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EMERGENCE D'UNE DEMARCHE TERRITORIAL TRIPLE HELICE DURANT LE CYCLE DE VIE D'UN PROJET D'INVESTISSEMENT DIRECT ETRANGER : LE CAS HT MICRON AU BRESIL.

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Thématique : Stratégies d'internationalisation dans les pays émergents

Résumé

Cette recherche se propose d'analyser et de comprendre le processus du management territorial lors de la localisation d'un investissement direct étranger direct (IDE) dans un pays émergent. L'étude de cas est liée à l'implantation d'une société sud-coréenne de l'industrie des semi-conducteurs au travers d'une joint-venture avec un groupement d'entreprises brésiliennes. Les relations entre l'université, les entreprises et les autorités gouvernementales sont analysés et identifiés en termes de dispositifs de soutien et d'attractivité territoriale. Cette recherche qualitative sur un cas unique est basée sur un matériau constitué de sources secondaires publiques et a pour but de reconstituer le processus. A l'aide du cadre d'analyse « Strategy as Practice » nous montrons comment, lors du cycle de vie du projet, le processus mis en œuvre conduit à l'émergence d'un modèle de « triple hélice territoriale » émergeant de la pratique. Notre proposition est que ce modèle pourrait être maintenant utilisé par les pays émergents afin de promouvoir le développement économique durable dans les industries de haute technologie.

Mots clés : investissement direct étranger (IDE), Strategy as Practice, Aménagement du territoire, Triple hélice.

A emergência de uma abordagem triplice hélice territorial durante o ciclo de vida de um projeto de investimento externo direto : O Caso da HT Micron no Brasil

Área Temática : Estratégias internacionais em países emergentes

Resumo

A presente pesquisa tem como objetivo compreender e evidenciar praticas estratégicas de gestão territorial para a atração de um investimento externo direto (IED) em um país emergente. O estudo de caso está relacionado com o processo de implantação de uma joint-venture no setor de semicondutores entre uma empresa sul-coreana uma empresa brasileira podemos considerar o grupo parit como uma empresa. As relações interorganizacionais entre universidade, empresa e autoridades governamentais são analisadas em termos de apoio e suporte à atratividade territorial. A pesquisa usa uma abordagem qualitativa, a partir do uso de fontes secundárias de dados públicos para reconstituição do processo. A partir do estudo do ciclo de vida do projeto de IED, utilizando-se o quadro de análise « strategy as practice » identificou-se que uma estratégia relacional do tipo hélice tríplice, emergiu da prática. Ou seja, apresenta-se um modelo de tríplice hélice territorial que pode servir de exemplo para países emergentes a fim de promover o desenvolvimento econômico a partir de indústrias de alta tecnologia.

Palavras-Chave : Investimento Externo Direto (IED); Estratégia Como Prática (SAP) ; Gestão Territorial, Triplice helice.

Emergence of a territorial triple helix approach during the life cycle of a foreign direct investment project: the HT MICRON case in Brazil.

Abstract

This research is conducted in order to analyze and understand the territorial management for the localization of a foreign direct investment (FDI) in an emerging country. The case study is related to the process of implementation of a South-Korean company involved in the semiconductor industry through a joint venture with a Brazilian one. The relations between university, companies and governmental authorities are analyzed and identified in terms of supporting the territorial attractiveness. This qualitative and single case research use secondary public sources as materials. The management in a "strategy as practice" way of the FDI project life cycle leads to a "territorial triple helix" model that could be now used by emerging countries in order to promote sustainable economic development in high tech industries.

Keywords : Foreign Direct Investment (FDI), Strategy as practice, territory management, triple helix.

1. Introduction: attraction and localization of FDI in emerging country

To support their industrialisation efforts, emerging and developing countries have acquired technologies from developed countries by means of a variety of transfer mechanisms. However, if such practice seems to stimulate growth in the short-term, it seems to be less adapted within the framework for sustainable economic growth. Among the principal results reported in the literature includes organizational and institutional fragmentation. Thus a lack of interaction between businesses and institutions such as for example, universities can be noted. Governments of these emerging nations have more of a passive role in the creation and sharing of knowledge. Also, many of these countries do not have the necessary infrastructures to absorb technologies acquired from abroad (Saad, Zawdie, & Malairaja, 2008).

The competitiveness of territories depends not only in traditional resources such as capital, work force and raw materials, but more so to the dynamics of innovations. These dynamics are only possible if there are networks of actors that are in cohesion in such a case that the stimulation of businesses and economic sectors are possible for the development of territories and countries (Leydesdorff & Etzkowitz, 1996; Natario, Ameida Couto, & Roque de Almeida, 2012; Rodrigues & Melo, 2013; Ye, Yu, & Leydesdorff, 2013). In this context, it is necessary to underline the importance of coordinated

actions of different stakeholders (universities and research laboratories, businesses, financial and governmental institutions) with public policies that contribute in the creation of better synergy between the stakeholders based on knowledge and information, directly linked to in industrial production and commercial applications.

