COMPETITIVENESS: THEORETICAL REFLECTIONS AND RELATION WITH INNOVATION

Jefferson Lopes La Falce¹
Cristiana Fernandes De Muylder²
Marcos Ferreira Santos³

Abstract

Purpose: This theoretical essay aims to describe and discuss the competitiveness, its evolution and relations with the subject innovation.

Method: Several authors argue that competitiveness should be analyzed at different levels of the industry, sector or nation, to meet a demand or problem that can aid understanding of the phenomenon.

Results: Through this article, it was possible to reflect on studies of thinkers about the competitiveness, since the 1950s, reflecting advances and comparing applications in different industries and countries, as well as compared to the assumptions of the world forum of competitiveness. It is still sought, through the reported studies; identify relationships indicated in innovation and competitiveness. One can also identify the use of competitive factor and its applications over the years, which has included the use and analysis of quantitative and qualitative variables as, for example, sustainability. Impacts and reflections of this two constructs are discuss in this paper.

Keywords: Competitiveness, innovation, metrics, World forum of competitiveness and measurement models

1. INTRODUCTION

The importance of the competitiveness issue in the capitalist environment is based on the relationship with the performance and companies’ sustainability, industries and countries.

Organizations such as the Organization for Economic Co-operation and Development (OECD) and The world economic forum dedicated many studies on the state of competitiveness at various levels, such as countries, sectors and industries (OECD 2017; Global Competitiveness Report, 2017).

¹ Doutor em Administração pela FUMEC-MG. Professor e Pesquisador na FUMEC-MG, Belo Horizonte – MG, Brasil. jefferson.la.falce@gmail.com
² Doutora em Economia Aplicada pela Universidade Federal de Viçosa (UFV). Professora e Pesquisadora na FUMEC-MG, Belo Horizonte – MG, Brasil. cristiana.muylder@fumec.br
³ Doutor em Administração pela FUMEC-MG. Professor na Universidad de La Sabana, Colômbia. marcos.ferreira@unisabana.edu.co
Competitiveness should be looked steadily at different levels of industry, sector or nation, in accordance with the question and its necessary adjustments to get results that can assist in the understanding of certain phenomenon in research (Fagerberg, 1988; Clark and Guy, 1998; Latruffe et al. 2008; Sever, 2015; Hagedoor and Zobel, 2015; Benur and Bramwell, 2015; Wirtz et al., 2016). Latruffe (2010) and Gutierrez et al. (2016) argue that competitiveness should be analyzed on an ongoing basis at different levels of the industry, sector or nation, in accordance with the question and their necessary adjustments to get results that can assist in the understanding of certain phenomenon in the survey. Note that the authors also indicate emphasis on the relationship and approach to innovation that can positively impact on the competitiveness of organizations.

Brazil also has been seeking over the past few years to implement policies that may be able to leverage the country in the ranking of international competitiveness, the Innovation Law which aims to foster strategic partnerships environment between universities, technological institutes, government entities and companies can included (Brazil, 2004; Cyrino et al., 2017).

The research's problem can be established in this scenario: How Science relates the concepts of innovation and competitiveness? Which studies and current thinkers corroborate the existence of this relationship? The aim of this essay is the competitiveness concept's theoretical understanding, its conceptual evolution and forms and quantitative and qualitative metrics for assessment and applicability. This essay is part of the doctoral thesis developed on these topics aimed at generating an assessment model of innovation impact on productivity and competitiveness.

With theoretical purpose of analyzing the competitiveness and its relation to the innovation theme the development of reference of this essay is divided into conceptualization, applicability and organizations and relationship with innovation.

2. DEVELOPMENTS

2.1 Competitiveness: concepts and evolution

Competitiveness emphasizes the export performance (Fajnzylber, 1988). For the author, competitiveness can be understood as the ability of a country to maintain and expand their markets, it can be adapted to the industry landscape as the ability to expand market share, thus
defining the impact parameter or product development to commercial transactions or impact or market developments with regard to the issue of exports and growth rate or market share.

Domestic market's performance should also be considered in the scenario. In this sense, we can consider industry's participation in domestic demand, the exposure degree to foreign competition, which is defined by the author as the index combining exports and imports in the production and internal demands. By highlighting imports, the author states that they can generate local industry efficiency metrics, and may also be related to a country's exchange rates and import tariff barriers, generating problems and inefficiency (Fajnzylber 1988).

