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# RELATIONSHIP BETWEEN THE ACTORS AND THE ENVIRONMENT: AN ANALYSIS OF POSITIVE AND NEGATIVE FEELINGS ABOUT AN ENTREPRENEURIAL ECOSYSTEM

## *RELAÇÃO ENTRE OS ATORES E O AMBIENTE: UMA ANÁLISE DOS SENTIMENTOS POSITIVOS E NEGATIVOS SOBRE UM ECOSSISTEMA EMPREENDEDOR*

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Camila Borges Fialho<sup>1</sup>  
Vânia Medianeira Flores Costa<sup>1</sup>  
Andrieli de Fatima Paz Nunes<sup>1</sup>  
Beatriz Leite Gustmann de Castro<sup>1</sup>  
Maria Carolina Martins Rodrigues<sup>2</sup>

*1 Federal University of Santa Maria (PPGA / UFSM). Santa Maria, Rio Grande do Sul, Brazil.*

*2 Cinturs - University of Algarve City, Faro, Portugal.*

## ABSTRACT

**Objective of the study** – To analyse the positive and negative feelings regarding the domains of an entrepreneurial ecosystem.

**Design/methodology/approach** – The present work is characterized as exploratory and descriptive in relation to the procedures as field research, and the approach is qualitative.

**Findings** – Most of the feelings regarding the entrepreneurial ecosystem in the study are negative (30 feelings). However, there are positive perceptions (14 feelings) about the arrangement. This can be seen through the importance of the people, actors and entrepreneurs in the ecosystem, as they act as agents in transforming actions. Concerning the negative aspects, the Public Policy and Culture domains also contain several indicators, mainly for the search for incentives and policies to disseminate entrepreneurship in the ecosystem.

**Practical & Social implications of the Study** – This work sought to collaborate with studies in the field of entrepreneurship, specifically, in the domains of the ecosystem. Its strength lies in its theoretical and practical relevance, guiding entrepreneurs towards other specific aspects of the entrepreneurial ecosystem.

**Originality** – The study is original due to the environment in which it was conducted, unlike other studies on this theme, and the local arrangement had not yet been considered. Furthermore, regarding similar studies conducted in Brazil, few studies were found approaching this theme of the entrepreneurial ecosystem (Capes, 2020), which indicates the possibility of exploring this theme.

**Keywords** - Entrepreneurship; Domains of the entrepreneurial ecosystem; Positive Feelings; Negative feelings.

# RESUMO

**Objetivo:** Analisar os sentimentos positivos e negativos em relação aos domínios de um ecossistema empreendedor.

**Desing/Metodologia/ Abordagem:** O presente trabalho caracteriza-se, como exploratório e descritivo, em relação aos procedimentos como uma pesquisa de campo, e finalmente, em relação à abordagem, como qualitativo.

**Resultados:** A maioria dos sentimentos sobre o ecossistema empreendedor relatados na pesquisa ainda são negativos (30 sentimentos). Todavia, existem percepções positivas (14 sentimentos) acerca do arranjo. Em síntese, o domínio Recursos Humanos apresentou a maioria dos sentimentos, negativos e positivos. Isso pode ser expresso pela relevância das pessoas, os atores e os empreendedores do ecossistema, pois são os agentes de transformação das ações. No que tange aos aspectos negativos, os domínios Políticas Públicas e Cultura também receberam vários apontamentos, principalmente no sentido da busca por incentivos e políticas para a disseminação do empreendedorismo no ecossistema.

**Implicações práticas e sociais:** Acredita-se na sua relevância teórica e prática, guiando os empreendedores para outras especificidades do ecossistema empreendedor.

**Originalidade:** Apresenta um caráter de ineditismo no tocante a sua realização no ambiente escolhido, pois outros estudos envolvendo esta temática e o arranjo local ainda não foram realizados. Além disso, em uma busca por estudos semelhantes desenvolvidos no Brasil, foram encontrados poucos trabalhos no tocante a temática do ecossistema empreendedor (Capes, 2020) o que sinaliza possibilidade de exploração.

**Palavras-chave:** Empreendedorismo; Domínios do ecossistema empreendedor; Sentimentos Positivos; Sentimentos Negativos.

## 1 INTRODUCTION

Entrepreneurial activity arises through interdependent actors who strive to bring together organizations and these achieve direct and better results (Stam, 2015). According to Silva Bendor, Lenzi & Sousa (2020), studies on the contributions of entrepreneurship to economic growth and development demonstrate the positive influence of entrepreneurial culture in this process within society.

Currently, to Shil et al. (2020), university not only plays a vital role in the development of entrepreneurship, but also develops a systematic process in which talented graduates invent, innovate and commercialize their ideas. Encouraging the entrepreneurial ecosystem in Higher Education Institutions (HEIs) can bring about a greater change in our societies.

In this respect, the articulation of entrepreneurship courses aligned with the strategy of entrepreneurship and innovation, together with local communities, government, mentors and venture capitalists, tend to form a strong and collaborative network, promoting an entrepreneurial ecosystem based on the university (Ghobril et al., 2020). Furthermore, academic communities are welcomed to the entrepreneurial ecosystem, due to their contributions with new ideas, enabling the promotion of the intellectual capacity of the HEI community (Carvalho; Viana & Mantovani, 2016).

It has been noted that the use of the concept of ecosystem has absorbed different demands in the area of administration (Frosch & Gallapoulos, 1989; Moore, 1996; Nachira, 2002; Adner, 2006; Isenberg, 2010), passing from being considered as a reference to an industrial organization, with productive arrangements, comprising a broader business vision and then applied specifically to digital businesses. In addition to these uses, the concept has more recently been used for innovation and entrepreneurship, which is the focus of this study.

