

# Sustainable development and competitiveness: A study focused on the doctrinal environmental aspect

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**Abstract**— The goal of this paper is to describe the evolution of environmental thinking, demonstrating the laws, regulations and the specific norms and addressing issues directly related to the benefits that organizations can get. The research methodology used for the development of this work consisted of a systematic review of the literature (SMR) based on scientific articles published before 2017 and available in renowned databases. This paper result is an analysis of the state-of-the-art in the research field on the relationship between sustainable management and competitiveness. The research was based on three keywords: “Management, Sustainability and Competitiveness”, limiting the investigation. The relevance of this study is to show the relationship between competitive advantage and sustainability within a social and economic scenario.

**Keywords**— Environmental Management, Sustainable Development, Sustainability, Competitiveness.

## I. INTRODUCTION

After the Industrial Revolution, the world has changed in many aspects, much faster than in previous centuries. Along with the revolution came the globalization, computerization, information overload and environmental imbalance (Salvado et al, 2015). The growth of consumer goods industries, led to increase of production, and thus to the use of more resources, generating more waste, and causing environmental imbalances. The pollution from chimneys, sewage systems and companies' toxic wastes increased global warming, raising society's concern with their impact on the environment, which was never seen before in history (Hicks and Dietmar, 2007; Govindan, 2014).

Sustainable development has become prominent and a requirement of public interest for companies, due to demands coming from employees, customers and shareholders. In this context, environmental management appears as a new focus of business practices, which seeks to adapt production processes to a wider scope of development, in harmony with both the environment and the demand. In this point, Novaes (1992) explains that Eco 92 has important history and developments from the scientific, diplomatic, political, social and communication points of view. And it still requires a specific understanding from a Brazilian reality.

In addition, sustainable development involves other issues, especially the economic and social dimensions that are

addressed in this paper. Considering this, the main question that this study will try to answer is:

- Which is the state-of-the-art of the relationship between sustainable development and competitiveness of organizations?

The following sections describe the following topics: in section 2 a literary revision is made, with a contextualization of the global evolution of the theme and, later, an evaluation of the Brazilian scenario. Section 3 describes the research methodology developed for this study. The state-of-the-art of knowledge on research is outlined in Section 4; and the conclusions are presented in Section 5.

## II. LITERATURE REVIEW

The concept of eco-development was initially established in 1983, when the United Nations (UN) created the World Commission on Environment and Development as an independent body. In 1987, the prime minister of Norway and various international leaders in sustainable development coined the term sustainability. The result of this summit was the report “Our Common Future”, also known as the Brundtland Report. Thus, the members of this summit conceived the most accepted definition of sustainable development, which is the “development that meets present needs without compromising the ability of future generations to meet their own needs” (Brundtland, 1987).

The concept was finally incorporated during the UN Conference on Environment and Development, Earth Summit 1992 - ECO-92, in Rio de Janeiro. On this occasion, the Agenda 21 was formulated, a document that is a bold attempt to promote worldwide a new pattern of development, combining methods of environmental protection, social justice and economic efficiency.

Only in 1996, almost 50 years after the foundation of the International Organization for Standardization (ISO), the first ISO 14000 series of standards was launched. Based in Geneva, Switzerland, ISO has the main goal of developing

international standards for manufacturing, commerce and communication. The ISO 14000 series addresses environmental issues, such as waste and its impact on the environment. It was launched, seeking to establish guidelines for the implementation of environmental management systems in various economic activities. For Kraemer (2003, p.6): "sustainable development introduces an ethical and political dimension when understanding development as a process of social change, with consequent democratization of access to natural resources and equal distribution of costs and benefits". Chart 4 compares the industrialist and sustainable paradigms:

*Chart 4. Industrialist paradigm versus sustainable paradigm*

<b>Cartesian</b>	<b>Sustainable</b>
Reductionist, mechanistic, technocentric	Organic, holistic, participatory
Facts and values not related	Facts and values strongly related
Ethical disconnected from everyday practices	Ethics integrated into daily life
Separation between objective and subjective	Interaction between objective and subjective
Humans and ecosystems separated by a relationship of domination of ecosystems	Humans inseparable in a relationship of synergy
Compartmentalized knowledge and empirical	Knowledge indivisible, empirical and intuitive
Linear cause and effect relationship	Non-linear cause and effect relationship
Understood as a discontinuous nature, the whole formed by the sum of the parts	Nature understood as a set of interrelated systems, the whole greater than the sum of the parts
Well-being assessed by relationship of power (money, influence, resources)	Well-being judged by the quality of the interrelationships between environmental and social systems
Emphasis on quantity (per capita)	Emphasis on quality (and quality of life)
Analysis	Summary
Centralization of power	Decentralization of power
Specialization	Transdisciplinarity
Emphasis on competition	Emphasis on cooperation
Little or no technological limit	Threshold defined by technological sustainability

Source: Almeida, 2002: apud Kraemer, 2003.

