



The medium-sized cities working as smart city¹

Claudio Machado Maia*

Submissão: 21/12/2021

Aceite: 18/04/2022

Abstract

Analyzing a city from its functions, as a smart city in consideration of its innovative medium, presupposes its protagonist of regional influence. In the debate about the complexity of interactions between city functions and social participation, this article aims to reflect suggestive characteristics and categories of analysis, as a source of inquiry that highlights the smart city. The methodology is based on the exploratory research, presenting a bibliographical review of the role of cities in the new economy, using data and bibliographical information, together with research materials, presentations and publications of the theme. Textual production results in a roadmap in the form of an array of elements, contexts and categories of analysis, allowing an understanding of the importance of cities, such as smart regions, playing an important role in the regional configuration.

Keywords: Innovative medium. Governance. Pendular displacement. Medium-sized city. Smart city.

As cidades de médio porte funcionando como cidade inteligente

Resumo

Analisar uma cidade a partir de suas funções, tal como cidade inteligente em consideração ao meio inovador, pressupõe investigar o seu protagonismo de influência regional. No debate acerca da complexidade existente nas interações entre funções da cidade e participação social, este artigo objetiva refletir sugestivas características e categorias de análise, como uma fonte de consulta que evidencia a cidade inteligente. A metodologia parte da pesquisa exploratória, apresentando uma revisão bibliográfica do papel das cidades na nova economia, utilizando dados e informações bibliográficas, junto a materiais de pesquisa, apresentações e publicações do tema. A produção textual resulta em um roteiro na forma de uma matriz de elementos, contextos e categorias de análise, permitindo a compreensão da importância de que cidades, tal como as regiões inteligentes, desempenham importante papel na configuração regional.

Palavras-chave: Meio inovador. Governança. Deslocamento pendular. Cidade média. Cidade inteligente.

1 Introduction

In the last three decades, innovation, going beyond the classic strictly technological facets, began to be understood in a broader sense, including product, process and organizational aspects, both at the level of companies and in institutional social dimensions, at the level of the sectors themselves industrial, regional and country levels, becoming an almost mandatory benchmark in the analysis of territorial development dynamics. According to Santos (2009), there was once that linearized conceptualization of innovation, referring to the

¹ This article is part of the results of researches and publications carried out by the researchers Ana Laura Vianna Villela, Rosa Salete Alba, Simone Ostrowski, Laiz Arruda, Jessica Martinelli Dalpiaz and members of the Research Groups "City, Culture, Urbanization and Development" and "Regional Development, Public Policy and Governance", with institutional support from the Unochapecó Research Support Fund and resources from Art. 170 and Art. 171 of the State Constitution of Santa Catarina and the National Council for Scientific and Technological Development (CNPq).

*Doutorado em Desenvolvimento Rural (UFRGS) e Pós-Doutorado no Programa de Pós-Graduação em Economia do Desenvolvimento (PUC/RS). Professor do Programa de Pós-Graduação em Desenvolvimento Regional da Universidade do Contestado (UnC). E-mail: claudiomaia.dr@hotmail.com

organization and industrial production, essentially based on the knowledge encoded and generated by activities of Innovation and Development, namely large companies and national systems of innovation. However, nowadays, admittedly, innovation processes have a strong social and territorial matrix, whose attention turns to a set of aspects that are relevant in the generation of knowledge directed to innovation dynamics, such as informal contacts and networks of contact flows tacitly established between the different actors, relational capital, the respective social capital (PUTNAM, 1993), the rules and conventions in force. On this aspect, the analytical context within the notion of smart city, Maia (2012) reference to the importance

the analysis of the institutions around which the localized social interaction is organized, it is not only a question of examining how the transaction costs are formed and how they can be reduced, but rather of approaching them from a historical angle and from the influence that constitute them (NORTH, 1991, p.97-98; NORTH, 1994, p.362-363).

There is a change in the understanding of innovation processes, which are currently seen as socially constructed mechanisms, based on the accumulation, diffusion and utilization of knowledge (tacit or codified) through continuous, interactive and cooperative learning, leading to the notion of territorial competitiveness, emphasizing the establishment of the bases of local processes of collective learning.

This textual production describes an alternative analytical perspective of reflecting on innovation and some categories of analysis that help to characterize what can be identified as presuppositions to a smart city, especially for the dynamism and protagonism of an urban and regional planning process whose influence is regional. In this article, for the purposes of the operationalization of the notion of smart city, the region of the city of Chapecó/SC is understood as a smart region. Approaching categories of analysis innovative medium, governance, pendular displacement and medium-sized city, we identify potentialities that lead to challenges and articulations, characterizations related to both mobility and population displacement, as well as the relationship with the inherent economic, social and regional dynamism to the regional area of influence of Chapecó/SC.