It should be noted that the concept of an entrepreneurial ecosystem is recent and there remains no consensus on its definition (Carvalho; Viana & Mantovani, 2016). However, the con-

cept of the entrepreneurial ecosystem became widely known and disseminated through Professor Daniel Isenberg's article from Babson College, which was published in the Harvard Business Review (Isenberg, 2010). According to Isenberg (2010), the entrepreneurial ecosystem is an interaction that occurs between a range of institutional and individual actors, in order to foster entrepreneurship, innovation and the growth of small and medium-sized companies.

Regarding specific aspects of the entrepreneurial ecosystem, Isenberg (2010) highlights the relevance of knowledge of each of the six domains: Support Institutions, Human Resources, Markets, Public Policies, Financial Capital and Culture. According to the author, the set of domains must be involved in order to strengthen the ecosystem and, thus, increase entrepreneurship in the context in which it is structured.

It should be emphasized that this study contributes to the literature due to its originality because of the environment in which it was conducted. Other studies involving this theme and the local arrangement have not yet been carried out. Another central point of this study is that the use of the term ecosystem in research in the business area is relatively new (Pilinkiene & Maciulis, 2014), which justifies it. In addition, a search for similar studies conducted in Brazil revealed few studies of this nature (Dissertations and Theses) on the theme of the entrepreneurial ecosystem (Capes, 2020), which indicates the possibility of exploring this theme.

Consequently, the aim of this study is to analyse the positive and negative feelings towards the domains of an entrepreneurial ecosystem. In this way, the study seeks to connect the variables, people and organizations involved in a certain entrepreneurial ecosystem and collaborate in tacit knowledge sharing, which go hand in hand. However, it is not always easy to understand these aspects and coordinate them to achieve the best results (Gertler, 2013). Therefore, the work is structured into five sections. Following the introduction, the theoretical framework is presented in the second section. The third section contains the methodology, while the fourth presents and discusses the results. Finally, the fifth section contains the final considerations, limitations of the study and suggestions for future research.

## 2 THEORETICAL FRAMEWORK

This section aims to present theoretical concepts in relation to entrepreneurship and the domains of the entrepreneurial ecosystem, highlighting concepts, authors and other relevant information to the context of the central theme of the study.

### 2.1 Entrepreneurship - a look at the context

The term entrepreneurship comes from the French word *entrepreneur*, and was used in 1725 by Richard Cantillon, a Franco-Irish economist. This expression was included in his book entitled "Essay on the Nature of General Commerce", defining entrepreneurship as the act of a person working on his own, taking risks in an attempt to promote his own economic well-being (Filion, 1991).

Dolabela (2012) stresses that in the 1930s entrepreneurship was described as an economic phenomenon by Joseph Schumpeter in his seminal work on economic development (1934) and creative destruction (1945). However, there are several concepts related to entrepreneurship, varying the conceptions of scholars in the field. A synthesis of some concepts of entrepreneurship is shown in Figure 1.



Figure 1: Synthesis of Entrepreneurship concepts

|                                       |                                                                                                                                                                                                                                                                      |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vieira, Mulatti & Ribeiro (2011)      | It is the process of creating something new, with value by dedicating the necessary time and effort, taking the corresponding financial, psychological and social risks and receiving the consequent rewards of economic and personal satisfaction and independence. |
| Stam (2015)                           | It is the process in which opportunities to create new goods and services are explored and evaluated, including the process by which individuals explore opportunities for innovation.                                                                               |
| Silva, Bendor, Lenzi & Sousa (2020)   | They are agents that influence by acting creatively, generating income, consolidating the bases of entrepreneurship, the perception and exploration of new opportunities, in the business sphere, through the use of resources in an innovative way.                 |
| Shil, Rahman, Shahriar & Zayed (2020) | It is a process of taking risks and innovating, identifying profitable opportunities and generating income, as well as helping local, regional and national development.                                                                                             |

Source: Prepared by the authors based on the literature.

Based on Figure 1, it is noted that the concept of entrepreneurship is guided by different perceptions, considering that it involves complexity, beliefs, the prism through which the theme is being observed and analysed, in such a way that it is not presented as a mere convenience label with little intrinsic meaning (Filion, 2011). Based on the descriptions in Figure 1, it can be inferred that entrepreneurship is characterized by the creation of opportunities by taking calculated risks.

The monitoring and evolution of entrepreneurship in the world is carried out by the Global Entrepreneurship Monitor (2018). However, the data show that approximately 400 million people participate actively in the implementation or creation of new businesses (Monitor, 2018). Such indicators corroborate the relevance of the economic context of a region, as they boost the scope of opportunities for entrepreneurship

Furthermore, Sproul et al. (2019) point out that entrepreneurship is fundamentally a phenomenon of action that involves an interrelated set of creative, strategic and organizational actions. These actions are taken to support the creation, development and growth of entrepreneurship.

The immersion and dissemination of entrepreneurship practices are significant in the current context, since, according to Vamvaka et al. (2020), this is a decisive factor for economic development and acts as the main facilitator of innovation, being recognized for its central role as a predictor in driving the exponential growth of the economy. Having presented a contextualized overview of entrepreneurship, the next topic discusses the entrepreneurial ecosystem.

## 2.2 Entrepreneurial ecosystem

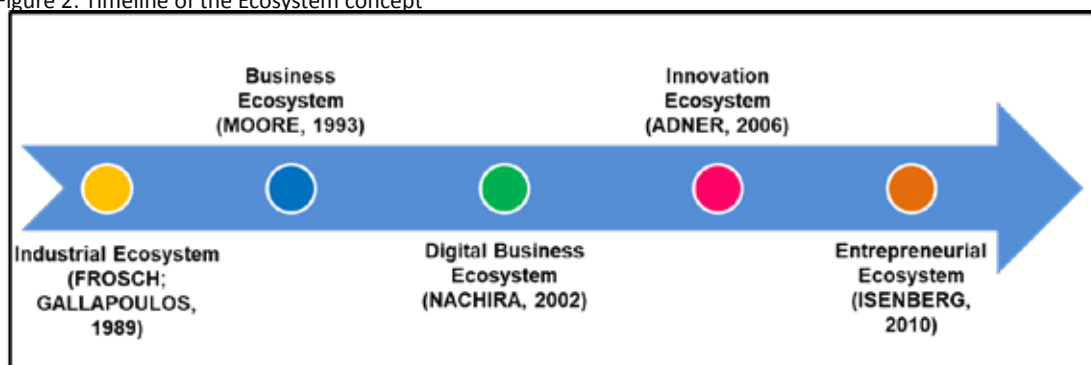
The concept of ecosystem comes from biology, compared with the field of business. In 1935, Tansley used the term to demonstrate that organisms cannot be separated from their habitat. Years later, Moore (1996) “borrowed” the concept and employed it in business, expressing an analogy to a biological environment (Vogel, 2013).