Ecological ethics, compliance with laws and improving the company image motivates environmental management. Increasingly, business owners understand and participate in structural changes in the relative strengths of issues related to economic, social and environmental perspectives.

Each company has its own system of pollution control, since each one cause different impacts on the environment. Environmental management is part of the formulation of strategic planning, and serves as a guide, defining plans and programs, which converge to common objectives (Rao and Holt, 2005).

Among the advantages of sustainable production are: a reduction of fines for breaking the law, a better product acceptance in the market and a differential among other companies, once the market opens space and provides benefits to those who adhere to this new production concept.

Moreover, sustainable development became important to build a lasting relationship with shareholders, employees, customers, society, future generations and government.

The inclusion of environmental protection among the objectives of the organization is part of the modern management concept. Managers, executives and

entrepreneurs are introducing, for instance, recycling programs (Van Wie et al., 2004; Hurditch, 2005), energy saving (Ngowi, 2001; Schönsleben et al., 2010; Fazio and Monti, 2011), environmental measures (Lee and Cheong, 2011) and other green innovations (Hsu et al., 2011; Marchi et al., 2013). By the spreading of these practices throughout

the world, it has been possible to create a comprehensive system of ecological management. The company, considered as an open system of interrelated elements, generates goods and services, jobs, profits, but also consumes scarce natural resources and originates pollution and waste (Kraemer, 2003) (Figure 8).

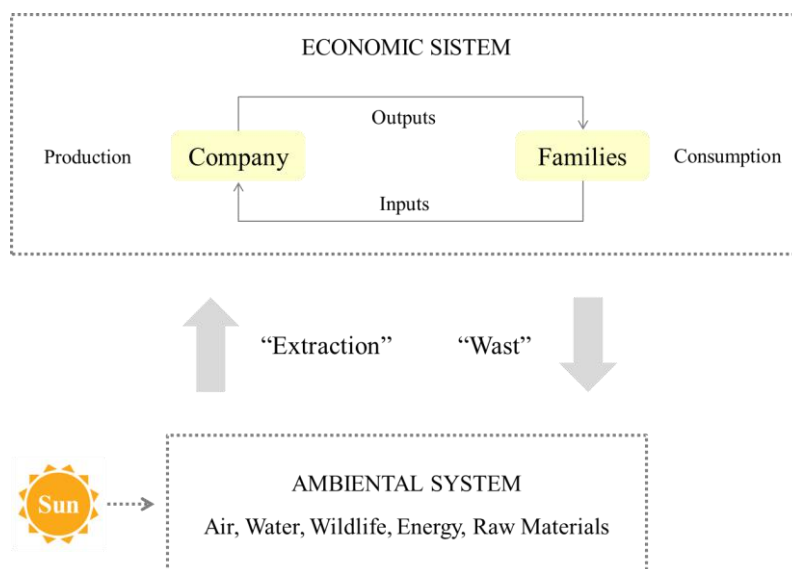


Fig.8: The economic system and the environment Source: Tietenberg 1994: apud Kraemer, 2003.

According to Brooke and Elkington (1989 apud DONAIRE, 1999, p.50), the ten necessary steps for environmental excellence are: (1) Develop and publish an environmental policy; (2) Set goals and continue to evaluate the gains; (3) Clearly define environmental responsibilities of each area and the administrative staff; (4) Promote internal and external policies, objectives and goals and responsibilities; (5) Get adequate resources; (6) Educate and train staff, and inform consumers and the community about environmental responsibility; (7) Monitor the environmental situation of the company and make audits and reports; (8) Monitor the evolution of the discussion on environmental issues; (9) Contribute to the environmental programs of the community and invest in research and development applied to the environmental area; (10) Help to reconcile the different interests of all concerned: businesses, consumers, community and shareholders. Therefore, organizations must increasingly incorporate the environmental variable in the exploration of their scenarios, to support decision-making, and maintain a responsible attitude towards this issue.