As for smart regions, Castells (2003) presents a general thesis that

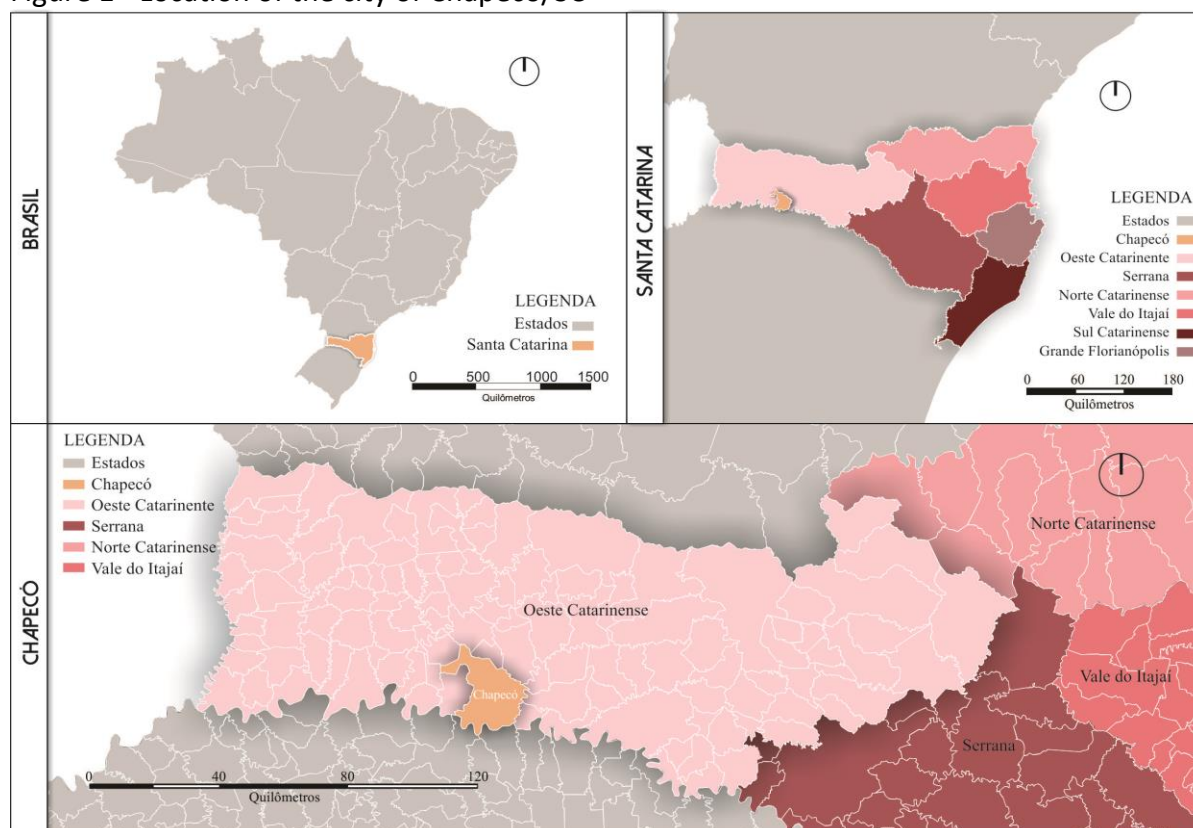
cities are key both as producers of the processes of wealth generation in the new type of economy and as producers of the social capacity to correct the disintegrating and destructive effects of a network economy without any reference to broader, more

collective or non-measurable social values by the market, such as the preservation of nature or cultural identity (CASTELLS, 2003, p.21).

In concrete terms, empirically, cities are important means of technological and business innovation (CASTELLS, 2003), such as areas with metropolitan characteristics driving their surroundings. In this sense, we have Chapecó/SC and cities of influence, such as a smart region (Figure 1).

Potentials, joints. Housing, mobility, governance, innovations to present experiences and practices that affect the quality of life and human development of people. Smart city or smart region, as there is an intensive presence (utilization) of social participation mechanisms, as well as social movements concretizing social technologies appropriated by the community, in particular organized civil society and its various and respective representations via Councils and Associations, Companies and Corporations that decide the economic and social direction and dynamics. The methodology present in this study is exploratory research, presenting a bibliographical review on the role of cities in the new economy, as well as relating the role of the medium-sized cities assuming a metropolitan context.

Figure 1 - Location of the city of Chapecó/SC



Source: IBGE. Adapted by Silva and Danieli (2017).

The complementary aspects of this approach follow the characteristics raised from the theoretical analysis of Chapecó/SC as a medium-sized city in the context of regional pendular migration supported by the concept of Geographic Networks and territorial articulations. Such a migration and commuting migratory flows, Chapecó has as a destination point due to its dynamics and area of influence in regional dynamism. From a qualitative approach, the study uses data and bibliographical information, together with research materials, presentations and publications of the theme.

In this context, as a theoretical framework in the accomplishment of this study, was considered researches done by Maia et al. (2017 and 2016), because it is an alternative of reflection that allows to base the understanding, especially of the Brazilian context, specifically of the region of Chapecó/SC, in a (re) interpretative approach of the process of medium-sized city, the relations between innovative means, social capital, state and civil society, vis-à-vis the dynamism and regional influence.

2 The territorial dynamics in theories of innovation: innovative medium

Considering the *Groupe de Recherche sur les Milieux Innovateurs (GREMI)*², in research based on the hypothesis that regional innovative means generate innovations, such as the success of development trajectories of certain regions will be due to their intrinsic ability to manufacture new products, to adopt new productive processes, as well as innovative institutional organizational configurations, characteristically in a process that has allowed the emergence of territories with intense capacity for territorial interaction that dictate its dynamism - clusters, innovative means, training and learning centers, among other examples of local development - and the location of actions and activities as an alternative of autonomy in the scope of globalization.