Thus, foreign companies and investors may illustrate the difficulties underlying investment project settlements on a territory and their durability. Professionals, practitioners of "invest promotion agency" (IPA) and public government involving in attracting FDI for their countries and/or territories are mostly considering the management process for the entire life of the project like sequential steps of a cycle. Our purpose is that in fact this process is more like a vortex one. The actors are faced with the double stake for the success of the process of localization of a foreign direct investment (FDI) and the conception of public policies for economic development based on the cooperation of actors with various objectives, we undertook the study of a collective practice which led to the successful localization of an FDI on the territory of an emerging country.

Most research on FDI have focused on location factors (Mucchielli & Mayer, 2004) and not on the management of the project itself. Other authors considered the territory as a product for sale that should maximize the sale price facing a foreign investor in applying the techniques of yield management (Carluer & Foignet, 2013; Foignet & Carluer, 2009). More recently, Coussi (Coussi, Lande, & Moinet, 2014) proposes to study the conditions for success (or failure) of a Chinese project management on a French territory using the analytical framework provided by the sociology of translation (ANT - *Actor Network Theory*) (Callon, 1986, 1991).

The research question of our work is then: how to manage a FDI project by different actors to make it sustainable for the territory? The originality of this work is in the willingness to study a "process while it is being implemented" of localization of an FDI to gain insight but not for the purpose of analysing the final result which can lead to an ex-post evaluation. We investigated a strategy of implanting semiconductor factory in Brazil. Our purpose was to examine the implementation strategy without reference to existing frameworks for strategic analysis, but by examining the strategy being to be (Strategy as Practice - SAP).

We did this by observing and our result is that the emerging strategy closely resembles the triple helix; except that emerged in a context in which we would never have considered applying this strategic model.

In this paper, we introduce in the literature review the "Strategy as Practice" conceptual framework and also the "triple helix" concept of innovation and economic development management on a territory. Then, we present the qualitative methodology that was used and the case study narrative.

After that we emphasise on analysis and results for this "Triple Helix as Practice" strategy before concluding on managerial recommendations.

2. Literature review

To solve the complex economic problems faced by governments, it is necessary to involve the different actors in the process of design and implementation of public policies which support the economy. Private actors, social alignments and citizens have important resources or even the power to make political interventions. In a modern society, joint collaborative efforts are necessary to solve these problems (Klijn, 2008; Leydesdorff & Etzkowitz, 1998). This development strategy is to be based on inter-organizational relations, and relations between two or several organizations which share common objectives (Astley & Fombrun, 1983).

2.1 "Strategy as practice" as a conceptual framework

The organizational strategy is a field commonly recognized by the functionalist view (Whittington, 2002). This view assumes that the strategy is something that the organization has (Johnson, Langley, Melin, & Whittington, 2007). However, the procedural approach considers the planning as unnecessary, focusing that the strategy emerges through a process of learning by doing (Whittington, 2002). Thus, the Strategy as Practice comes as a response to the needs of investigation of practices and organizational life that constitute the "internal life processes" (Chia & Mackay, 2007).

This perspective is close to the suggestion of Weick (1995) for further investigation over the micro processes of creating meaning. This view retrieves the research of Whittington (1996) and the manner in which managers are building the strategy into their everyday activities. In this view, strategy is not defined as something that an organization has, but as something that its members are building by acting and interacting in the moment of their social practice (Whittington, 1996; Johnson, Melin, & Whittington, 2003).

In the proposal of Whittington (1996), the practice is related to the practice and practitioners, in which praxis is the connection of the technical and institutional tooling, with the action implied by the subject - the practitioner - within the social field (Jarzabkowski, Balogun, & Seidl, 2007). The practice can also be understood as *"[...] non-routinized behavior and the synthesis of new behavior from old behaviors."* (Johnson et al., 2007) and *"[...] artful and improvisatory performance"* (Whittington, 2006). According to Jarzabkowski (2005) the praxis (Practice) can be understood as *"a flow of*

activities socially situated and defined as consequences that generates the directions and the survival of the company".

One of the main arguments of the "Strategy as Practice" (S-a-P) falls on the shared activity. The shared activity is seen as a collective and distributed, as well as, directly to a result. In this view the different actors place their individual actions within the activities and results, so the individual actors associate themselves with the community in the building results-oriented activity (Jarzabkowski, 2005). *"As such, Strategy as Practice is essentially concerned with strategy as activity in organizations, typically the interaction of people, rather than strategy as the property of organizations."* (Johnson et al., 2003). The S-as-P is focused on "what people do", it is necessary to also understand its organizational and institutional context. The inside of this perspective is the key concept "practice", this concept deliberately debated without a unified approach or consensually accepted definition (Yoko Okayama, Cag, & Paganini Oliveira, 2014).