### Brazil's scenario

Much is said about the economic development in Brazil, as an emerging nation. Unlike economic growth, which relates only to the continued growth of overall GDP, economic development also relates to how wealth is distributed throughout the social sectors of the society. Da Fonseca (2005, p.29) points out:

However, companies not only clung to legal determinations. On the contrary, they came to see the environmental issue, opportunities to improve quality and competitiveness, especially because the Brazilian industries are subject to a new and broader competitive environment result of the economic liberalization initiated in the 1990s.

The environment is the big underdog in the development scenario, because of disregard or mere ignorance of environmental issues. The challenge lies upon finding solutions that are capable of ensuring sustainability as well as economic development. This has generated many efforts already felt throughout the economy, the society and even the environment (Ageron, 2012; Vachon and Mao, 2008; Chih et al., 2010).

However, making a Cleaner Production should be a priority, especially in emerging countries, to prevent the cycle of

degradation and remediation (Canal Vieira, 2017). In this effort, the Brazilian stock market pioneered into investment funds and stocks of sustainable enterprises, in order to increase the value of companies concerned with the environment. In 2005, it created the corporate sustainability index (ISE). This index established a group of companies that were socially responsible, profitable and strong enough to take economic, social and environmental risks, ensuring long-term return to shareholders.

Environmental issues both internal, such as care in the production process, management and rational use of raw materials, and external, such as logistics and advertisements were analyzed and used as criteria to prevent some companies to compose the ISE. Any company was eligible to participate of ISE standards, except weaponry, pornography and tobacco industries.

The criteria used to determine the ISE are policies, management practices, performance, compliance with

statutory obligations concerning economic efficiency, environmental balance, social justice, nature of product and corporate governance.

Through Figure 9 and Chart 5 it is possible to compare the profitability of companies' portfolios that comprise the ISE and the Bovespa (stock exchange index). From the analysis of data, it is possible to note that on average the ISE index performs better than the Bovespa index. Since its inception in 2006 until 2016, the ISE index only showed evolution below the Bovespa index in the period between 2009 and 2010. Even when in fall, the ISE has shown better results. When evaluating the profit generated by the two indexes during 2011, the period when both evolution curve begins to take off gradually, the ISE index showed superior results, with profit percentage about 20% higher than the Bovespa index, plus a monthly average profitability 0.18% higher.

Chart 5. ISE versus Bovespa profitability

Index	Profitability				Monthly Average profitability	Monthly Standard Deviation
	SEP/11	2011	12 MONTH	Accumulated		
ISE	-2,81%	-10,97%	-8,12%	85,83%	0,89%	0,068116
IBOV	-7,38%	-24,50%	-24,64%	63,94%	0,71%	0,068380

Source: <http://www.ondeinvestirbylopesfilho.com.br/cli/ita/new/index.asp?newsletter=514>



Fig.9: Evolution of Bovespa and ISE from 2006 to 2016 (Source: <http://exame.abril.com.br/mercados/cotacoes-bovespa/indices/BVSP/grafico>)

Investments in foreign countries are increasing eco responsibility due to requirements of environmental protection, legal obstacles and large investments pay back. Donaire (1999) states that the 'country cost' to receive foreign investment is increasingly linked to its international image associated with its environmental care.

#### Sustainability x Competitiveness

Companies generally seek to satisfy customer's needs to make profit. From the moment that customers define their expectations about what they want to acquire, whether products or services, the opportunity arises to create a competitive advantage. Actions to ensure sustainable development are becoming essential, and can provide many benefits to organizations. North (1997 apud SOUSA 2006) lists some of them:

- a) Improved corporate image;
- b) Renewal of product mix;
- c) Increased productivity;
- d) Greater employee commitment and better working relationship;
- e) Creativity and openness to new discounts;
- f) Better relations with public authorities, communities and environmental groups;
- g) Access to foreign markets;
- h) Easier to meet stricter environmental standards.

Sousa (2006) adds:

Strategically, cost reduction can generate a competitive advantage to the company, thus, the practice of pollution control may become a differentiation element because it can provide a reduction in production costs. Another form of differentiation occurs when customers are willing to choose environmentally sound products or produced by means of cleaner processes.