Innovation can be defined as the successful exploration of new ideas. This proposition by Schumpeter (1982) is to promote development by innovation with its conception of innovation opening a range of possibilities or alternatives, for both "new combinations" - new use for the raw material, new production process, new product / service, new markets, new organization.

² European Research Group on Innovative Environments (GREMI). For more information, visit: <<<http://www.unine.ch/irer/Gremi/accueil.htm>>>.

Therefore, the political, as well as the social, cultural, ecological and territorial aspects can be included in this explanation, being conceived in a collective way, in which the various social actors (market, State and civil society) interact with a certain level of common interests. For Maillat (2002, p. 14), "innovation is considered a process of integration of elements that determine and favor the dynamics and transformation of the process of the territorial system of production".

From the perspective of innovative medium, the territory is the organization that interconnects companies, institutions and local population, seeking the development. Innovation-based regional development policies should "enhance the capacity for innovation and adaptation of the regions concerned" (BENKO, 1999, p. 137), as well as mobilize local (human, financial, technological and political) efforts and resources to organize and coordinate private accumulation. As for the innovative medium, it is the territorial organization where the processes of innovation are born. It is now possible to define the innovative medium as a territorial set in which the interactions between economic agents are developed not only by the learning that makes of multilateral transactions the generators of externalities specific to innovation, but also by the convergence of learning to increasingly improved forms of joint management of resources.

3 Governance processes based on social construction

The region of Chapecó/SC, traditionally, is characterized by traditional and emerging actors and their roles in governance and regional development. Elements of which the activities, planning, work and research carried out by institutions in the region have potentially enabled the analysis of the limits and possibilities of sustainable development initiatives coherent with the regional dynamics and political action of the most frequent organizational models in the region of Chapecó, such as: councils, forums, NGOs, social movements, cooperatives, foundations and business groups.

Among the traditional actors, assuming an emerging role and for its importance and relevant contribution to regional research and development, we have the presence of the University Development Foundation of the West supporting Community University Institution. Community because it is a university that is deeply identified with regional development and very attentive to the needs of the population and of the organizations located in its region of comprehensiveness. On the other hand, within the local community, there are some

movements of organized civil society, such as the Society of Chapecó (SAC)³, entity that maintains the Chapecó Project 2030, characterized as a civil entity, constituted on the form of Organization Civil Society of Public Interest (OSCIP). The Chapecó 2030 Project was developed by civil society actors from the municipality of Chapecó and the western region of Santa Catarina to discuss and design economic, sociocultural and urban-territorial approaches and strategies to promote sustainable development.

This Project is about

um processo de produção e integração de estratégias e propostas de ação do desenvolvimento econômico, sociocultural e urbano-territorial para a promoção do desenvolvimento sustentável de Chapecó e região para as próximas décadas⁴ (PROJETO CHAPECÓ 2030, 2012, p. 3).

The document reflects the will of organized civil society on the municipality, involving a set of general guidelines guiding the sustainable economic development of Chapecó. Moreover, as an important element of this Project is the importance of social participation in the regional decision-making process (BANDEIRA, 1999; BECKER, 2002), as well as an instance in which the participants involved in the proposals of the municipality (neighborhoods, villages or localities of their conviviality), identifying potentialities and limits of development in the multiple dimensions with their social participation.

In this sense, there is social participation from the various forums and debates characterizing a process of producing strategies and proposals for action. According to Maia and Santin (2016),

implicit in this perspective is the emergence of civil society with development as emerging from localities - a key idea for an endogenous development process, where local groups have some solution based on their values and capacity to innovate - as a basis for thinking the heterogeneity (MAIA, SANTIN, 2016, p.4).

Therefore, it was important to consider the locality and the valorization of regional cultures, in the sense that from this regionally accumulated cultural values or existing social

³ According to the SAC (Sociedade Amigos de Chapecó) website, the Friends of Chapecó Society (SAC) was officially created on September 13, 1966, by a group of people who came together to seek the development of Chapecó and the region of western Catarinense. Available at <<<http://projetochapeco2030.com.br/empresa>>>. Accessed on: 08 Jan.2021.

⁴ a process of production and integration of strategies and action proposals for economic, sociocultural and urban-territorial development to promote the sustainable development of Chapecó and the region for the coming decades.

capital, some regions can respond positively and actively to the regional challenges of contemporary globalization by constructing their own models (BECKER, 2002, p.35). According to this author, in theory, it means that the different dynamics of regional development depend on a growing social organization of the regional communities. Therefore, the thesis is that a more socially organized society is a more politically participatory society. In addition, a more politically participatory society is a much more economically developed society (BECKER, 2002, p.35-36).

4 The role of cities: medium-sized cities

Another objective of this textual production is to reflect on the role of cities in the new economy and, even more, on the problematic relationship established between this new economy and the social and constitutional processes that are the basis of our coexistence and our life.