First, the term ecosystem was used as an industrial ecosystem (Frosch, Gallapoulos, 1989), in which it designated an analogy to the systems of the industries, resembling its process with the functioning of these companies. After this initial stage, the concept was extended to the sphere of strategy and business, designating relationships as business and collaboration networks (Moore, 1996).

The next stage is based on technological and socio-economic development based on information and communications technology. Nachira (2002) asserts that this stage was designated as a digital business ecosystem. Adner (2006), analysing the context of the use of the ecosystem, begins to characterize it as an innovation, as he considered it relevant to explain the uncertainties and risks related to innovation management activities.

From these denominations, Pitelis (2012) and Spigel (2017) emphasize that the speed of changes and high use of technology culminated in the immersion of the entrepreneurship ecosystem. Based on the perspectives of the ecosystem throughout its advent, Figure 2 outlines the evolution of the ecosystem concept.

Figure 2: Timeline of the Ecosystem concept



Source: Prepared by the authors based on the literature

Figure 2 shows the different stages of the ecosystem concept, which incorporated several demands from administration, starting in the industrial field, business, innovation and finally specifically focusing on entrepreneurship. However, it was only in 2010 that studies on the entrepreneurship ecosystem were carried out with greater intensity (Stam, 2015). Since then, the phrase ecosystem has been shaping different approaches to industrial arrangements in the digital, economic, technological and innovation systems in entrepreneurship, even though it required a detailed analysis in technical terms (Voicu-Dorobantu, 2016).

According to Roundy (2016, p. 235), the Entrepreneurship Ecosystem is conceptualized as a “set of actors, institutions, social structures and cultural values that produce entrepreneurial activity”. Accordingly, Isenberg (2010, p. 48) describes EE as a “set of individual elements - such as culture, leadership, capital markets, and consumers with an open mind - that combine in complex ways”.

From the above, it is possible to infer that there are different models of entrepreneurship ecosystems. Therefore, these models differ in their definitions regarding the ecosystem and the elements that compose it. However, they all have in common interdependence between actors, geographical proximity, the fact that each ecosystem is idiosyncratic to the place where it belongs and evolutionary dynamics, considering the ecosystem as a living organism (Isenberg, 2010; Stam, 2015).

To Isenberg (2013), an entrepreneurial ecosystem consists of six major constructs, namely Policies (factors related to government regulations, tax incentives and other strategies to encourage entrepreneurship), Finance (structure to attract small investors, angel investors, and large funds of private equity, among others), Culture (how is error tolerated, how valued are successful entrepre-

neurs, and what is the population's ambition with regard to undertaking a venture, among others), Support (how does support manifest from the point of view of infrastructure and professional services for start-up companies), Human Capital (addresses issues related to professional training and qualification for entrepreneurship) and Markets (parameters related to the regionalization of the economy and diversification, among others).

From Isenberg's perspective (2010), the entrepreneurship ecosystem consists of a set of individual elements, such as leadership, capital markets, culture, and open-minded consumers. These elements are required for the solid development of entrepreneurship. It is emphasized that these factors are decisive for self-sustainable entrepreneurship. That said, it is emphasized that the functioning of the ecosystem in a linear manner is a key factor in understanding the creation of new companies. Based on this assumption, the next section presents the methodology used in this study.

### 3 METHOD

This research aims to analyse the positive and negative feelings in relation to the domains of an entrepreneurial ecosystem. The work is exploratory and descriptive in nature in the form of field research, with a qualitative approach.

The data were collected through semi-structured interviews, with a script prepared based on the literature on the entrepreneurial ecosystem (Isenberg, 2011), obtaining information from the opinion of actors from an HEI, as well as from managers in structures of the environment external to that community. The choice of subjects who participated in the research was based on the researcher's analysis criteria, as the selected participant could provide information relevant to the study. According to Prodanov & Freitas (2013), the intention is not to form generalizations, the sample being non-probabilistic by judgment. Thus, 5 institutions from outside the field of higher education agreed to contribute to the study and one university, represented by 3 subjects who exercise different activities. It should be noted that the interviews took place between the months of January and March 2019. In addition, the interviews were recorded and later transcribed, so that they could be used better during research with the participants.

Thus, the choice of categories is justified since they reflect and affect the perceptions of the entrepreneur, and that, consequently, they play a role in the decisions and success of the entrepreneurial ecosystem (Isenberg, 2011). Furthermore, dealing with a large number of variables interacting in complex and specific ways is part of the context of this ecosystem. That said, the following categories were listed for this study, in accordance with Isenberg (2011): **Support Institutions, Human Resources, Markets, Public Policies, Financial Capital and Culture**. Therefore, the study results were organized based on these categories, facilitating the combination with a research base theory.

In the data analysis, the content analysis technique was used, which consists of "a set of methodological instruments increasingly subtle in constant improvement, which apply to extremely diverse discourses (content)" (Bardin, 2016, p. 9) and is divided into pre-analysis, material exploration and interpretation.

