

Innovation Capacity and Service Differentiation: The Study of Methodologies for Competitive Advantage

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Abstract: - Innovation Capability and Service Differentiation are internationally relevant subjects discussed in academic and empirical research focused on organizational strategies. The present study analyzes the bibliometric methodologies used in international literature on these subjects. The analyses comprised 1078 articles from the EBSCO database, published between the years 1951-2014. The results showed a global perspective on the subject, identifying the works and presenting the methodological procedures and intellectual interconnections between authors and their educational institutions and / or research. The lack of research on the topic and a still modest network of researchers and research institutions were the most significant findings. As for the methodology, a clear orientation towards a quantitative approach for the construct Innovation Capability, and a qualitative one for the construct Service Differentiation was found.

Key-Words: - Innovation Capability, Service Differentiation; Strategy, Bibliometric Study.

1 Introduction

The aim of this study is to analyze the strategic subjects, Innovation Capability and Service Differentiation, through a systematic search for articles in the EBSCO international database, in order to identify the state of the art of these subjects, regarding the methodologies used in their research.

Therefore this paper is divided into five parts. Besides this introduction, there are two sections which present the concept and directions for both constructs, Innovation Capability and Service Differentiation. Following it identifies the methodology used in each of the constructs. The analysis of the collected data is on the fifth section.

The article ends listing the references which served as theoretical support for its development.

The vision of the organizational strategy is being interpreted in different ways. Both the diversity of interpretations, as well as the variety of authors and their views at any given time will be complementing. The way in which a company decides to compete is dictated by the chosen strategy. Among the approaches that enable raising the competitiveness of organizations is through their intangibles. Aspects that are difficult to be imitated by competitors, the intangible assets, increase not only the competitive advantage, but also the chance of the organization to endure over time, which will be the higher the more intangible an organization has [1].

Based on the findings of Wernefelt [8], [2] recognizes that local resources were confined to categories such as labor, capital and few opportunities to land. The RBV includes all attributes that enable the definition and implementation of strategies. The approach used by RBV, consists of an internal analysis of organizations in the search for competitive advantage from their local resources. Grant [3] characterized the resources as: physical resources, human resources, organizational resources, technological resources, financial, reputational resources.

Others authors [4, 5] reinforce that the competitive advantage is regarded as one of the foundations for the long-term success of a company [5]. Being sustainable as it represents a lasting benefit to the company due to: the implementation of a strategy that is not simultaneously being performed by a competitor and the inability of any current or potential competitor to replicate the benefits of that strategy. [6, 5]. Some studies [6, 7], about Resource Based View (RBV) examine how the resources and valuable capabilities, hard to be copied, rare and irreplaceable, can be sources of competitive advantage for a company. The resources are sets of tangible and intangible assets, which allow the company to choose and apply its strategy [8, 5].

According to researchers [10], the RBV addresses the origins of competitive advantage, arguing that differences in the performances between companies can be used to create idiosyncratic, inimitable internal capabilities. The amassed resources are the knowledge and skills of a company that allow them to use and enhance the value to their customers through means of market resources.

Castro Júnior [11] states that the prospect of dynamic capability stems from the expansion of the resource-based view (RBV), which, since the 1990s,

has advanced considerably in terms of research. For [12, 13, 14, 15].

In addition researchers [13, 16, 14, 15] point out that research shows how alliances can indeed be viewed as a specific type of dynamic capability, as they make it possible for the renovation and reconfiguration of corporate resources. For Barney, [5] the importance of combining complementary resources resulting from the association between different companies.

2 Literature Review

2.1 Innovation Capability

Innovative capabilities concern the ability to create new and useful knowledge based on prior knowledge [17]. The innovation capability describes the attributes that a company needs in order to support innovation [18]. These attributes give the organizations the ability to quickly adopt new processes and methods, as well as to develop and introduce new and better products or services to compete more effectively in changing environments. Based on the seminal theory of dynamic capability approach by Teece, Pisano and Shuen [19], researchers [20] proposed a model of innovation capability. This model assumes that the organization is focused on innovation and that the ability to do so results in gaining competitive advantage. The model consists of a series of processes grouped into seven dimensions, namely: vision and strategy, the avail of the competence base, organizational intelligence, creativity and idea management, structure and organizational systems, culture and climate, and finally, technology management.