Nowadays, the doors of the market are closed to companies that flout environmental issues in an attempt to maximize their profits and socialize their losses. On the other hand, companies that do not pollute the environment or merely pollute less conquer a competitive advantage through its concern with the impacts generated by the production process. (Buhalis, 2000; Flanagan, 2007; Ngowi, 2001; Marchi et al., 2013).

### Competitive Advantage

Michael E. Porter in his bestselling book "Competitive Advantage" presents the concept in which competitive success is determined and supported by the strategy adopted by the organization. According to Porter (2008), there are two types of competitive advantages: cost leadership and differentiation. These, together with the competitive scope, define the different types of generic strategies.

To increase their competitive advantages, many firms were encouraged to implement environmental management practices in their action plans. Gradually managers and entrepreneurs began to develop recycling programs, energy saving or waste recovery projects, among others (Ngowi, 2001; Van Wie et al., 2004; Hurditch, 2005; Rao and Holt, 2005; Pusavec, Krajnik and Kopac, 2010; Schönsleben et al., 2010; Fazio and Monti, 2011; Lee and Cheong, 2011; Lee and Cheong, 2011; Ageron et al., 2012; Hsu et al., 2011; Marchi et al., 2013). However, the methodology also considered the tools to support content analysis and the stakeholder management system, such as GRI and ISO 26000 (ABNT, 2010; GRI, 2013), in this way Marques et al. (2018) reports that the survival of organizations depends on a response to the challenge of their sustainability. In 1989, Georg Winter created a program called integrated environmental management, known as "Winter model", where companies with an environmental orientation should save environmental resources. Through environmental management, companies would gain market opportunities with quick economic growth and a decrease of risk regarding environmental damages. Moreover, they would have opportunities to reduce costs and improve self-esteem among employees. Donaire (1999) indicates the benefits of implementing environmental management focused on sustainability (Chart 6):

*Chart 6. Benefits of environmental management*

<b>Economic Benefits</b>
Cost savings; reduction of water consumption, energy and other inputs; recycling, waste sale and use, decrease of wastewater; reduction of fines and penalties related to pollution.
Increase revenues; increase the marginal contribution of "green products" that can be sold at higher prices; increase of market share due to product innovation and less competition; new lines of products for new markets; demand increase for products that contribute to pollution decrease.
<b>Strategic Benefits</b>
Improved corporate image; renewal of the product portfolio; increase of productivity; high commitment of staff; improvement in working relationships

Source: Adapted from Donaire, 1999



Much can be saved with the implementation of a responsible environmental management, especially by reducing the consumption of production inputs. A company can reuse water to wash their facilities, saving power by turning off lights in rooms when there is no work-shift, re-use the printouts as draft or even sell their discarded papers to recycling companies. Another possibility is to produce new products coming from by-products or waste. Increased "green" range of products offered to customers might bring increasing levels of a company market share. These new lines of environment friendly products can also reduce pollution, because of the biodegradable and recyclable materials used in their composition.

Idea generation programs are essential in this process, as they stimulate employees to give important suggestions that can be implemented in the company's environmental programs. Andrade et al. (2006) show the importance of feedback from employees and customers especially when he says that, "the organization is driven by its own internal criteria and feedback, but is ultimately driven by feedback from its market."

Creativity is the most significant element in environmental management. Adapting and creating products that fit this kind of management practice is not easy. The search for alternatives could go far beyond the gates of the company. Firms could also integrate this process to determine what they want to consume, as sustainability is the company's commitment to the society and the environment.

### III. METHOD

This paper seeks to explain the relationship between sustainability, environmental management and competitiveness, based on scientific articles published before 2017. It is a descriptive and explanatory study, because it intends to reveal the evolution of the research subject over time.

A limitation related to data collection is the process of selecting the most relevant information on scientific basis.

One of the limitations of data treatment is the difficulty of maintaining focus on the primary subject of analysis, due to the proximity and relation with other topics, such as the social responsibility of organizations.