Fajnzylber (1988) postulates that price has an important influence on competitiveness. The price of exports is an indicator for the analysis of export performance and competitiveness. However, this indicator was pointed out by him as a relative indicator, but it should be used as it shows the changing relationship in providing export industries. His study's results describe the importance of more intensive research to understand the competitiveness measured by prices.

Another competitiveness concept presented in the literature is the ability of a company to define, implement and maintain technological standards of a given market. Therefore, businesses would be able to obtain gains earned by technological progress, as they would take advantage opportunity and diffuse technologies, as in Brazil before the market globalization process took place (Ferraz, 1989).

Competitiveness can also be understood as a company's ability to increase the industry size, market share and profitability. This understanding may be different in what is called traditional view of economic theory, where competitiveness is determined when comparing companies in production costs and the more competitive will be the one with the cheapest way to produce a specific good. This reductionist view of competitiveness does not meet factors not associated with prices (non-price factors) that competitiveness is influenced and that are considered by the authors to be as important as or more important than the price factor (Clark and Guy, 1998: 364). One perspective also present in the literature about competitiveness is defended by Schwab (2011), who understands this concept as a group of institutions, policies and factors convergent to determine the degree of productivity of the economy and the respective capacity to generate wealth and return on investments which will determine the potential for economic growth. Competitiveness may be studied at various levels, including the individual company level, micro level for sector policies, and macroeconomic level to the competitive positions of a Nation (Fagerberg, 1988; Clark and Guy, 1998; Latruffe et al. 2008;
Sever, 2015; Hagedoor and Zobel, 2015; Benur and Bramwell, 2015; Wirtzs et al., 2016). These authors addressed the competitiveness at the level of small and medium enterprises. The understanding of competitiveness at this level led the authors to build a conceptual model with four dimensions of analysis, based on inter-comparisons, and this model addresses quantitative metrics and qualitative also (Man, Lau and Chan, 2002):

- **a) Scope** - perceived amplitude of the company's operating area
- **b) Organizational competence** - innovative capacity, quality, reputation; cost-effective, competitive price; and flexible structures and the responsiveness of the organization.
- **c) Business competence** - competence of personality traits, ability, skills and entrepreneur knowledge, including opportunity, relationships, conceptual, organizational, strategic, and committed to skills.
- **d) Performance** - considered aspects such as price, quality, design, service, marketing and management.

One of the competitiveness generating points for organizations is the technological capabilities establishment (Mytelka, 1999). These can occur according to the author through reorganizations, joint ventures, new products, processes, cost reductions, etc. It can be noticed here that the link between innovation and competitiveness is present in the author's thoughts.

A final point made in the literature shows that the most discussed aspects of competitiveness are facing competition between companies and there is still a gap in terms of competitiveness and the role of innovation on it (Mytelka, 1999). The impact of innovation for it goes beyond the issues of prices, costs and exchange rates, in the case of international competitiveness. He says that one should consider improvements in wages, sales capability, export and increase productivity and competitiveness checkpoints.

### 2.1.1 Term's applicability and OECD

OECD's website presents its mission, indicating concern with competitiveness among other things:

Promoting policies that improve the well-being of economic and social people around the world; Working with governments to understand what drives the economic, social and environmental change. Measuring productivity and global trade and investment flows; to analyze and compare data to predict future trends (OECD, 2017).
OECD took care to generate discussions and manuals that describe behaviours and competitiveness term's applications highlighting issues such as policies, indicators, measurement, challenges, regulations, relationship with productivity and innovation among others that can be found in the library of the organization. Due to the theme's relevance, OECD developed several materials dealing with reflections necessary for the development of countries in relation to the subject, constantly releasing new material about the theme.

Competitiveness is defined by OECD as the degree to which a country or industry produces and achieves profitability that is equal to or superior to its competitors. Regarding international competitiveness, it means to produce and sell products at a cheaper cost (OECD, 2008). It may be noted that competitiveness can be observed by various aspects, such as the international and industrial or business prospects. Thus, productivity may help explain the competitiveness being determined by labour productivity, improvement of human capital (such as workers skill development) within organizations or the increase in investments, among other factors (OECD, 2017).

The productivity and competitiveness guide presents a focused concept for the organization level, defined as the ability of an organization to compete and become successful when facing a competition, considering how successful factors such as product sales capacity to meet a particular demand with a combination of price requirements, quality and quantity without being able to lose sight of the profit guarantee for the organization to thrive. In this same tab, the ability to compete is directly linked to their technological capacity (OECD 2008). It can also be noted that there is a strong influence of the use of the term competitiveness from the point of view of public policies and this is consistent with the role played by the OECD.

