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# O TRIPÉ DA SUSTENTABILIDADE: UM DESAFIO Á GESTÃO DAS INCUBADORAS E DAS STARTUPS: EXPERIÊNCIAS VIVENCIADAS ENTRE PORTUGAL E BRASIL

Luciana Aparecida Barbieri da Rosa - lucianaaparecidabarbieri@yahoo.com.br
Maria Carolina Martins Rodrigues - mcrmar@gmail.com
Tais Pentiado Godoy - taispentiado@yahoo.com.br
Luana Inês Damke - luanadamke@hotmail.com
Clandia Maffini Gomes - clandiamg@gmail.com
Jordana Marques Kneipp - jordana.mk@gmail.com

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## RESUMO

O grande desafio da humanidade hoje é manter o desenvolvimento em harmonia com o meio ambiente e, ao mesmo tempo, assegurar a qualidade de vida da sociedade. Embora a sustentabilidade seja hoje um tema central, tanto de políticas governamentais e programas regionais, como no discurso da maioria das empresas, observa-se certo descaso na implementação dos seus princípios nas práticas de gestão destas. Neste contexto de permanente mudança, surgem as incubadoras de empresas como motores de desenvolvimento empreendedor e, por sua vez, fundamentalmente as incubadoras de base tecnológica, erguem-se teoricamente como dinamizadoras do desenvolvimento local das regiões, em clara cooperação com as Administrações Públicas e com as Instituições de Ensino Superior. O estudo teve como objetivo analisar a percepção das Incubadoras sobre a aplicação dos três pilares da sustentabilidade em suas startups em Incubadoras Portuguesa e Brasileira. O presente estudo buscou analisar a inserção da sustentabilidade em duas incubadoras, uma Portuguesa e outra Brasileira. Neste contexto, foram realizadas entrevistas em profundidade com os gestores. Segundo Quintana (2000), a entrevista é uma técnica de obtenção de informação realizada mediante uma conversa com uma ou várias pessoas para um estudo analítico de investigação ou para contribuir nos diagnósticos ou tratamentos sociaisA pesquisa foi de cunho qualitativo buscando conhecer a percepção dos gestores das incubadoras sobre a sustentabilidade foram considerados os três pilares clássicos da sustentabilidade, adaptados dos estudos Gallardo-Vazquez e Sanchez-Hernandez (2012); Gallardo e Sánchez (2012); Gallardo-Vazquez *et al*. (2012) Martins-Rodrigues e Sánchez-Hernández (2017); Montiel (2008); Turker (2009); Agudo-Valiente *et al.* (2012); Lu *et al.* (2012); Pérez *et al*. (2012). Os resultados evidenciam que as incubadoras possuem tem características similares e não revelam diferenças significativas e refletem uma proximidade cultural entre os dois países, Portugal e Brasil, uma linguagem comum, mas com diferentes níveis de desenvolvimento. A sustentabilidade das empresas incubadas responde ao padrão multidimensional de três dimensões, a econômica, a social e a ambiental. A incubadora tem um papel especial na aplicação dos pilares da sustentabilidade nas suas empresas incubadas e é um dos elementos chave para garantir ecossistemas empreendedores.

**Palavras-chaves:** Sustentabilidade; Incubadoras; Empreendedorismo.

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# THE TRIPOD OF SUSTAINABILITY: A CHALLENGE TO THE MANAGEMENT OF INCUBATORS AND STARTUPS: EXPERIENCES LIVED BETWEEN PORTUGAL AND BRAZIL