2.2 "Triple helix" concept

Some authors call "decentralization" the process by which government becomes protagonist of the relationship between business, social and governmental organizations (Fleury & Ouverney, 2011). In this model, it is expected that government coordinate, develop projects and provides resources for new social initiatives. This model of relationship between institutional actors in which the government is the coordinator and the network made is also called a state model (Etzkowitz, 2009), which depends on the specialized agencies and connected by a central government.

Collaboration between stakeholders has been identified as relevant for the systematic production of innovations and therefore accordingly to the development of territories, sectors and nations. (Freeman, 1995) notes that in the mid-nineteenth century, the researchers concluded that the study of the relationship between economic development and the need for coordination between actors, focusing primarily on the need for interaction between industry, science and education. Some authors show that the networks were seen as an appropriate solution for the management of public policies (Dias, 2011; Fleury & Ouverney, 2011).

The triple helix model proposed by Leydesdorff & Etzkowitz (1996) was created to describe and characterize the interactions between actors (university-industry-government) in the process of innovation and development as helix. This approach is in the same line of systemic approaches to innovation, such as the national innovation system (Lundvall, 2010), considering the relationship between the different actors in the innovation process (Etzkowitz, 2002).

The triple helix is assumed that the knowledge base and its role in innovation can be explained in terms of changes in the relationship between universities (and other institutions that produce knowledge), industry and government. According to Sbragia (2006) "*the Triple Helix is a spiral model of innovation that takes into account the multiple reciprocal relationships at different stages of the production and dissemination of knowledge process*" and "*each helix is an institutional sphere*".

The system of the triple helix is an alternative technology transfer paradigm. This concept of interaction between university, industry and government derives from the interaction between economic, social and institutional spheres, which influences policy development and dissemination of knowledge and the innovation (Saad et al., 2008). In their study, researchers point out that the greatest innovations come from the results of the interactions between technology, science and the market (Tidd, 2013). At the heart of the triple helix is a collaborative network of companies, entrepreneurs, universities, research institutions and government agencies that aim to generate knowledge and innovation.

Collaboration between companies, universities and research institutes reduced search costs, externalities generated, and also the uncertainties and risk. Indeed, competitiveness depends on the ability to develop or adapt new technologies to products, services and processes, and understand the dynamics of innovation and industrial change that are essential to the survival of the organization (Utterback, 1996).

For some authors, in response to institutional changes, universities are undergoing a revolution (Etzkowitz & Leydesdorff, 2000, 1995, 1997; Martin & Etzkowitz, 2000). This revolution refers to the fact that research has become oriented to contribute to economic development, particularly in the regions. Besides the two core missions of teaching and research, universities integrate the mission to contribute more directly to solve practical problems for the market. The result of this new vision is the emergence of the entrepreneurial university, which combines teaching, research and contribution to the economy (Martin & Etzkowitz, 2000).

There are some cases that have been the subject of academic study entrepreneurship related to the formation of human capital and the creation of knowledge and technology to the private productive sector, such as Silicon Valley. This area of California focuses the most advanced computer companies in the world. This area of high technology in the United States results from the interaction between higher education institutions, government and industry (Goldstein & Drucker, 2006).

The merit of the adoption of the strategy "Triple Helix" is there then has the ability to create the conditions to produce, share and disseminate appropriate knowledge that will be the engine of innovation needed for rapid growth (Saad et al., 2008). So it seems possible to say that this strategy may be useful for a government that wants to develop an industry based on the use of technology and

applied science, as is the case of the semiconductor industry to Brazil. In this sense, one author points out that "*the government has much more to gain in resorting to partnerships with universities, for the realization of projects of members of their plans, in the economic field, and particularly in the social field*" (Velloso, 2005, p. 99). Therefore, the inherent triple helix interaction strategy implies that each institution will have "*one foot in the other two*".

3. Methodological framework: a qualitative research methodology

In order to achieve the proposed objective of this research, we have adopted a procedural approach to this research. According to Langley (1999), the philosophy of use of procedural approaches in research aims to understanding and answering the questions of "how" and "why" events change as time goes by. Therefore, adopting a research model that focuses on the process is concerned with understanding how things evolve after some time and why they evolve in this way. The "process approach" basically consists of stories about what happened and who did what and when, i.e., events, activities and choices ordered by the time (Langley, 1999). We used the narrative strategy, from the restoration of the history. The narrative strategy involves building a detailed history from data and for advocates of this strategy, the contextual detail in the narrative is the one that makes it possible for the reader to transfer the ideas to other everyday situations and taking into account of the context (Langley, 1999; Langley & Abdallah, 2011).

