ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 01, pp.44729-44734, January, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

RELATIONSHIP BETWEEN COMPETITIVE PRIORITIES, PRODUCT INNOVATION AND COMPETITIVE ADVANTAGE IN THE APPLE'S PRODUCTION CHAIN

***,[1]Maria Emilia Camargo, [2]Ivonne Maria Gassen and [3]Beatriz Lúcia Salvador Bizotto**

[1,2]Department of Mathematics, University of Santa Cruz do Sul, Brazil
[3]Post-Graduate Program in Administration, University of Caxias do Sul, Brazil

ARTICLE INFO

Article History:
Received 14th October, 2016
Received in revised form
04th November, 2016
Accepted 17th December, 2016
Published online 31st January, 2017

Key words:

Competitive Priorities, Product Innovation, Competitive Advantage, Apple's Production Chain.

ABSTRACT

This research has developed and tested a model contemplating the theoretical constructs product innovation and competitive priorities of quality and flexibility as background to the competitive advantage in the production chain of the Serra Gaúcha, Rio Grande do Sul, Brazil. This quantitative descriptive nature study was conducted through a survey applied to a sample of 250 chain producers. Data were analyzed by means of structural equation modeling. The results show that the competitive priorities of quality and flexibility affect positively the product innovation and the innovation of products influences positively the competitive advantage. Thus, the competitive priorities are configured as history of product innovation and product innovation has positive relationship with competitive advantage.

Citation: Maria Emilia Camargo, Ivonne Maria Gassen and Beatriz Lúcia Salvador Bizotto, 2017. "Relationship between competitive priorities, product innovation and competitive advantage in the apple's production chain", *International Journal of Current Research*, 9, (01), 44729-44734.

INTRODUCTION

Innovation and competitiveness are fundamental constructs in organizational studies, to explain the top growth of a company in relation to the other (Porter, 1990), i.e. in generating competitive advantage (Barney, 1999, 1991). Although in specialized literature there are several studies on the causes and the priorities of competitive advantage, ranging from the placement of the industry to the explanation by the resource-based view and from the perspective of dynamic capacity (Mellahi; Sminia, 2009). According to this author, there is still a gap to be filled with empirical studies on innovation as a source of generating competitive advantage for businesses. The study contributes theoretically with the study of the conceptual link between the approach of product innovation based on the Manual and Oslo and the competitive advantage of Barney and Herstely (2011), in the context of the production chain of Apple from Campos deCimada Serra, Rio Grande do Sul, Brasil, which was chosen for being the first Brazilian segment to implement the system of integrated production (IP), considered the splitter for the relevant innovations in agribusiness (ABPM, 2012). Apple production in Brazil has expanded, on the basis of infrastructure improvements and innovations in packaging and storage techniques (CRUZ, 2013), classified here as a theoretical gap. The study contributes to the use of structural equation modeling to understand the relationships between constructs, seen as a methodological gap. As empirical gap the study results may support the producers of Apple production chain of Campos deCima da Serra, in the definition of the elements that can contribute to the achievement of competitive advantage. Assuming that the implementation of innovations can help businesses achieve positive results, and become competitive (Huang, 2011; Qiu *et al*., 2010), defined the theme of this study as Competitive Priority of quality and flexibility, product innovation and competitive advantage. In this context, the question was: what is the relationship between quality competitive priorities, flexibility competitive priorities and competitive advantage of Apple's production chain in the region of Campos de Cima da Serra? Therefore, the objective of this study is to verify the relationship between innovation of product, competitive priorities of quality and competitive advantage. This article was structured into six sections. In addition to this introduction, the basic theory on competitive priorities, product innovation and competitive advantage. The following was presented the research hypotheses. Following, was presented the method of research, analysis and discussion of the results obtained. The final conclusion of the study.

