

## Papers

# Analysis of the social network of the Instance of Governance of the Caminho Novo Tourist Circuit, MG: a complex and systemic perspective<sup>i,ii</sup>

Análise da rede social da Instância de Governança do Circuito Turístico Caminho Novo, MG: uma perspectiva sistêmica e complexa

Análisis de la red social de la Instancia de Gobernanza del Circuito Turístico Caminho Novo, MG: una perspectiva sistémica y compleja

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### Keywords:

Tourism;  
Complex Systems;  
Social Network Analysis;  
Public Policy;  
Instance of Governance.

### Abstract

The objective of this research was to analyze the composition, organization, and operation of the Caminho Novo-MG Tourist Circuit (CTCN), within the context of public tourism policies, supported by complex systems theory and using as theoretical support the complexity paradigm proposed by Edgar Morin, Beni's SISTUR model (1998) and its reconstruction proposed by Moesch and Beni (2015, 2017). We used the snowball method applied in three steps, the analysis of social networks drawing on Granovetter's (1973, 1983) weak and strong ties theory and Burt's (1992) structural holes theory. Also, we used Bardin's (2011) content analysis and the elaboration of sociograms of the relationships between social agents. As the main results, we highlight the lack of a regional network capable of producing useful results, the low understanding of the municipalities on public tourism policies, a substantial municipal and regional interference linked to a context of discontinuity of public management and a competitive position with reduced participation of social agents to work in a network.

### Resumo

### Palavras-chave:

Turismo;

Essa pesquisa teve como objetivo geral analisar a composição, a organização e o funcionamento do Circuito Turístico Caminho Novo-MG (CTCN), dentro do contexto das polí-

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Sistemas Complexos;  
Análise de Redes Sociais;  
Políticas Públicas;  
Instância de Governança.

ticas públicas de turismo, apoiado na teoria dos sistemas complexos e utilizando como suporte teórico o paradigma da complexidade proposto por Edgar Morin, o modelo do SISTUR de Beni (1998) e sua reconstrução proposta por Moesch e Beni (2015, 2017). Como ferramentas metodológicas utilizou-se o método bola de neve aplicado em três etapas, a análise de redes sociais com foco na Teoria dos Laços fracos e Laços fortes de Granovetter (1973, 1983) e dos buracos estruturais de Burt (1992), aliadas à análise de conteúdo adaptada de Bardin (2011) e a elaboração de sociogramas das relações mantidas entre os agentes sociais. Como principais resultados destacamos a inexistência de uma rede regional capaz de produzir resultados efetivos, o baixo entendimento dos municípios sobre as políticas públicas de turismo, uma forte ingerência municipal e regional atrelada a um cenário de descontinuidade da gestão pública e uma postura competitiva com reduzida participação dos agentes sociais para trabalhar em rede.

#### Palavras chave:

Turismo;  
Sistemas Complejos;  
Análisis de Redes Sociales;  
Políticas Públicas;  
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#### Resumen

Esta investigación tuvo como objetivo general analizar la composición, la organización y el funcionamiento del Circuito Turístico Caminho Novo-MG (CTCN), dentro del contexto de las políticas públicas de turismo, apoyado en la teoría de los sistemas complejos y utilizando como soporte el paradigma de la complejidad propuesto por Edgar Morin, el modelo del SISTUR de Beni (1998) y su reconstrucción propuesta por Moesch y Beni (2015, 2017). Como herramientas metodológicas se utilizó el método bola de nieve aplicado en tres etapas, el análisis de redes sociales con foco en la Teoría de los Lazos débiles y los lazos fuertes de Granovetter (1973, 1983) y de los agujeros estructurales de Burt (1992), junto al análisis de contenido adaptado de Bardin (2011) y la elaboración de sociogramas de las relaciones mantenidas entre los agentes sociales. Como principales resultados destacamos la inexistencia de una red regional capaz de producir resultados efectivos, el bajo entendimiento de los municipios sobre las políticas públicas de turismo, una fuerte ingerencia municipal y regional vinculada a un escenario de discontinuidad de la gestión pública y una postura competitiva con reducida participación de los agentes sociales para trabajar en red.