## ABSTRACT

The great challenge facing humanity today is to maintain development in harmony with the environment and, at the same time, ensure the quality of life of society. Although sustainability is now a central theme, both in government policies and regional programs, as in the discourse of most companies, there is a certain disregard in the implementation of its principles in their management practices. In this context of permanent change, business incubators emerge as engines of entrepreneurial development and, in turn, fundamentally technology-based incubators, stand up theoretically as drivers of local development in the regions, in clear cooperation with the Public Administrations and with Higher Education Institutions. The study aimed to analyze the Incubators' perception of the application of the three pillars of sustainability in their startups in Portuguese and Brazilian Incubators. The present study sought to analyze the insertion of sustainability in two incubators, one Portuguese and the other Brazilian. In this context, in-depth interviews were conducted with managers. According to Quintana (2000), the interview is a technique of obtaining information carried out through a conversation with one or more people for an analytical research study or to contribute to diagnostics or social treatments. The research was of a qualitative nature seeking to know the perception of managers of incubators on sustainability were considered the three classic pillars of sustainability, adapted from the studies Gallardo-Vazquez and Sanchez-Hernandez (2012); Gallardo and Sánchez (2012); Gallardo-Vazquez et al. (2012) Martins-Rodrigues and Sánchez-Hernández (2017); Montiel (2008); Turker (2009); Agudo-Valiente et al. (2012); Lu et al. (2012); Pérez et al. (2012). The results show that the incubators have similar characteristics and do not reveal significant differences and reflect a cultural proximity between the two countries, Portugal and Brazil, a common language, but with different levels of development. The sustainability of the incubated companies responds to the three-dimensional multidimensional standard, the economic, the social and the environmental. The incubator has a special role in the application of the pillars of sustainability in its incubated companies and is one of the key elements to guarantee entrepreneurial ecosystems.

**Keys words:** Sustainability; Incubators; Entrepreneurship.


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## 1. INTRODUÇÃO

The great challenge facing humanity today is to maintain development in harmony with the environment and, at the same time, to ensure the quality of life of society. In response to these challenges, the concept of sustainability appears as an important option. Despite its relevance, its principles are often interpreted as conflicting with current economic models of development.

Although sustainability is now a central theme, both in government policies and regional programs, as in the discourse of most companies, there is a certain disregard in the implementation of its principles in their management practices. It has long been recognized that the world we inhabit is in a process of accelerated change, and in turmoil, the only place where we can find continuity is in the certainty of that change (Stibbe, 2009).



In 1987 the Brundtland Report (UNITED NATIONS, 1987) was written about the need to meet the needs of the present without compromising the ability of future generations to meet their own needs. Since then, efforts to build more sustainable societies have filled pages. Business sustainability has become a constant struggle, not only to ensure that future generations have the means to survive, but also to meet the needs of the present without causing deterioration in the conditions of the world.

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In this context of permanent change, business incubators emerge as engines of entrepreneurial development and, in turn, fundamentally technology-based incubators, stand up theoretically as drivers of local development in the regions, in clear cooperation with the Public Administrations and with Higher Education Institutions.

Incubators, particularly those that incorporate innovation and technology-based ventures, can become a powerful catalyst for sustainable development, not only by helping companies become economically self-sustaining organizations, but also by their ability to induce such businesses to conform socio-environmentally.

However, and for the theoretical approach to be effective in practice, it is necessary that the intellectual capital of the incubators flow to the incubated companies in a constant and effective way. The transfer of knowledge, forms of management, relationships and contacts will have an impact on the incubated companies, facilitating innovation, ensuring their sustainability and, finally, guaranteeing their competitive success in the market.

The academic literature has been concerned with studying, in different places around the world, the role of incubators in the development of regions, whether in developed countries

(Waters and Smith, 2002; Tamasy, 2007; Parakhina et al., 2015), including Portugal (Ratinho and Henriques, 2010), or developing countries (Lalkaka, 2003). At the same time, the most recent academic literature advocates corporate sustainable development (Gladwin et al., 1995; Barkemeyer et al., 2014; Rosa et al ( 2018). Sustainability is an opportunity for companies to add value and differentiation to their procedures, products and services, making them more competitive in the market. It can be said that sustainability is the theme of the moment in the business world.

In the incubation process, the challenge will be to form and develop sustainable companies (ALSOS *et al*. 2011; MUBARAK AL-MUBARAKI; BUSLER, 2014; LOSE; TENGEH, 2015), in this context of the economic development of the regions, it is known that incubators support entrepreneurs with innovative ideas, creating opportunities for interaction between the industrial and academic sectors, creating jobs and encouraging development. Given what has already been mentioned, the objective is to analyze the Incubators' perception of the application of the three pillars of sustainability in their startups in Portuguese and Brazilian Incubators.



From this objective and after this brief introduction, the work is divided into four sessions. The first section presents the theme of sustainability and its insertion in incubated companies and; the second presents the methodology adopted for this analysis; the third part describes the results of the study and the fourth part presents the final considerations of the study, its implications, limitations and as well as the future lines of investigation.