2.1 Service Differentiation

Authors as [21] have developed and validated a scale of measurement for service differentiation. In this research, there are some studies on this topic. Mintzberg [22, 23] presented the formulation of the strategy of differentiation into five different strategies. These being: Differentiation by lower prices – having lower prices than the competitors to increased market share; Differentiation by image - to create an artificial form of differentiation; Differentiation by support - aspects that go beyond the products and can increase consumer satisfaction, such as extended guarantees; Differentiation by quality - intrinsic characteristics aiming to create significant differentiation in the organization's products in order to improve them; and the

Differentiation by design - looking for products with certain characteristics and unique features.

Other forms of differentiation were presented to the academy. Porter [24] points out that among the three positions that an organization can gain market share, is the position of differentiation. Differentiation being the act of creating specificity in a product or a service.

Service differentiation is defined as the act of comparing an amount of significant differences or set of benefits to distinguish the service provided by an organization from the services provided by its competition [25, 26, 27, 28].

In order to the strategy of service differentiation reach satisfactory results, the organization must have operational effectiveness, intimacy with the consumer (to know their real wants and needs), among others.

Therefore, this paper focused on the research of methodologies and methodological procedures used in the study of innovation capability and service differentiation.

3 Methodology

The present study used bibliometric techniques. According to Okubo [29], the bibliometric has become a generic term for an array of specific measurements of indicators in order to quantify the result of scientific and technological research by means of data derived from the scientific literature. According to the author, bibliometric approaches, in which science can be portrayed through the results, is based on the notion that the essence of scientific research is the production of knowledge and that scientific literature is the constitutive expression of that knowledge.

The indicators used for the analysis in this study were: authors, educational/research institutions, type of research (qualitative, quantitative or mixed), sample, object of analysis, data collection technique, techniques of analyses employed and constructs analyzed.

In the search for articles about the first construct the following keywords were used: 'innovation capability' and 'capabilities innovation'. These terms were searched in the titles, abstracts and keywords. Following, methodological filters were applied: i) magazines classified by the QUALIS system between A1 and B2; ii) exclusion of repeated articles; iii) adherence to the theme (deletion of those that addressed it in a generic way).

The search for articles in EBSCO database resulted in a first sample of 232 works. After selecting

journals with Qualis, sampling was reduced to 28 articles, two of which were repeated. Among the 26 remaining, only 6 had theoretical adherence to strategy.

Thus the final sample resulted in six articles. These were analyzed and their data were tabulated using Microsoft Excel 2010 software, Ucinet version 6527 and NetDraw version 2140.

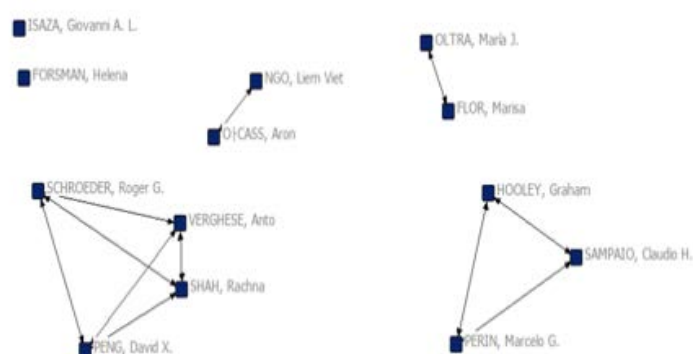
In the search for the second construct the keywords used were 'differentiation of service' and 'service differentiation'. These terms were also searched in the titles, abstracts and keywords. Following the same methodological filters applied to the previous pair of constructs were used.