Castells (2003) places the role of cities in a process of historical change, characterized more descriptively than analytically, under the term "Information Age", referring very specifically to the conditions in which develops what has been called the "new economy", centered on the technological and organizational transformation. "New economy" is a term that has already been enshrined in the media. According to Castells (2003),

the new economy is ours; it is what we already are. It is not the future, it is not California, and it is not America. It is the new economy that develops in an unequal and contradictory way, but which develops in all areas of the world. It is characterized by three main characteristics that are interrelated; it is an economy that is centered on knowledge and information as the basis of production, as the basis of productivity and as the basis of competitiveness for companies, regions, cities and countries. This is easily said, but it has great consequences, because when it comes to how we generate productivity - or how we generate wealth - we are basically referring to the material basis of what we can soon do (CASTELLS, p.15- 16).

The process of industrialization and the information revolution influenced the metropolitan context, as well as brought new arrangements of organization and dynamics of these spaces. In the case of medium-sized cities and regions of their scope, their role up until now was more defined by the geographical situation, structured according to the possibilities of the transport systems or even by the political-administrative roles, they played. These new

aspects have led us to understand that connectivity is no longer directly related to physical contiguity, thus allowing the construction of new spatial articulations (ANDRADE; SERRA, 1998).

In the context of Brazilian urbanization, in the last decades a significant growth of the cities "that intermediation between major and minor cities in the scope of different urban networks has been observed and that, therefore, they differ from the denominated 'medium-sized cities' whose recognition comes from their demographic sizes "(SPOSITO, 2007, p.9). For Corrêa (2007) the understanding of these territories runs through the articulated combination between demographic size, urban functions and the organization of urbanized space. These are some of the assumptions of the Network of Researchers on Medium Cities (ReCiMe)⁵ that articulates different researchers and universities and deepens the discussion about the medium cities in the Latin American context.

Thus the field of reflection of this work is also based on studies of the medium-sized cities carried out by ReCiMe, to sum up the importance of the dialogical observation that occurs in the articulation between scales in the territory, considering the local and the regional, observing them in the world context, since many of the phenomena that manifest themselves locally are the result of a national and / or world reality, resulting from a process of connections established between the central places of contemporary society (BESSA, 2012). Therefore, understanding the medium-sized cities requires going beyond the socio-spatial reality; as well as the processes and agents that influence such transformations (SPOSITO et al., 2007), since the constant changes provide different uses of the territory, conditioning the space and the society to adapt to the new moments.

In this context and discussion is that it is reflected on approximations in what is meant by Brazilian medium-sized cities studied in ReCiMe, where Chapecó/SC is identified as a medium-sized city.