Government actions that can help improve industrial competitiveness must be taken into account when promoting Countries’ policies. Only in this way, the industry, which operates at the global level, can be competitive. Reducing or eliminating the tax on capital, lower interest rates and even the corporate income tax rates are suggested as measures to be adopted by countries (Halevi, 2006).

Therefore, governments also play an important role for the stimulation of competitiveness of its industries to promote profitability measures and stimulation technology, with a view to increasing output prices and input price reductions inputs, through subsidies and industrial development policies (Halevi, 2006; OECD, 2008).
2.2 Competitiveness Assessment

Throughout literature, it is seen that competitiveness in its initial moment came associated with comparative review and price analysis. Limitations of the analysis of competitiveness only by the prospect of comparative advantage, that is, defined by the allocation to each country's resources has been identified in the literature as it would be unable to explain the evolution of international trade. Other aspects would be relevant to assess the advantages of countries and organizations such as technological leadership, economies of scale and accumulated experience, which he called temporary advantages, though it would help in the understanding of competitiveness (Krugman, 1996). Later, the same author goes on to defend the measurement of competitiveness through productivity as the best tool for understanding the relationship between research and development and industrial growth (Krugman, 2001).

Other authors warn about the problem of assessing competitiveness only through price. When comparing competitiveness by prices of a particular product, it is often not taken into account that the price is relativized in domestic and foreign markets, although the existence of an international price is given (Braga and Hickiman, 1988).

Some authors considered price comparison, as a competitiveness assessment instrument as inadequate (Fajnzylber 1988; Braga and Hickiman 1988), though there is the argument about the need for a comparison between export prices of a country and their competitors. It is important to measure the price change within a segment and not only absolute competitiveness levels; which leads to the argument that the use of price index may be appropriate, provided that it is compared to similar exports and with low historical variation (Durand and Giorno 1988). Another way of measuring competitiveness is the assessment of "technological functions of organizations" defined as the Research & Development systems (R & D), industry quality area, the innovations of capital goods and technology infrastructure system of the organization (Ferraz, 1989).

This is just one case in the literature as the factors not related to price are considered, and help determine the ability of an industry, through the diagnosis to achieve and maintain their competitive position within a market through constant technological, economic and social change (Clark and Guy 1998). According to these authors it may be included in this relationship:

a) The allocation of human resources, such as skills and motivation;
b) Technical factors, such as R & D ability as well as the ability to adapt and use the
technologies, and;
c) Managerial and organizational factors, both internal and external relationships with other
entities: customers, suppliers, public and private research institutes and other companies.

However, Clark and Guy (1998) make it clear that the profitability indicators and
survival in the market are considered as final competitiveness indicators. For these authors at
the macro level these indicators can be considered irrelevant, depending on what is sought to
be analysed, therefore the choice of appropriate indicators must be meticulous.

Using quantitative metrics and qualitative methods to analyse competitiveness is
considered as somewhat difficult. The measurement should take into account that the concept
of competitiveness possesses three dimensions and therefore it cannot assess the
competitiveness only by quantitative processes. In this sense the competitive dimensions of the
concept involve potential (competitive scope and organizational capacities), process (business
skills) and performance (Man, Lau and Chan, 2002). Two indicators to assess competitiveness
are perceived as appropriate by some researchers: a simple historical comparison of industrial
productivity and the capital contribution on industrial productivity (Causa and Cohen, 2006).
The second indicator proposed by the authors is built by adding three factors which are:
infrastructure, human capital and total factor productivity.

Literature also presents other points that can be observed by an industry in the search
for competitiveness and are considered variables in its control (Halevi, 2006), which are:
a) Selling prices increase;
b) Volume sales Increase;
c) Employees' salaries reduction;
d) Inventory cost Reduction;
e) Processing costs Decrease, and;
f) Government assistance call and tax cuts.

While some of these procedures are unviable when taking into account the
competitiveness' evaluation improvement, profitability however, must be taken into account as
well (Halevi 2006). It is also pointed out that rising sales prices is something considered
impossible when in a competitive market, but its viability will depend on the organization's
level of innovation.