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## 2. SUSTAINABILITY A CHALLENGE FOR INCUBATED COMPANIES

According to several authors such as Held *et al.* (2000) and Audretsch (2010) refer that at the end of the twentieth century there was an important change in the world of economics and work integrated in the paradigm of globalization and a pace of technological development, Western society entered a historic period marked by a market more open and, at the same time, extremely unstable and competitive.

In the same vein, it was found that the theme of entrepreneurship, after the period of decline of industrialization and economic depression, reappeared, giving rise to a growing dynamic in the creation of companies and the promotion of employment, promoted by government policies aimed at the development of countries. The importance of technological development and the creation of companies in the field of technology is recognized and these

organizations have sought to create an environment in which new companies join and develop (MACHADO *et al.* 2016).

Thus, incubators arise, which contribute to the creation of an environment conducive to entrepreneurship, where the ideas of entrepreneurs are implemented or created and then shared (AHMAD, 2014; BERGEK; NORRMAN, 2008; BØLLINGTOFT, 2012; BRUNEEL *et al.* 2012; LESÁKOVÁ, 2012; SO HOWEVER; JACK, 2013). Also, the experiences of mature companies can be passed on to young entrepreneurs.

According to Morais (1997), business incubators were conceived based on the initiatives of the University of Standford, which created an Industrial Park and Technological Park in the 1950s. This initiative, supported by its location in the region known as Silicon Valley, in California, intended to transfer the technologies developed at the University to companies, enabling the creation of new technology-intensive companies. In the 1970s, still in the USA, specifically in the Silicon Valley region, incubators emerged as a means of encouraging university graduates to disseminate their technological innovations and to form an entrepreneurial spirit.


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In the view of Dornelas (2007) incubators are organizations supported by the government, universities, among others that use an environment in which facilities are offered for the emergence and growth of new ventures. According to Bergek and Norrman (2008) incubators are organizations that have a good location and offer support, through services, to companies that participate in the network during the initial phase of the process. Raupp and Beuren (2009) define an incubator as an environment conducive to the development of new ventures that facilitates access to knowledge and access to finance.

In this context, the concept of business incubator is usually linked to companies that provide and create a favorable environment for the creation and development of startups and small and medium-sized companies (SMEs) (UKBI, 2007; BERGEK; NORRMAN, 2008; BOLLINGTOFT, 2012; BRUNEEL *et al*. 2012; SO MEANWHILE; JACK, 2013; AHMAD, 2014; KORONTAI *et al.* 2016). From the perspective of the National Association of Advanced Technology Promotion Entities in Portugal - ANPROTEC (2017), business incubators and technology parks are entities that promote innovative ventures, and define a business incubator as an entity that aims to support entrepreneurs so that they can develop innovative ideas and turn them into successful ventures.

In general, there are two basic types of incubators, where Moreira (2002) calls them public and private. In this way, the author characterizes public incubators, which aim to create

opportunities for the community where the majority is supported by the government. Its origin is associated with foundations and non-profit institutions that manage them. Private incubators, on the other hand, have the participation of financial, institutional investors, equity or business incubators, with profitable goals, created from large companies that develop this type of program with the objective of creating new technologies and businesses. According to Inovates (2016), incubators are considered as centers that stimulate the creation of enterprises.

Incubation, as a generator of knowledge, is increasingly linked to public universities (hubs and technological science parks) and private universities and large companies, with their own incubators. The creation of incubators in countries such as China, India, Brazil, South Africa, Israel, Sweden and Finland, which have a consolidated experience of innovation, are covered by subsidies to support innovation, technology transfer and the development of human resources, and supported by an infrastructure of technological parks linked to research and development centers and universities (FERNÁNDEZ; JIMÉNEZ, 2011).



In the view of Dornelas (2007) incubators are organizations supported by the government, universities, among others that use an environment in which facilities are offered for the emergence and growth of new ventures. The academic literature has been concerned with studying, in different places around the world, the role of incubators in the development of regions, whether in developed countries (HU *et al.* 2005; TAMASY, 2007; YOUTIE; SHAPIRA, 2008; KIM; JUNG, 2009; PARAKHINA *et al.* 2015), including Portugal (RATINHO; HENRIQUES, 2010), or in developing countries such as the Brazil case (LALKAKA, 2003; AKÇOMAK, 2009).