In addition, the feelings technique present in the NVivo software was used. This software is used worldwide in several fields (Qsr International, 2019). The data collected from the responses of the research participants were transcribed and analysed according to the analytical categories. The analysis process in the software uses a pre-defined score for the words that contain feeling, the content is encoded for a set of feeling nodes, ranging from very positive to very negative (Qsr International, 2019).

The interviewees' information is summarized in Table 1. For better organization, the interviewees were numbered from 1 to 8.

Table 1: Profile of respondents

| Respondent | Institution             | Acting Micro environment                                     | Academic education                      | Time in the job      |
|------------|-------------------------|--------------------------------------------------------------|-----------------------------------------|----------------------|
| 1          | UFSM                    | Principal                                                    | Doctorate degree                        | 1 year and 4 months  |
| 2          | UFSM                    | AGITTEC                                                      | Doctorate degree                        | 4 years              |
| 3          | UFSM                    | Ligue I9                                                     | Graduated in Production Engineering     | 1 year               |
| 4          | City Hall               | Secretariat for Economic Development, Tourism and Innovation | Master's degree                         | 2 years and 4 months |
| 5          | ADESM                   | Management                                                   | Specialization                          | 7 years              |
| 6          | AJESM                   | Management                                                   | Specialization                          | 1 year and 9 months  |
| 7          | Santa Maria Tecnoparque | Management                                                   | Master's degree in Electric Engineering | 2 years              |
| 8          | Stars Aceleradora       | Management                                                   | Economics and Administration            | 1 year               |

Source: Prepared by the authors (2020).

## 4 DISCUSSION AND ANALYSIS OF THE RESULTS

This section presents the results of a study conducted for a purpose and thus are weighted through six approaches, set out below.

### 4.1 Support Institutions

According to Isenberg (2010), Support Institutions are formed through the integration of the actors and the environment structures, in addition to the support provided to the new entrepreneurs. We can divide Support Institutions into non-governmental institutions, backup professions or technical support and infra-structure. The respondents' perceptions regarding this domain are shown in Table 2.

Table 2: Domain - Support institutions

| SUPPORT INSTITUTIONS                                                                                                                                                                                                                                      |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Positive Feelings                                                                                                                                                                                                                                         | Respondents       |
| There is a logistic problem with the big industries in Santa Maria due to the lack of infrastructures and new companies are not expected to come to the town; but Technology companies are coming due to good quality of life and the low-cost workforce. | I1, I2 and I3     |
| Negative Feelings                                                                                                                                                                                                                                         |                   |
| After the foundation of the development agency in 2011 and the first strategic planning, it was acknowledged that the town did not know how to sell its potential.                                                                                        | I5                |
| Institutions need to be gathered, more joint or articulated work, because unfortunately there are many disputes for shop windows in the city. There are many entities, many presidents and it gets to be too much considering the return we have.         | I1, I2, I5 and I6 |
| Unfortunately, it will be a big loss for Santa Maria, if the Development agency is terminated. Anyway, there is no team which is already a big loss. If there's no continuity, we are facing the risk of losing almost ten years of work.                 | I5                |
| Today the Development agency is better known outside of Santa Maria than in the town.                                                                                                                                                                     | I5                |

Key: I1 – Principal; I2 – AGITTEC; I3 – Ligue I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars

Source: Prepared by the authors (2020).

In Table 2, the UFSM respondents signalled that the city seems to have competence in captivating technological companies, which favours the generation of jobs and income, being fundamental for economic development and strengthening the technology hub already started by the technology park and incubators. According to Isenberg's (2010) understanding, it is necessary to broaden horizons and invest beyond the technology clusters, thus strengthening relationships to promote the advancement of the entrepreneurial ecosystem. In addition, promoting information sharing, exchange of experiences and initiatives can lead to the rationalization of expenses and administrative simplification (Ramos, 2020).

Regarding the moment of uncertainty considering the continuity and weakening of the Santa Maria Development Agency (ADESM), it is noteworthy that the agency, by its nature, was responsible for conducting the city's Strategic Development Plan (PED), involving several areas of activity, in addition to various actors in the local environment, from educational institutions, private companies, and public authorities, among others. The justification for apprehension in relation to the agency's future is based on the work developed during its period of operation, as it is an institution exempt from political influence and is perceived by all the interviewees as one of the most appropriate to connect ideas and decisions about the entrepreneurial ecosystem.

In addition to the inferences addressed to the agency, the speeches of the actors I1, I2, I5 and I6 signalled the need for unity between the city's institutions, which would favour a better result and avoid the overlapping and shading of actions. For an ecosystem to actually occur, according to Zahra, Wright & Abdelgawad, (2014) it is necessary to nurture and favour communication, innovation, knowledge sharing and collaboration, since an ecosystem results from different domains, from a complex environment that they evolve together and reinforce each other.

Still, the actors talk about institutions that are being born, while others are weakening in this environment. To Ramos (2020), public and private managers need to establish policies that promote and strengthen the entrepreneurship ecosystem. In addition, some circumstances for the development of the entrepreneurial ecosystem would have the government as a facilitator of this environment, together with the participation of public and private institutions (Isenberg, 2010).

Finally, with regard to logistical aspects, there was a low investment in relation to the city's infrastructure, which may preclude the coming of future industries and companies. This issue is evidenced in the generation of taxes by the industry as one of the lowest indicators of development of Santa Maria, when compared to the others. This perception of the interviewees is supported by the studies by Suresh & Ramraj (2012), emphasizing that the government would need to encourage new businesses that were supposed to be settled in the environment and foster infrastructure conditions so that the arrangement can develop.

Understandings about the entrepreneurial ecosystem were not limited to the domain of support institutions, since several considerations were made. From this perspective, the feelings related to the Human Resources domain are evidenced, Table 3 covers the education of the actors' inquiries about the workforce.

## **4.2 Human resources**

As one of the main strategies for global competition, the importance of human resources will be highlighted in the entrepreneurial ecosystem, given that it is through individuals that entrepreneurial culture, entrepreneurial awareness and creativity can be disseminated (Zhang, Jiang & Tang, 2019).

