**0,748**	0,564
IP4	0,545	**0,781**	0,564
IP5	0,465	**0,784**	0,472
IP6	0,534	**0,720**	0,463
IP7	0,485	**0,789**	0,528
L1	0,871	0,643	0,651
L2	0,718	0,501	0,564
L3	0,742	0,494	0,605

Source: From the authors (2016).

The second criterion for evaluation is the Fornell-Larcker method, which is the second more conservative approach to assessing the discriminant validity. It compares the square root of the AVE values (the Average Variance Extracted) with the correlations of the latent variables (constructs). In general, the square root of the AVEs reflective constructs (Process Innovation) is 0.786, indicating that all the correlations are greater than those constructs with other latent variables paths model.

Table 6 - Fornell Larcker Analysis from PLS

FORNEL- LARCKER	Analytical Leadership	Analytical Strategy	Process Innovation

Analytical Strategy	0,775		
Process Innovation	0,710	0,753	0,786

Source: From the authors (2016).

When evaluating the formative measurement models, it is tested if the construct measured formatively is highly correlated with the reflective measure of the same construct. This type of analysis is also known as redundancy analysis (CHIN, 1998). The formative constructs of this model do not have reflective variables, so this analysis was not assessed. The VIF's values of the formative constructs indicate low collinearity. The criterion for collinearity is shown as follows:

Table 7 - VIF criteria from Minitab software

VIF	STATUS OF PREDICTORS
VIF = 1	Not correlated
1 < VIF < 5	Moderately correlated
VIF > 5 to 10	Highly correlated

Source: From the authors (2016).

Table 8 - Collinearity analysis from PLS

INDICATOR	COLLINEARITY STATISTIC (VIF VALUES)
E1	**1,519**
E2	**1,479**
E3	**2,388**
E4	**2,361**
IP1	3,124
IP2	2,906
IP3	1,929
IP4	2,120
IP5	2,506
IP6	1,985
IP7	2,269
L1	**1,354**
L2	**1,421**
L3	**1,309**

Source: From the authors (2016).

The low scores indicate that there are not collinearity issues amongst formative indicators.

The evaluation of the significance and relevance of the formative indicators through the T test indicated that all training indicators established T values for acceptance (1.65; 1.96; 2.57) and the P-value below 0.05. However, the evaluation of weights, E2 and E4

indicator presents negligible. By the reason that outer loading test presented high significance and relevance, the research decided to keep these indicators in the model.

Table 9 - Outer loadings of the formative indicators from PLS

OUTER LOADINGS	**Original Sample**	**Sample Mean**	**Standard Deviation**	**T Statistics**	**P Values**
E1 - Strategy	0,863	0,856	0,049	17,586	0,000
E2 – Strategy	0,674	0,673	0,070	9,639	0,000
E3 – Strategy	0,836	0,825	0,063	13,322	0,000
E4 – Strategy	0,784	0,774	0,079	9,945	0,000
L1 – Leadership	0,871	0,861	0,063	13,794	0,000
L2 - Leadership	0,718	0,703	0,117	6,136	0,000
L3 - Leadership	0,742	0,728	0,093	7,764	0,000

Source: From the authors (2016).

Table 10 - Outer weights of the formative indicators from PLS

OUTER WEIGHTS	**Original Sample**	**Sample Mean**	**Standard Deviation**	**T Statistics**	**P Values**
E1 - Strategy	0,512	0,508	0,082	6,208	0,0000
E2 – Strategy	0,165	0,172	0,098	1,683	0,093
E3 – Strategy	0,370	0,346	0,150	2,476	0,014
E4 – Strategy	0,176	0,186	0,147	1,195	0,233
L1 – Leadership	0,591	0,588	0,118	5,027	0,000
L2 - Leadership	0,269	0,268	0,142	1,899	0,058
L3 - Leadership	0,394	0,381	0,138	2,854	0,004

Source: From the author (2016).

After to evaluate the measurement models, the structural model must be assessed as well; it is time to evaluate the mediator role object of this study. Hair *et al*. (2014) indicate some procedures in order to evaluate the mediation effects. Some questions are elaborated in order to clarify this method:

1) Is the direct effect (relationship between Analytical Leadership and Process Innovation) significant when the mediator variable is excluded from the PLS path model?