Due to the growing importance of new technologies, in developed countries mainly, there was a need to define a technological incubation program as an innovative system designed to support entrepreneurs in the development of technology-based startups, or young companies in the growth phase. In this sense, making the connection between talent, technology, capital and know-how will accelerate the development of startups leading to a rapid commercialization of technology (SMILOR; GILL, 1986; CAETANO, 2012).

According to Rosa (2014), given the importance of incubators, it is essential to develop programs and projects that promote innovative entrepreneurship within a university, with the aim of conceiving and strengthening new strategies in the economic development process. Thus, it is emphasized that the role of the interaction between teaching and research for the development of these technological innovations, as well as the interaction with the private sector, is essential to develop ideas appropriate to the reality of the market, and with the

government sector, which can act as a financier of technological transformations. The implementation of innovations in organizational processes presents one of the main management challenges today, due to the pressures in the competitive environment (for example, regulations) in relation to sustainability (COSTA, *et al.* 2011).

Several authors, such as Barbieri *et al.* (2009); Maçaneiro and Cunha (2010) have discussed innovation that considers the issue of sustainability. These authors consider innovation as essential for corporate sustainability in the ecological, social, economic, cultural or spatial dimensions, without prioritizing one of them at the expense of the others. In this way, we can say that incubators seek to encourage an innovative spirit through the use of advanced technologies in their incubators. In addition to being a source of competitive advantage for companies, innovation is also a determining factor for the development of territories, for the development of the region and the country where the innovative company is located. At the same time, the most recent academic literature advocates sustainable development (Gladwin et al., 1995; Bansal, 2002; Dyllick and Hockerts, 2002; Steurer et al., 2005; Domeneghetti, 2009; Barkemeyer et al., 2014, Rosa et al, 2018).



Thus, Isaksson and Steimle (2009) mention that currently the major challenge for companies is to be able to show the way in which they manage sustainability issues, behaving responsibly in the environmental and social dimensions while achieving their economic objectives. When the term sustainability is addressed, it is being addressed not only the environmental context, but also the social and economic context, forming the three pillars for sustainable development established by the United Nations (UN).

Therefore, the integration between these three aspects is called by Elkington (1998) as Triple Bottom Line (TBL). The expression TBL, also known as the Sustainability Tripod, refers to the pillars that must guide the management of companies in order to be competitive. The environmental pillar addresses the concern with the environment and the use of natural resources, the economic pillar refers to good practices in the treatment of waste and conscious use of resources, while the social pillar is linked to human resources, social capital, with the concern to reduce, or at least avoid social inequality (UN, 2015). Thus, sustainability is a systemic concept, related to the continuity of the economic, social and environmental aspects of human society.

However, sustainability is not a new term in the business world, companies, regardless of size and commercial sector, must be able to know the term. The reasons are visible, as any company in its actions will have an impact on the environment, including several positive

implications (Berzau, 2017), such as job creation, innovation and the launch of new products or services that promote the development of society. The growth of a company is linked to sustainable development, and sustainability is often used to provide motivations for integrating sustainable aspects into business processes (Maletic et al., 2014).

It should be noted that sustainability is the theme of the moment in the business world. According to Sgarbi et al., (2008) and Rosa et al ( 2020), studies on sustainability have shown an increasing interest in the academic community, arousing not only the interest of scholars in the socio-environmental area, but also of researchers on topics such as strategy, competition, management, among others. Thus, several scientific and media milestones have been identified that contributed to the increase in attention focused on the issue of sustainability. It can be said that sustainability is an opportunity for companies to add value and differentiation to their procedures, products and services, making them more competitive in the market.



Therefore, according to Porter (2002) the development of a country's economy depends on policies that lead to increased competitiveness and productivity, so it is necessary, increasingly, to develop the capacity for innovation using new technologies in all productive areas. , as well as, increase investment incentives and invest more in the development of sustainability. In this way, the same institutional environment that develops youth training in universities for entrepreneurship (Wang and Wong, 2004; Mcnamara, 2010), is also the same that fosters an entrepreneurial ecosystem, that is, the development of new sustainable companies.