Corresponding author: Maria Emilia Camargo,
Department of Mathematics, University of Santa Cruz do Sul, Brazil

Basic theory

Competitive priority

Competitive priorities are defined as the dimensions that the production system of the Apple production chain must have to support the demands of the markets in which chain you want to compete, that is, to create competitive advantage (Phusavat; Kanchana, 2007; Garvin, 1987, 1992; Kelemen, 2003; Reeves And Bednar, 1994). The concept of quality of a product for a long time was defined only from the perspective of the company, however, quality means fundamentally produce products in accordance with the specifications established in a project, without concern for the real needs of the customers (Kelemen, 2003; Reeves and Bednar, 1994) Garvin (1987) shows the evolution of this concept, contributing to their inclusion as an important Competitive Priority, when you set the eight dimensions that shall compose the current concept of quality, namely: performance; Special Features; Reliability; Conformity; Durability; Technical Assistance; Aesthetics and product image. The studies presented on quality as a competitive priority, even showing a formulation as comprehensive as the proposal by Garvin (1987), is related to the degree of customer satisfaction when the acquisition and use of the products or services (Patil *et al*., 2012; chang, 2011; Oh and Rhee, 2010). The Table 1 presents the observable variables relating to construct competitive quality priority used in this study with the authors.

Table 1. Construct competitive quality priority

Observed variables	Authors
CQP1 - Apple production chain has low default rate in relation to other agribusiness chains. CQP 2 - Apple production chain offers better performance of their products in relation to other agribusiness chains. CQP3 - Apple production chain features better reliability of its products towards other agribusiness chains. CQP4 - Apple production chain presents concern for the certification of their products. CQP5 - Apple production chain presents environmental concern of its products as a compromise the well-being of consumers, and the environment.	Garvin (1987); Stonebraker, Leong, 1994; Ward, Mccreery, Ritzman, 1998; Patil *et al*., 2012; Chang, 2011; Oh and Rhee, 2010.

Source: Prepared by the authors

The Table 2 presents the observable variables relating to construct competitive flexibility priority used in this study with the authors.

Table 2. Construct competitive flexibility priority

Observed variables	Authors
CFP1 - The chain of Apple cares more than the other agribusiness chains to offer a diverse product mix. CFP 2 - The chain of Apple cares more than the other agribusiness chains to offer guidance to labor. CFP3 - The Apple chain introduces an adaptation to changes in the market faster than other agribusiness chains. CFP4 - The chain of Apple cares to modernize their equipment more than the other agribusiness chains to follow the market changes.	Garvin (1987); Stonebraker, Leong, 1994; Ward, Mccreery, Ritzman, 1998; Patil *et al*., 2012; Chang, 2011; Oh and Rhee, 2010.

Source: Prepared by the authors

Product Innovation

The emergence of globalization has generated a growing need for differentiation of products and services and this quest for differentiation through the process and innovation (Drucker, 1986; Kline; Rosenberg, 1986; Dosi, 1988; Chesbrough, 2006). For Drucker (1986) innovation is not a brilliant idea, but an idea to improve processes within the Organization and thus facilitate the day to day process of innovation aims to discover, experience, develop, as well as adopt new products, new production processes and new organizational forms (Dosi, 1988). The concepts of innovation have evolved over time with regard to the understanding of what is innovate and actors that are part of this gear. The Organization for Economic Co-operation and Development – OECD Oslo Manual (2005) presents the linear model as that which development, production and marketing of new technologies are seen as a sequence of tasks with well defined times. The nonlinear model was originally proposed by Kline and Rosenberg (1986). It originates in the research, product development, then for the production and the marketing. The fall came through the template's effective realization that investments in non-P&D led automatically to technological development and economic success of the use of technology.

After such findings, non-linear and interactive approaches, seeking to emphasize the relationship between the steps, feedback effects and the relationship of the process with other agents (Kline; Rosenberg, 1986). Innovation can refer to a new product or service, a new structure or administrative system, a new technological process in production, a new plan or program related to the members of the Organization (Damanpour, 1991). Thus, innovation can be defined as the adoption of a device purchased or produced internally, which may be a system, program, process, product, or service that are new to the company sponsor. This definition includes different types of innovation to all parts of the Organization, as well as to all aspects of its operation. For Drucker (1986), innovation is the specific instrument of entrepreneurship. In this context, companies wishing to increase their competitiveness feel the need to invest in practices aimed at the systematic development of new technologies, seek new ways to develop its activities in the development of new products, services or processes, or improve existing ones. Innovation is characterized as a kind of change that introduces new organizational practices. They are classified into four categories (Tidd, Bessant, Pavitt, 2005; Oslo Manual, 2005):

i) innovation of products and/or services: are changes to a product or service offered by the Organization;
ii) process innovation: are the changes in the mode through which products or services are created and distributed;
iii) innovation management (organizational-mental process): changes in underlying mental models that shape what the organization does and;
iv) innovation of marketing (competitive position): changes in the context in which the products or services are introduced on the market. In this study we used the product dimension.