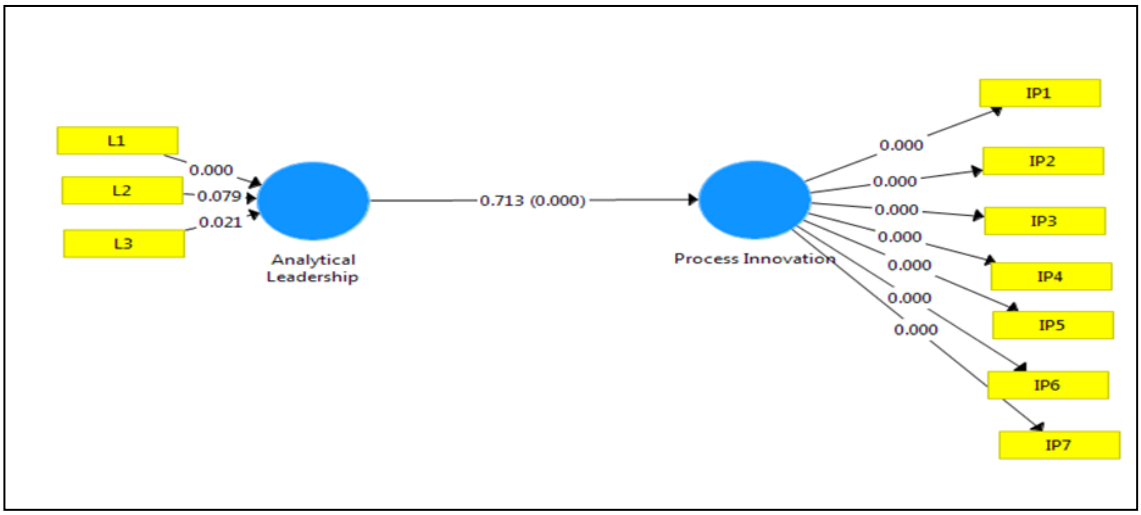
2) Is the indirect effect (Analytical leadership and Analytical Strategy) x (Analytical Strategy and Process Innovation) via the mediator variable significant after this variable has been included in the PLS path model?

3) How much of the direct effect does the indirect effect absorb? Do we have a situation of full or partial mediation?

Hair *et al*. (2014) establish that, in order to do the mediation analysis, it is necessary to consider that the direct effect should be significant if the mediator is not included in the

model. Even though this is not a necessary condition (ZHAO; LYNCH; CHEN, 2010), this kind of situation makes the mediator analysis much easier to understand and interpret. In this case, it is necessary to run bootstrapping. If the model does not consider the mediator (Analytical Strategy), the data below show that the path from Analytical Leadership and Process Innovation is 0,713 and p-value (0,000).

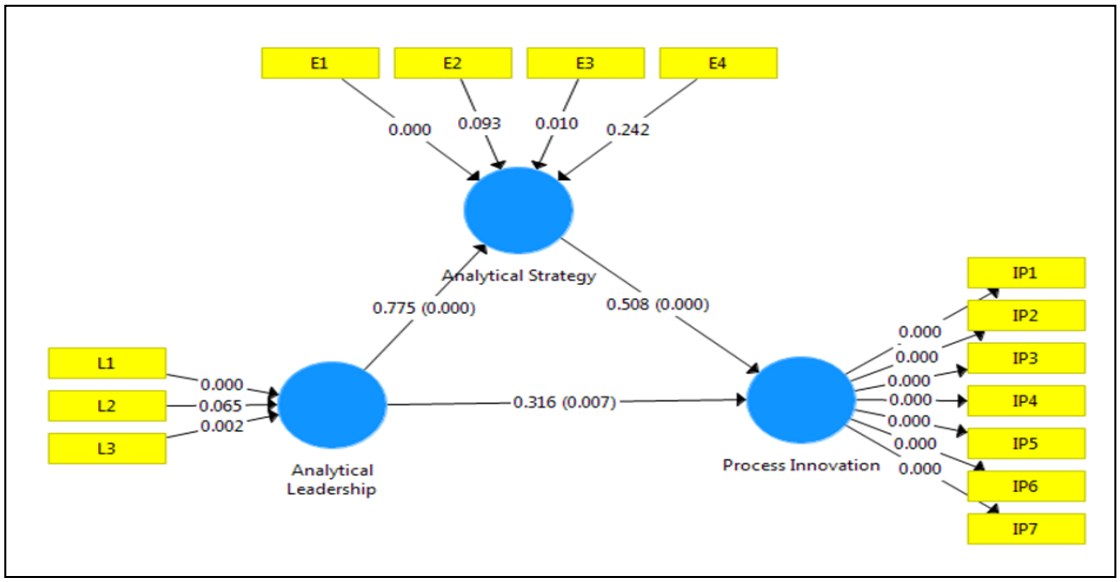
Figure 2 - Path model without Mediator construct (PLS)



Source: From the authors (2016).