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## 1 INTRODUCTION

The complex systemic relationship of the socio-spatial phenomenon of tourism establishes itself through the interconnections between the social agents that operate and produce this system, which generates a complex network managed by public policies that seek to organize and systematize tourist activity within its various scalar levels of acting.

At the national administrative level responsible for establishing the direction of Brazilian tourism policies, there is the National Tourism Policy, based on the General Tourism Law of 2008 and detailed by the National Tourism Plans (2003-2007, 2007-2010, 2013-2016), proposed by the Ministry of Tourism (MTUR). In this context, this study addresses Minas Gerais policy of creating tourist circuits and the Tourism Regionalization Macro Program (Macro Programa de Regionalização do Turismo - PRT).

At the state level, and specifically in the state of Minas Gerais, alignment with the federal government occurs by regional instances of governance. Such instances of governance are called Tourist Circuits, which constitute the primary tool for decentralized development and ordering of tourism throughout the state. Minas Gerais has taken a big step in recognizing and institutionalizing Tourism Circuits as an essential instrument for developing the tourism policy process integrated with the PRT (State Decree 43.321/2003). To this end, the decree considers the tourist circuit as municipalities of the same region with cultural, social, and economic affinities, united in favor of the sustainable organization of tourism through regional integration (Minas Gerais, 2003a).

At the state management level, the Minas Gerais State Secretariat of Tourism (SETUR-MG) is the regulatory and purposeful entity that coordinates the direction of regionalization policy in the state. As a way to legitimize and strengthen public tourism policy, the SETUR-MG, based on SETUR Resolution No. 007/2003, established a series of parameters and requirements so that the Tourist Circuits can receive their annual certificate of recognition (Minas Gerais, 2003b).

Based on this legal framework, this research seeks to establish a relationship between complex systems and tourism through the complexity theory of Edgar Morin (2000; 2002a; 2015), to create a connection between social agents involved in social networks that form from the implementation of public tourism policies.

Classical authors such as Leiper (1979), Boullón (1990), and Beni (1998), who explain the structural, territorial, and multisectoral dynamics present in the distinct tourism activity, support the understanding of the tourism phenomenon as a system. It is also proposed to extend the discussion about the tourism system from the holographic dialogic point of view, observed in the conception of a system that is self-organizing and repeatedly producing itself. This proposal is aimed at broadening the discussion about the socio-spatial phenomenon of tourism and its connections with complex systems.

In the same vein, Moesch and Beni (2015) and Beni and Moesch (2017) presented advances and innovations in the reconstruction of the SISTUR model, previously proposed by Mário Carlos Beni (1998).

Understood as a regional instance of governance, the Minas Gerais Tourist Circuits are a strategy proposed to manage and produce effective results in the state territorial tourism planning. The research presented here showed that the politics of the Tourist Circuits still lacks management tools that consolidate the role of those instances of governance as the articulating subject of social agents that act, directly or indirectly, on the systemic complexity that involves the whole state tourism context.

The research hypothesis starts with the understanding of these considerations combined with the experience of one of the authors as chairman of the Governance Board of the Caminho Novo Tourist Circuit (CTCN), in the period 2015-2017. Even though formally constituted as the main Regional interlocutor, that instance still presents difficulties to manage the process of tourism development in its region and to establish regional networks between social agents of tourism in a systemic and complex way.

This direction allows us to relate complex systems to public policies, given their full connection with social agents, companies, institutions, the economic system, and a wide range of situations that juxtapose, feedback and have nonlinear behaviors. Thus, “public policies also encompass several sectoral issues that are intertwined, asynchronous and especially overlapping” (Furtado, 2015, p. 21). In this context, it seems essential to know in-depth the connections between complex systems that interrelate from the performance of their social agents. This proposal is due to the goal of “an analysis of complex public policy systems is to provide insight and an understanding of how the complex system of society can be affected by the application of a policy.”