Our case study focuses on the implementation in Brazil of a South-Korean manufacturer of semiconductors, exemplary in its size and its regional impact. This localization of a FDI was done by the use of a joint venture company (HT MICRON) with a Brazilian company as a vehicle for the investment. In order to reconstruct the history of HT MICRON's case study, materials from newspapers and magazines were used as sources. We used 122 articles from newspaper and websites, since 2009 (when there was the official announcement of the investment) up to 2014 (when the company opened the plant in the city of São Leopoldo and the state Rio Grande do Sul in Brazil) (see table 1).

Year	2009	2010	2011	2012	2013	2014
Amount of news	10	37	7	32	29	7

Table 1 – *Repartition of sources used by the authors of the research*

The presentation of data in qualitative research should bring the reader with the context in order to provide a personal experience of the phenomenon and also support the importance of the theory. In this sense, the combination of strategies for delivering the results is what gives conceptual richness to the final product of a qualitative research. In order to present the results of this study, we use the narrative to recompose the history and at the end we present a map with temporal orientation. Regarding visual maps, they present themselves as attractive representations of the mapping process. This type of strategy allows the decomposition time of the events or processes in different stages (Bizzi & Langley, 2012).

4. Case study Narrative

In December 2009, South Korean HANA MICRON and Brazilian PARIT[1] Group company announced that a protocol has been signed with the state of Rio Grande do Sul in Brazil, for the creation and localization, as a joint-venture, of a production plant of semiconductors that will represent an investment of 200 million $US and the creation of 1,300 direct jobs. It may be noted that the Innovation Law recently enacted in this state will allow the government to ensure tax incentives for the project's success. This plant will be dedicated to the production of flash memory, smart cards/ships and RFID[2] tags. One observer points out that success in the location of this project is certainly due to a combination of academic excellence, economic momentum and support from the federal government. Indeed, the university located nearby as well as the administrative authorities of the city have jointly built a complete offer for the location of the plant in the technology park located at the university campus. In addition to support for recruitment, technical aspects related to the implementation of such a project are secured by the administrative authorities of the municipality, who say they want make every effort to ensure the success of the operation. The various commitments in the agreement signed between the parties are: i) Identification of land for the installation of the plant close to an international airport, ii) Facilitation for obtaining environmental permits and for the supply of fluids (water and electricity) and iii) The new joint venture will receive a discount up to 75% of the ICMS[3] tax reduced from 12% to 7% (a reduced rate should not allow this tax benefit).

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[1] PARIT is the name of the consortium of Brazilian companies

[2] Acronym for *Radio Frequency IDentification*

[3] *Imposto sobre Circulação de Mercadorias e serviços* (tax on service and products)

The two shareholders of the joint venture will provide 50% of the total funding for the investment and the BNDES[4] bank will provide additional funding. The Brazilian partners for this project are the ALTUS, ELO and TAIKON consortium companies (PARIT Group), the national development bank of southern Brazil (BNDESPar) and the Company of Regional Participation of Rio Grande do Sul (CRP). The CEO of ALTUS then expressed the importance of granting an exemption on 25% of the ICMS Tax in the project. ISS[5] Tax exemption for a period of 5 years is confirmed. A tentative settlement will be made possible by the use of university buildings before joining the factory when it emerged and are ready for operation. This encapsulating semiconductor plant will be unique in South America and the parent company already holds 70% of the global market. The Brazilian plant will take with 20% a significant share of the total production. The presence of an emergency power line on the technology park is also an important element, since a backup in five seconds will be possible.

The President of the university UNISINOS[6] puts forward a bold investment that is inserted into a technological tradition in this sector for the university, emphasizing factual industrial anticipation. The turnover generated by this plant could be a billion USD by 2014 and explains that the university will make an investment of 10 million US$ (via a request for funding to the BNDES) in the building that will then be leased to the company. The mayor stressed the exemplary model of UNISINOS management with government and the corporate world, for its actions that create growth and thus an expansion of the technology park. It also indicates that the policy of the city to surrender 50% of the products of the ISS tax to the firms located in the park towards UNISINOS and benefit of attracting new businesses. ALTUS was already present in the technology park created. Officials point out that the university is ready to receive the company because it has anticipated the arrival, including by setting up courses designed for a good training for future employees of the company. Indeed, a new Master degree in Electrical Engineering was established. HT MICRON and UNISINOS will have to work for the establishment of a vocational training program. The CEO of HT MICRON emphasizes that university atmosphere can stimulate the innovation process.