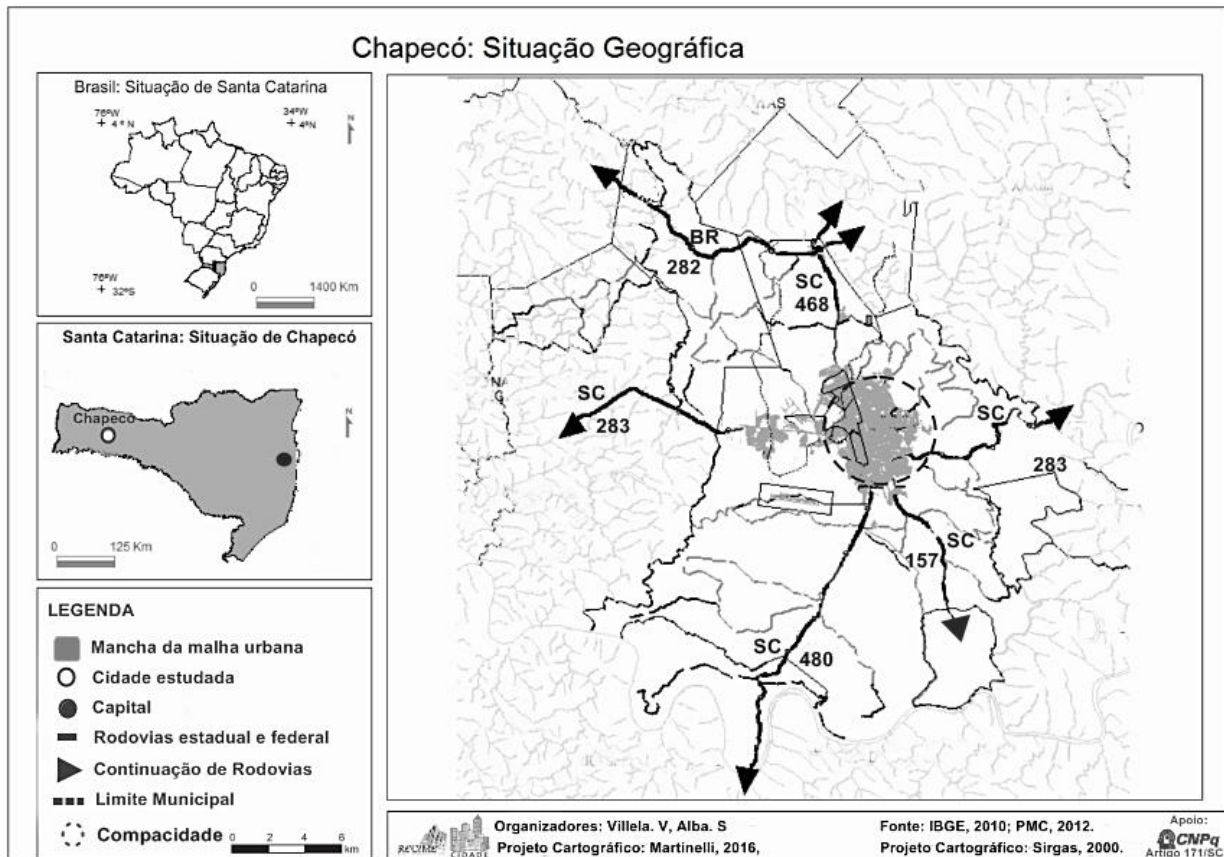
5 The medium-sized of city Chapecó/SC

The city of Chapecó/SC (Figure 2) is discussed by Fujita; Matiello; Villela; Otsuschi; Alba (2016) for its agribusiness dynamics: agro industrial activity focused on the international market, more specifically in the production of food from swine and poultry and, more recently, dairy cattle. As well as being, a pole of the tertiary sector in the region, mainly for activities such as higher education, health, trade and specialized services; and industrial metal mechanic

⁵ Network of Researchers on Medium Cities. For more information, visit: www.recime.org

and furniture maker. The municipality, although only 100 years old, is structured on important state and federal highways that promote access to the city and constitute an important junction of the Rio Grande do Sul (south) and Paraná (north), as well as with the coast of Santa Catarina (to the east) and Argentina (to the west).

Figure 2 - City of Chapecó/SC - Geographical situation



Source: Maia, Villela, Alba, Dalpiaz (2016).

The process of concentration and centralization of capital in the region made it possible in the 1950s to build some large refrigerators, which undoubtedly marked the history of Chapecó/SC and the region: Seara Refrigerator (originated in Seara/SC), Perdigão Refrigerator (Videira/SC), Sadia Refrigerator (Concórdia/SC), Chapecó Refrigerator and Aurora Refrigerator. These two last ones originated in Chapecó and a subsidiary of Sadia installed in 1970. In addition to these, there were also other companies that worked in the sector of grains like soybean, corn, etc.

The presence of large refrigerators in the city of Chapecó/SC is considered the major reason that made this municipality the one that grew the most economically; becoming a regional pole, (such an installation of these large refrigerators has been associated with the actions of the Friends of Chapecó Society (SAC)). The years of 1980 were years of intense

growth of the population of Chapecó, especially the urban. Much of this migration was made up of people from agriculture in the western region of Catarinense and from Rio Grande do Sul, who sought to work in these slaughterhouses (MAIA, ALBA, VILLELA, OSTROWSKI, 2017).

At the same time as the refrigerators grew, new sectors of the economy related to this activity appeared, such as metal mechanics (refrigeration machinery and equipment), transportation and packaging, and commerce itself also grew significantly. This made Chapecó/SC the city of the region with the greatest attraction of new migrants (MAIA, ALBA, VILLELA, OSTROWSKI, 2017).

The last decades characterize Chapecó/SC by an economic dynamic that goes beyond agribusiness itself. It can be seen that activities linked, especially to other services such as health, education, commerce, financial system, are impressing Chapecó/SC the role of a medium-sized⁶ city, which has allowed the continuity of its growth. Thus, it is possible to state that the people who today are looking for Chapecó/SC to live in are no longer only workers for the slaughterhouses, but people who seek in these other activities the possibility of professional performance (MAIA, ALBA, VILLELA, OSTROWSKI, 2017).

The analysis was carried out in medium cities such as Chapecó/SC, Passo Fundo/RS, Mossoró/RN, Uberlândia/MG, Marília/SP, Campina Grande/PB and Londrina/PR as non-metropolitan spaces that exert significant centrality in their regional urban network. All are on important national and international road axes, and perhaps because of this the distance from the state capital has not been clear enough to understand the complexity of these municipalities. In terms of economic dynamics, services have been characterized, especially in the educational, commercial and health sectors, and by an active and important productive matrix, whether industrial or agribusiness (MAIA, VILLELA, ALBA, DALPIAZ, 2016).

6 The city of Chapecó/SC and the pendular movement

The theoretical analysis of Chapecó in the context of regional pendular migration is supported by the concept of Geographic Networks and territorial articulations. Mounting current migratory flows widen and become transboundary, breaking national and regional boundaries. In the case of the pendular migration studied here, having Chapecó as its destination point, there is a significant increase in the last decades.

⁶ Refers to the medium city according to the studies that have been developed by the Network of Researchers on Medium Cities (ReCiMe) and that Chapecó is one of the cities surveyed by this network. For more information, visit: www.recime.org

Dias (2005) recognizes the importance of this theoretical concept for the analysis and interpretation in several disciplinary fields. The author also acknowledges the presence of

four great flows that cross the geographic space: the movements of people or migratory flows; trade movements or flows of goods; information movements or information flows; and the movements of capital or monetary or financial flows (DIAS, 2005, p.11).

In the human sciences the concept of network has been used to analyze organizations, institutions and firms; the urban articulations, the transnational, economic, political and social, especially the repercussions in the face of technical advances such as communications over the telephone and the internet.