The construct product innovation with the authors who gave basis for the variables are represented in Table 3.

Table 3. Construct product innovation

Observed variables	Authors
PIV1 - The Apple chain develops new products PIV2 - Product innovations developed in the chain of Apple are thrown on the market. PIV3 - The development of new products has been frequent PIV4 - The amount of new products developed in the chain of Apple are higher than those of other agribusiness chains. PIV5 - The products introduced innovations allowed the Apple chain expand your market share. PIV6 - The Apple has ability to work better when it adopts new technologies for products.	Drucker, 1986; Kline; Rosenberg, 1986; Dosi, 1988; (Damanpour, 1991; Tidd, Bessant, Pavitt, 2005; Oslo Manual, 2005; Chesbrough, 2006

Source: Prepared by the authors

Competitive advantage

Competitive advantage is defined by Porter (1993) as a set of features that enables an organization to be different for posting more value from the point of view of customers, competition, and therefore obtaining advantages in the market. Can be understood as an advantage that an organization has in relation to its competitors, investing in new products or adding value to existing ones. According to Barney (1991) companies should explore some features that will allow you to sustainable competitive advantage. Thus, for the author, the company must possess valuable resources that allow the maintenance or implementation of a strategy that increases its effectiveness or efficiency. Similarly, the author reports be required features rare or limited in relation to its competitors, enabling sustainable competitive advantage by the fact that the company hold a resource that competitors do not have. Altogether, must be inimitable, making it impossible for the implementation by the competition due to lack of relevant and essential resources. Non-replaceable is also another feature of a resource that provides the company a competitive advantage, by not allowing the competitor to implement a similar strategy (Barney, 1991; Vasconcelos; Brito, 2004). The competitive advantage grows mainly from the value of a company is able to create [...] Value is what buyers are willing to pay, and a higher value stems from offering lower prices than its competitors for equivalent services or provide unique benefits that more than compensated for higher prices (Porter, 1985, p 3). The construct competitive advantage with the authors who gave basis for the variables are represented in table 3.

Table 3. Construct Competitive advantage

Observed variables	Authors
CA1 - The percentage of sales generated by new products in the distribution chain in the production chain of Apple is bigger than that of other agribusiness chains. CA 2 -The launch of a new product (improved) has generated enough profit to pay the investment originally made in its development. CA 3 -The recipe for Apple production chain is greater than those of other agribusiness chains. CA 4 -The profitability of the production chain of Apple is bigger than that of other agribusiness chains. CA 5 -The profitability of the products Apple chain is greater than that of other agribusiness chains.	Powell, 1992; Reeves.; Bednar, 1994; Hillman; Keim, 2001; Wiggins; Ruefli, 2002; Chan, Shaffer, Snape, 2004; vasconcelos; Brito, 2004; Brito, 2005; Morrow jr. *et al*, 2007; Tang *et al*, 2010; Davidsson, Steffens, Fitzsimmons, 2009. Rhee, Taekyung, Hyung, 2010.

Source: Prepared by the authors

Research hypotheses

On the context, characterised by rapid change, organizations that innovate can obtain competitive advantages (Wijk, 2012). Second Tidd, Bessantand Pavitt (2005), innovation contributes to achieve competitive advantage, as well as develop successful innovations is essential to create and sustain competitive advantages (Zemplinerová, 2010). Innovation is a key factor for the development of competitive priorities, providing new opportunities to sustain competitive advantage (Becheikh; Landry; Amara, 2006; Raymond; St-Pierre, 2010). According to Boyer and Lewis (2002) and Hayes and Weelwright (1984), the four main competitive priorities (quality, cost, delivery and flexibility) contribute to the creation of competitive advantage, this study was only tested the competitive priority of quality and flexibility.

Thus, the following hypotheses were tested in this study:

H_1: Competitive flexibility priority is positively related to Product innovation of Apple production chain.
H_2: Competitive quality priorityis positively related to Product innovation of Apple production chain.
H_3: Product innovation is positively related to competitive advantage of Apple production chain.