The search resulted in an initial sample of 846 articles. After selecting journals with Qualis, sampling was reduced to 12 articles, two of which were repeated. Among the remaining 10, only 8 had theoretical adherence to service differentiation. Thus the final sample resulted in eight items. These were analyzed and their data were tabulated using Microsoft Excel 2010 software, Ucinet version 6527 and NetDraw version 2140.

4 Results

After processing the data it was possible to identify at least four research networks among authors of innovation capability. Most of the networks consist of 4 researchers from different research institutions: University of Houston, Texas A & M University and University of Minnesota. Furthermore, it was possible to identify independent researchers, as Isaza and Forsman [29, 30]. See graph 1.

Graph 1 – Author Networks

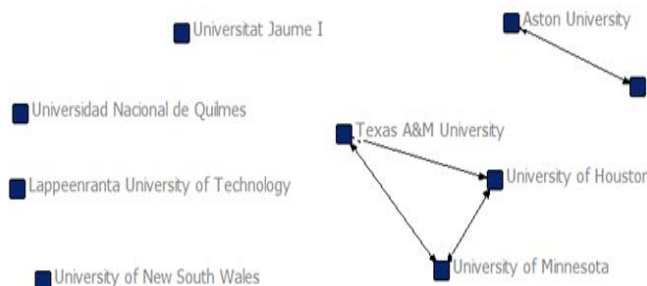


Source: Research Data (2014)

In order to expand the analysis of the networks, in graph 2 we tried to identify the networking of universities and research institutions. Two higher

education institutions networks (IES) were identified. The others are made up of a single institution.

Graph 2 - Higher Education Institution Networks



Source: Research Data (2014)

Regarding the type of research, it was observed that among the articles only 2 used qualitative research (QI). In the other articles the authors applied quantitative research (Qt). No article using Quali-Quanti research (QI-Qt) was found. See Table 1.

Table 1 - Type of search

ARTICLE	TYPE OF SEARCH		
	QI	Qt	QI-Qt
The influence of firms' technological capabilities on export performance in supplier dominated industries: the case of ceramic tiles firms [31]		X	
Perspectivas para el análisis de la innovación: un recorrido por la teoría [29] Prospects for the analysis of innovation : a tour of the theory)	X		
Impacto dos recursos da empresa na performance de inovação (The impact of company resources in innovation performance) [32]		X	
Improving innovation capabilities of small enterprises: cluster strategy as a tool [30]	X		
In Search of Innovation and Customer-related Performance Superiority: The Role of Market Orientation, Marketing Capability, and Innovation Capability Interactions [33]		X	

ARTICLE	TYPE OF SEARCH		
	QI	Qt	QI-Qt
The relationships between external integration and plant improvement and innovation capabilities: the moderation effect of product clock speed [34]		X	

Source: Research Data (2014)

When analyzing the particularities of the each methodology, it was found that the article entitled ' *Perspectivas para el análisis de la innovación: un recorrido por la teoría*' was the only one that drew on the literature review technique. In the article 'Improving innovation capabilities of small enterprises: cluster strategy as a tool' the researchers made use of documentary analysis and interviews. In all the others, the use of different statistical techniques for the processing of data, such as factor analysis, structural equation modeling and regression were observed. See Table 2 at the end of the papers as na Appendix.

Further, table 3 shows the constructs analyzed in each research. It was found that the construct innovation capability is used as a support for different types of search under different prisms of analysis.