The arrival of this plant will also profoundly change the production of knowledge in the territory, as each year, 5% of turnover will be invested in R & D locally including 1% in research contract with the university. HT MICRON‘s Investment in research is the result of the support program of technological development of the industry of semiconductors in the Ministry of Science and Technology of Brazil

[4] *Banco Nacional de Desenvolvimento Econômico e Social* (National Bank for Economic and Social Development)

[5] *Imposto sobre serviço* (tax on services)

[6] *Universidade do Vale do Rio dos Sinos* (University of the valley of Rio dos Sinos)

(PADIS[7]). This program allows tax exemption from COFINS[8] and PIS[9] / PASEP[10] by this consideration of funding for university research.

In late October 2011 UNISINOS announces the signing of four cooperation agreements with South Korean universities (Songang, Hankuk, Sungkyunkwan and Hoseo) during a business visit to the country. These agreements have as objectives to develop students and professors' mobility and also the development of joint research activities. A joint seminar will be held in Brazil with these partners and will focus on technology. TECHNOSINOS[11] also signed an agreement with Technopark Seoul to promote trade between the two parks with a view to provide optimal support for companies to locate in the two parks. UNISINOS offer a specialist course on the business environment in Brazil led by Brazilian professionals, and this course will take place in a South Korean technology cluster.

The delay that will undergo the project for a few months seems to have for main raison differences in costs between South Korea and Brazil (in the words of the CEO of HANA MICRON). UNISINOS confirmed by BNDES financing bank a credit line "innovative capital". The project meets the environmental standards and the building permit will be considered on an urgent basis by municipal services as they receive it. The local press echoes a mission of five weeks of a professor who was in immersion in HANA MICRON Korea to fully understand the encapsulation process and so to be able to build a course that will be given to future employees HT MICRON. This course could serve as a basis for a future course open to all students. Five other university professors are also in Korea in the same way.

In April 2012 the State makes the HT MICRON's R&D program eligible to support measures for innovation such as PADIS. In the beginning of July 2012, earthworks began. The university announced the creation of a technology institute in semiconductor (itt Chip) approved by the Ministry of Science and Technology of Brazil, as well as actions and projects undertaken by the university in favour of a "cluster" of semiconductors.

In March 2013, the head of the Professional Master degree in Electrical Engineering presented the program of the Master as well as research areas. This diploma is a first in the region and only the third for Brazil. This master program has been praised by the CEO of HANA MICRON, which emphasizes

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[7] *Programa de Apoio ao Desenvolvimento Tecnológico da Indústria de Semicondutores* (Program for the support of the development of technology in the semiconductor industry)

[8] *Contribuição para o Financiamento da Seguridade Social* (contribution to the financing of social security)

[9] *Programa de Integração social* (Program for social integration)

[10] *Programa de Formação do Patrimônio do Servidor Público* (Training program for social patrimony of public administration)

[11] *Parque Tecnológico de São Leopoldo* (technology park of Sao Leopoldo city)

the need to "*continue to talk with companies to keep this master in industrial affairs and modify its program when the market is also changing*". In April 2013, UNISINOS and government officials seek to expedite the release of a $ 4 million USD from the Federal Ministry towards the Institute of semiconductor. At a meeting organized by the Secretary of Science and Innovation in the state of Rio Grande do Sul, in the presence of Minister of Science and Technology of Brazil, the President of UNISINOS and the Chairman of ALTUS it is stated that "*the partners want the semiconductor industry grows and this institute is critical to closing the missing links in the chain*".

In June 2013, the coordinator of the itt Chip institute explain that the institute will provide technological support for companies, training of manpower and equipment for the development of new technologies for encapsulation. The goal is for the Institute to become a reference center for research and technology transfer for encapsulation and testing of semiconductors. Late August 2013, HT MICRON already produced in temporary facilities provided by the university one million chips per month. In October 2013, the university gives the keys to the new plant to the executives of HT MICRON during a Brazil-Korea forum.

After installation of production machinery, the factory was officially opened June 7th 2014 in the presence of the President of the Republic of Brazil, which emphasizes that "*this investment is an example for all of Brazil*".

5. Analysis and Results

From the evaluation of the implementation process of a foreign direct investment in the semiconductor industry in Brazil, we can highlight important events and activities that allow emphasize the emergence of a triple helix approach to attracting foreign investment to an area. From an interorganizational perspective, the elaboration and implementation of policies becomes a complex process, and it happens to involve a multitude of relations between helices (government-industry-university) and intra-helices (among companies, among universities). It may be noted, based on the analysis of data, that interesting results for the actors involved do not come immediately, but they must be carefully managed and coordinated. This is in contrast with the conventional public administration, which strongly emphasizes the political decision-making and establishing goals as important factors (Klijn 2008). In order to demonstrate this complexity, we present the figure 1, which give a good image of all actors involving in the process.