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## 3. METHODOLOGY

The designs of this research were based on the objective and the approach to the problem. With regard to the objective, this research consists of an exploratory study. Regarding the approach to the problem, the study used the qualitative approach.

The present study sought to analyze the insertion of sustainability in two incubators, one Portuguese and the other Brazilian. In this context, in-depth interviews were conducted with managers. According to Quintana (2000), the interview is a technique of obtaining information carried out through a conversation with one or more people for an analytical research study or to contribute to diagnoses or social treatments. The purpose of this technique is to obtain verbal and personalized information about experiences, opinions, attitudes, values or beliefs in relation to a specific theme or problem.

The semi-structured interviews aimed to understand the role that the incubator has been playing in the process of forming companies in relation to the sustainability tripod. Each interview lasted approximately 30 minutes.

In Brazil, we studied the Incubadora Diamante located in the city of Santa Maria / RS and in Portugal, we studied in the region of Leiria (Marinha Grande), the Incubadora Esmeralda. In order to understand the incubators 'managers' perception of sustainability, the three classic pillars of sustainability were considered, adapted from the Gallardo-Vazquez and Sanchez-Hernandez (2012) studies; Gallardo and Sánchez (2012); Gallardo-Vazquez et al. (2012 Martins-Rodrigues and Sánchez-Hernández (2017); Montiel (2008); Turker (2009); Agudo-Valiente et al. (2012); Lu et al. (2012); Pérez et al. (2012) e Rosa et al (2018), as Figure 1.

**Figure 01**- Definition of the categories linked to sustainability.

| SUSTAINABILITY | | | |
|---|---|---|---|
| DIMENSION | **CATEGORIES** | **DEFINITION** | **REFERENCE** |
| **ECONOMIC** | **Improvement Prod u ct / Serv ICO** | Providing high quality products / services to customers and complying with national and international quality standards. | Gallardo-Vazquez and Sanchez-Hernandez (2012); Gallardo and Sánchez (2012); Gallardo- |
| | **Price** | Improvement of price levels in relation to the quality offered. | |
| | **Consumers** | Respect for consumers' rights by giving them complete and accurate information about products / services. | |
| | **Suppliers** | Stable, collaborative and mutually beneficial relationships with suppliers. | |
| | **Shopping** | Incorporation of responsible purchases. | |
| | **Local consumption** | Promotion of commercial relations with companies in the region | |
| | **Claims** | Effective procedures for handling complaints. | |
| | **Grants** | Regional or national public support. | |
| **SOCIAL** | **Exclusion** | Hiring people at risk of social exclusion and people with disabilities in the business world. | |
| | **Quality of life** | Improvement of the quality of life of its employees. | |
| | **Salary** | Payment of salaries above the industry average, relating them to the skills and income of employees. Offers of pension plans to employees. | |
| | **Health and safety** | Occupational health and safety beyond the legal minimum required. | |
| | **Job** | Commitment to job creation by offering internships, creating new jobs, etc. | |
| | **Career** | Training and professional development of its employees. | |
| | **Flexibility** | Labor flexibility policies that allow reconciling work and personal life. | |
| | **Participation** | Consideration of your employees' suggestions in management decisions. | |

| SUSTAINABILITY | | | |
|---|---|---|---|
| DIMENSION | **CATEGORIES** | **DEFINITION** | **REFERENCE** |
| | **Opportunities** | Equal opportunities for all employees. | Vazquez *et al* . (2012 Martins-Rodrigues and Sánchez-Hernández (2017); Montiel (2008); Turker (2009); Agudo-Valiente *et al.* (2012); Lu *et al.* (2012); Pérez *et al* . (2012); Rosa et al (2018) |
| | **Projects** | Participation in social projects for the community. | |
| | **Volunteering** | Incentives to participate in voluntary activities or in collaboration with NGOs. | |
| | **Dialogue** | Use of dynamic dialogue mechanisms with employees. | |
| **ENVIRONMENTAL** | **Impact** | Minimization of environmental impact and use of consumables in work in progress and / or processed products with low environmental impact. | |
| | **Energy** | Introduction of alternative energy sources for energy saving. | |
| | **Protection** | Valorization and protection of the natural environment. | |
| | **Reduction** | Investment planning to reduce the environmental impact they generate. | |
| | **Emissions** | Recycling materials and reducing emissions of gases, waste. | |
| | **Products** | Use, purchase or production of ecological products. | |
| | **Packaging** | Use of recyclable containers and packaging. | |

**Source:** Elaborated by the authors (2019).


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In the next topic, the results of the research will be discussed.