The Human Resources domain concerns the qualification of labour in the ecosystem. However, human capital formation and entrepreneurial education serve as a basis for government reforms (Isenberg, 2013) and make regions more entrepreneurial (Zahra, Wright & Abdelgawad, 2014), which consequently contribute to local development. From this perspective, Table 3 presents the feelings related to the Human Resources domain, covering questions about the actors' workforce and education.

Table 3: Domain - Human Resources

| HUMAN RESOURCES                                                                                                                                                                                                                             |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Positive Feelings                                                                                                                                                                                                                           | Respondents           |
| Santa Maria is a city with 300 thousand inhabitants having one of the country's highest densities of doctors. So, what needs to be done is to connect those doctors with entrepreneurship. We need to turn paper into GDP.                  | I2                    |
| Post-graduate programs need to be discussed so that we manage to get more dissertations and theses, making an impact on the productivity sector, and not only academic studies. Students and professors/teachers should contribute to this. | I1, I2, I4 and I5     |
| What makes Santa Maria different? Very strong Educational Institutions. That is the city's biggest potential.                                                                                                                               | I1 and I2             |
| It is necessary to ensure that local universities are known in other regions. People must think that studying in Santa Maria is worthwhile.                                                                                                 | I1 and I2             |
| If Universities do not leave their classrooms to talk to those who need to hire their workforce, they are not going to make it.                                                                                                             | I1 and I4             |
| Negative Feelings                                                                                                                                                                                                                           |                       |
| It is necessary to break down the barrier and have teachers that will multiply the numbers. Then, we will have a better spirit and attitude to entrepreneurship.                                                                            | I1 and I2             |
| If single minded, the chance of any other enterprise succeeding will be nil. It should be multidisciplinary.                                                                                                                                | I1 and I2             |
| The change to be made in entrepreneurship is not being made. That is, at the base teachers need to be shown that it is not the way to do it, enough with <i>paper</i> , we need to get results, and that will make the difference.          | I1, I2 and I5         |
| It bothers when it is a project, a chair, an incubator or a class room just to attract a few students. Everybody does it but you cannot tell the difference. There are not a few HEI training 20 or 30 junior managers or entrepreneurs.    | I4                    |
| As long as university management knows all the names of the professors doing entrepreneurship, it's because things are bad.                                                                                                                 | I1 and I2             |
| They do not yet have the local culture to make greater transformations. Universities are selling a very academic product.                                                                                                                   | I4                    |
| It would be interesting if all universities were interested in partnership issues, rather than only UFSM issues.                                                                                                                            | I1, I2, I3, I5 and I6 |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars.

Source: Prepared by the authors (2020).

When analysing Table 3, it can be seen that, almost unanimously, the interviewees (I1, I2, I3, I5 and I6), emphasize the involvement of all educational institutions, providing access to entrepreneurship. It is evidenced through examples that, in the interviewees' perception, the HEIs could expand their actions, contemplating actions directed to the needs of the market and not only per-

form specific tasks, such as projects or course subjects. In the meantime, it is relevant to highlight their concern over the spread of professors with experience in the field of entrepreneurship, and who have actually experienced the market in practice, mentioned by respondents I1, I2 and I4.

The interviewees' perception regarding the previous practice of professors in the field of entrepreneurship is addressed in the studies of Bennett (2006), stating that the professors' definitions of entrepreneurship are influenced by their knowledge and the trajectory linked to companies. Notably, it was realized that training professors has a beneficial effect on the way entrepreneurship is perceived. In other words, the professor's previous work experience and connections with the business history are positively related to the implementation of entrepreneurship education (Ruskovaara & Pihkala, 2015).

All the respondents agree on the importance of HEIs for the qualification and training of specialized labour, consistent with the market and the entrepreneur's behaviour. Ruskovaara & Pihkala (2015) stress the relevance of continuous cooperation between HEIs and companies, since there are possibilities for exchanging knowledge and experiences, as well as for companies to provide guidelines for formulating guidance and training policies for professors to instruct their students in the field of entrepreneurship.

The suggestion pointed out is that studies, researches and works carried out on those environments may explore further the skills of professors and students to solve real problems, enabling companies to expand and adopt an entrepreneurial attitude.

In the context, it is initially necessary to have an auspicious environment for its genesis. That said, the next topic describes the notes pertinent to the Markets domains, involving the ideias chain, clients, products and services.

### **4.3 Markets**

According to Zahra, Wright & Abdelgawad (2014), the markets domain shows that startups must have a close relationship with large companies and other actors in the ecosystem in order to obtain market benefits. In this process, large companies can facilitate startups' access to resources, such as space and business opportunities. Thus, the contact networks that are formed are an important source of information and access to domestic and international markets. Thus, Table 4 presents an overview of the interviewees' perception of this domain.

Table 4: Domain - Markets

| MARKETS                                                                                                                                                                                                                                                              |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Positive feelings                                                                                                                                                                                                                                                    | Respondents |
| There has to be a way to put this accelerator to work the right way to create that connection between people and discuss a theme that is not being discussed, as the formal actors in the field are not up to speed.                                                 | I1 and I2   |
| It would be nice to have a big rackaton here at the university. To have a huge competition involving 5 thousand people, with prizes and whoever wins that prize would have a free stay at Silicon Valley for a week or even a week in São Paulo or a week in Israel. | I1          |
| Stars accelerator is expected to take off.. We are still dealing with a shortage of ideias and we have a local investor's fund, but to invest in which idea? So, work at the base of this funnel is needed to get good ideias and good projects to invest in.        | I5 and I8   |
| Negative Feelings                                                                                                                                                                                                                                                    |             |
| The last journal on pre-incubation at AGITTEC had few applicants. That's very few ideas. Much more potential is needed but they are asleep. It is necessary to foster the base of the innovation funnel.                                                             | I1 and I2   |
| Discussion on the retail technology is almost non-existent.                                                                                                                                                                                                          | I4          |
| We should understand that our market is not Santa Maria. If we only think of Santa Maria's market, we are thinking small and that doesn't work at all.                                                                                                               | I2          |
| There are attempts to have combined events. It is still a long way from what could be the idea.                                                                                                                                                                      | I2 and I6   |
| The ideas and innovation funnel are still a weak point within the ecosystem.                                                                                                                                                                                         | I5 and I8   |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars.