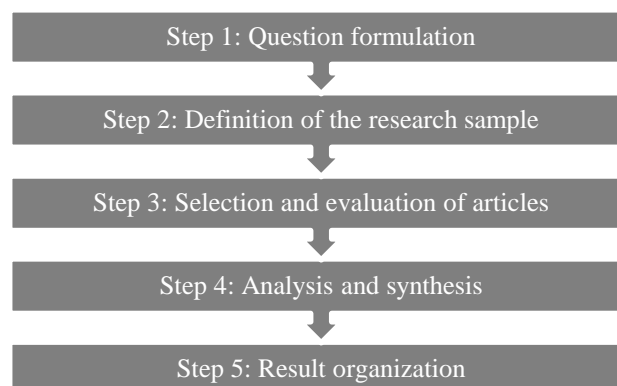


Fig.1: Research design. Source: The authors themselves.

In order to achieve the research goals proposed by this study, a systematic literature review (SLR) was performed. It was structured into 5 steps (Figure 1): question formulation (i), definition of the research sample (ii), selection of articles (iii), analysis and synthesis (iv) and result organization (v).

### IV. RESULTS AND DISCUSSION

In order to chart the state-of-the-art of the research field on the relationship between sustainable management and competitiveness, a systematic review of the available scientific literature was developed. In the first step of the SLR, a survey was conducted over Scopus base, which served as a documental structure for this article. The Scopus base was chosen because it is the largest abstract and citation of peer-reviewed literature. It has twice as many titles and over 50% more publishers listed than any other A&I database. The primary search was conducted in Mai, 2016 using the following structure: (TITLE-ABS-KEY (Management) AND TITLE-ABS-KEY (Sustainability) AND TITLE-ABS-KEY (Competitiveness)). We found 633 documents related to the research topic that will be analyzed through this section.

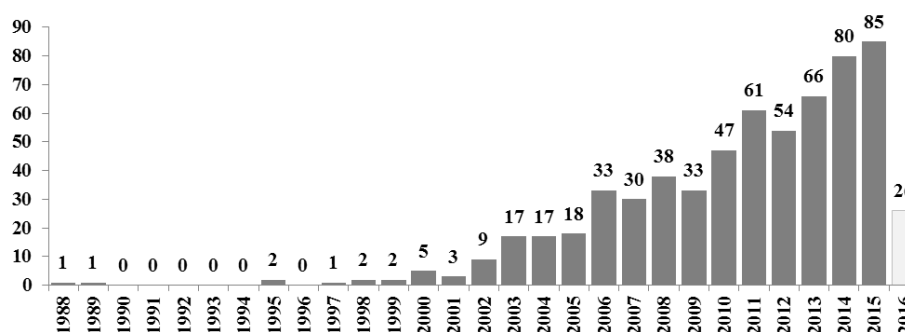


Fig.2: Record distribution by year of publication. Source: The authors themselves.

Figure 2 shows the number of records related to the relationship between sustainability and competitiveness distributed by year of publication. Through this analysis, it is possible to notice a progressive increase in the number of documents published on the theme, reaching its higher volume in 2015 with 85 records. It is also important to note that, although this subject has been studied for more than twenty years, the interest in this field expanded more significantly in the last decade. It is possible to identify in Figure 2 that the records in the last five years (including 2016) represent 49.29 % of the knowledge generated on this field.

This crescent can be explained by two outlooks. The first is related to the increasing availability of knowledge that occurs due to the use of information technology and the creation of new channels for global distribution of publications. But this phenomenon can also be analyzed by

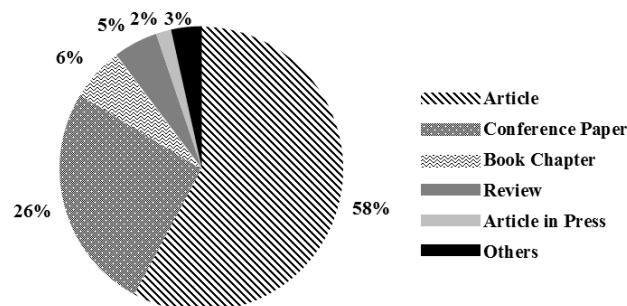


Fig.3: Record frequency by type. Source: The authors themselves.

Figure 3 presents the frequency of records by type and it is possible to identify a predominance of articles, accounting for 58% of all the records on the evaluated theme identified in the survey. When the articles published in electronic channels but not yet printed by publishers (Article in Press) are included, this frequency is even higher, reaching 60% of the total.

the perspective of a growing interest of organizations in structuring a model of sustainable development, mainly due to cultural changes experienced by the society.