## 5. ANALYSIS OF RESULTS

In the qualitative phase, a case analysis was carried out based on interviews with managers in the sustainability area in the incubators called Esmeralda and Diamante. To clarify some concerns that arose, this analysis was complemented with secondary data available on the companies' websites. The choice of these two incubators was based on accessibility. The presentation, description and interpretation of the cases under analysis are organized into the three pillars of sustainability: Social, Environmental and Economic.

### 5.1. Profile of companies and respondents

In this section, the results of the main organizational characteristics of the incubators are presented. Through these analyzes, we seek to present a historical analysis, as well as the profile of the interviewee.

The Emerald Incubator (E1), aims to contribute to the promotion of Innovation, Entrepreneurship and Job creation, by launching companies with innovative concepts and

stimulating business cooperation, with an impact on regional and national productivity and competitiveness. The building consists of three floors designed in a perspective of spatial flexibility, as a way to guarantee the possibility of grouping areas in order to obtain a varied base of possibilities for organizing spaces, it is divided into modules allowing to simultaneously host companies of an industrial nature (up to 8) and service companies (up to 24). The building is located in the Industrial Area of Marinha Grande.

The Diamante Company (E2) is the incubator of technology-based companies. Its purpose is to select, house and support these innovative companies, the result of projects, research and scientific and technological development of members of the UFSM community. It is responsible for organizing the pre-incubation and incubation programs, in addition to all other activities that have been developed and widely disseminated to the Santa Mariense community to foster entrepreneurial culture, it has 11 incubated companies from the most diverse areas. The incubator aims to stimulate and operationalize the entrepreneurial vision of the UFSM community through the pre-incubation, incubation programs, in addition to several other events organized with its partners. Among the results, it seeks: generation of innovative solutions, entrepreneurs with managerial skills, formation of a business network, increase the survival rate of companies, promotion of an entrepreneurial culture and encouragement of research, development and innovation projects between University-company.


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The services included in the monthly fee to be paid by tenants of the Esmeralda Incubator for space rental include, in addition to the use of their own incubation space, equipped with basic furniture kit, reception, water and electricity supply, air conditioning (air conditioning), telephone and fax, reprography, access to databases, computer network and data and voice network (internet and video conference) and meeting rooms and multipurpose room. Use of the address of Esmeralda for the purposes of corporate headquarters, telephone answering of company calls, basic counseling services, reception of mail and library. In addition to the information explained above, there are support services that include support for the constitution and legalization of companies, training, workshops. Support for the dissemination of developed technologies, advice on the most appropriate incentive programs for projects, support in accessing venture capital / seed, support in the elaboration of business / strategic plans, participation in national / foreign cooperation networks, support in implementation and management of quality assurance systems, support in the implementation and management of hygiene, health and safety at work systems.

The monthly amount to be paid by the incubated companies of the Diamante Incubator for renting spaces includes reception services during operating hours and attendance of the incubator, in accordance with the relevant operating procedures, cleaning and basic maintenance of common areas and internal areas, once per week, available only during the hours of operation and basic service of the incubator, postal address, internal communication network service, water and electricity supply in areas of common use for administrative use, access to the premises 24 hours by accredited persons, even during weekends and holidays, access to wi-fi and access to the electricity network. Support services consist of monitoring and guidance in updating the Business Plan, strategic planning and action plans for incubated companies, guidance for the protection of intellectual property, guidance in the preparation, submission and management of projects with development agencies and for fundraising, organization of seminars, business event and business orientation courses, taking into account the administrative possibilities of the Incubator, consultancy services and / or specialized advice, expenses with photocopying, binding and telephone calls.

In the next topic, the sustainability tripod in incubators will be explained.


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## *5.3. SUSTAINABILITY IN EMERALD AND DIAMOND INCUBATORS*

### 5.3.1. Economic Sustainability

In the economic pillar of sustainability (Figure 02), variables related to the supply of products / services are analyzed. We know that responsible purchasing policies and commercial relations with companies in the region must be promoted. It is no less important to take into account pricing policies in relation to the quality offered, stable relationships, collaboration and mutual benefit with suppliers and handling complaints (Martins-Rodrigues and Sánchez-Hernández, 2017).

