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**The Innovation District of Jaraguá do Sul: a comparative case study to similar
national and international initiatives**

*Plenary 3
"The Future"*

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Executive Abstract

Over the past 50 years, a new complementary urban model has emerged. These are called the "innovation districts", which are physically compact spaces and offer a pleasant environment for the people who inhabit them, based on innovative initiatives. The innovation districts are a tool with geographical expression that seeks to make urban spaces important places to work, live and have fun. Therefore, several places in the world have the concept of having, in their municipalities, districts of innovation. As an example for the analysis, we have the state of Santa Catarina - Brazil, which since 2015, has been developing strategies for the city of Jaraguá do Sul, located in the north of the state. Thus, this study presents the strategies developed from the signing of an agreement between the Industrial Commercial Association of Jaraguá do Sul and the Jourdan Institute and the Municipal Government for the creation of the Innovation District.

Abstract

Over the past 50 years, a new complementary urban model has emerged. These are called the "innovation districts", which are physically compact spaces and offer a pleasant environment for the people who inhabit them, based on innovative initiatives. The innovation districts are a tool with geographical expression that seeks to make urban spaces important places to work, live and have fun. Therefore, several places in the world have the concept of having, in their municipalities, districts of innovation. Internationally, Barcelona and Medellín appear as examples of the theme. However, in Brazil, there are still few initiatives found. As an example for the analysis, we have the state of Santa Catarina - Brazil, which since 2015, has been developing strategies for the city of Jaraguá do Sul, located in the north of the state. Thus, this study presents the strategies developed from the signing of an agreement between the Industrial Commercial Association of Jaraguá do Sul and the Jourdan Institute and the Municipal Government for the creation of the Innovation District. As for the methodological procedures, this study is characterized as a case study, since it deals specifically with the Innovation District of Jaraguá do Sul and its documents, and several of the data presented and discussed were selected together with the documentation of the Municipal Government and the Jourdan Institute of Research and Planning for the Urban and Economic and Sustainable Development of Jaraguá do Sul. The bibliographic search was also pertinent for the collection of data about international initiatives similar to those of the Innovation District of Jaraguá do Sul. The Innovation District Sector was created through the Complementary Law 171/2016 and is contextualized through the Technical Note 43 provided by the Jourdan Institute. With a proposal of city for people, the Innovation District of Jaraguá do Sul has an area of 12,535 km² which represents 9,26% of the urban area of the city. The Innovation District is supported by the macro guideline of the municipality, called Jaraguá Ativa, which presents, beyond the District, the Entrepreneurial Innovation program. Its region occurs in the boroughs of Água Verde, Rau, Três Rios do Sul, Estrada Nova and part of Tifa Monos. Specifically addressing the Innovation District, it can be said that the main objective is to link, expand and develop an innovation environment, spanning several points of the city, generating new businesses and companies, and thus bringing employment, income and wealth for Jaraguá do Sul in the areas that the city has a considerable vocation, for example: Electronics, Manufacturing of Clothing, Metal-mechanics, Food, and Information Technology and Communication. It can be said that the creation of strategies focused on the interaction between

governments, academies and companies is something quite present in the city, consequently, also because of the union of these three actors, Jaraguá do Sul is a municipality that show several actions of innovation. There are four main contributions that led to the definitions of the Innovation District: i) the economic vocation must be respected: there the best opportunities and possibly the great value proposition of other innovation environments can be found, such as the Technological Park of Jaraguá do Sul; ii) there must be consolidation of academic assets (intellectual capital) so that scientific and technological contributions can be developed in the region; iii) there should be consolidation of industrial assets which would generate new business demands and serve as attractiveness to new innovative companies; iv) a masterplan of the Technological Park and the surrounding region should be consolidated, with a connected road system, the densification in the central areas of the park, the forecast for the installation of new industries, the need to install public and private services and the installation of a robust data communication system. The Innovation District of Jaraguá do Sul also presents the premises for socioeconomic planning, which are: i) shortening distances through technology; ii) to train creative and innovative citizens and professionals with a vision for the new economy and a new global reality; iii) attract new investments that require low labor (low social impact); iv) use highly skilled, preferably local labor; v) attract enterprises that require little physical space and are "green" (low environmental impact); vi) attract enterprises that have high added value and higher return on taxes paid (high economic impact) and; vii) attract enterprises that belong to productive chains with high growth rates. Considering the comparison with the international strategies, it was noticed that other countries also use specific areas in the cities for installation of innovation and the revitalization of areas generating employment and income are the result of these initiatives and are highly noticeable. In Barcelona, Spain, the 22@Barcelona project has been taking the stage when the subject is urban revitalization throughout its 10 years of implementation. With approximately 200 hectares, the industrial area of Poblenou has become an innovative productive district and currently provides more than three million square meters of modern, technological and flexible spaces in the center of Barcelona for the concentration of knowledge-intensive activities. Medellín, Colombia, followed the same steps as the 22@Barcelona project, when considering the revitalization of areas, but different from 22@, Medellín revitalized marginalized areas through the implementation of public measures such as cultural spaces and modern public transportation, and currently enjoys the recognition as the world's most innovative city.