When the analysis includes the mediator (Analytical Strategy), the model is shown as follows:

Figure 3 - Path model with the Mediator construct (PLS)



Source: From the author (2016).

In this case, it can be noticed that when including the mediator (Analytical Strategy), the indirect effect (Analytical leadership and Analytical Strategy x Analytical Strategy and Process Innovation) is significant. In the model, without the mediator construct (Analytical Strategy), the positive direct effect became smaller after the inclusion of the mediator construct. The question is how much the mediator absorbs the effect. The variance accounted for (VAF) determines the size of the indirect effect in relation to the total effect (direct effect + indirect effect). VAF = (VAF = (0,775 . 0,508) / ((0,775 . 0,508) + 0,316) = 0,5547. According to Hair *et al*. (2014), a situation in which VAF is larger than .20 and less than .80 indicates partial mediation. So, this model indicates that there is a partial mediation (VAF = 55.5%).

The use of blindfolding in PLS is necessary to seek the redundancy values of the constructs (Construct Crossvalidated Redundancy). According to Hair Jr. *et al*. (2014), the resulting values must be greater than "0" for having predictive relevance (1-SSE / SSO).

Table 11 - Blindfolding procedure (PLS)

Construct Crossvalidated Redundancy	**SSO**	**SSE**	**1 – SSE/SS0**
Analytical Leadership	243,000	243,000	
Analytical Strategy	324,000	207,747	0,359
Process Innovation	567,000	365,207	0,356

Source: From the authors (2016).

Through this analysis, it is clear that this research model has predictive relevance since the q2 values are greater than zero.

7 RESULTS

The proposed model was suggested to identify if the analytical strategy exercises mediating role in the relationship between Analytical Leadership and Process Innovation (H1: Analytical Strategy exercises mediating role in the relationship between Analytical Leadership and Process Innovation). By evaluating the results it was possible to conclude that Analytical Strategy plays a partial mediation role between Analytical Strategy and Process Innovation.

To evaluate mediation, the first question proposed by Hair *et al*. (2014) is: if the direct effect (relationship between Analytical Leadership and Process Innovation) remains

significant when the mediator variable is excluded from the PLS path model. For this paper's model, without the mediator construct (Analytical Strategy) it was true and, a positive direct effect would become smaller after the inclusion of the mediator construct, and this, in fact, occurred.

The variance accounted for (VAF) determined the size of the indirect effect in relation to the total effect (direct effect + indirect effect). According to Hair *et al.* (2014), a situation in which VAF is larger than 20% and less than 80% can indicate partial mediation. So, this model indicated that Analytical Strategy has a partial mediation (VAF = 55.5%) between the relationship of Analytical leadership and Process Innovation. This value answers the third question proposed by Hair *et al*. (2014), in which they ask how much of the direct effect does the indirect effect absorb.

This result confirms Van de Ven (1986), when he mentioned that within the organization, leadership is critical in creating a cultural context that fosters innovation by establishing organizational strategy, structure, and systems that facilitate innovation. The result indicated partial mediation, probably due to other factors (structure and systems) that must also have mediation in the relationship between Analytical Leadership and Process Innovation.

8 CONCLUSION

The need for innovation as a change in today's business is undeniable. Innovation is the stage in which can thoroughly and strongly revolutionize organizations. Making it successful and leading to desirable performance, organizations need to have powerful tools in order to achieve the desirable results. Such changes should be conducted by the organizational leadership implementing a culture of data analysis decision making based on facts and data.

Analytical Strategy as a partial mediator between Analytical Leadership and Process Innovation means that organizations can gain competitive advantage by driving strategy based on analytics and a more agile and intelligent decision-making process, even though this mediation is not total. The strategy aligned with analytics can provide in the long run period, the creation of an aimed strategy focused in a culture for metrics and analytics.

In summary, the research model shows statistical evidences about the importance of companies drive its strategy based on analytical outputs. It shows that when leaders are driven by analytics and support analytical culture companies experience more opportunities for process innovation. Therefore, when company strategy is supported by analytics, analytical leadership can find on analytical strategy better and greater opportunities for process innovation.

This study contributed significantly to the studies of strategy, leadership and innovation by addressing these constructs aligning them to the concept of Analytics. Furthermore, this study undertook a quantitative approach when using the structural equation modeling analysis through mediation, which makes Analytics papers more attractive and differentiated.

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