Table 3 - Analyzed Constructs

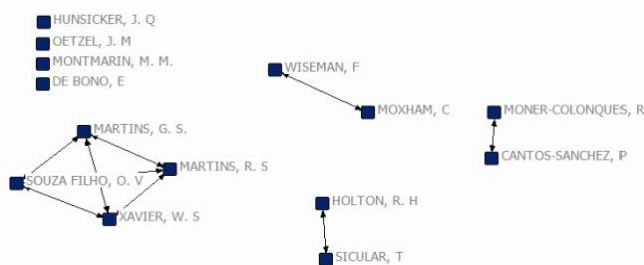
Article	Analyzed Construct
The influence of firms' technological capabilities on export performance in supplier dominated industries: the case of ceramic tiles firms [31]	Performance + technological innovation capability
Perspectivas para el análisis de la innovación: un recorrido por la teoría (Prospects for the analysis of innovation : a tour of the theory) [29]	Typology+ descriptions and characterizations + Relation to knowledge and learning + theoretical approaches + induction and interaction + concept of innovation capacity
Impacto dos recursos da empresa na performance de inovação (The impact of company resources in innovation performance) [32]	Market orientation + Client connection capacity Management Capabilities + Innovation Capabilities + HR assets+ Active Innovation Performance
Improving innovation capabilities of small enterprises: cluster	Collaborative Work + Entrepreneurship Skills + Networking Capacity +

Article	Analyzed Construct
strategy as a tool [30]	Prior Knowledge Management and Organizational Capacity + Innovation Efficiency
In Search of Innovation and Customer-related Performance Superiority: The Role of Market Orientation, Marketing Capability, and Innovation Capability Interactions [33]	Market orientation - Innovation Capability + Marketing capability + Performance (Customer and Innovation)
The relationships between external integration and plant improvement and innovation capabilities: the moderation effect of product clockspeed [34]	External Integration (Integration with Supplier + Integration with the client) - Plant capability (Innovation Capability + Enhancement Capability)

Source: Research Data (2014)

After processing the data it was possible to identify at least four research networks among the authors. Most of the networks consist of 4 researchers from different research institutions: University of Houston, Texas A & M University and University of Minnesota. Furthermore it was possible to identify that there are independent researcher networks, as Isaza and Forsman [29, 30]. These settings can be seen in graph 3.

Graph 3 - Authors Networks



Source: Research Data (2014)

In order to expand the analysis of the networks, in graph 4 we tried to identify the networks between research institutions.

Graph 4 - Higher Education Institutions Networks



Source: Research Data (2014)

Regarding the type of research, it was found that among the papers only 3 used quantitative research. In the other articles the authors drew on qualitative research. In no article was identified Quali-Quanti research. See Table 4.

Table 4 – Type of Research

ARTICLE	TYPE OF RESEARCH		
	QI	Qt	QI-Qt
Beyond Competition To Sur-petition [36]	X		
Economic Reform of the Distribution Sector in China [35]	X		
<i>Gestão do transporte orientada para os cliente: Nível de serviço desejado e percebido</i> (Client oriented transport management :desired and perceived level of service) [33]		X	
A result similar to the Odlyzko’s ‘Paris Metro Pricing’ [37]		X	
Examining the development delivery and measurement of service quality in the fitness industry: A case study	X		
Differentiation Advantages in the On-line Brokerage Industry [38]		X	
Mixed Oligopoly, product differentiation and competition for Public transport services [39]	X		
Finding operational solutions to pistol-or-poison dilemmas [40]	X		

Source: Research Data (2014)

Regarding the details of the methodology, two articles and a case study presented little detail besides a literature review. The organizations observed, despite the few numbers of articles analyzed, are diverse and range from industries to public and private service companies. Statistical

techniques were based on cluster analysis, ANOVA test and regression analysis. See Appendix Table 5. Further, table 6 shows the constructs studied in each research. It was found that the construct service differentiation is used as a support for different types of search and analysis of different prisms.

Table 6 - Analyzed Constructs

Article	Analyzed Constructs
Beyond Competition To Sur-petition [36]	Competiviness
Economic Reform of the Distribution Sector in China [35]	level of competition + differentiation size + Distribution
Gestão do transporte orientada para os cliente: Nível de serviço desejado e percebido (Client oriented transport management :desired and perceived level of service) [33]	Time + Safety +Reliability + Price + Costumer Service + attention to customer's special needs
A result similar to the Odlyzko's 'Paris Metro Pricing' [37]	Price + Quality
Examining the development delivery and measurement of service quality in the fitness industry: A case study [41]	Expected and received quality
Differentiation Advantages in the On-line Brokerage Industry [38]	Internal Processes + market share + Strategy
Mixed Oligopoly, product differentiation and competition for Public transport services [39]	Frequency + Price
Finding operational solutions to pistol-or-poison dilemmas [40]	Strategy + Quality + Low Price + brand Standard products

Source: Research Data (2014)

Following the final considerations and references are presented.