KEY-WORDS: Innovation District; innovation, Jaraguá do Sul.

Introduction

All over the world, towns and cities are challenged to compete to obtain the best models of sustainable development. In 2010, 50% of the world population lived in urban areas and that amount may reach 75% until 2050¹²¹. According to the United Nations (UN), two thirds of the world population lived in rural areas in 1945. In 2000, the population distribution had changed, and half of the world population lived in urban areas. Besides, it is expected that two thirds of the world population – around six billion people – will be living in urban areas in 2050. Due to that growing population, it is necessary that the governments discover how to create future spaces for the citizens, considering that growing population has been indicated as one of the main problems concerning both sustainability and development reasons¹²².

Some studies draw attention to a better utilization of the urban areas. In that context, policies for economic development are based on the construction of advanced infrastructures¹²³. Not only state bodies engage in that initiative, but the civil society, universities and enterprises also take part in that movement for the cities intelligence in a context which embraces the concept of the Triple Helix¹²⁴.

Nowadays, the international competitiveness is driven by the innovation capacity of the cities. In order to reach that capacity, the cities are going through fundamental changes. With rapid industrialization, small cities become metropolises and can find a new place in the global stage by providing new places for companies and groups¹²⁵ and big cities need to be reinvented. Concerning that, many initiatives have been found in several parts of the world, like in Barcelona, Bogotá and Medellín.

¹²¹ BAKICI, T., ALMIRALL, E. & WAREHAM, J. (2012). **A Smart City Initiative: the Case of Barcelona**: Springer Science.

¹²² VAN BELLEN, H. M. (2005). **Indicadores de sustentabilidade**: uma análise comparativa. Rio de Janeiro: Editora FGV, 253 p.

¹²³ COMPANS, R. (2011). O paradigma das global cities nas estratégias de desenvolvimento local. **Revista Brasileira de Estudos Urbanos e Regionais**, Local de publicação (editar no plugin de tradução o arquivo da citação ABNT).

¹²⁴ ETZKOWITZ, H. & LEYDESDORFF, L. (2000). The dynamics of innovation: from National Systems and “Mode 2” to a Triple Helix of university-industry-government relations. **Research Policy**, v. 29, Elsevier Science B.V.

¹²⁵ BAKICI, T., ALMIRALL, E. & WAREHAM, J. (2012). **A Smart City Initiative: the Case of Barcelona**: Springer Science.

In Brazil, the Innovation Districts – inspired by regions like Catalonia, Portland and Singapore – present more and more incidences. Thus, as examples of those initiatives in Brazil, it is possible to name the strategies in Rio de Janeiro, Recife and Florianópolis. However, important projects to stablish strategic areas of innovation have been developed not only in capitals. Thus, this study aims at presenting the case of Jaraguá do Sul (in Santa Catarina state) which launched their Innovation District in 2015.

Methodological Procedures

This paper is a case study, for it examines specific information about the Innovation District of Jaraguá do Sul. It is also documental, being the data collected from documents of the municipal government of Jaraguá do Sul and of Jourdan Institute of Research and Planning for the Urban and Economic Sustainable Development of Jaraguá do Sul. Besides, a bibliographical research was carried out, mainly at Capes Portal to bring similar initiatives to base the project information and to enable the data discussion¹²⁶.

The municipality of Jaraguá do Sul

The deployment in 1876 of the "Jaraguá Establishment" by the engineer and honorary colonel of the Brazilian Army, Emilio Carlos Jourdan, marks the year of the foundation of Jaraguá do Sul. Jourdan was in charge for the demarcation of the lands received by Count d'Eu as a dowry by his marriage to Princess Isabel, heiress of the throne of the Empire of Brazil. "Jaraguá Establishment" consisted of a mill to produce sugar and a sugarcane kind of brandy¹²⁷.

The beginning of the industrialization of the municipality occurred after the implantation of the Railroad in 1913 and the "new immigrant profile" coming to Jaraguá do Sul after the end of World War I. They were from the new industrialized European society and had enough capital to invest in their own business¹²⁸. From 1950 on, the industry gains the definitive impulse, after the implementation of power transmission lines between the thermoelectric power plant of Capivari de Baixo in the south of Santa Catarina State and Jaraguá do Sul.