The Caminho Novo Tourist Circuit, as a Regional Instance of Governance, is inserted within the complex systemic context. This system is part of the fabric of social relationships that unfolds in the management and formation of public tourism policies in Brazil, mainly in Minas Gerais. The CTCN covers the territory located in Zona da Mata Mineira (southeastern of the Minas Gerais state, near the state border of Rio de Janeiro), in the Juiz de Fora Microregion. Its founders were the municipalities of Simão Pereira, Santos Dumont, Santana do Deserto, Matias Barbosa, Juiz de Fora, Ewbank da Câmara and Antonio Carlos. At present, the municipalities of Simão Pereira, Santana do Deserto, Matias Barbosa, Juiz de Fora, Santos Dumont, Mercês and Belmiro Braga compose the Circuit.

This article is a part of the master dissertation research of one of the authors organized into three sections, besides this introduction and the final considerations. The first section presents a summary of the literature review addressing general systems theory, SISTUR, complex systems, and the relationships between public tourism policies, complex systems, and social networks. The second section presents the research methodology used, structured from the social network analysis tool. In the third section the results of research are presented and discussed found.

## 2 TOURISM, COMPLEX SYSTEMS AND PUBLIC POLICIES

Tourism understood as a complex socio-spatial phenomenon involves a set of territorial, social, economic, spatial and temporal relationships, in a context with multifaceted characteristics and a dynamic of social agents connected in interactive networks, as described by Knupp (2014), Fratucci (2008) and Baggio (2008, 2006), among others. Given such complexity, their understanding should seek support in concepts and theories that can explain the multiplicity of relationships, interactions, and interconnections that occur within the tourism system as a scientific field under constant construction.

Therefore, the General Systems Theory of Bertalanffy (2009) supports this research by understanding that this theory changed the course of science as it introduced systemic thinking. As a philosophical basis, the Paradigm of Complexity of the philosopher Edgar Morin (2000; 2002a; 2015) was chosen to demonstrate tourism as a complex phenomenon capable of “self-eco-organize” (Morin, 2015), and to influence its environment by the ecosystem in which it operates.

For a system to be structured, it must be in an environment; it must have units and maintain relationships between its units, it must have its attributes and, above all, have inputs and outputs (Panosso, 2008). Thus, in this line of reasoning, one can say that “every organism “every living organism is essentially an open system. It is kept in a continuous flow of input and output, conserved through the construction and decomposition of components” (Bertalanffy, 2009. p. 65).

Every system increases its complexity "when its existence and the maintenance of its diversity are inseparable from interrelations with the environment, interrelations whereby the system draws on the outside world for material material/energy and, at a higher level of complexity, elicits information" (Morin 2000. p. 292). From the theoretical and empirical point of view, the concept of open system “opens the door to a theory of evolution, that can only come from the interaction of between system and ecosystem, and, in its most significant organizational leaps, can be conceived as the ‘going beyond”, the surpassing of the system into a metasystem" (Morin, 2015. p. 22).

This established connection between systems, sub-systems, ecosystems, and metasystems generates a feedback interdependence, self-organization between the various scalar levels the systems are in and their direct relationships with their environment. In this way, the human being inserts naturally in all the networks of connections that are present in social, ecological, molecular, and technological systems, where there are commonly overlapping and juxtaposed interactions.

Bringing this contextualization of systems and networks into the field of tourism studies, we understand that tourism activity is intrinsically related to systemism. We understand that to develop tourism, we need a broad relational network that operates within interdependent systems, which link directly to various other systems and subsystems. Consequently, it is an interdependent and interconnected socio-spatial phenomenon, which cannot be reduced to its parts, with its understanding requiring a broader view, which refers to the idea of systemic interaction.

## 2.1 General Systems Theory applied to the study of tourism

General Systems Theory (GST) contributed with a new way of understanding the dynamics and interactive processes found in the most diverse branches of science. This insight broke with cartesian analytical obscurity and awakened towards a systemic view. So, that relationships and sets take on prominent importance in the analyses of interactivity and interdependence. In these analyses, understanding the whole is much more crucial than only paying attention to the isolated analysis of its parts.