The theoretical model of the study is shown in Figure 1, where are presented the proposed hypothesis model, ie, relations of competitive priorities to product innovation and competitive advantage.

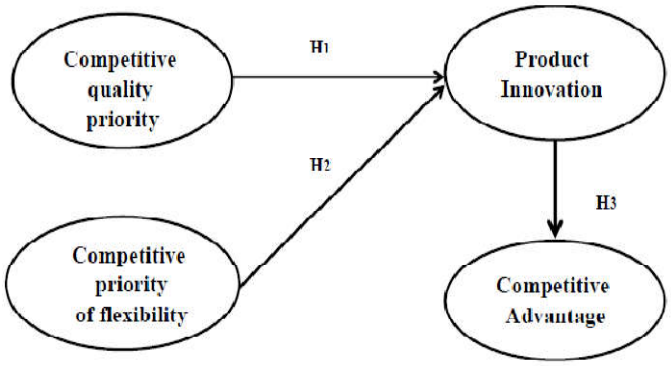

Figure 1. Proposed hypothesis model

METHODS

The empirical study consisted of an exploratory survey of cross-section (Fowler 2002; Pinsonneault; Kraemer, 1993). Questionnaire variables were based on Likert-type scales, to five points. For the evaluation of relations proposed in the study was used as a method of research, structural equation modeling (Kline, 2010; Hair Jr.; Bush; Otinau, 2000; Marôco, 2010)

Population and sample

For this study the population is formed of all the Apple growers of the region of Campos de Cima da Serra, Rio Grande do Sul, Brasil. From this, the sample was defined, using non-probability sampling technique for convenience, consisting of 250 farmers (Hair Jr.; Bush; Ortinau, 2000; Malhotra, 2006).

Table 4. Adjustment index of the proposed model

Indexes	Values
X^2/GL	3.650
p-value	0.050
CFI – Comparative Fit Index	0.923
NFI – Normed Fit índex	0.914
GFI – Goodness of Fit Index	0.931
RMSEA – Root Mean Squared Error of Aproximation	0.011
Cronbach's Alpha	0.918
Extracted Average Variance	0.870
Composed Reliability	0.901

Source: Prepared by the authors

Table 5. Hypothesis of the Proposed Model and Results

Hypothesis	βstandardized	t-statistic	p-value
Competitive quality priority (H1) → product innovation	0,68	2,42	p<0,000
Competitive flexibility priority → (H2) product innovation	0,74	3,47	p<0,000
product innovation → (H3) competitive advantage	0.62	3,01	p<0,000

In order to use the approach of structural equation modeling in the study and the complexity of the models, Kline (2005) recommends that the sample is formed by 200 or more cases, while Hu and Bentler (1995) suggest that, in order to provide acceptable rates of adjustment of models, it is recommended that the sample is composed of 250 cases or more. The scale used was the five-point Likert scale, taking in their extremes "1. Totally disagree "a" 5. Totally agree ", which is usually" in-between "considering the assumption that the gaps between the positions are equal. According to Nunnally (1967), the Likert scale supplies the basic requirement of continuous distribution required by the structural equations by using advanced statistical techniques (Weijters; Cabooter; Schillewaert, 2010). The instrument was validated by five experts in the field of innovation and production management.

RESULTS AND DISCUSSION

Analysis of the assumptions

Initially it was performed an analysis of the basic assumptions for using structural equation modeling. It was verified that there were omissions or extreme values, because Hair *et al*. (2007), the non-response can have significant effects in the calculation of the input array of data and, consequently, its ability to be used in the estimation stage of model parameters.
For checking the presence of outliers was used analysis of Z scores, for which no cases have been identified with values greater than | 3 | for each variable, confirming there are no outliers for the data set used in the study (HAIR *et al*., 2005).
To verify the normality, observed variables were analyzed with respect to asymmetry and kurtosis. For both, the asymmetry index greater than 3 or less than -3, and the index of kurtosis greater than 10 or less than -10 should be eliminated (KLINE, 1996). Analyzing the data, it appears that the assumption of normality (skewness) was reached, and the observed variables presented values between -0.875 and 2.142, demonstrating asymmetry of data. In relation to kurtosis, the values range from -0.978 to 3.432. To verify the internal consistency of dimensions was calculated the Cronbach's alpha, which presented the following indexes: priority competitive (0.9010), product innovation (0.8987) and competitive advantage (0.8850). Hair *et al*. (2005) recommends minimum values 0.70 for Cronbach's alpha, so the dimensions used in the range considered consistent.