The first two articles written on the subject have two interesting and, in the period they were published, revolutionary perspectives. The oldest (BUCKLEY, PASS and PRESCOTT, 1988) addresses the composition of the metrics used to evaluate competitiveness in a broader way, considering different levels (national, industry, firm or product), and also a more holistic point of view, showing concern in the identification of measures that ensure the long-term sustainability of these levels. The second document (SIMMONDS, 1989) covers the competitiveness of organizations for the most qualified professionals, since sustainable and health quality programs could influence their preference when selecting a job.

Studies published in conferences also proved to be significant for this field, representing 26% of the records, which shows the importance of these meetings for the scientific production related to the theme. Overall, articles and conference papers represent 86% of all published scientific production on the subject.

Chart 1. Authors with the highest number of publications

Author	Records
Gunasekaran, A.	4
Egbu, C.	3
Lee, K.H.	3
Azevedo, S.G.	3
Gunay, Y.	3
Renukappa, S.	3
Wagner, M.	3

Source: The authors themselves.

The analysis performed allowed to verify a high dispersion of the documents between the 159 authors identified, given that 96% of the authors published two documents or less. Of

633 documents surveyed, 19(12%) were published by the seven authors with the highest number of publications (Chart 1).

Chart 2. Journals with the highest number of publications

Source	Records
Journal of Cleaner Production	22
IFIP Advances in Information and Communication Technology	11
Journal of Business Ethics	5
Wit Transactions on Ecology and the Environment	5
Acta Horticulturae	5
Sustainability Switzerland	5
Business Strategy and the Environment	5

Source: The authors themselves.

Chart 2 presents the seven journals with the highest volume of publications. The Journal of Cleaner Production appears first with 22 publications, 100% more than the journal in second place. This can be explained by the large volume of annual publications of this journal and its concern with sustainability for society and regions that goes beyond pollution control.

It is also possible to observe a high dispersion of publications among the sources, once 94% of the sources published four or less studies on the field and the difference

between the number of publications of the source with the highest volume and the one in the third place is more than 400%.

It can be noticed that, of the first seven sources with the higher number of publications, four are directly related to the subject of Environmental Science. Of these four, one also deals with business and another with social science. Only one source is related just to social science and another to decision sciences (Figure 4).

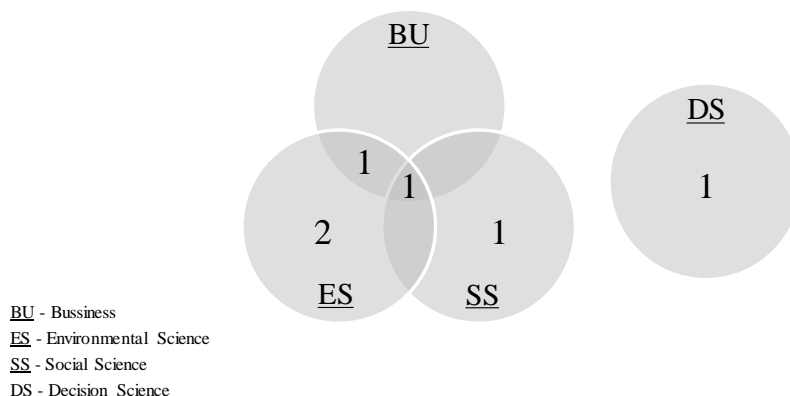


Fig.4: Journals with the highest number of publications by subject. Source: The authors themselves.

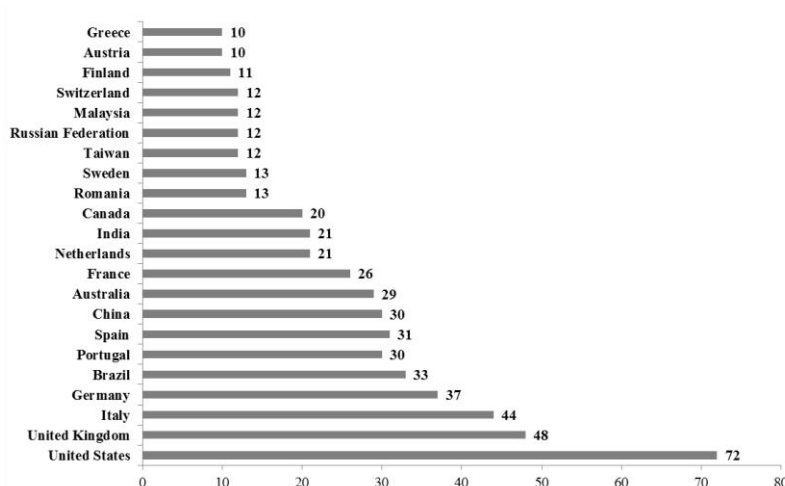


Fig.5: Countries with the highest number of publications. Source: The authors themselves.