Thus, in the search for an epistemological and conceptual understanding of how the tourism system operates, several authors such as Leiper (1979), Boullón (1990), Molina (1991), Gunn (1996), Sessa (1983), Beni (1998), Petrocchi (2002), Jiménez (2005) among others, sought theoretical ground on the general theory of systems to build their models in order to explain the systemic dynamics found in the context of the socio-spatial and sociocultural phenomenon of tourism.

The approaches proposed by Leiper (1979), Boullon (1990) and Beni (1998) on tourism system models allow us to understand that tourism operates as an open system, permanently connected and interacting

with its environment. It must be thought, studied, developed, and conceptualized from the interactive connections of the elements that compose it and not only by the isolated analysis of its parts. It is necessary an approach that considers tourism as a self-feeding, self-organizing system that relates to other systems, from a meta-system. Thus, it is essential to consider the dialogical, competing, antagonistic, complementary, and retroactive relations (Morin, 2000; 2002b; 2011) established at all times and stages of SISTUR.

## 2.2 The reconstruction of SISTUR from the Complexity Paradigm

In the present context of tourism studies based on general systems theory, scientific and epistemological advances must proceed more deeply from a complex, interactive perspective, in the vision of a self-feeding and self-organizing living system. An increase in this sense can occur from the adoption of the complexity paradigm proposed by the philosopher Edgar Morin (2000; 2002a; 2015), to understand the tourism phenomenon. This proposal presupposes innovations and impacts on the production of tourism knowledge, passing through its deepening and its understanding based on a systemic and complex vision.

The first stage of the complexity proposed in the construction of tourism epistemology, according to Morin's complex thinking (2000), is the break with simplicity in the way of thinking about the object of tourism, even though this simple knowledge helps us to understand know some properties of the set. In the tourism system, as in every living organization, the subsystems are not randomly arranged, on the contrary, they are "organized according to a supporting fabric that supports [sic] the various structures of the system, of a unity where each part contributes to the whole" (Moesch, 2013. p. 16).

From the systemic point of view and its dynamics, Moesch and Beni (2015) and Beni and Moesch (2017) identified limitations in the original SISTUR model proposed by Beni (1998), for its application in studies on the epistemological and theoretical dimensions of the contemporary tourism phenomenon. They point to the "holistic paradigm of interdisciplinarity and transdisciplinarity, expressed by this discussion, as a need for action in the construction of tourism epistemology" (Moesch & Beni, 2015. p. 16). The shortcomings of the SISTUR model (BENI, 1998) was due to the analysis of its sets and subsystems. From the understanding of its parts, it was sought to explain the entire interaction of the system, which would be flawed "because the simple sum of the parts does not reveal the complexity of their connections and the dynamics of relationships" (Moesch & Beni, 2015, p. 16).

Therefore, the authors draw on the theory of complexity of Edgar Morin (2000) to present a new model for the reconstruction of the SISTUR. This model considers it a "living system that self-organizes and self-produces, while self-eco-organizes and self-eco-produces because it is involved in an external environment that is, itself, integrated into an eco-organizer system, the ecosystem" (Moesch & Beni, 2015. p. 9).

The SISTUR, reconstructed within these parameters can be observed as an interactive system that goes beyond itself. It is continuously self-organizing, being influenced by its external environment (ecosystem) and its internal behavior (production network). At the same time, SISTUR connects and is influenced by the agents that make up the tourism cluster, commonly rotating within a space/time present in a territory (Guilarducci & Fratucci. 2016).

Such an understanding of SISTUR involves its interpretation as a dynamic, interactive system that has a circular, continuous, and open movement. This movement maintains the energy exchange relations, passing its understanding as an open system and "within this conception of the open and organic tourism system, in the form of a hologram, the energy that propitiates its dynamics is human" (Moesch, 2013, p. 20).

All this interaction of self-organizing connections produces connectivity that, added to the social processes that inevitably occur in tourism, generate a complex social and territorial network between social agents that contributes to the construction of tourism knowledge. This process reflects the actions of spatial planning and management and the interrelations between social agents and in the public policies that produce a series of events of social, economic, and cultural magnitude. Those events must be observed from the perspective of complexity, since it allows a better understanding of the tourism phenomenon (Guilarducci & Fratucci, 2016).