Model fit indices

In order to validate the theoretical model, tuning indexes were calculated by taking as a reference the suggested indicators for Hair *et al*. (2005), which demonstrated a good adjustment, as shown in table 4. Was performed, yet the Chi-square test ($\chi 2$), from the relation to the degrees of freedom, presented acceptable value (less than 5). In table 4, the adjustment index of the proposed model. The measures, CFI, NFI, GFI were greater than 0.9, which is recommended by most authors (Kline, 2010; Hair *et al*., 2007, Byrne, 2010) demonstrating a good model adjustment. Similarly the RMSEA index concerning the absolute measure of fit, stayed within an appropriate level (Arbuckle, 2008). All the hypotheses proposed in this study were confirmed (Figure 1). It was noted the relationship of competitive priority of quality as influencer of product innovation (H_1), competitive priority of flexibility influencer of product innovation (H_2) and product innovation has positive influence on the competitive advantage (H_3). These results confirm earlier work that suggested significant relationship of competitive priorities (quality and flexibility) on product innovation (Boyer and Lewis, 2002; Hayes and Weelwright, 1984). In table 5 presents all the hypothesis of the proposed model β standardized values, the value of the t-statistic, and the p-value. The hypothesis (H1) suggested a relationship between competitive priority of quality and product innovation. The data bore such relation ($\beta = 0.68$; $p < 0.000$) and pointed out that, as is the priority of quality, more positive competitive becomes the relationship with product innovation. The hypothesis (H2) assumed a relationship between competitive priority of flexibility and product innovation. Data corroborate such relationship and indicated that the greater flexibility, more likely to do product innovation ($\beta = 0.74$; $p < 0.000$). The hypothesis (H3) related to product innovation with competitive advantage and, in this case, the findings suggested the existence of a linear relationship between these two constructs ($\beta = 0.62$; $p < 0.000$).

Conclusion

The changes that occur in the market and economic uncertainties are increasingly constant elements in all areas and particularly in agribusiness. Considering this scenario, innovation is essential to assist in the links of the agribusiness production chains (Barbosa; Machado, 2013). Thus, the main

objective of this study was to verify the relationship between competitive priorities, product innovation and competitive advantage, for this was a descriptive quantitative in nature with 250 questionnaires answered by the producers of the production chain of Apple dos Campos de Cima da Serra, Rio Grande do Sul, Brazil. All the hypotheses proposed in this study were confirmed. It was noted the relationship of competitive priority of quality as influencer of product innovation (H_1), competitive priority of flexibility influencer of product innovation (H_2) and product innovation has positive influence on the competitive advantage (H_3). It is recommended for future work check the moderator effect the type of agribusiness production chain.

REFERENCES

_____. 1998. Sources, procedures, and microeconomic effects of innovation. Journal of Economic Literature, p. 1120-1171.

Abpm - Associação Brasileira dos Produtores de Maçã. Estatísticas da safra 2012.

Arbuckle, J. L. 2008. Amos 17 users' guide. Chicago, IL: Statistical Package for the Social Sciences.

Barbosa, R.; Machado, A. 2013. Estratégias de inovação sob a perspectiva da visão baseada em recursos: um estudo na Embrapa. Gestão & Regionalidade, São Caetano doSul, v. 29, n. 87, p. 95-110, 2013.

Barney, J. 1991. Firm resources and sustained competitive advantage. Journalof management, v. 17, n. 1, p. 99-120.

Barney, J. 1999. How a firm's capabilities affect boundary decisions. MIT Sloan Management Review, v. 40, n. 3, p. 137.

Barney, J.; Hesterly, W. S. Administração estratégica e vantagem competitiva: conceitos e casos. 3. ed. São Paulo: Pearson Prentice Hall, 2011.

Becheikh, N.; Landry, R.; Amara, N. 2006. Lessons from innovation empirical studies in the manufacturing sector: A systematic review of the literature from 1993–2003. Technovation, v. 26, n. 5, p. 644-664.

Bessant, J.; Tidd, J. 2007. Innovation and entrepreneurship. Chichester: John Wiley & Sons.