Figure 5 lists the countries with the highest number of publications on the surveyed topic. Only countries with ten or more records identified were included in the chart. The United States appear as the country with the highest volume of studies, with nearly 10% of all the scientific production and 50% more than the country in the second place (United

Kingdom). The five countries with the highest number of publications together represent 32% of all the scientific production, and present amplitude of 39 records: (i) United States, (ii) United Kingdom, (iii) Italy, (iv) Germany and (v) Brazil.



Fig.6: Tag cloud of titles and keywords. Source: The authors themselves.

In this study, an analysis of the words present in the titles and keywords of the 633 documents identified by the systematic review of the literature was also conducted. We identified 2,405 tags, of which 30% (709) were only mentioned once. Through this analysis, it was possible to identify the 150 words most often cited by the authors. They are presented as a tag cloud structured so that the size of the words is directly related to how often they are cited in the text (Figure 6).

An initial analysis identified that the three key terms used in the survey appear highlighted in the tag cloud: Management, Sustainability and Competitiveness. Looking at the absolute frequency of the twenty most quoted tags; we can note that “Management” and “Sustainability” are the two terms most frequently cited by the authors, but they have a significant variation in frequency, with a difference of 23% between the second and the first place. This variation is more significant

when comparing the first and fifth most mentioned tags, which have a variation of 173%, or when comparing the first and twentieth tags, which have a variation of 525% (Figure 7).

The tag “Competitiveness” appears as the fifth most cited term, standing behind “Sustainable” and “Development”. It must be emphasized that the frequency of appearance of the twenty most cited terms represent 22% of the total, considering the frequency of the 2,405 evaluated tags. Of the twenty most cited terms, only four are directly related to sustainability (Sustainability, Sustainable, Environmental and Social) and three to competitiveness (Competitiveness, Innovation and Competitive), but several terms, such as Management, Development, Performance, Strategy, Knowledge, Policy and Business, are related to the management of organizations, which shows the importance of their practical application in the organizations.

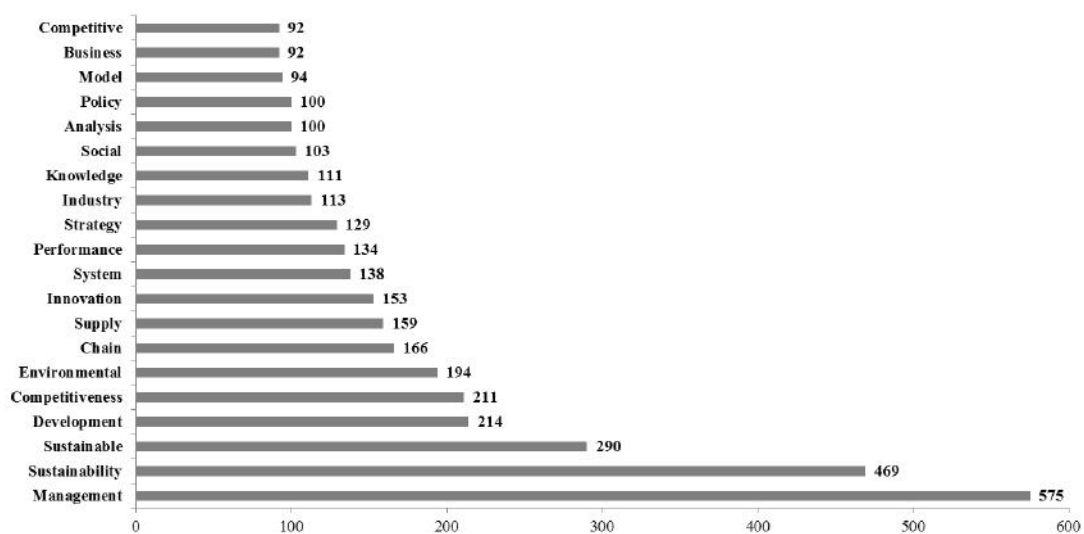


Fig.7: More frequent tags in titles and keywords. Source: The authors themselves.