In addition to the proposed points, macroeconomic variables that also affect industrial
competitiveness are also considered as the tax rate and interest rate (Halevi, 2006).
Competitiveness means different "things" to different organizations, and some industries will see competitiveness as the ability to persuade and retain customers attracted by their offers while others may consider competitiveness as the ability to improve their processes and gain advantage in the market. There is a need for a more holistic view of competitiveness that can measure other important aspects of the industry forward to its competitors, including here the sustainability issues that highlight the importance of production and its relationship to the environment (Atkinson, 2007).

Some authors associate the salary as competitiveness indicator (Cline, 1986; Shakina et al., 2017). Rising wages may influence the competitiveness decline. By comparing this indicator to the US’ competitiveness loss period in the steel industry, when wage increase was earned by the American trade union power, a competitiveness decline has been observed. This observed phenomenon was regarded as social dumping (Cline 1986).

Productivity is also seen as a competitiveness indicator in the OECD manual (2008, 2017); it is mentioned that the measure which the particular industry productivity increases over competing both for the domestic and for external market, increases competitiveness. Another important competitiveness assessment associated with variable was the sustainability (Atkinson 2007) line still defended by other authors (Tessitore et al., 2012). The relationship between innovation (focused on sustainable actions) and competitiveness was tested in 54 Italian industrial clusters using data from three years of operations of these industries. The authors obtained as a result, the existence of a relationship between the two constructs in 34 clusters analyzed, but state that other studies using other economic indicators are still being required to significantly prove the relationship between them.

Although results show evidence of a connection between eco-innovation and competition, studies are necessary to demonstrate and measure the relationship between the two constructs, including its use in other periods than of economic crisis, in this case in the Italian economy (Tessitore et al., 2012).

Wagner (2013) seeks to analyse the relationship between sustainability and competitiveness in their research on the manufacturing industries in Germany. Research found as a result that innovations in production processes and products with lower environmental impact or seeking environmental sustainability led companies to grow in competitiveness. It should be noted here that the industries in the manufacturing sector went through a regulatory process due to legal requirements in terms of the search for lower impact on the environment.
In this author's opinion, environmental regulation brought positive effects on competitiveness and business gains with the pressure for innovation in the analysed market.

Another issue pointed out in the author's research is that market regulation also brought another benefit being the derivation of the profit motive for motivation for the search results and sustainable innovations. In a regulated environment, with a focus on environmental sustainability, it will transform the companies’ goals, no longer only focusing on profit but also on the environment and other stakeholders. Both sustainability as innovations can be triggered or stimulated by market regulation, especially environmental or social regulations, as it enable companies to seek these innovations to become more competitive. However, incremental innovations were found in greater volume and preferably in the actions of major industries. Research by this author also pointed to radical innovations as preferred by small businesses as a way to be sustainable. In the same vein it follows the process of innovation, which is more present when it comes to the search for actions by industry than products' innovations (Wagner 2013). In this regard, Molina-Azorín et al (2015); Benur and Bramwell (2015); Dangelico and Pontrandolfo (2015) and Iraldo et al. (2017) investigated the influence of sustainability and the impact on competitiveness obtaining significant results of the relationship.

The current form of economy assessment, based only on the productivity and economic growth cannot be considered as unique and important after the global community highlighted the problems of unemployment, income inequalities, increasing pressure on natural resources. With growing concerns in terms of the environment sustainability as well as social there is need to better understand the competitiveness at various levels and their relationship to industry sustainability rather than product innovations (Molina-Azorin et al., 2015).

The World Economic Forum went on to adapt a new index for the competitiveness analysis due to the need to understand the sustainability phenomenon, called the adjusted global competitiveness index in its first year in 2011. This index seeks to assess the set of institutions, policies and factors that make a nation remain productive in the long term, ensuring social and environmental sustainability. According to the Global Competitiveness Report (2017) although the index was conceived to assess nations, it can be adapted to evaluate an organization as well. Figure 1 shows the framework CGA composition.
As a country becomes more competitive, productivity tends to increase as well as wages and thus, development is promoted. This report states that in developing best efficient processes, products’ quality and higher wages; one should not raise prices in order to maintain the focus on the conditions of human life. On this context environmental sustainability was set as institutions, policies and factors that ensure efficient management in resource management, allowing the prosperity of current and future generations. Social sustainability is defined as institutions, policies and factors that may allow all society members to experience the ultimate in health and safety, obtaining through this, economic prosperity. This dimension was based on forming the increased well-being of citizens with an opportunity to consume goods and services available in the market (Global Competitiveness Report, 2017).