The model presented by researchers Beni and Moesch (2015) and Beni and Moesch (2017) considering tourism as a complex system presented innovations and brought a new approach to tourism studies. On the other hand, supported on a more attentive and thorough note in the model presented, it is still possible to identify some gaps when analyzed from the perspective of complexity. That proposal still lacks aspects that include the interconnection and self-organization present in complex systems that can demonstrate more clearly and objectively the connectivity between elements and their connection with the systemic whole.

In our view, for the construction of the proposal of a Tourist System model capable of meeting the aspects intrinsic to complex systems with its self-eco-organization, it is necessary to seek support in the proposed toroidal model and patented by the physicist Nassim Hamein (2015 a , 2015b, 2016 a , 2016b, 2016c, 2016d). From it, we believe it is possible to adapt and build a proposal for a new Tourist System model that aggregates and unifies the tourism phenomenon, allowing it to be connected with its ability to achieve all of its most profound, complex, and interconnectivities aspects. However, this is not the time to delineate all these notes more accurately, as there is a need for a more detailed and in-depth study within the boundaries of complex systems and the toroidal model.

### **2.3 Brief theoretical reflections on complex systems**

From the perspective of complexity, systems coexist with possibilities of interaction and their application takes place at various scalar levels, acting within a complex logic, where there are unforeseeable and continuously changing factors. This multi-interaction, multidisciplinary and dynamic conception is corroborated by Fuentes when he states that "the science of complexity is not a disciplinary branch of science, it is an inter/transdisciplinary exploration of nature, in almost all scales and environments" (Fuentes, 2015, p. 65).

Such interrelationships and disciplinary connectivity are established in various types of scales and are linked to other non-predictable systems in a nonlinear fashion, which produces a constant adaptation of the system itself and its pattern. The unpredictability, the large number of interactions, the permanent change, and its nonlinearity are peculiarities inherent to the understanding of complex systems. In this sense, 'complex system' can be defined as a "system in which large networks of components with no central control and with simple rules of operation give rise to complex collective behavior" (Mitchell, 2009, p. 13).

Systems within a social logic react to the demand that intertwines between chance, order, and disorder in a recursive and complementary dialogical movement, which is commonly organized by its antagonistic forces. All this instability without balance contributes to the organizational feedback produced in the breast of its social inter-relationship, forming a systemic and complex social fabric, which organizes itself. Thus "complexity is not reduced to uncertainty; it is uncertainty within richly organized systems. It concerns semi-random systems whose order is inseparable from the casualties that concern them" (Morin, 2015, p. 35).

In this complex and systemic line of thought, tourism fits in as a socio-spatial and sociocultural phenomenon that involves a series of actions of complex magnitude so that it can fully happen.

From this perspective, social agents acting in public policy and tourism phenomenon establish relational connections within a social system, in a complex reticular structure. In this respect, the social network analysis tool allows us to understand this interactive web between individuals and institutions, and vice versa, considering the continuous flow of self-organization and nonlinearity present in network relationships.

### **2.4 Complex systems, social networks, and public tourism policies**

The recognition that "public policy also encompasses several sectoral issues that are intertwined, asynchronous and especially overlapping" (Furtado, 2015, p. 21) reinforced that the connection points between elements within the context of public policies are complex systems. The first point to consider is the "strong

idea of interaction between the parts, considering the scales and giving spatial and temporal relevance. These interactions, in turn, lead to a system that is not reducible to its parts" (Furtado, 2015, p. 22).

Beyond this point, one must consider that "interaction between the parties can lead to self-organization of the system, without the need for central control, implying that local interactions can generate bottom-up behaviors" (Furtado, 2015, p. 22). The third point of connection between complex systems and public policies can be characterized by the effect on time, where the application of an action at a given moment has repercussions in future situations. These three considerations allow us to state that "this is why complex systems are characterized as systems that learn, adapt and evolve" (Furtado, 2015, p. 22).