¹²⁶ GODOY, A. S. (1995). Introdução a pesquisa qualitativa e suas possibilidades. **Revista de Administração de Empresas**, v. 35, n. 2.

VERGARA, S. C. (2000). **Projetos e relatórios em administração**. São Paulo: Atlas.

PEREIRA, M. G. (2003). **Epidemiologia: Teoria e Prática**. Rio de Janeiro: Koogan.

¹²⁷ JARAGUÁ DO SUL. (2010). Plano Local de Habitação de Interesse Social de Jaraguá do Sul. (pp 33). Disponível em: <http://www.jaraguadosul.sc.gov.br/downloads.php?id=10791>. Web. 27 Jun 2016.

¹²⁸ JARAGUÁ DO SUL. (2010). Plano Local de Habitação de Interesse Social de Jaraguá do Sul. (pp 36). Disponível em: <http://www.jaraguadosul.sc.gov.br/downloads.php?id=10791>. Web. 27 Jun 2016.

From the 1960s on, the municipality gained momentum with the implementation of new assets which solidified the economic position found nowadays. Among the most diverse initiatives are:

- 1961 – Foundation of WEG
- 1968 – Creation of CentroWEG
- 1973 – FERJ – Fundação Educacional Regional Jaraguense
- 1975 - SENAI
- 1984 - SENAC
- 1992 – SENAI – Creation of Eletro-eletronic and Metal-Mechanic Blocks.
- 1994 - IFSC - Campus Jaraguá do Sul
- 1996 – First Technical Courses at SENAI
- 1998 – Partnership between FERJ/SENAI
- 2000 – FERJ – Centro Universitário de Jaraguá do Sul
- 2003 - Faculdade Tecnologia SENAI
- 2003 –WEG Museum of Sciences and Technology
- 2004 - JaraguaTEC Incubator
- 2004 – IESC - Instituto Educacional Santa Catarina Faculdade Jangada
- 2008 – Faculdade de Tecnologia SENAC
- 2008 – Jaraguá do Sul first wins the tittle of “Capital Catarinense da Inovação Tecnológica”
- 2010 – IFSC - Campus Geraldo Werninghaus
- 2012 – FERJ/Católica de SC
- 2013 – Approval of the Innovation Center
- 2014 – The construction of the Innovation Center of Jaraguá do Sul is begun.
- 2014 – Study about the Economic Vocation of Jaraguá do Sul – Fundação Certi
- 2015 – The construction of Instituto Senai de Tecnologia is begun.
- 2015 – Signature of an agreement by ACIJS, Jourdan Institute and the Municipal Government of Jaraguá do Sul for the stablishment of the Innovation District
- 2016 – The Macro zoning Law creates the Special Sector of Innovation
- 2016 – The Masterplan design of the Innovation District is begun
- 2016 – The Law of the Stablishment of the Innovation District is created

The figures show that these initiatives led the municipality from an agricultural colony to the third best industrial park of Santa Catarina with a diversified and solid industrial matrix in the electro-electronic, metal-mechanic, textile and food sectors. The numbers also show that the city has the eighth population of the state (estimated population in 2015 of 163,735, according to data from the Brazilian Institute of Geography and Statistics (IBGE)¹²⁹, the fifth state Gross Domestic Product (GDP) and the only municipality among the ten largest economies to present a surplus in trade balance of international business¹³⁰.

The context of the Innovation District of Jaraguá do Sul and the relationship with other realities

Jaraguá do Sul has been configured as a municipality that presents innovation actions. However, with important industries such as metal-mechanics and textiles ones, there are large companies whose activities are mainly industrial. With the knowledge-based economy, many municipalities promote actions to realign their position and then make gains in competitiveness and developmental terms guided by innovation and entrepreneurship.

However, it is evident that governments alone do not have the potential to solve all the problems faced by society. In the case of Jaraguá do Sul, the municipal government does not have a large area to host the most diverse activities in favor of innovation and entrepreneurship, such as those existing in innovation environments such as parks or innovation districts. One of the strategies used in different regions is the articulation among the actors of the triple helix¹³¹.

In this sense, it may be claimed that Jaraguá do Sul has been creating strategies that focus on the interaction among the government, the academy and companies. In the context of the innovation actions of the municipality, the public sector creates conditions for the attraction of good assets such as universities, research and prototyping laboratories, incubation areas, coexistence areas, public services, public parks, leisure areas and infrastructure. The private sector is responsible for the investment of new assets in existing private areas such as: business condominiums (industrial and services), residential condominiums for mixed use, commercial and leisure places, restaurants, hotels and other research

¹²⁹ IBGE. (2015). Disponível: <http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=4208906>.