To consolidate the concept of sustainable competitiveness based on the outcome of the two dimensions, it is understood as sustainable competitiveness the "set of institutions, policies and factors that make a nation remain productive in the long term, ensuring social and environmental sustainability" (Global Competitiveness Report, 2017: 44). The concept is based on aspects aimed at a perspective beyond the economic performance of a country and that the report can be considered also to an industry level.
The measurement of sustainable competitiveness using the CGA index covers 12 pillars: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, market goods, efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication and innovation, which are interrelated. Figure 2 presents the composition of these pillars from the framework used by the global competitiveness forum (Global Competitiveness Report, 2017).


These pillars were set throughout the 30 years of work in the global forum of competitiveness and in use in the last three years. Due to the existence of quantitative and qualitative variables, the measurement of this model is not an easy task and empirical studies still lack to verify the functional relationship between competitiveness and sustainability (Global Competitiveness Report, 2017).
This lack of empirical studies affirmed on the forum's own report had already been questioned by some researchers. Among these, one can highlight the vision claiming to be relevant to the adopted approach but it is considered that a multivariate analysis could be a nice feature to check and understand the variables found in the forum report. Variables addressed in the global competitiveness forum do not follow a logical construct. For them, these are variables which belong to a particular area, though not necessarily relationship between them is presented. Carvalho et al. (2012) conclude that they emphasize that the forum posts can favour countries with greater economic development and recommend the use of the logic construct. It is also suggested that the analysis of competitiveness accommodation is provided in new studies that seek a competitiveness research model. Despite criticisms like those described above, the competitiveness analysis model presented in this work is still adopted.

2.3 Competitiveness and Relation with the Innovation term

Evolutionary models proposed by researchers sought to study and build an economic model for the macro and micro levels of the relationship between the constructs which included the assessment of impact at various levels (Solow 1957; Dosi 1984; Griliches 1995; Fraj et al., 2015; Gutierrez et al., 2016; Farinha et al., 2016; Srivastava et al., 2017; Victoria, Puig and Loureiro, 2017; Yang and Zhan, 2017).

Although most studied perspectives pointed to the construction of models to check on economic growth bias, innovation should not be understood only from this perspective, because the development engine also seeks to provide collective well-being (Clark and Guy 1998). Capital and labour as inputs do not fully explain the production and competitiveness growth, as technical changes named residual factor occur in production that contribute to the industry's best performance and showed gains in competitiveness (Solow, 1957).

In terms of innovation, studies show that competitiveness has an impact on production efficiency. Those who possess asymmetric technology (from its competitors) possessed absolute advantages and made its industry competitive. An interesting highlight is that as innovation broadcasts occur such as licensing, imitation, overseas investment, licenses among others, it shall result in loss of competitiveness (Dosi, 1984).

It can be said that studies focusing on the relationship between innovation and competitiveness had earlier assessment using econometrics and statistical analysis that sought to understand the links between investment, research and development and productivity growth.
of an industry, the number of patents generated and the flow of world trade (Clark and Guy 1998).

Investments in research and development have impacts on innovation, productivity and competitiveness. These impacts can be verified and evidence has been reported (Fagerberg, 1988). The performance of exports, and the generation of own patents are ways to evaluate the relationship between the constructs obtaining statistically significant results. Competitiveness can be analysed by the difference recorded in countries' income and demand elasticity in the case of countries' evaluation and industrial competitiveness can also be analyzed taking into account not only mentioning the classics, said the use of differentials, but considering the growth of quotas or market share (Fagerberg, 1988).

The use of models that consider factors related to technology, ability to compete in technology, ability to compete on price and ability to compete in delivery have to be taken into account. These factors are very important when differences and competitive gains are analyzed in the medium and long term. Additionally, the cost analysis strategy plays limited role and these other factors may be complementary on competitiveness analysis (Fagerberg, 1988).

Fagerberg, Srholec e Knell (2007) discovered that other aspects besides innovation were perceived as able to influence the competitiveness, namely, technology, capacity, demand and price. This shows that the price is not only the best option to assess competitiveness, but may also not be disregarded, though less important than technology. Several studies during 1980 to 2002 showed the importance of technology in relation to impact on competitiveness. Although the main approach is the competitiveness between nations, they point out that, if the necessary adjustments are made; competitiveness can be analyzed by various levels.