Source: Prepared by the authors (2020).

The Brazilian market has important diversifications and possibilities for regionalization, and also allows the possibility of creating new markets. Based on Table 4, it was pointed out by the interviewees that there is a lack of events that provide a funnel for ideas and innovation in the local entrepreneurial ecosystem. Therefore, holding such events requires coordination, organization and continuity, even providing a calendar of events related to entrepreneurship, which tends to sensitize society to the formation of an entrepreneurial culture. Zahra, Wright & Abdelgawad (2014) agree by stressing that the first contacts between the actors and the new businesses are important for future partnerships.

The potentializing of opportunities based on the network established between the incubators and the technology park, needs to be strengthened with the approach of future entrepreneurs, as pointed out by Santos, Schmidt & Zen (2016) to bring future entrepreneurs and companies closer together, developing new networks of contact. From this perspective, Farias & Miles (2018) state that the existence of markets is essential for the development and attraction of cities, promoting employment and quality of life for the population. The next section deals with the domain of public policies.

#### 4.4 Public policy

In relation to this domain, their respective feelings are shown in Table 5. It is important to summarize and understand the meaning of the Public Policies domain, which, according to Stam (2015), is important because it lowers barriers to new businesses.

Table 5: Domain - Public Policies

| PUBLIC POLICY                                                                                                                                                                                                                                                                                                                                                       |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Positive feelings                                                                                                                                                                                                                                                                                                                                                   | Respondents       |
| For example, it is good to know that the Tecnoparque rooms are already being occupied.                                                                                                                                                                                                                                                                              | I5                |
| Negative Feelings                                                                                                                                                                                                                                                                                                                                                   |                   |
| Having a solid technology park would be of great importance. Our technology park is not solid for a number of reasons. Lack of investments, not in space but in physical structures. It is not located in a specific suitable place for an industrial park. It is located in an industrial district.                                                                | I2 and I4         |
| City Hall has supported, founded, sponsored Tecnoparque, but does not have the right to take part in management. Something completely wrong in a state structure.                                                                                                                                                                                                   | I4                |
| Tecnoparque should be in the university neighbourhood, after all that is where the student is. Is there a solution? No. Therefore the problem is solved. What can be done to make Tecnoparque a reality? Someone will have to take responsibility or face the consequences for making a decision there. It was a wonderful and futuristic idea that has gone wrong. | I4                |
| It is disturbing when a city like Santa Maria, with 76% of its GDP either in service or retail, sees many of its companies being shut down.                                                                                                                                                                                                                         | I4                |
| Tecnoparque is very fashionable and does not fit in many cities. It is not up to us to invest extremely high resources just to test one thousand startups in order to find a successful one. However one thousand companies have already taken the decision to start a business and then shut down due to a lack of adequate public policies.                       | I4                |
| It takes a whole smart city ambience, city for people, a human city in order to turn it into an attractive city.                                                                                                                                                                                                                                                    | I1 and I2         |
| There is no point in having “brains” if people do not want to live in Santa Maria, because the city is ugly, streets with holes and it’s not a good place. The city needs ambience and people have to create that.                                                                                                                                                  | I1, I2, I3 and I7 |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars  
Source: Prepared by the authors (2020).

According to the feelings presented in Table 5, it can be seen that the discussions directly address the factors that involve the city’s technology park. Tecnoparque is located in the industrial district of the city, geographically far from almost all universities. In the opinion of Ipiranga, Freitas & Paiva (2010), the creation of special structures such as technology parks allows for better cooper-

ation between university, government and business. In this respect, according to respondents I2 and I4, the park could have been better planned, starting with its location, as many believe that it should be close to UFSM, which would result in proximity to technological incubators and the network of researchers at the institution.

In addition, some participants (I2 and I4) have little faith in the research with regard to Tecnoparque's profit and success for the city and region. These interviewees also believe that the distance from the universities generates disinterest in the park's target audience: entrepreneurs from startups graduated in incubators. Stam (2015) already stated that the government's role is important, mainly in lowering barriers to new businesses. In addition, public policies are needed to strengthen the entrepreneurial ecosystem and resources for investments. However, the government's performance is limited, causing the leaders of the ecosystem to act in order to contribute to its evolution (Isenberg, 2010).

Furthermore, according to the actors I1, I2, I3 and I7, it is useless to have trained individuals if they prefer to move away from Santa Maria due to several factors. For these actors it is necessary to create a favorable environment in the city. Meanwhile, Júnior et al. (2016, p. 1) stress that one of the ways to meet the needs for increased productivity and job creation is through "policies to support entrepreneurship, especially related to the creation of products and services with greater added value as a result of technological innovation, originating from nascent micro, small and medium-sized companies".

In the following sub-section, in Table 6, the Financial Capital domain is presented, which deals with the sources of capital and credit for carrying out entrepreneurship projects and actions.

#### 4.5 Financial Capital

This domain concerns the structure to attract small investors, angel investors, large equity funds and others (Isenberg, 2013). Thus, Table 6 presents the interviewees' perceptions regarding this issue.