Boon-itt, S. and H. Paul, 2006. A study of supply chain integration in Thai automotive industry: A theoretical framework and measurement. Manage. Res. News, 29: 194-205.

Boyer, K. K.; Lewis, M. W. 2002. Competitive priorities: investing the need for tradeoffs in operations strategy. Production and Operations Management, v.11, n.1, p 9-20.

Brito, Barbara Moreira Barbosa de; Silveira, Antonio Henrique Pinheiro. Parceria público-privada: compreendendo o modelo brasileiro. 2005.

Brito, L. A. L.; Vasconcelos, F. C. A heterogeneidade do desempenho, suas causas e o conceito de vantagem competitiva: proposta de uma métrica. Revista de Administração Contemporânea, p. 107, 2004.

Byrne, B. M. 2010. Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming. New York, NY: Routledge.

Chan, L. L. M.; Shaffer, M. A.; Snape, E. D. 2004.In search of sustained competitive advantage: the impact of organizational culture, competitive strategy and human resource management practices on firm performance. *The International Journal of Human Resource Management*, v. 15, n. 1, p. 17-35.

Chang, C.H., 2011. The influence of corporate environmental ethics on competitive advantage: The mediation role of green innovation. *J. Bus. Ethics*., 104: 361-370.

Chesbrough, H. W. 2006. Open innovation: The new imperative for creating and profiting from technology. Harvard Business Press.

Cruz. M. H. Processo de desenvolvimento das inovações na cadeia produtiva da maçã brasileira. Tese de Doutorado em Administração. Universidade de Caxias do Sul, 2013.

Damanpour, F. 1991. Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, v. 34, n. 3, p. 555-590.

Davidsson, P.; Steffens, P.; Fitzsimmons, J. Growing profitable or growing from profits: Putting the horse in front of the cart? *Journal of Business Venturing*, v. 24, n. 4, p. 388-406, 2009

Disponível em: <www.abpm.org.br> Acesso em 01 dez. 2015.

Dosi, G. 1982. The Nature of the Innovative Process. In: Dosi, G. *et al*., Technical change and economic theory. London: Pinter.

Drucker, P. F. 1986. Inovação e espírito empreendedor: práticas e princípios. São Paulo: Pioneira Thomson.

Fowler, F. J. 2002. Survey research methods. 3rd ed. Newbury: Sage.

Garvin, D.A. 1987. Competing on the Eight Dimensions of Quality. Harvard Business Review, p. 101-109, nov-dec.

Hair, J. F.; Bush, R. P.; Ortinau, D. J. Marketing research: a practical approach for the new millennium. New York: Irwin/McGraw-Hill, 2000.

Hair, J. F; Anderson, R. E; Tatham, R. L.; Black, W. C. 2005. Multivariate data analysis. New York: Prentice Hall.

Hayes, R. H.; Wheelwright, S. C. 1984. Restoring our competitive edge: competing through manufacturing.

Hillman, A. J.; KEIM, G. D. Shareholder value, stakeholder management, and social issues: what's the bottom line? *Strategic Management Journal*, v. 22, n. 2, p. 125-139, 2001.

Hu, L.-T.; Bentler, P. 1995. Evaluating model fit. In R. H. Hoyle (Ed.), Structural Equation Modeling. Concepts, Issues, and Applications (pp. 76-99). London: Sage.

Huang, H. C. 2011. Technological innovation capability creation potential of open innovation: a cross-level analysis in the biotechnology industry, Technology Analysis & Strategic Management, v. 23, n. 1, p. 49-63, 2011.

Kelemen, M. 2003. Managing quality: managerial and critical perspectives. London: Sage.

Kline, R. B. Principles and practice of structural equation modeling.3rd edition. New York: Guilford Press, 2010.

Kline, S. J.; Rosenberg, N. An overview of innovation. The positive sum strategy: Harnessing technology for economic growth, v. 14, p. 640, 1986.

Krajewski, L.; Ritzman, L. 1993. Operations Management: Strategy and Analysis. 3. ed. Boston: Addison-Wesley.

Malhotra, N.K.; Birks, D.; Wills, P. Marketing research: applied approach. 4. ed. New York: Pearson, 2012.