The two variables related to the provision of high quality products / services to customers and compliance with national and international quality standards and better price levels in relation to the quality offered, both the Emerald Incubator and the Diamond Incubator, are concerned with quality and are much more competitive than competitors, especially international competitors, seeking strategies that reflect on doing their best to survive.

**Figure 02**- Definition of variables linked to sustainability in the Economic Pillar

| Description of the variables | Emerald Incubator | Incubator Diamond |
|---|---|---|
| Providing high quality products / services to customers and complying with national and international quality standards. | *Strong point* | *Strong point* |
| Better price levels in relation to the quality offered. | *Strong point* | *Strong point* |
| Complete and accurate information to customers about their products / services and respect for consumer rights. | *Weak point* | *Strong point* |
| Stable, collaborative and mutually beneficial relationships with suppliers. | *Strong point* | *Strong point* |
| Inclusion of responsible purchases. | *Weak point* | *Weak point* |
| Promotion of commercial relations with companies in the region. | *Strong point* | *Strong point* |
| Effective procedures for handling complaints. | *Weak point* | *Strong point* |
| Regional or national public support. | *Strong point* | *Strong point* |

**Source:** Elaborated by the authors (2019).



Regarding complete and accurate information to customers about their products / services and respect for consumer rights, it is a weakness in the Esmeralda Incubator and a strong point in the Diamond Incubator that, according to the maturity level of the incubated companies. The variable stable relationships, collaboration and mutual benefit with suppliers is a strong point for both incubators. The inclusion of responsible purchases on a daily basis is not a priority for them.

As for the question of promoting commercial relations with companies in the region, they responded that the preference for regional suppliers. There are no regional or national public supports for both the startup and for innovative companies or for incubated companies, both respondents receive university support.

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### 5.3.2. Social Sustainability

In relation to the social sustainability pillar (Figure 3) and with regard to the hiring of people at risk of social exclusion and people with disabilities in the business world, both at the Incubadora Esmeralda and at Diamante there is an awareness of the importance, but there is no concrete action for the selection, as they are not priorities in their human resources strategies, as they are very young companies made up of one or two people, as well as, in relation to Health and safety at work beyond the legal minimum required.

**Figure 03**- Definition of variables linked to sustainability in the Pilar Socia

| Description of the variables | Emerald Incubator | Incubator Diamond |
|---|---|---|
| Hiring people at risk of social exclusion and people with disabilities in the business world. | *Weak point* | *Weak point* |

| Description of the variables | Emerald Incubator | Incubator Diamond |
|---|---|---|
| Improve the quality of life of its employees. | *Strong point* | *Strong point* |
| Pay wages above the industry average and relate them to the skills and income that employees get. Pension plans for employees. | *Weak point* | *Weak point* |
| Occupational health and safety beyond the legal minimum required. | *Weak point* | *Weak point* |
| Commitment to job creation (interns, creation of new jobs, etc.). | *Strong point* | *Strong point* |
| Training and professional development of its employees. | *Strong point* | *Strong point* |
| Labor flexibility policies that allow reconciling work and personal life. | *Strong point* | *Strong point* |
| Consideration of your employees' suggestions in management decisions. | *Strong point* | *Weak point* |
| Equal opportunities for all employees. | *Strong point* | *Weak point* |
| Participation in social projects for the community. | *Weak point* | *Strong point* |
| Incentives to participate in voluntary activities or in collaboration with NGOs. | *Weak point* | *Strong point* |
| Dynamic dialogue mechanisms with employees. | *Strong point* | *Strong point* |

**Source:** Elaborated by the authors (2019).


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In view of this, improving the quality of life of its employees is a concern present in the analyzed Incubators. In relation to the payment of wages above the sector average and to relate them to the skills and income that employees obtain and to the Pension Plans for employees, as mentioned above, these are young companies that do not yet have the conditions to pay above-average wages.