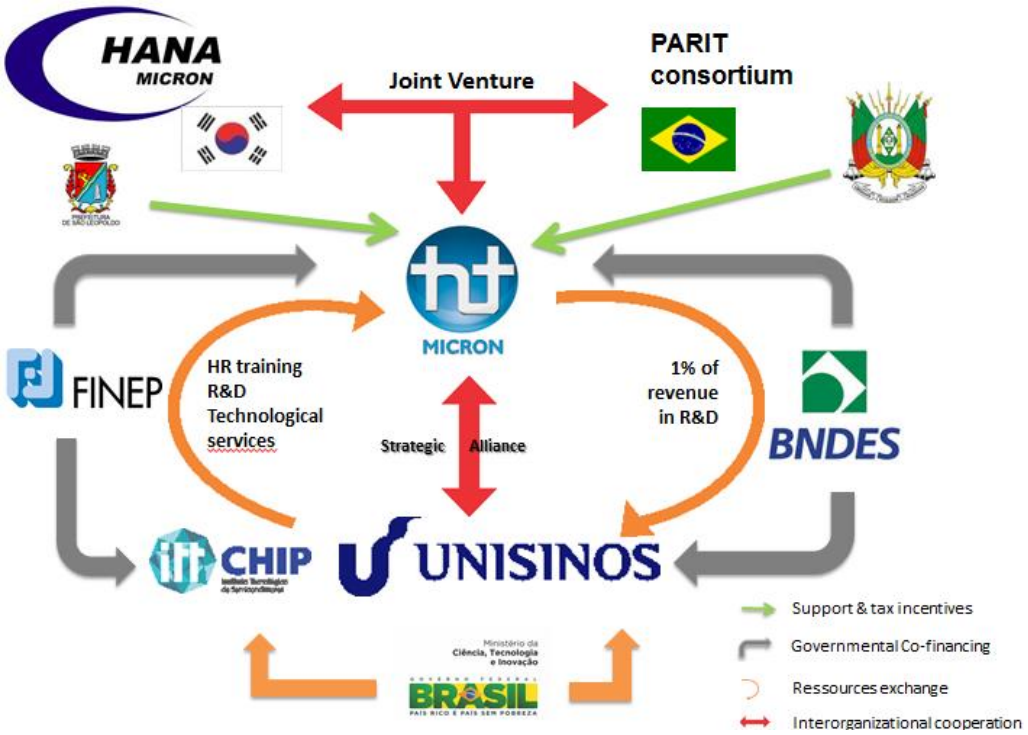

Figure 1 - *The strategizing actions of attracting a foreign investment - Triple Helix in Practice (source: elaborated by the authors)*

The figure 1 represents a complex network of relationships and shows the participation of actors from three spheres in order to contribute to the process: university, government and private companies. It is very important to note that during the evolution of the process, each actors contributed in some way for the success of the project. We emphasize in this figure 1 with different colors each of the different strategic practices released. The main strategies highlighted during the evolution of the FDI's project life cycle were: support and tax incentives, governmental co-financing, resources exchange and interorganizational cooperations. We called these strategies as "the strategizing actions of attracting a foreign direct investment".

These strategizing actions took place in a complex manner throughout the process lifecycle of the FDI project, demonstrating the complexity of this type of strategy. Usually the life cycle of a project is "linear" and follows a logical sequence of actions. This point of the analysis describe the process of a FDI project viewed as a life cycle as show in the flowchart of figure 2.