Manual De Oslo. Diretrizes para coleta e interpretação de dados sobre inovação. 3. ed. OECD/FINEP. Trd. Flávia Gouveia, 2005.

Marôco, J. 2010. Análise de equações estruturais: Fundamentos teóricos, software & aplicações. ReportNumber, Lda.

Mellahi, K.; Sminia, H. 2009. Guest Editors' Introduction: The frontiers of strategic management research. *International Journal of Management Reviews*, v. 11, n. 1, p. 1-7.

MORROW, J. L. *et al*. Creating value in the face of declining performance: Firm strategies and organizational recovery. *Strategic Management Journal*, v. 28, n. 3, p. 271-283, 2007.

Nunnaly, J. C. 1967. Psychometric Theory. New York: MacGraw-Hill Book Company.

Oh, J. and S.K. Rhee. 2010. Influences of supplier capabilities and collaboration in new car development on competitive advantage of carmakers. *Manage. Decis*., 48: 756-774.

Patil, P.P., B.E. Narkhede and M.M. Akarte, 2012.An exploratory study of manufacturing strategy of packaging product-manufacturing companies in *India.Int. J. Qual. Res*., 6: 233-249.

Phusavat, K.; Kanchana, R. 2007. Competitive priorities of manufacturing firms in Thailand. *Industrial Management & Data Systems*, V. 107, n. 7, p. 979-996.

Pinsonneault, A., K. L. Kraemer. 2003. An assessment of the use of survey research in themanagement information systems MIS field between 1980 and 1990. *Journal of Management Information Systems*, 10(2), 75-106.

Porter, M. E. 1985. Competitive strategy: Creating and sustaining superior performance. New York: The Free.

Porter, M. E. 1990. The competitive advantage of nations. Harvard Business Review, v. 68, n. 2, p. 73-93.

Porter, M. E. 1993. A Vantagem Competitiva das Nações. Waltenser Dutra – Rio de Janeiro: Campus.

Powell, W. 1990. Neither Market for Hierarchy network forms of organization. *Research in Organizational Behavior*, v.12, p.295-336.

Raymond, L.; St-Pierre, J. 2010. R&D as a determinant of innovation in manufacturing SMEs: An attempt at empirical clarification. Technovation, V. 30, n. 1, p. 48-56.

Reeves, C.; Bednar, D. 1994. Defining quality: alternatives and implications, *Academy of Management Review*, Vol. 19, n° 3, pp. 419-445.

Rhee, J.; Taekyung, P.; Do Hyung, L. 2010. Drivers of innovativeness and performance for innovative SMEs in South Korea: *Mediation of learning orientation. Technovation*, v. 30, n. 1.

Stonebraker, P. W.; Leong, G. K. 1994. Operations strategy: focusing competitive excellent. Massachusetts: Allynan Bacon.

Tang, Yong-Bing *et al*. 2010. Incorporation of graphenes in nanostructured TiO2 films via molecular grafting for dye-sensitized solar cell application. *Acs Nano*., v. 4, n. 6, p. 3482-3488.

Tidd, J.; Bessant, J.; Pavitt, K. 2005. Managing innovation: integrating technological, managerial organizational change. New York.

Vasconcelos, F. C.; Brito, L. A. L. 2004. Vantagem competitiva: o construto e a métrica. Revista de Administração de Empresas, v. 44, n. 2, p. 51-63.

Ward, P.T.; Mccreery, J. K.; Ritzman, L. P. 1998.Competitive priorities in operations management. *Decision Sciences*, 29(4), 1035-1046.

Weijters, B.; Cabooter, E.; Schillewaert, N. 2010. The effect of rating scale format on response styles: The number of response categories and response category labels. *International Journal of Research in Marketing,* V. 27, n. 3, p. 236-247.

Wiggins, R. R.; Ruefli, T. W. Sustained competitive advantage: Temporal dynamics and the incidence and persistence of superior economic performance. *Organization Science*, v. 13, n. 1, p. 81-105, 2002.

WIJK,C. V. The development of a directive repertoire in context: A case study of a Dutch speaking young child, Journal of Pragmatics, v. 44, n. 1, p. 83-103, 2012.

ZEMPLINEROVÁ, A. 2010. Inovačníaktivitafirem a konkurence. PolitickáEkonomie, v. 58, n. 6, p. 747-760.

****