¹³⁰ INSTITUTO JOURDAN. (2014). **NOTA TÉCNICA N° 0022**: Jaraguá do Sul. <http://www.jourdan.org.br/wp-content/uploads/2014/12/NT-0022-Estudo-Balança-Comercial-2013.pdf>. Web. 01 May 2017

¹³¹ ETZKOWITZ, H. & LEYDESDORFF, L. (2000). The dynamics of innovation: from National Systems and “Mode 2” to a Triple Helix of university-industry-government relations. **Research Policy**, v. 29, Elsevier Science B.V.

laboratories. Likewise, the private sector can contribute to the demands for new products and services and thus trigger and accelerate the process¹³².

Thus, in 2015, the municipality presented a proposal of city for people driven by the signing of an agreement among the Industrial & Commercial Association of Jaraguá do Sul, the Jourdan Institute and the Municipal Government to create the District of Innovation. The Innovation District sector was created through the Complementary Law No. 171/2016 and is contextualized through the Technical Note 43 provided by the Jourdan Institute¹³³.

The region of the Innovation District of Jaraguá do Sul includes the boroughs of Água Verde, Rau, Três Rios do Sul, Estrada Nova and part of Tifa Monos. The Special Sector Innovation District "is an urban area that seeks to stimulate the implementation of entrepreneurial activities and ventures" that meet the following premises:

- I - Sustainability - balance of economic, environmental and social aspects;
- II - Innovation - introduction of novelty or improvement in the productive or social environment that results in new products, processes or services;
- III - Aesthetic reference in architecture and landscaping - complementation of the innovative identity of the place through the aesthetic and constructive standards of the buildings¹³⁴.

The District of Innovation has an area of 12,535 km², which represents 9.26% of the urban area of the municipality, and it is supported by the macro guideline of the municipality, called Jaraguá Ativa, which presents the Entrepreneurial Innovation Program along with the District itself. Other countries also assign specific areas in the cities to have a congregation of actions in innovation, revitalizing some areas and enabling the generation of employment and income. In the European Union, innovation is in the center of Lisbon, for example. Technology, not only shapes the competitive advantage of companies, but also impacts the economic growth and competitiveness of countries, regions and cities¹³⁵.

¹³² INSTITUTO JOURDAN. (2015). **NOTA TÉCNICA Nº 0043**: Jaraguá do Sul. Volume 1. <http://www.jourdan.org.br/wp-content/uploads/2015/12/NT-0043-Parque_Tec-Distrito-de-Inova%C3%A7%C3%A3o-Revisao-13nov15.pdf>. Web. 27 Jun 2016.

¹³³ Instituto Jourdan. At: <http://www.jourdan.org.br/>

¹³⁴ JARAGUÁ DO SUL. (2016). Lei Complementar nº 171/2016. Disponível em: <https://leismunicipais.com.br/a1/sc/j/jaragua-do-sul/lei-complementar/2016/18/173/lei-complementar-n-173-2016-altera-os-anexos-iii-e-iv-da-lei-complementar-municipal-n-171-2016-de-24-de-marco-de-2016-que-regulamenta-o-macrozoneamento-municipal-parte-integrante-do-plano-diretor-de-organizacao-fisico-territorial-de-jaragua-do-sul-e-da-outras-providencias>>. Web. 27 Jun 2016.

Other examples around the world are associated with Barcelona, which turns the industrial land of Poblenou into an innovative productive district with excellent infrastructure, offering more than three million square meters of modern, technological and flexible spaces in the center of Barcelona for strategic concentration of knowledge-intensive activities: the 22@ project. The 22@Barcelona district is in an area of approximately 200 hectares and it stands out in the international scene, presenting expressive figures throughout its 10 years.

In the case of Barcelona, indicate that the project proposal emerged both as a combination of urban regeneration and as an economic promotion strategy aimed at increasing competitiveness¹³⁶. Specifically addressing the Innovation District of Jaraguá do Sul, one can say that the main objective is to link, expand and develop an innovation environment that encompasses several points of the city, to generate new companies and businesses, and consequently employment, income and wealth to the municipality.

In general, as indicated in the Technical Note 43, four main contributions have led to the definitions of the Innovation District of Jaraguá do Sul, which are associated with: i) economic vocation, ii) consolidation of academic assets, iii) consolidation of industrial assets, and iv) the Masterplan consolidation.