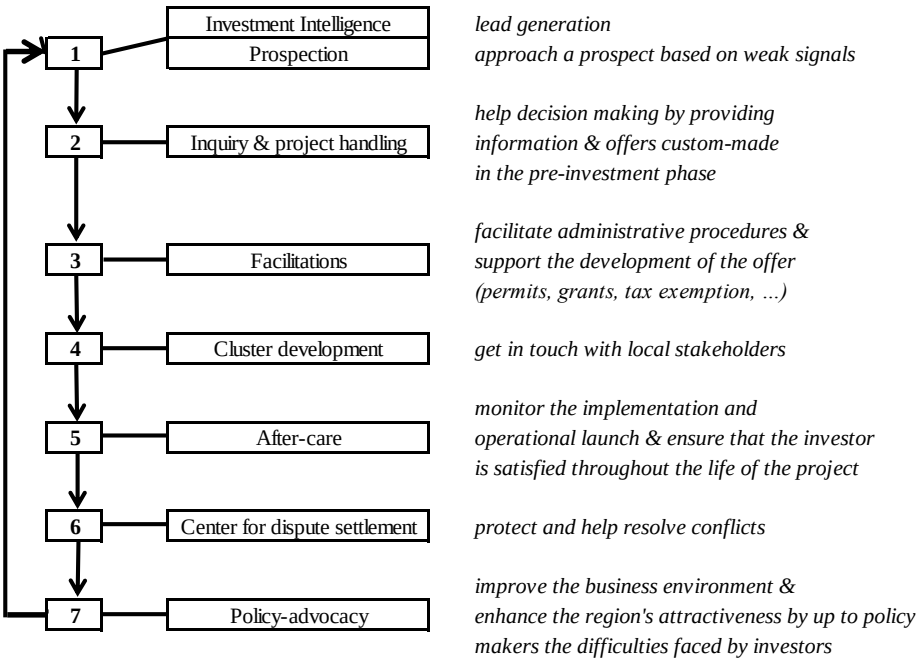

Figure 2 – *Flowchart of FDI project life cycle (source elaborated by the authors)*

Based on the reconstruction of the history of the case of HT Micron, it was possible to identify some unique traits. After identifying these idiosyncratic traits, we organize a framework identifying important steps in the project life cycle and we relate some of the key events of this "triple helix strategizing" made by the actors of the south Brazilian territory. The frame 1 could serve as inspiration for other managers of public policies or managers of territories or universities.

In this frame we decompose each action of each step into sub-actions that allows us to put them with the reference of time. This is due to the fact that we suppose that the project life cycle is not a sequential one but more in a vortex way. We named each step as an acronym (for example IPH for Inquiry & Project Handling) and identify the different actions by a number (for example IPH1 for action 1 in step IPH).

Step	HT MICRON study case
[IPH] Inquiry & project Handling	• **[IPH1]** Combination of academic excellence, economic momentum and support from the federal government. **2009** • **[IPH2]** Identification of land for the installation of the plant close to an international airport. **2009**
[F] Facilitations (permits, grants, tax	• **[F1]** Innovation Law of State Government. **2009** • **[F2]** Facilitation for obtaining environmental permits and for the supply of fluids (water and electricity). **2009** • **[F3]** The new joint venture will receive a discount up to 75% of the ICMS tax

exemption)	reduced from 12% to 7% (a reduced rate should not allow this tax benefit). **2009** • **[F4]** The university UNISINOS puts forward a bold investment - 10 million US$ (via a request for funding to the BNDES). **2011** • **[F5]** Support program of technological development of the industry of semiconductors in the Ministry of Science and Technology of Brazil (PADIS). **2011**
[CD] Cluster development	• **[CD1]** The partnership developed with federal and state governments to create an atmosphere that enables a semiconductor industry. **2009** • **[CD2]** The interaction between university and the funding body - FINEP for the creation of research institutes that can support the activity of research and development of the semiconductor industry. **2013** • **[CD3]** Brazilian mission held in South Korea aimed at sharing experiences and knowledge among university (cooperation agreements), government and industry. **2011** • **[CD4]** The creation of polytechnic High School and professional master's degree in electrical engineering with the goal of training skilled labor for the semiconductor industry Establishment of the Forum Brazil-Korea. **2013** • **[CD5]** Creation of a technology transfer institute in the semiconductor field approved by the Research Ministry of Brazil. **2013**
[AF] After-care	**[AC]** The memorandum of understanding signed between university, industry, the city's commercial and industrial association as well as the municipal department in order to mobilize efforts. **2009-2011**
[PA] Policy-advocacy	• **[PA1]** Agreement with Technopark Seoul to promote trade between the two parks with a view to provide optimal support for companies to locate in the two parks. **2011** • **[PA2]** UNISINOS offer a specialist course on the business environment in Brazil led by Brazilian professionals, and this course will take place in a South Korean technology cluster. **2011** • **[PA3]** The arrival of this plant will also profoundly change the production of knowledge in the territory, as each year, 5% of turnover will be invested in R & D locally including 1% in research contract with the university. **2011**

Frame 1: *Steps of Project life cycle and HT Micron Experience (elaborated by the authors)*

For a better view of the reader in relation to the complexity of the HT Micron project, we have included in the vertical axis classic IDE phases project and the horizontal axis time in year. From where we draw the line that identifies the life cycle of a classic design and then we show based on the events of frame 1. It is show in the figure 3.