Griliches (1995) arguments that over the years and advances in academic studies the sum of the weighted average spending on R & D has been considered as a variable to be considered in the relationship between innovation and competitiveness. He reported on his study of American companies and industries that there was evidence of an increase in the rate of return between 20-50% per annum on the investment made by industries that carry out major investments in R & D.

Dosi et al. (1998) complements that notion stating that technological change can help organizations in understanding the competitiveness. These authors sought to understand the industry dynamics and business characteristics to meet the rational competitiveness determinants. Radical innovations act as determinants of competitive advantage. Another
feature highlighted by the authors is a difficult to measure factor – organizational learning and organization skills – as a possible competitiveness factor.

Denton (1999) states that innovation has always been the central competitiveness piece, acting as a form of exploitation and optimization of resources for maximizing the return. Although the author claimed, at the time, that there was a difficulty in understanding how innovations impact the companies to make them competitive, the relationships between these constructs exist and that companies should always be prepared. To prove the ideas, the author conducted a study of the British economy over the years. It points out that Britain was in front of other countries only when their industries were innovative and hence, competitive in the market. Conclusions are:

a) Today's technological advance gets older and can lose its value;

b) Innovations emerged to replace today's technological advances and;

c) The country to master innovations will rule the world.

The lesson is that to stay competitive it is mandatory to seek the production of products that people want and still go after producing and converting innovations in assets. Technology is increasingly in the future control and innovations are essential for life and for competitive organizations (Denton, 1999).

For Castellacci (2006) the relationship between innovation and competitiveness also affects the construction of industrial strategies and have a positive impact on economic performance. It corroborates other authors that approach competitiveness at different levels, as the proposed competitive analysis takes into account various aspects, variables and different levels. In the industrial level, that assessment takes into account the ability to compete with their domestic and foreign counterparts and refers to business performance and productivity. Assessing the competitiveness only by the price factor does not take into account aspects of innovation and technological change and the long-term perspective.

Atkinson (2007) arguments that competitiveness stimulation through the knowledge and technological development is determinant on the study on USA's competitiveness and its challenges. Despite the industry holding the domestic market because of high value-added products and innovations, compared to foreign competition it can be positive as the foreign competition that time enters the domestic market. It may be able to boost the internal market to develop new skills in local employees, which would stimulate the exchange of knowledge and generation of internal technology. Although the author claims that the lack of an innovative
internal market may represent an opportunity he makes it clear that the technological development of a country should be a priority.

A critical review of various types of competitiveness indicators was part of the job to build competitive-indicators for the OECD. So competitiveness was seen as a concept difficult to assess and as a standard for comparisons between companies, sectors and nations. Competitiveness should be assessed by means of various components depending on the level to be studied for better understanding of this measure. One of the components can be a productivity and competitiveness indicator. Innovation, in this view, enables organizations to improve productivity and profitability, thus becoming more competitive. Innovation also impacts on other goals in addition to productivity, such as improving product quality, diversity, safety and sustainability (Latruffe, 2010).

Recently Wahyuni and Ng (2012) analyzing Indonesian companies highlighted the role of the analysis of competitiveness and impact for the country. Innovation was present as a determinant factor of competitiveness. Fraj et al. (2015) tested the relationship between innovation and environmental strategies as determinants of competitiveness. In the authors’ view, competitiveness is a relevant indicator to evaluate the performance of organizations and should be constantly monitored. This is also confirmed by other authors (Sever, 2015, Hagedoor and Zobel, 2015, Benur and Bramwell, 2015). Wirtzs et al. (2016) reviewed the literature to identify convergences between innovation, business model and competitiveness, highlighting the role of innovation in achieving competitiveness. Following the line of analysis of the relationship between innovation and competitiveness, Farinha et al. (2016), investigated the relation with the transference of knowledge in small and medium enterprises of Portugal discovering a relation between innovation and gains in competitiveness. Srivastava et al. (2017) investigated innovation in small and medium-sized Indian companies identifying a significant relationship between innovation, competitiveness and performance. They concluded that competitiveness requires organizational skills and strategy. Also with significant results in relation to the constructs was obtained by Victoria et al. (2017) in the research of the Colombian hotel sector.