Table 6: Domain – Financial capital

| FINANCIAL CAPITAL                                                                                                                                                                                                           |             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Positive feelings                                                                                                                                                                                                           | Respondents |
| The source of entrepreneurship and technology transfer is another possible source of resources, and interaction with companies turns out to be very attractive because it also removes some dependence from the government. | I2          |
| Negative feelings                                                                                                                                                                                                           |             |
| CDL and CACISM have the financial potential to sponsor an entrepreneur's training, but nowadays that is not done. This would be one of the important guidelines for our city, to promote knowledge for free as well.        | I3 and I6   |
| Most of the companies and entrepreneurs are very concerned because the government source is drying up and the monthly source of HEI is also complicated due to the economic crisis and several other aspects.               | I2          |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars.  
Source: Prepared by the authors (2020).

Based on Table 6, it can be seen this question was mentioned little by the survey

respondents. It is clear that financial capital is one of the relevant points for the development and maintenance of actions in the entrepreneurial ecosystem. According to Isenberg (2013), investment in the financial management of companies for profitability and sustainability is one of the conditions for the entrepreneurial ecosystem to develop. The interviewees' proposals reveal that the search for alternative sources of resources, in order to avoid the dependence of companies and HEIs on government resources, is relevant in this domain.

The results indicate that attention is paid to the qualification of the entrepreneurs because, as mentioned by interviewees II3 and II6, a joint action between the support institutions and educational institutions is relevant for this purpose. The circulation of knowledge in the ecosystem through people who function as "nodes" in the entrepreneurial network is one of the characteristics of the entrepreneurial ecosystem mentioned by Mason & Brown (2014), as this culture of sharing experiences and transferring knowledge strengthens the arrangement. This proposition is in line with the aim of strengthening networks for local entrepreneurship, promoting initiatives as well as encouraging society to include themselves in the scope of new businesses.

#### **4.6 Culture**

According to Santos, Schmidt & Zen (2016), culture is essential for the ecosystem evolution, since it is linked to the strengthening of informal institutions, making entrepreneurs feel safer to undertake a venture and in return, tolerating the possible failures of this process in these environments. The feelings related to this domain are shown in Table 7.

Table 7: Domain – Culture

| CULTURE                                                                                                                                                                                                                                       |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Positive feelings                                                                                                                                                                                                                             | Respondents       |
| The entrepreneurship issue does not need to be at Tecnoparque or in the universities. The city has to be that <i>smart city</i> , so that environment needs to be created.                                                                    | I1                |
| Entrepreneurship cannot stay only in academia or just serving young students.                                                                                                                                                                 | I4                |
| This is the great challenge that more and more students want to undertake, not only from UFSM, but students from all over the region, no matter if they are from high school or higher education.                                             | I2                |
| Negative feelings                                                                                                                                                                                                                             |                   |
| Today, Tecnoparque has 25 companies, facing each other and exchanging experiences, which is the focus of the park. Yet it is still very difficult to have this exchange culture in Santa Maria, we will need many more years for that change. | I7                |
| We need to break with this weakest link that is the conservatism issue existing in our city.                                                                                                                                                  | I1                |
| It is necessary to encourage entrepreneurship in elementary and high school. There is no point in thinking about a specific problem in the present, because we need to think ahead, to the future.                                            | I7                |
| It's difficult to change a kind of culture when the students already attend university, we must begin much earlier and that means childhood.                                                                                                  | I4, I5, I6 and I7 |
| This cultural issue needs to be broken now, which means investing, taking further risks, because today being an entrepreneur is a huge risk. We have 2 major partners, the government and the financial system.                               | I1                |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars

Source: Prepared by the authors (2020).

Table 7 shows that entrepreneurship should not be restricted to the technology park, nor to the actors from the HEIs and the companies in which they operate. On the contrary, as Löbner (2006) suggests, the sooner children have contact with entrepreneurship, the greater the chances of entrepreneurship being reinforced. Thus, even in childhood, children can be aroused and encouraged to think in different ways for career opportunities, problem solving, and other aspects.

It is mentioned by respondents I1, I4, I5, I6 and I7, that environmental actors need to be more open to new initiatives and to take risks with new possibilities, eliminating or lowering barriers that hinder innovation. To Ramos (2020), the greater the applied innovation, the greater the uncertainty regarding its success, which is why, as Suresh & Ramraj (2012) point out, culture is also important to understand failure. In this respect, Santos, Schmidt & Zen (2016), emphasize that culture is fundamental in the evolution of the ecosystem, generating security for entrepreneurs and creating a more error-tolerant environment.

Furthermore, actor I1, points out that one of the obstacles to the further development of the entrepreneurial ecosystem is local conservatism. As highlighted by Isenberg (2011) and Valente, Dantas & Brito (2019), each ecosystem has its own unique characteristics and local historical roots,

which should not be copied or replicated without considering the culture, history and idiosyncrasies typical of the region in which it is located when the intention is to develop a certain ecosystem. Furthermore, it is known that the culture of a place is made up of several elements that are incorporated over time. Therefore, any change that is made requires the insertion of new factors and awareness in a gradual way.

It is also pointed out by actors I4, I5, I6 and I7 that it is difficult to change the culture when a young person is already at university, and the promotion of entrepreneurship should be encouraged at the base (childhood). In the understanding of Singer, Amorós & Arreola (2015), the entrepreneurial content must be inserted in the three levels of education in a consistent manner, aiming to develop an entrepreneurial culture that permeates society as a whole. The focus on early childhood education should be the first contact with entrepreneurship. At elementary and high school there should be business plan competitions and the encouragement of business creation and, in higher education, a model of entrepreneurship connected to the market and presenting students with entrepreneurship as a real career option (Singer; Amorós & Arreola, 2015).

After presenting the six domains of the entrepreneurial ecosystem and their respective negative and positive feelings, the final considerations of the study may now be given.

## 5 FINAL CONSIDERATIONS

In view of the need and importance of understanding the domains of the entrepreneurial ecosystem, positive and negative feelings were analyzed in this study. In the analyses related to support institutions, it was found that, in the interviewees' perception, the field of entrepreneurship needs to be enhanced through investment in technology and in the strengthening of the relationships between the actors.