Considering the city's economic vocation, Jaraguá do Sul indicates that it must be respected. CERTI Foundation study, held in 2014 during the initial discussions of the Innovation District, considered five prominent vocations in Jaraguá do Sul, namely: Electronics, Manufacturing of Clothing, Metal-mechanics, Food, and Information Technology and Communication (ICT)¹³⁷. According to the authors, from the available courses and existing research groups, the potential of Jaraguá do Sul and its region is related to Electronics / Mechatronics and Industrial Automation. The best opportunities are in those areas and possibly this will be the core of value propositions of other innovation environments, such as the Technological Park of Jaraguá do Sul - another initiative that is being carried out in the municipality and is located within the District.

As for the consolidation of academic assets, it is evidenced that intellectual capital must be better worked in the region for scientific and technological contributions to be developed. In search for higher education institutions, Jaraguá do Sul currently has 13 Institutions, most of which are privately owned.

¹³⁵ RICKEN, B. & MALCOTSIS, G. (2011). **The Competitive Advantage of Regions and Nations**: Technology Transfer Through Foreign Direct Investment: Gower Publishing. 231 p.

¹³⁶ Pareja-Eastaway, M., & Piqué, J. M. (2011). Urban regeneration and the creative knowledge economy: The case of 22@ in Barcelona. *Journal of Urban Regeneration & Renewal*, 4(4), 319-327.

¹³⁷ CERTI, Fundação. (2014). *Parque Tecnológico Distrito de Inovação de Jaraguá do Sul*. Florianópolis. (pp. 17).

According to the Ministry of Education data, the institutions of higher education present in the municipality of Jaraguá do Sul are: Centro Universitário – Católica de Santa Catarina em Jaraguá do Sul, Centro Universitário de Maringá (UNICESUMAR), Centro Universitário Internacional (UNINTER), Faculdade Anhanguera Jaraguá do Sul (FATEJA), Faculdade de tecnologia SENAC Jaraguá do Sul, Faculdade de Tecnologia SENAI Jaraguá do Sul (FATEC), Faculdade Jangada (FJ), Fundação Universidade do Estado de Santa Catarina (UDESC), Instituto Federal de Educação, Ciência e Tecnologia de Santa Catarina (IFSC), Universidade Anhanguera (UNIDERP), Universidade da Região de Joinville (UNIVILLE), Universidade Norte do Paraná (UNOPAR) and Universidade Paulista (UNIP) (MEC, 2016)¹³⁸.

Although the academy is present in Jaraguá do Sul, the creation of postgraduate courses is still an evident necessity. There are 197 Postgraduate Programs in the state of Santa Catarina. However, in a search by municipality it is possible to observe that eight Programs are available in Jaraguá do Sul, all at the level of specialization. More accurate data considering Master and PhD courses were not located. Thus, actions of innovation and entrepreneurship must still have a greater impact in these environments to foster a generation of innovators and creative people. In addition, due to the economic demand in Jaraguá do Sul, people linked to the industrial area are still a priority.

When associating the need to consolidate the industrial assets that generate new business demands and serve as attractiveness for new innovative companies, it could be said that the District bets on the attraction of innovative ventures. Moreover, even traditional companies may require innovations, whether they are processes, products, services or marketing¹³⁹.

For the Organization for Economic Co-operation and Development¹⁴⁰, "innovation is the implementation of a new or significantly improved product (good or service), or a process, or a new marketing method, or a new organizational method in business practices, in the organization of the workplace or in external relations". Innovation as a process of transforming opportunities into new ideas and putting them into practice to be widely used¹⁴¹. The innovation concept is based on four types of

¹³⁸ The name of the institutions were kept in Portuguese.

¹³⁹ OCDE. Manual de Oslo. (2005). Diretrizes para coleta e interpretação de dados sobre inovação. 3. ed. Brasília: Finep.

¹⁴⁰ OCDE. Manual de Oslo. (2005). Diretrizes para coleta e interpretação de dados sobre inovação. 3. ed. Brasília: Finep. (pp. 55).

¹⁴¹ Tidd, J., Bessant, J., & Pavitt, K. (2001). Innovation management. Willey, New York.

innovation: product, process, marketing or organizational¹⁴². Regardless of the type of innovation, with the implementation of the Innovation District of Jaraguá do Sul, it has been believed that the necessary synergies will begin to occur among the different players so that innovation can be observed, independently of the sector.

Technical Note 43 states that the industrial vocation is likely to boost these new industries based on the innovation produced by the interaction of the triple helix already settled. In order to benefit from all aspects of that interaction, the physical proximity among the industries plays a fundamental role in the exchange of knowledge. Thus, it is desired that the industries do not stay in different places of the municipality, but rather concentrate in the area of the Innovation District. The proximity and the delimitation of the physical space is fundamental for they generate sense of belonging to an innovative region as a district of innovation.