Therefore, public policies need to consider system dynamics, as there is constant systemic feedback that generates unpredictable flows and reactions. Consequently, it is essential to recognize that after the implementation of specific policies, some social behaviors may be unpredictable, considering the subjectivity of each social agent and, above all, the interests of stakeholders.

Some authors, such as Gentile et al. (2015) and Rand (2015), consider people as complex and unpredictable beings that are reflected in social systems that "understand autonomous individuals who do not behave perfectly rationally and who have different mental models explaining how society works" (Gentile et al., 2015, p. 85). Thus, the "objective of public policy is often to alter or maintain the behavior of a large group of individuals or organizations to achieve a socially desirable outcome" (Rand, 2015, p. 43).

In this respect, it is clear that, in general, Brazilian public tourism policies have been thought and developed disregarding the complex aspects inherent to the social agents producing the phenomenon (Fratucci, 2008). This fact provides mistaken actions that do not end up achieving the fundamental objectives of intended social transformations. The tactical change of these policies should consider the conjuncture of complex systems, mainly because the systemic complexity requires the application of methodologies and methods that enable their analysis more comprehensively.

Therefore, the methodological elements used in the design of complex systems are essential tools for application in the field of public policy. The goal of "a complex systems analysis of public policy is to provide insight and understanding of how the complex system of society may be affected by the application of a policy" (Rand, 2015, p. 46). Complex systemic analysis can provide tools that support the understanding and implementation of public policies in various sectors, including tourism.

From this perspective, social agents involved in public policy and tourism, establish relational connections within a social system, in a complex network structure. These connections influence the entire web of interrelationships intrinsic to any social phenomenon, for where there are people, institutions, and government, there are relational network connections.

Social network analysis is one of the possible tools for understanding complex systems, especially those where connections occur between individuals, social groups, companies, and governments. In this sense, the "goal of social network analysis and network science is to understand complex systems by describing the system of interactions that occur within the system" (Rand, 2015, p. 51). Within these parameters, the challenge is to understand the interaction between social agents inserted in a complex system where relationships between individuals and institutions are established.

The conception of interconnected social networks and agents is essential for the tourism phenomenon to be apprehended and understood, given its direct dependence on other sectors and systems. The relational networks established within the socio-spatial phenomenon of tourism are linked to the social agents involved in the system and the subsystems that make up an ecosystem structure, which supports the operation of a network of interconnections found in the tourism environment or meta-system.

Because of this, the tourism system structures regional networks established by tourism public policies. These policies follow a vertical structure, and their deliberations come from the federal sphere, passing through the state, and culminating in the municipal administration. Even within this verticalized model, public management produces a complex network of circular, complementary, and recursive interactions, where each agent assumes a level of centrality within the structure.

In the field of public policy, knowing in depth the connections between complex systems that interrelate through the actions of their social agents, can be useful for developing appropriate policies with a higher assertiveness index. The analysis of social networks can be considered a tool that contributes significantly to the development and monitoring of public policies. It allows discussing the "effects of the complex interdependence in the production of policies on social action, considering not only the connections around the actors but also the structure of the links and the general patterns in which they are inserted" (Marques, 2006, p. 20).

From this perspective, the complexity inherent in systems and public policies is revealed in its network and its connection with other networks that, in turn, are connected by 'oriented' and 'non-oriented' relationships with other agents and with other networks and even with other complex systems.

Within this conceptual theoretical context, the research focus of this study goes directly to the understanding of public policy networks formed specifically in the State of Minas Gerais, from the tourism regionalization policy, developed in Brazil and implemented in that state with the creation of the Minas Gerais Tourist Circuits. The empirical object of this study, the Caminho Novo Tourist Circuit, fits into this public policy network, involving flows and connecting relationships between individuals, institutions, social groups, and their interconnections with the public regulatory structures of these social agents.

### 3 RESEARCH METHODOLOGICAL PATH

This study is structured as exploratory qualitative research, conducted from September 2015 to August 2017. The objective of this study was to analyze the composition, organization, and functioning of the social network of the Instance of Governance of the Caminho Novo Tourist Circuit (CTCN). It was also considered the conditions set by the public tourism policies in Brazil that indicate such instances as the direct responsibility for coordinating, strengthening, and managing the network of social agents of each tourist region.