In addition to the technical networks, the heuristic potential of the notion has been explored by Geography, when it conceives the network as effective of spatial organization (MACHADO, 1995). Unstable in time, mobile and unfinished as Raffestin (1980) has already pointed out, the idea of networking certainly illuminates an important aspect of reality - it draws attention to the complexity of spatial interactions resulting from the set of actions triggered in more or less distant places. Thus, the network represents one of the possible space cuts to understand the organization of contemporary space (Dias, 2005, p.23).

Corrêa (2006, p.15), when using the concept of network to understand the Brazilian urban network says "the study of urban networks is a tradition in the scope of Geography". Through it, production, circulation and consumption take place effectively and if the communication network is added, the regions can articulate themselves worldwide.

Unlike urban hierarchy approaches, the urban network approach considers networks as a whole, without analyzing or classifying each of their cities. In this case, the urban network can be a reflection and condition for the Territorial Division of Labor (DTT). Reflection, when the main function determines the Territorial Division of Labor. In addition, condition when there are articulated actions between cities as production, circulation and consumption, but that generate a greater articulating and determinant center of the DTT creating and transforming constantly and unequally the activities of the cities according to the capitalist logic.

It is on the basis of this network concept and, especially, the urban network, that the study of the daily population displacements for Chapecó is made, since there is a functional articulation of a set of urban centers, as Corrêa (2006) refers, involving Chapecó and region and that they transform constantly and unequally.

By concentrating the agro industrial activity through the refrigerators, Chapecó starts to develop the fundamental activity within this urban network, defining many other actions, both

in the countryside and in the cities. Moreover, two of the functions of small towns in the region of Chapecó are suppliers and consumers: suppliers of raw materials and labor and consumption of goods and services offered by the city of Chapecó, above all. This dynamic form, therefore, networks of places.

Until the 1960s, the urban network in Brazil was small in complexity, closer to an urban hierarchy and represented by national, regional and regional centers and numerous regional and local centers. The interactions were predominantly regional and fragmented, with railroads and banks the main articulating agents (CORRÊA, 2006, p.319).

The accelerated globalization process in recent years and national integration have significantly interfered with the Brazilian urban network. In this sense, Corrêa (2006) points out some associated factors that contributed to this change: Brazilian industrialization since the 1950s has generated diversified or specialized industrial centers; the urbanization verified in the increase of the urban population and in the patterns of behavior and consumption; new demands due to the greater stratification and social fragmentation; "general and progressive improvement of circulation, enabling more efficient spatial interactions of goods, people, information and capital"; beyond the modernization the industrialization of the field; incorporation and refunctionalization of new areas; entry of large multinational corporations structured into networks; changes in the wholesale distribution and retail sectors.

In the case of Chapecó and region there is a significant change in the roles of local cities, with the development of agroindustrial elites has boosted the growth of these conglomerates and also other industries in the area of metal mechanics, packaging, equipment for poultry, pens and transport, and also a number of services. Undoubtedly, Chapecó begins to take charge of this process of change and centralization of economic activities, making it the main node of this network of regional cities. However, many of these activities are found in other municipalities in the region, making it clear that there is a certain redefinition and complexation of actions of centers generated in the context of globalization, as Corrêa (2006) refers.

According to Maia, Alba, Villela, Ostrowski (2017), the pendular migration itself is the result of this process, the improvement of the forms of circulation through transport allows the population to continue living in their places of origin, without the need for permanent migration. It is undoubtedly a new function in the territorial division of labor, and these migrants begin to develop other tasks in Chapecó and not in their municipalities.

Geographic networks, therefore, constitute flows and node. The nodes are the places of origin of the pendular population, and the destination is the city of Chapecó. It is understood

that Chapecó, along with the actors represented by the meat industries, become the articulators of this pendular migratory network and the main node of this network, through the exercise of centrality and command.

7 Pendular migration considerations

From the 1980s onwards, the dynamics of the mobility of spatial occupation effected by the population began to have their flows redirected. In search of economic gains superior to the city of origin, part of the population seeks employment in other cities. This phenomenon, although counting different concepts and probable causes can be understood primarily because of developmental differences between neighboring cities.

For Singer (1980), those responsible for migration would be the 'pull factors' in which destination locations would be better equipped as labor demand. In this sense, two currents of thought see migration in different ways. One advocates because of the modern industrial economy, and the other because of the process of migration, in which there is an increasing penetration between borders. The survival strategy, when it comes to living and working in different locations, is no longer restricted to large urban centers. The mobility of the Brazilian population presents significant changes in the last decades, especially in the decade of 1980, when the space dynamics undergoes a strong transformation in the country.

According to Randolph, Junior and Ottoni (2015, p.302) citing Moura, Castello Branco and Firkowski (2005), "the data on the pendular movement are important reference for the analysis of the processes of urbanization and urban expansion".

Pendularity itself becomes a key analytical concept not only to distinguish metropolitan areas from peri-metropolitan areas⁷; but also to investigate the force of attraction of peri-metropolitan municipalities of workers and students in the area itself. In this way, one can obtain first indications about the formation of regional poles (RANDOLPH, JUNIOR, OTTONI, 2015, p.302).