Regarding the need of the masterplan for the Technological Park and the surrounding region, the municipality is currently working to consolidate the driving documents which should consider a connected road system, the densification in the central areas of the park, the forecast for new industries, the need to install public and private services and the installation of a robust data communication system. The structural changes that make life easier for people are identified in regions with similar proposals to Jaraguá do Sul, such as Porto Maravilha in Rio de Janeiro and Porto Digital in Recife. Internationally, there are the District of Innovation 22@Barcelona, in Barcelona, and the Route of Medellín in Colombia.

The Innovation District of Jaraguá do Sul is regulated by Technical Note 43 which presents the premises for socioeconomic planning as follow:

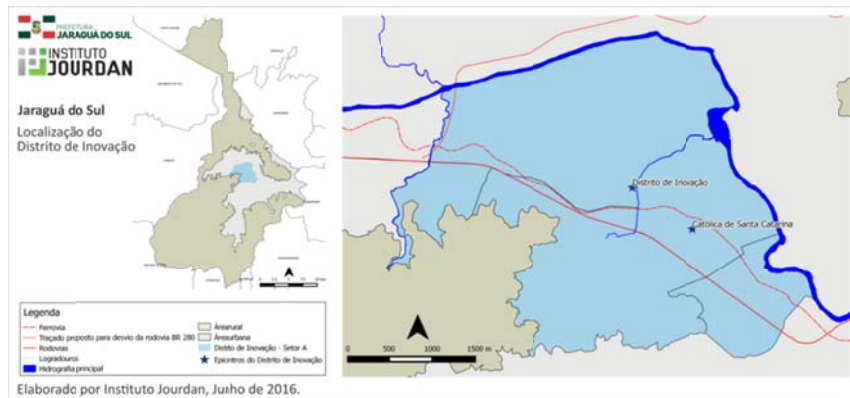
- to shorten distances through technology;
- to train creative and innovative citizens and professionals with a vision for the new economy and a new global reality;
- to attract ventures which require low labor (low social impact);
- to use highly skilled, preferably local labor;
- to attract ventures which require little physical space and are "green" (low environmental impact);
- to attract ventures which have high added value and higher return on taxes paid (high economic impact) and;

¹⁴² OCDE. Manual de Oslo. (2005). Diretrizes para coleta e interpretação de dados sobre inovação. 3. ed. Brasília: Finep.

- to attract ventures which belong to productive chains with high growth rates.

Thus, the region considered for the definition of the district focuses on two important sources of knowledge in the region: Centro Universitário Católica de Santa Catarina in Jaraguá do Sul and the Innovation Center, as shown in Picture 1.

Picture 1 – Area of Jaraguá do Sul District of Innovation



Source: Jourdan Institute.

In addition to Centro Universitário Católica de Santa Catarina and the Innovation Center, other environments that promote innovation, knowledge and / or entrepreneurship were also considered to define the allocation area of the Innovation District, being:

- JaraguáTec – Incubator of companies whose purpose is the formation of an environment that aims at stimulating and protecting the development of technology-based or light manufacturing micro and small industrial or service businesses. Jaraguá-Tec supports new businesses for a limited period, jointly implementing mechanisms that transform university research results into products and services. Picture 2 illustrates Incubadora Jaraguá-Tec.

Picture 2 - Incubadora Jaraguá-Tec



Source: <http://www.jaraguattec.org.br/jaraguattec-blog/>.

- Centro UP – it seeks to bring together enterprises around an exclusive theme, for instance, the automation of cities. In Centro UP, the most diverse products will be generated to promote the sustainability and the urban development of the municipalities. Picture 3 shows a digital plant of Centro UP.

Picture 3 – Digital plant of Centro UP



Source: Instituto Jourdan. at: http://www.jourdan.org.br/wp-content/uploads/2015/12/NT-0043-Parque_Tec-Distrito-de-Inova%C3%A7%C3%A3o-Revisao-13nov15.pdf

- Instituto SENAI de Tecnologia in Electomechanic – will have applied research guided by their technological platforms, focused on the development of electrical and electronic equipment for the generation and distribution of renewable energies, electric traction and energy efficiency. It will meet demands for consulting in systems of electric power generation from sustainable sources and energy efficiency, for research, development and innovation of electric traction systems, electric power generation systems, and drive of industrial machinery and equipment, providing greater efficiency, economy, safety and competitiveness for industry. Picture 4 illustrates the Instituto SENAI de Tecnologia.