In the search to understand this complex web of relationships, the research was guided by Edgar Morin's theory of complexity (2000; 2002a; 2002b; 2002c) methodologically supported by the social network analysis tool. This tool allowed the study of the interrelationships that involve synchronously social and political processes related to socio-spatial phenomenon produced by the tourist activity in the region, focusing mainly on the study of relational ties that CTCN established between the social agents working in the local, regional, state, and federal spheres, mainly in its political and territorial dimension.

The relationships and connections of the social agents and the role that each one assumes within society establish interactions that contribute to the formation of the social structure, culminating in dynamic social networks with a high degree of complexity. All this relational design with different levels of complexity has generated various studies and research within the social sciences, directed to understand the processes of connection at the social and institutional level.

The social networks analysis (SNA) proposed by Warren (2007) is a methodological tool of "multidisciplinary origin (psychology, sociology, anthropology, mathematics, statistics) whose main advantage is the possibility of graphical and quantitative formalization of concepts abstracted from properties and processes characteristic of social reality" (Souza & Quandt, 2008, p. 31), constituting an "approach focused on the analysis of the structure of phenomena, especially on the interrelations between actors" (Recuero, 2015, p. 45).

From the representation view, a network is constituted by a set of points or nodes linked by ties, considering that these 'nodes' form a set of actors (set). Graphically the 'non-directed ties' are represented by straight lines or curves (lines), while 'directed ties' are referenced by straight or curved lines terminated by arrows (arcs) (Souza & Quandt, 2008).

From the theoretical-empirical point of view, there are different explicitly active possibilities about social network analysis and Granovetter's (1973; 1983) Loop Theory of Looses and Strong Ties fits into this picture. According to Lemieux (2012), reflecting on Granovetter's theory, strong or close ties bind us to those closest to us, such as close relatives (parents, cousins, friends, spouses) and weak ties or loose ones bind

us to more distant relatives, classmates, and the neighborhood, with which we have no friendship ties (Lemieux, 2012).

Another form of empirical, theoretical application in the analysis of social networks is the theory of structural holes, elaborated by Burt (1992), whose central point is *tertius gaudens*, that is when a social actor obtains advantage from the conflict between two others. It has an advantageous position in that it mediates a relationship between two unrelated individuals. The *tertius gaudens* can make use of two strategies according to the type of relationship kept with each of the parts involved in this structural hole formed between these three actors.

In the field of public policies, social network analysis can be considered a tool that contributes significantly to the development and monitoring of these policies. This tool allows us to discuss the “effects of the complex interdependence present in the production of policies on social action, considering not only the links around the actors but also the structure of the bonds and the general patterns in which they are inserted.” (Marques, 2006, p. 20).

The snowball method was used to analyze the social network of the Caminho Novo Tourist Circuit. This method applied in three rounds that contributed to the production of a research matrix used to establish the parameters to analyze and systematize the survey data. Besides that, we used the software *yED Graph@* from the node betweenness centrality tool to produce the sociograms of the formal, the theoretical, the pointed network indicated by social agents interviewed, and possible network, formed by the agents mentioned in the interviews plus their partners, associates, and services not indicated by the social agents interviewed.

With the support of the snowball method and research matrix aiming to further the research, a questionnaire by e-mail has applied to the technical staff of the State Secretariat of Tourism of Minas Gerais (SETUR-MG) and the members of the Minas Gerais Tourist Circuit Federation (FECITUR). At the same time, structured interviews were conducted with the main agents involved in tourism in the region, appointed in the second phase of the snowball method, which are CTCN, ABRASEL/ZM, SDETTUR, JFRC&VB, as well as all the municipal tourism secretariats that compose the CTCN. Although the cities bodies are members of the CTCN, no response was obtained from them to the interview requests made by the researchers. This fact, in some way, supports the research's hypothesis that points to the fragility of the administrative, political structures of those municipalities.