Innovation, sustainability and its relationship with competitiveness began to gain prominence in academic studies. Molina-Azorín et al. (2015) related quality management and environmental management as a determinant of competitiveness. They encountered a positive relationship between the constructs, including impacts on competitiveness and cost improvement. Benur and Bramwell (2015) also researched competitiveness in the hotel sector,
highlighted as a high competition sector but analysed strategic actions that affect competitiveness. The actions with approaches in environmental sustainability practices had significant results at work. Similar results were found in the studies of Dangelico and Pontrandolfo (2015), sector of commerce of Italian companies and in the hotel sector of the same country, by Iraldo et al. (2017). Already, Salem et al. (2016) also evidenced the relationship investigating Libyan industrial corporations.

Other constructs have also been focus of research, seeking to understand the relationship with competitiveness and innovation. In this sense, intellectual capital was the object of study by Gutierrez et al. (2016) to analyze the impact on competitiveness. When verifying small and medium enterprises, the authors obtained significant results for the relation of the constructs. Yang and Zhan (2017) studied the intellectual property system and the influence on competitiveness, and the results of the research identified significant influence.

Cyrino et al. (2017) sought to describe the perception of Brazilian business leaders of the competitiveness of different industrial sectors. The results showed worrying data about the level of competitiveness of that country, but it was possible to perceive the prominence of competitiveness in the interviewees' view. Shakina et al. (2017) analyzing European companies, described factors associated with low competitiveness. According to the survey, the most impacting factors were low productivity, lack of strategy implementation, poor board qualifications and company location.

3. **FINAL CONSIDERATIONS**

This theoretical essay aimed to understand the competitiveness concept, describing its evolution and identifying the relationship with the innovation subject. It is also intended here to contribute to academic studies for organizing the existing theories about competitiveness and its relation to innovation so that scholars can use this text as a basis for empirical studies.

As a result of the literature review, it can be said that the competitiveness concept depends on the studied level because it was verified that there is conceptual differences when dealing with the competitiveness in the organizational level front or the country level. Although the approach is different, the authors' surveyed concepts have in common the perception of performing organizations or countries and its relation to the competition also in two levels.

This essay also showed that the studied authors (Solow, 1957; Dosi, 1984; Dosi, Teece and Chytry 1998; Denton 1999; Griliches 1995; Clark and Guy 1998; Fagerberg 1988;
Castellacci, 2006; Fagerberg et al., 2007; Atkinson 2007 and Latruffe 2010) corroborate the existence of a innovation impact on competitiveness, although the authors do not have the same opinion as to the empirical assessment. Studies from Wahyuni and Ng (2012); Fraj, Matute and Melero (2015); Sever (2015); Benur and Bramwell (2015); Hagedoor and Zobel (2015); Dangelico and Pontrandolfo (2015); Molina-Azorín et al. (2015); Wirtz et al. (2016); Salem et al. (2016); Gutierrez et al. (2016); Farinha et al. (2016); Cyrino et al. (2017); Srivastava et al. (2017); Victoria et al. (2017); Yang and Zhan (2017); Iraldo et al. (2017); Shakina et al. (2017) tried to understand the impact of innovation and other constructs on competitiveness, however these studies don’t contemplates all sectors of the economy.

Another important point to note here are the ways of assessing competitiveness. At its inception was studied mainly by quantitative tools and at present it can be verified the use of quantitative and qualitative methods, including indicators such as sustainability to increase understanding (OECD 2017; Competitiveness Global Report, 2017). Although the research of Molina-Azorín et al (2015); Benur and Bramwell (2015); Dangelico and Pontrandolfo (2015) and Iraldo et al. (2017) have begun to investigate sustainability implications, it is still limited to research in the tourism industry.

Studies on the relationship between innovation and competitiveness were extensive (Clark and Guy 1998), however this theoretical essay finds that after Clark and Guy's article, new studies confirmed the suspicion that innovation positively affects competitiveness, although empirical models are not widely accepted in the academy and that might explain the competitiveness at different levels: industries, sectors and countries.

Therefore, it is suggested that other studies can address competitiveness as the main theme, analyzing relationships with other constructs used in business management. Empirical verification is also suggested, through a model of the impact of innovation on competitiveness of industries in different sectors of the economy as a way to verify the relationship between the constructs innovation and competitiveness.

This study is justified due to the importance of understanding and evaluating competitiveness as a means of diagnosis for organizations, the demand for competitiveness indicators of various sectors and the study of the relationship between innovation and competitiveness as a way of targeting strategies. Beyond this point because it is a topic that has been worked over the years, this study may also contribute to an overview of the evolution of the competitiveness issue and thus contribute to research related to this important construct.
REFERENCES