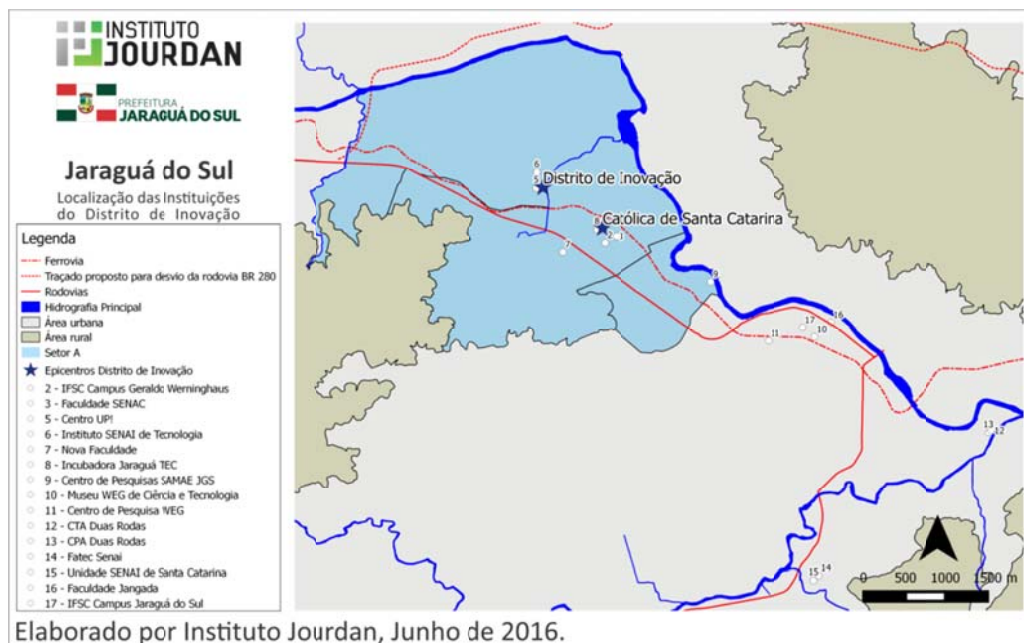
Picture 4 – Digital plant of Instituto SENAI de Tecnologia



Source: FIESC. http://www.jourdan.org.br/wp-content/uploads/2015/12/NT-0043-Parque_Tec-Distrito-de-Inova%C3%A7%C3%A3o-Revisao-13nov15.pdf

In addition to those institutions already mentioned which will be part of the District, other spaces can be named, such as graduation institutions as Instituto Federal de Santa Catarina, Faculdade SENAC, Fatec-SENAI, SENAI of Santa Catarina, Faculdade Jangada and IFSC-Jaraguá do Sul. The future Research Center of Serviço Autônomo de Água e Esgoto of Jaraguá do Sul - SAMAE JGS, the company responsible for water supply and sewage treatment in Jaraguá do Sul - will have their plants there as well. Some private institutions to be settled in the Innovation District of Jaraguá do Sul are WEG Research Center, Duas Rodas CTA (Center of Food Technology) and Duas Rodas CPA (Center of Food Research). Picture 5 shows where each one will be located in the Innovation District of Jaraguá do Sul.

Figura 5 – Location of institutions in the Innovation District of Jaraguá do Sul.



Source: Jourdan Institute.

According to Technical Note 43, most of the innovation assets are in the proposed district area, as indicated above. The main habitats of innovation of the municipality are found in that area, which already creates a synergy for the actions of innovation and entrepreneurship by itself. The remaining assets are close to the railroad and the cycle lane, except for the research and innovation centers of Duas Rodas company that directly serves the company. Thus, it is evident that the demarcation of the territory is fundamental, since it creates a region with institutions focused on innovation.

Barcelona also carried out a mapping on knowledge-based and industrial activities. According to the information of the Project, Barcelona differs from traditional revitalizations, since they present a precise order of the territory and its possibilities of transformation.

The mapping of existing spaces in an innovation district region is already observed in other initiatives. In Brazil, for example, Porto Alegre and Florianópolis map their existing points and consider that information in their revitalizations. Both Porto Alegre and Florianópolis focus their mapping on services and both initiatives present an interactive tool for the use of the population. Both initiatives focus on the creative economy context, but Florianópolis, as well as Jaraguá do Sul, presents information on innovation habitats, for example, and other important companies focused on technology and innovation.

Unlike other initiatives such as the Centro Sapiens and Porto Maravilha, which emphasizes other areas related to the creative economy such as tourism, gastronomy and design, the proposal of Jaraguá do Sul focuses mainly on direct links to entrepreneurs of the smart specialization of the municipality. According to information in Technical Note 43, the municipality will designate its District of Innovation in urban premises based on the needs of the creative economy. However, concrete actions that stimulate the creative economy were not evidenced in the note. In addition, it is also evidenced that the culture of the municipality is for industrial actions. Even if the creative economy adds value to the traditional economy, actions that demonstrate these opportunities will still need to be intensively carried out in the region.