Chart 3. Most cited papers

Author	Title	Year	Citation
Buhalis	Marketing the competitive destination of the future	2000	611
Rao and Holt	Do green supply chains lead to competitiveness and economic performance?	2005	542
Tukker and Tischner	Product-services as a research field: past, present and future. Reflections from a decade of research	2006	211
Hassan	Determinants of market competitiveness in an environmentally sustainable tourism industry	2000	171
Gnansounou and Dauriat	Techno-economic analysis of lignocellulosic ethanol: A review	2010	170
Pusavec, Krajnik and Kopac	Transitioning to sustainable production - Part I: application on machining technologies	2010	137
Ageron, Gunasekaran and Spalanzani	Sustainable supply management: An empirical study	2012	121
Buckley, Pass and Prescott	Measures of international competitiveness: A critical survey	1988	117
Vachon and Mao	Linking supply chain strength to sustainable development: a country-level analysis	2008	99
van Kleef and Roome	Developing capabilities and competence for sustainable business management as innovation: a research agenda	2007	80
Keller	Managing grapevines to optimize fruit development in a challenging environment: A climate change primer for viticulturists	2010	66
Tseng and Chiu	Evaluating firm's green supply chain management in linguistic preferences	2013	63
Lahmar	Adoption of conservation agriculture in Europe. Lessons of the KASSA project	2010	60
Al-Oqla and Sapuan	Natural fiber reinforced polymer composites in industrial applications: Feasibility of date palm fibers for sustainable automotive industry	2014	58

Closs, Speier and Meacham	Sustainability to support end-to-end value chains: The role of supply chain management	2011	57
Fazio and Monti	Life cycle assessment of different bioenergy production systems including perennial and annual crops	2011	54
Iverson et al.	Thinning, fire, and oak regeneration across a heterogeneous landscape in the eastern U.S.: 7-year results	2008	51
Khalilian et al.	Designed for failure: A critique of the Common Fisheries Policy of the European Union	2010	50
Vera Rebollo and IvarsBaidal	Measuring sustainability in a mass tourist destination: Pressures, perceptions and policy responses in Torrevieja, Spain	2003	50
Batish et al.	Crop allelopathy and its role in ecological agriculture	2001	48

Source: The authors themselves.

Chart 3 presents the twenty documents that have the highest number of citations among the 633 surveyed documents. It is noteworthy that most of them are relatively new, with only one document published before the 2000s. Of the other 19 documents, 10 were published between 2009 and 2014. Of the authors with higher volume of publications, only one paper (Gunasekaran, A.) appears as the most cited, the other six authors do not appear in the most cited papers. Journal of Cleaner Production stands out not only as the only source with more than one document among the most cited, but it also represents 30% of the twenty most cited records, with 6 documents.

## V. CONCLUSIONS

By performing a systematic review of the literature, it was possible to better understand the existing knowledge on the relationship between sustainable development and competitiveness. To perform an analysis over the 633 documents initially found in Scopus base, bibliometric indicators were used: (i) Records distribution by type, (ii) Records frequency by type, (iii) Authors with the highest number of publications, (iv) Journals with the highest number of publications, (v) Journals with the highest number of publications by subject, (vi) Countries with the highest number of publications, (vii) Tag cloud of titles and keywords, (viii) More frequent tags in titles and keywords and (ix) Most cited works.

Many of the results of expenditures on environmental management implementation, such as audits, employee training, and other adjustments, take place in medium and long term. However, increasingly, these issues are becoming vital for the companies to remain competitive in the market. The growing number of the so-called 'green' products bring aperture of markets domestically and abroad. These new 'eco lines' contribute to reduce pollution, while providing companies with an increase of their market share.

The improved corporate image in society due to the company's commitment to the environment also motivates employees to devote themselves to their activities. The development of researches to identify sustainable alternatives for a company brings a challenge, because of the need to integrate creativity and commitment to environmental preservation.

Many companies are taking strategic measures to meet environmental requirements, according to their economic sector. Therefore, both, entrepreneurs and shareholders are increasingly committed to environmental issues by Financial markets gradually open to sustainable business investment. The crescent carbon trading and the environmental indexes must be highlighted. Thus, the commitment to the issue of sustainability is becoming essential for companies to prevail on the market. In addition, if the actions in this direction are well designed, they can provide firms with competitive advantages, as demonstrated by the research.

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