5. Conclusions

The aim of this study was grounded on the proposal to review the studies on innovation capability and service differentiation found in journals in the EBSCO database from the year 2014. It was possible to identify some studies published in journals with quality attested by the Qualis system. In this context, due to the low number of selected articles, it was observed that the issues are still in

need of further study, especially when seeking adherence to the strategy. In addition, networks of researchers and educational institutions are still incipient, which might reflect on the low number of published articles.

Still, it was possible to identify that the quantitative research, followed by different statistical techniques, is the course with greater adherence by the researchers when analyzing the construct capacity for innovation, unlike what happens with the construct service differentiation, in which qualitative procedures are the majority. Despite those differences it was not possible to reach a conclusion with respect to a preference of these procedures, since in some of them they are not detailed. An important observation is the non-use of mixed methods (qualitative / quantitative) in any work.

The constructs analyzed in the research are diverse and do not seem to have a direction or forward only to a prism, though the perspectives presented for future studies are open and strategic direction could be a way.

It should be noted that this study is limited by the use of a single database, the methodological filters and keywords used in the search. On the other hand, new opportunities for research were contemplated, such as the use of other keywords in different languages (Spanish and French); use of other databases (ProQuest, SPELL, Capes Periodicals); and; use of cluster analysis for data processing.

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Appendix

Table 2 - Detailed methodology

ARTICLE	SAMPLE/OBJECT		DATA COLLECTION	EMPLOYED TECHNIQUE
The influence of firms' technological capabilities on export performance in supplier dominated industries: the case of ceramic tiles firms	88	Ceramic industries	tile Questionnaire	Correlation factor + Multiple regression
Perspectivas para el análisis de la innovación: un recorrido por la teoría (Prospects for the analysis of innovation : a tour of the theory)	Literature Review			
<i>Impacto dos recursos da empresa na performance de inovação</i> (The impact of company resources in innovation performance)	293	Trade and service business	Questionnaire	Structural Equation Modelling
Improving innovation capabilities of small enterprises: cluster strategy as a tool	4	Regions	Analysis of documents relating to the region and Interview with representatives of small business associations and research and development	Secondary Research + Interview
In Search of Innovation and Customer-related Performance Superiority: The Role of Market Orientation, Marketing Capability, and Innovation Capability Interactions	163	Industrial companies and services	Questionnaire	Structural Equation Modelling
The relationships between external integration and plant improvement and innovation capabilities: the moderation effect of product clockspeed	238	industrial plants in different countries	High Performance Data Manufacturing (HPM) - SCHROEDER; FLYNN (2001)	Regression - Apparently Unlisted (SUR)

Source: Research Data (2014)

Table 5 - Detailed methodology

Article	Sample/Object	Data Collection	Technique Employed
Beyond Competition To Sur-petition	Literature Review		
Economic Reform of the Distribution Sector in China	Case Study		

Article	Sample/Object		Data Collection	Technique Employed
Gestão do transporte orientada para os cliente: Nível de serviço desejado e percebido (Client oriented transport management :desired and perceived level of service)	384	processing industry companies	Questionnaire	cluster and test analysis ANOVA
A result similar to the Odlyzko's 'Paris Metro Pricing'	Case Study			
Examining the development delivery and measurement of service quality in the fitness industry: A case study	55	Health Clubs	Interview	
Differentiation Advantages in the On-line Brokerage Industry	69	Online Brokerage Industry	Phone Interview	Regression Analysis
Mixed Oligopoly, product differentiation and competition for Public transport services	2	Public transport (buses and trains)		linear function, regression
Finding operational solutions to pistol-or-poison dilemmas	Theoretical Paper			

Source: Research Data (2014)