The commitment to job creation (interns, creation of new jobs, etc.) is important in the incubated companies of the Emerald and Diamond Incubators Incubators. According to the Diamond Incubator, the incubated:

> "There are always interns from the universities to which they are connected, but when companies start to grow there, this concern is stronger, not least because it is more strategic to train employees and that they develop together with the company, than to hire employees external". They start as interns, hire and build a career, that is, they provide for the growth of the company at the same time as the growth of the employee".

With regard to the training and professional development of its employees, the two incubators seek to be always encouraging their employees in the realization of courses and postgraduate courses.

The suggestions of its employees in the management decisions are considered important by the incubated, although many times these proposals are not possible to be put into practice due to the economic situation of the incubated. Equal opportunities for all employees are a

strong point at Incubadora Esmeralda due to the layout structure that allows dynamic dialogue mechanisms with employees.

As for participation in social projects aimed at the community and incentives to participate in voluntary activities or in collaboration with NGOs, these are actions carried out in the two incubators, but it is important to note that the Incubadora Diamante are more punctual actions.

### 5.2.3. Environmental Sustainability

The pillar of environmental sustainability (Figure 04) is one of the biggest concerns at the global level (Bird et al., 2007; Wahba, 2008 and Gallardo-Vazquez, et al., 2012; cited in Martins-Rodrigues and Sánchez-Hernández, 2017). Companies are increasingly concerned with this pillar of sustainability (Welford et al., 2007).


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**Figure 04**- Definition of variables linked to sustainability in the Environmental Pillar

| Description of the variables | Emerald Incubator | Incubator Diamond |
|---|---|---|
| Minimize environmental impact and use consumables, work in progress and / or low environmental impact processed products | Strong point | Strong point |
| Energy savings and the introduction of alternative energy sources. | Weak point | Strong point |
| Prote tion and enhancement of the natural environment. | Weak point | Weak point |
| Plane j ning investments in reducing the environmental impact they generate. | Strong point | Weak point |
| Reduction of emissions of gases, waste and recycling of materials. | Strong point | Strong point |
| Use, purchase or production of ecological products. | Weak point | Weak point |
| Use of recyclable containers and packaging. | Strong point | Weak point |

Source: Elaborated by the authors (2019).

With regard to minimizing the environmental impact and using consumables, work in progress and / or processed products with low environmental impact, this is a strong point for the Emerald and Diamond Incubators.

For Esmeralda, energy savings and the introduction of alternative energy sources is a weak point, while at Diamante everyone uses renewable energy sources. The protection and enhancement of the natural environment is not applicable to any of the companies. Regarding the planning of investments in reducing the environmental impact they generate, it is very important for Esmeralda and does not apply to Diamante because the incubated ones do not yet generate environmental impact because they are still very young.

The companies incubated in the present study recycle computers, cell phones, batteries, and the reduction of gas, waste and material recycling is a strong point. The use, purchase or production of ecological products is not essential for startups. Finally, we have the issue of the use of recyclable containers and packaging, which is an important point for Esmeralda and less important for Diamante. As, for example, they describe that the cost of recycled paper is higher than that of normal paper, which impacts on the economic sustainability of companies. And, they also mentioned that, due to the location of the factory, transport costs and environmental costs have been added to the price.

## 6. FINAL CONSIDERATIONS



In this article, we analyzed the Incubators' perception of the application of the three pillars of sustainability in their startups. The Esmeralda incubator has similar characteristics to the Diamond Incubator, they do not reveal significant differences, they reflect a cultural proximity between the two countries, Portugal and Brazil, a common language, but with different levels of development. The sustainability of the incubated companies responds to the three-dimensional multidimensional standard, the economic, the social and the environmental.

The pillar of environmental sustainability is one of the biggest concerns at the global level, but due to the startups being very young they still do not have this concern. Incubators have to create events demonstrating the importance of the pillar of environmental sustainability.

These results can be explored in the future and a set of future research questions are raised:

Q1. The success of the incubated companies is related to the intellectual capital of the business incubator.

Q2. How does the intellectual capital of the business incubator influence the competitive success of its incubators?

Q3. How is the innovation of the business incubator reflected in the competitive success of companies incubated in the first years of life?

The limitations of the study derive from the size of the sample used. It is suggested for future studies to increase the number of incubators and it should be complemented with the perception of the incubated. In addition, the interviews were collected at a certain time, without being able to make temporal comparisons.

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