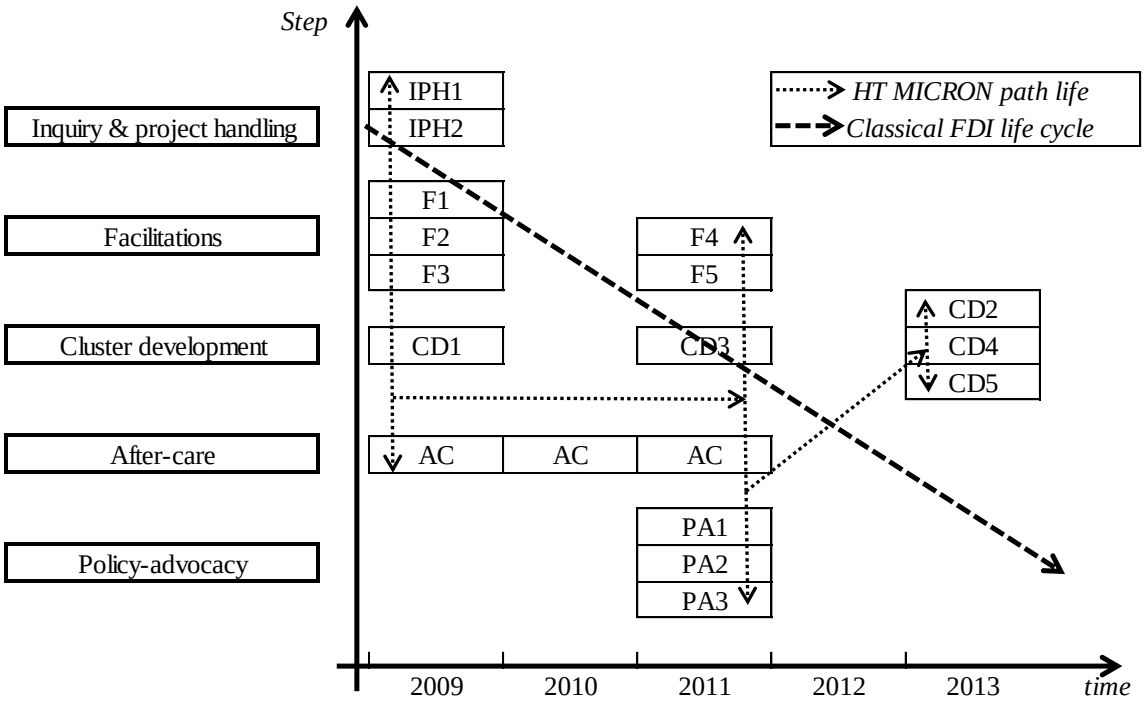

Figure 3: *Flowchart of HT Micron's project life (source: elaborated by the authors)*

Our intention with this frame, is not in any way seek a generalization of events evidenced throughout history, but rather than, to demonstrate that the strategy "triple helix" emerged from the interaction of people during the evolution of the project.

6. Concluding remarks: a strategy of attracting foreign investment based on the Triple Helix in Practice

The practice of strategy can be understood as "interpretation from which the strategic activity emerges at any time". Another way of looking at research strategy from a practical perspective could be done by giving a focus on the process of developing the strategy, not the strategy itself (Whittington, 1996). The change to the practice drives our attention to the phenomena that unfold at the micro level (actors and their relationships) (Jarzabkowski, 2005). In order to understand the act of strategizing, it is necessary to give more attention to the size of these applying practices, being careful not to be driven out from the context. That implies the adoption of a relational philosophy, *i.e.* relations come to occupy a central position in the analysis (Chia, 2003).

In relation to providing a central place for the relationships that are established, there is a model of territorial organization called "triple helix" (Leydesdorff & Etzkowitz, 1996) which allows for more

complex interactions related to contemporary processes of innovation: university-industry-government relations. Many theoretical and empirical researches were produced and the entrepreneurial university is a central concept of this model. In this case, the university is proactive in the implementation of knowledge as well as in the production of knowledge to do this. This interactive mode is developing the university role for participation in socio-economic development of the territory. More recently the "triple helix" model was presented as a type analysis framework "innovation system" with a set of components, relations and functions (Ranga & Etzkowitz, 2013).

The triple helix model involves a holistic approach to innovation based on the networking of diverse organizations and disciplines. As a networking exercise, it seeks to promote rapid learning through proximity and collaboration between the main actors. Each actor in the system would scrutinize the innovation process according to its own interests (Saad et al., 2008).

The theoretical choice of narrative enabled, through the identification of key events, as well as revealing some news on how the territories develop their policies, to attract foreign direct investment. These results provide new empirical evidence and explanations when the phenomenon of attraction of foreign direct investments by territories is viewed in collaborative terms. From this single case study, and the news in terms of public management, we propose the following research propositions, which can be useful for more comprehensive research in the future:

1. The use of a triple helix strategy is an attractive factor for applying an exogenous investment.
2. The entrepreneurial university is an attractive factor for applying an exogenous investment.

These propositions from the study of the life cycle process of a foreign direct investment project issued from the use of a triple helix strategy, affect the ways in which governments should consider attracting exogenous investment.

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