According to Randolph, Junior and Ottoni (2015, p.302), in the tradition of Urban Geography the pendular movements provide the basis for the identification of areas of

⁷ Considering Chapecó a polo city located in an area considered metropolitan, one observes an interrelated aspect of the commuting movements of people between metropolis and more distant areas that live in one place and work or study in another. Para Randolph, these "peri-metropolitan" places are the more distant areas - referring to people - who live in one place and work or study in another. It can be understood, then, that those people who live in one place and work or study in another, live in "peri-metropolitan" municipalities or places.

influence or functional regions. These areas, then, would be labor market, economic and metropolitan.

In the metropolitan regions of the country, there was a transfer of the main economic activities to other municipalities, especially those related to industries, mainly because of real estate speculation. This spatial change of the economic dynamics together with the increase of the soil resulted in the reconfiguration of the soil occupation by the population, contributing to the pendular movement (MAIA, ALBA, VILLELA, OSTROWSKI, 2017).

Pendular migration can be a way that people find to not make living expenses expensive, so they decide to stay in their living quarters and make the daily commute to work or study. At the beginning of the Brazilian urbanization, this action was verified, especially in metropolitan areas, but today this process is quite common in several Brazilian cities, such as Chapecó (MAIA, ALBA, VILLELA, OSTROWSKI, 2017).

According to Maia, Alba, Villela and Ostrowski (2017), the database and studies that involve pendular processes are still a recent issue in Brazil. The metropolitan regions of our country are pioneers in this study, since they are the ones that most often demand a greater supply of labor and seek this supply in neighboring cities. However, with new urbanization processes occurring in the last decades, these displacements are verified in other regions that present a greater economic dynamic capable of triggering such movements. On the other hand, data collection and contextualization of this theme related to the metropolitan regions that receive the working population deepens questions not only of income generation, but also in many cases of integration and use of neighboring cities to relate their coverage radius. This influence is also measured by the commercialization of raw materials and support to working populations and demand for public equipment in the receiving city.

8 Final considerations

The conceptual notion of a smart city, as well as a smart region, allows us to operationalize an understanding of the rationality of the innovative medium, especially if it is operationalized to the Chapecó environment. A perspective of understanding the conceptual notion of smart region refers to the characterizations or understandings that are passed by the notion/concept of innovative medium, or rather, the conceptual notion of smart region as a derivation, a normative conceptual upgrading of the notion/concept of innovative medium.

As for the territorial dynamics in the theories of innovation (the innovative medium) and the processes of governance from the social construction, in an effort to operationalize the rationality of the innovative medium of Chapecó/SC, basing itself on Santos (2009), in brief, can it be said that: the emergence of the innovative medium is spontaneous/induced; it has a climate of corporate culture; the productive system is industrial and tertiary (productive diversification in an optics of intra-sectoral division of labor); in non-market relations between firms there is intensity in the extra-production relations and importance and diversity of formalized non-market relations (cooperation networks, strategic partnerships, etc.); there is a high level of contact in the institutional relations of companies; there is a strong opening to the outside in the relations with the outside and insertion in international circuits of transference of information and knowledge; there is a logic of partnership, creation of collective learning mechanisms as the engine of competitive renewal of the productive base, as well as fostering innovation potential; and, the dominant modes of learning are "by doing", "by interacting" and "by networking".

Strategically and opportunely, Chapecó presents some social infrastructures that highlight it and contribute to its regional influence, encompassing technical and economic activities. Collective infrastructures comprising public services (energy, telecommunications, garbage collection and treatment, piped gas), public works (highway road network, damming works and irrigation or drainage works) and other transport sectors (urban transport, waterway and airport). Even if generalizing, such collective infrastructures have as a common element the more or less comprehensive intervention of the public sector - which corresponds to a situation in which the market cannot ensure the supply of infrastructures.

As Dias (2005) indicates that the importance of the concept of network is identified from the existence of four large flows that cross the geographic space (the movements of people or migratory flows, the commercial movements or flows of merchandise, the movements of information or capital flows or monetary or financial flows), the infrastructures offered by the city allow the existence of these flows.

In Chapecó, the entire structure offered by the regional polo city allows a favorable environment to a network notion that represents one of the possible space cuts to understand the organization of contemporary space where the city starts to develop fundamental activity within this urban network, defining other actions and exercising its influence, both in the countryside and in the cities, thus in a network dynamics of places where the pendular migration itself is the result of this process.

When analyzing the pendular migration to Chapecó can be pointed two questions: first the supply of unskilled labor that the refrigerators present and that Chapecó can not attend; this dynamic also shows the fragilities of other cities of origin of the population in terms of the supply of jobs in these places, forcing the population to commute daily, many of them undergoing a few hours of daily trips.

It is concluded that, from the point of view of city networks, Chapecó is one of the central nodes that manages to articulate the other nearby cities in the west of Santa Catarina and of Rio Grande do Sul and Paraná. The concept of network allowed delimiting the territory in analysis through the perception of the networks and their flows triggered between Chapecó - place of destination and the municipalities - place of origin of the commuting migrations.

References

ANDRADE, Thompson Almeida; SERRA, Rodrigo Valente. **O recente desempenho das cidades médias no crescimento populacional urbano brasileiro**. Rio de Janeiro: IPEA, 1998.

BANDEIRA, Pedro Silveira. **Participação, articulação de atores e desenvolvimento regional**. IPEA. Textos para discussão, n.630, fev.1999.

BECKER, Dizimar F. **A economia política do (des)envolvimento regional**. *Redes*. v.7, n.3. p.35-59, set./dez.2002.