The attraction of people and their distribution considering the vibrant society¹⁴³. The search for places with more urban amenities, such as those with better climatic conditions, lower levels of crime, better leisure opportunities, lower levels of pollution, less traffic jams, and better housing conditions are more decisive for qualified, higher educated people¹⁴⁴.

¹⁴³ Florida, R. (2002). The economic geography of talent. *Annals of the Association of American geographers*, 92(4), 743-755.

Florida, R. (2002). Bohemia and economic geography. *Journal of economic geography*, 2(1), 55-71.

Florida, R. (2005). *Cities and the creative class*. Routledge.

¹⁴⁴ GOLGHER, A. B. (2008). As cidades e a classe criativa no Brasil: diferenças espaciais na distribuição de indivíduos qualificados nos municípios brasileiros. *R. bras. Est. Pop.*, São Paulo, v. 25, n. 1, p. 109-129.

Golgher, A. B. (2004). Fundamentos da migração. *Belo Horizonte: UFMG/Cedeplar*. (Texto para discussão nº 231).

For the retention of talents, the literature indicates that the most qualified professionals look for regions where they could not only work and live, but also have leisure activities and have fun. In Florianópolis, for example, the Bohemian Index is a highlight¹⁴⁵. Other important indexes such as that of Smart Cities place Florianópolis as the seventh city in the Brazilian ranking¹⁴⁶. The Endeavor index which measures the best cities to undertake businesses, rates Florianópolis in second position, only behind the city of São Paulo¹⁴⁷. However, data from Jaraguá do Sul still do not appear in the main rankings of entrepreneurship and innovation. But actions in the Innovation District could boost the visibility of the municipality as well as promoting a synergic movement for the development of a creative economy in the municipality.

Final Remarks

The Innovation District of Jaraguá do Sul was launched in 2015 as a municipal project and is supported by the triple helix. It presents a project of city for people with an area of 12,535 km² which represents 9.26% of the area of the municipality.

The Innovation District of Jaraguá do Sul is supported by the macro guidelines of the municipality, called Jaraguá Ativa, which also presents the Entrepreneurial Innovation Program and is established by Technical Note 43 of the Jourdan Institute of the Municipality of Jaraguá do Sul. Specifically addressing the Innovation District, it can be said that the main objective is to connect, expand and develop an innovation environment, which encompasses several points of the city, to generate new companies and businesses, and consequently employment, income and wealth for Jaraguá do Sul. The Innovation District sector was created through Complementary Law no. 171/2016 and covers the boroughs of Água Verde, Rau, Três Rios do Sul, Estrada Nova and part of Tifa Monos. The Innovation District Special Sector "is an urban area that seeks to stimulate the implantation of ventures and entrepreneurial activities" which meet the premises of sustainability, innovation and aesthetic reference in architecture and landscaping.

Technical Note 43 also indicates four main contributions to guide the Innovation District: i) the economic vocation must be respected. It is in the economic vocation of the municipality that there are the best opportunities for development and it is the great value proposition of the Technological Park of

¹⁴⁵ GOLGHER, A. B. (2008). As cidades e a classe criativa no Brasil: diferenças espaciais na distribuição de indivíduos qualificados nos municípios brasileiros. R. bras. Est. Pop., São Paulo, v. 25, n. 1, p. 109-129.

¹⁴⁶ RANKING CONNECTED SMART CITIES. (2016). Disponível: <http://midias.folhavoria.com.br/files/2016/06/ranking-csc-2016-vfinal.pdf>.

¹⁴⁷ Endeavor Brasil. (2015). Índice de Cidades Empreendedoras. Disponível: [https://rdstation-static.s3.amazonaws.com/cms%2Ffiles%2F6588%2F1449751848Relatorio Digital Indice Cidades Empreendedoras Spread.pdf](https://rdstation-static.s3.amazonaws.com/cms%2Ffiles%2F6588%2F1449751848Relatorio%20Digital%20Indice%20Cidades%20Empreendedoras%20Spread.pdf)

Jaraguá do Sul; ii) there should be the consolidation of academic assets (intellectual capital) so that scientific and technological contributions are developed in the region; iii) there should be the

consolidation of industrial assets which generate new business demands and serve as attractiveness to new innovative companies; iv) a masterplan of the Technological Park and the surrounding region should be consolidated, with a connected road system, the densification in the central areas of the park, the forecast for the installation of new industries, the need to install public and private services and the installation of a robust communication system. This study also adds the need to promote actions and environments to attract and retain creative people.