In relation to the human resources domain, it was found that HEIs are fundamental for the qualification of future entrepreneurs. In the same way, they emphasize the expansion of actions related to actions aimed at the needs of the market, including practical modalities of daily entrepreneurship. The experience of professors in the market, for the interviewees, represents a differential in the training of students, arousing interest in this segment.

The dominance of the ecosystem, called the market, revealed gaps in terms of holding events that provide ideas and innovation, and that can establish new links for the creation of businesses. In this sense, the use of a calendar of events related to entrepreneurship, involving society in general to strengthen the entrepreneurial culture, was recommended.

As public policies are a factor that lowers barriers to new businesses, the study's findings showed that government investment in the field of entrepreneurship remains limited. Therefore, public policies play a crucial role, as they tend to enhance business, as many entrepreneurs need financial assistance from the government to start and expand their businesses.

Regarding financial capital, it was found that there were not many quotes on this item. But they explained that the search for sources of alternative resources is constant to avoid financial dependence on companies, HEIs and the government. As for the culture domain, it was evidenced that early contact with entrepreneurship means a greater likelihood of affinity and correspondence in this respect. The results of the findings are summarized in Table 8 with the area.

Table 8: Summary of the relationship between domains and feelings

| Domains                 | Feelings                                  |                                   |
|-------------------------|-------------------------------------------|-----------------------------------|
|                         | Positive feelings                         | Negative feelings                 |
| Supporting Institutions | 4 feelings<br>(I1, I2, I5 and I6)         | 1 feeling<br>(I1, I2 and I3)      |
| Human Resources         | 7 feelings<br>(I1, I2, I3, I4, I5 and I6) | 5 feelings<br>(I1, I2, I4 and I5) |
| Markets                 | 5 feelings<br>(I1, I2, I4, I5, I6 and I8) | 3 feelings<br>(I1, I2, I5 and I8) |
| Public Policies         | 7 feelings<br>(I1, I2, I3, I4 and I7)     | 1 feeling<br>(I5)                 |
| Financial Capital       | 2 feelings<br>(I2, I3 and I6)             | 1 feeling<br>(I2)                 |
| Culture                 | 5 feelings<br>(I1, I4, I5, I6 and I7)     | 3 feelings<br>(I1, I2 and I4)     |

Key: I1 – Principal; I2 – AGITTEC; I3 – Liga I9; I4 – City Hall; I5 – ADESM; I6 – AJESM; I7 – Tecnoparque; I8 – Stars  
Source: Prepared by the authors (2020).

Additionally, in general terms, the research now on the agenda sought to collaborate with studies in the field of entrepreneurship, in particular, in the domains of the ecosystem. Therefore, it is believed to be theoretically and practically relevant, guiding entrepreneurs towards other specific aspects of the entrepreneurial ecosystem. As limiting factors of the research, the limited number of research participants is evident, due to the fact that some invitations to participate in the research were refused. Suggestions for future studies include a larger sample of participants, aggregation of other data collection techniques, such as observation and document analysis, and the correlation of other topics such as the local productive arrangement and other entrepreneurs from different locations.

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# AUTHORS

## 1. Camila Borges Fialho

Institution: Federal University of Santa Maria (PPGA / UFSM). Santa Maria, Rio Grande do Sul, Brazil.

PhD in Administration from the Federal University of Santa Maria (PPGA / UFSM)

E-mail: ca.fialho@yahoo.com.br

ORCID: <https://orcid.org/0000-0002-4642-3119>

## 2. Vânia Medianeira Flores Costa

Institution: Federal University of Santa Maria (PPGA / UFSM). Santa Maria, Rio Grande do Sul, Brazil.

Professor in Administration at the Federal University of Santa Maria.

E-mail: vania.costa@ufsm.br

ORCID: <https://orcid.org/0000-0002-6099-820X>

## 3. Andrieli de Fatima Paz Nunes

Institution: Federal University of Santa Maria (PPGA / UFSM). Santa Maria, Rio Grande do Sul, Brazil.

Doctoral student in Administration at the Federal University of Santa Maria (PPGA / UFSM).

E-mail: andrieli.nunes@gmail.com

ORCID: <https://orcid.org/0000-0002-4082-929X>

## 4. Beatriz Leite Gustmann de Castro

Institution: Federal University of Santa Maria (PPGA / UFSM). Pato Branco, Paraná, Brazil.

Doctoral student in Administration at the Federal University of Santa Maria (PPGA / UFSM).

E-mail: beatriz\_gustmann@hotmail.com

ORCID: <https://orcid.org/0000-0001-8205-2979>

## 5. Maria Carolina Martins Rodrigues

Institution: Cinturs - University of Algarve City, Faro, Portugal.

PhD in Management with an International Mention from the University of Extremadura, Spain.

E-mail: macarol.rodrigues@gmail.com

ORCID: <https://orcid.org/0000-0003-2575-8611>

## Contribution of authors

| Contribution                                                           | [Author 1] | [Author 2] | [Author 3] | [Author 4] | [Author 5] |
|------------------------------------------------------------------------|------------|------------|------------|------------|------------|
| 1. Definition of research problem                                      | √          | √          | √          | √          | √          |
| 2. Development of hypotheses or research questions (empirical studies) | √          | √          | √          | √          | √          |
| 3. Development of theoretical propositions (theoretical work)          |            |            |            |            |            |
| 4. Theoretical foundation / Literature review                          | √          |            | √          | √          |            |
| 5. Definition of methodological procedures                             | √          | √          | √          | √          | √          |
| 6. Data collection                                                     | √          |            |            |            |            |
| 7. Statistical analysis                                                | √          | √          | √          | √          | √          |
| 8. Analysis and interpretation of data                                 | √          |            | √          | √          |            |
| 9. Critical revision of the manuscript                                 |            | √          |            |            | √          |
| 10. Manuscript writing                                                 | √          |            | √          | √          |            |
| 11. Other (please specify)                                             |            |            |            |            |            |

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