BENKO, Georges. **Economia, espaço e globalização na aurora do século XXI**. São Paulo: Hucitec, 1999.

BESSA, Kelly. **Estudos sobre a rede urbana: os precursores da teoria das localidades centrais**. *GeoTextos*, vol. 8, n.1, Jul. 2012. p. 147-165.

CASTELLS, Manuel. A cidade na nova economia. In: MACHADO, Jorge Alberto (Org). **Trabalho, Economia e Tecnologia: Novas Perspectivas para a Sociedade Global**. São Paulo: Tendenz; Bauru: Praxis, 2003.

CORRÊA, Roberto Lobato. Construindo o conceito de cidade média. In: SPÓSITO, Maria Encarnação B. **Cidades Médias: Espaços em transição**. Presidente Prudente: Expressão Popular, 2007. p.23-33.

CORRÊA, Roberto Lobato. **Estudos sobre a rede urbana**. Rio de Janeiro: Bertrand Brasil, 2006.

DIAS, Leila Christina. **O sentido da Rede: Notas para discussão**. In: DIAS, Leila Christina; SILVEIRA, Rogério Leandro Lima da. (Orgs). **Redes: Sociedades e territórios**. Santa Cruz do Sul: EDUNISC, 2005.

FUJITA, Camila; MATIELLO, Alexandre Mauricio; VILLELA, Ana Laura Villela; OTSUSCHI, Cristina; ALBA, Rosa Salete. **Relatório Agentes econômicos e reestruturação urbana e regional**. Chapecó: Unochapecó, 2016.

MAIA, Claudio Machado; ALBA, Rosa Salete; VILLELA, Ana Laura Vianna; OSTROWSKI, Simoni. **O movimento pendular e deslocamentos populacionais diários para Chapecó/SC no contexto de**

novas formas de urbanização. Anais. VIII Seminário Internacional sobre Desenvolvimento Regional. Santa Cruz do Sul: UNISC, 2017.

MAIA, Claudio Machado; VILLELA, Ana Laura Vianna; ALBA, Rosa Salete; DALPIAZ, Jessica Martinelli. **Cidades médias: aproximações e reflexões.** Anais. 3º Seminário de Desenvolvimento Regional, Estado e Sociedade (3º SEDRES). Blumenau: FURB, 2016.

MAIA, Claudio Machado; SANTIN, Myriam Aldana. **A participação social nos processos de decisão da construção regional: pressupostos para o desenvolvimento regional.** Anais. 3º Seminário de Desenvolvimento Regional, Estado e Sociedade (3º SEDRES). Blumenau: FURB, 2016.

MAIA, Claudio Machado. **Elementos que conformam a evolução da agricultura na era da globalização: o posicionamento estratégico de atores locais no Sul do Brasil.** Tese. Universidade Federal do Rio Grande do Sul, Porto Alegre, 2012.

MAILLAT, Denis. Globalização, meio inovador e sistemas territoriais de produção. **Revista Internacional de Desenvolvimento Local.** v.3. n.4, 2002.

NORTH, Douglass C. *Economic performance through time.* **American Economic Review**, 1994. v.84, n.03. p.359-368.

NORTH, Douglass C. Institutions. **Journal of Economic Perspectives**, 1991. v.05, n.1, p. 97-112.

PROJETO CHAPECÓ 2030. Chapecó: SAC, 2012. Disponível em: <http://projetochapeco2030.com.br/>. Acesso em: 08 jan. 2021.

PUTNAM, Robert. *The prosperous community. Social capital and public life.* **The American Prospect.** 13. 1993. p.35-42.

RANDOLPH, Rainer; JUNIOR, Aramis Cortes de Araújo; OTTONI, Francisco Costa Benedicto. O movimento pendular entre a Metrópole do Rio de Janeiro e Municípios de sua Área Peri-Metropolitana. In: RANDOLPH, Rainer; SOUTHERN, Barbra Candice (Orgs). **Expansão Metropolitana e Transformações das Interfaces entre Cidade, Campo e Região na América Latina.** 2.ed. Rio de Janeiro: Letra Capital, 2015.

SANTOS, Domingos. Teorias da inovação de base territorial. In: COSTA, José Silva; NIJKAMP, Peter. **Compêndio de economia regional.** Volume I: teoria, temáticas e políticas. Cascais (Portugal): Ed. Principia Lda., 2009.

SCHUMPETER, Joseph Alois. **Teoria do desenvolvimento econômico.** São Paulo: Abril Cultural, 1982.

SINGER, Paul. **Economia política da urbanização.** São Paulo: Ed. Brasiliense, 1980.

SPOSITO, Maria Encarnação B. **Cidades Médias: Espaços em transição.** Presidente Prudente: Expressão Popular, 2007.

SPÓSITO, Maria Encarnação Beltrão; ELIAS, Denise; SOARES, Beatriz Ribeiro; MAIA, Doralice Sátyro; GOMES, Edvânia Tôres Aguiar. O estudo das cidades médias brasileiras: uma proposta metodológica. In: SPOSITO, Maria Encarnação B. **Cidades Médias: Espaços em transição.** Presidente Prudente: Expressão Popular, 2007. p. 35-68.