In this context, the analysis of sociograms, questionnaires, and interviews was guided by the following operational variables: (a) the ability of the social agents to articulate themselves in a network; (b) degree of the proximity of the relationship between social agents; (c) managerial capacity level of a tourist region; (d) the formation of regional networks between social agents.

#### 4 CTCN SOCIAL NETWORK: OBSERVED, POINTED AND POSSIBLE NETWORKS

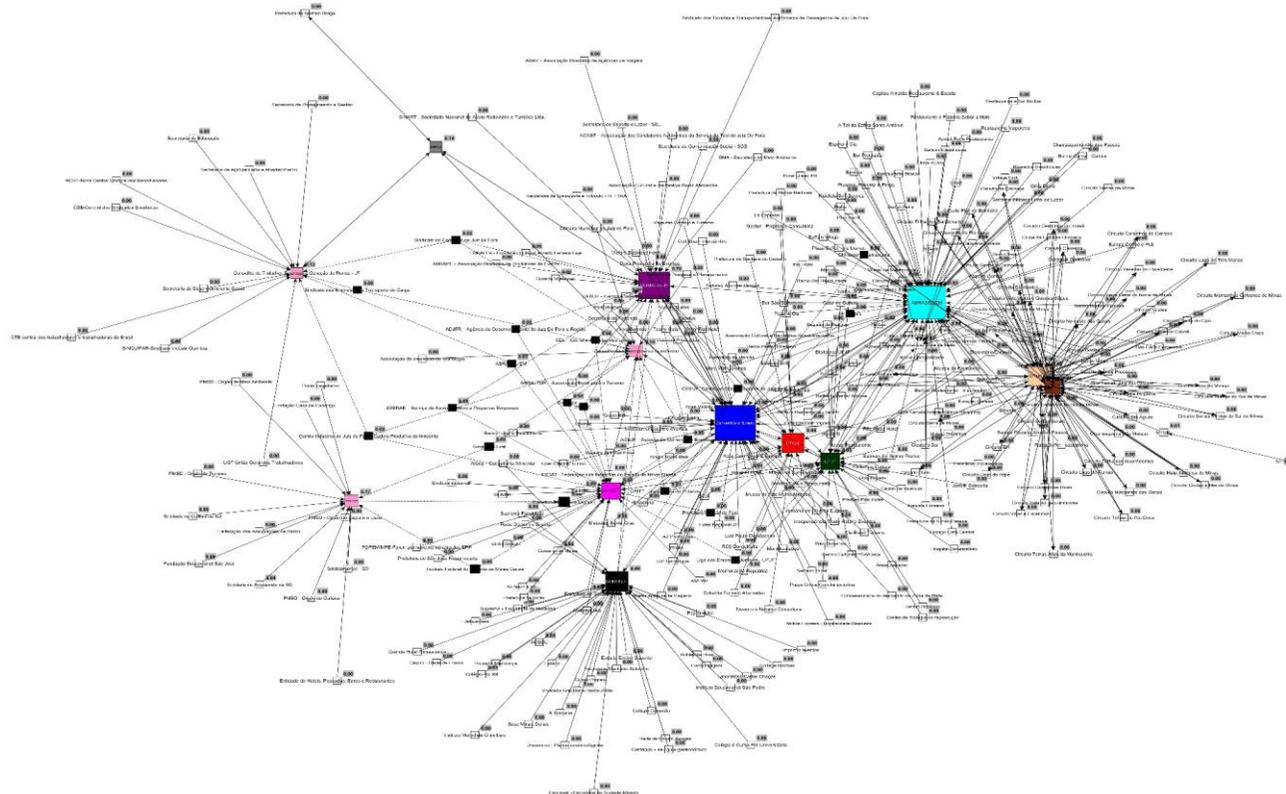
The analysis began with the production of the sociogram of the existing (or lack thereof) network in the instance of governance of the CTCN. This theoretical 'observed network', was built based on participant observation of one of the authors, directly involved in the public policy context of the state of Minas Gerais, especially in the study region. This choice eventually led to the first use of the entities that make up the COMTUR-JF, since it brings together in its composition the most robust and most representative tourism institutions within the regional context. It is because the city of Juiz de Fora is the region's conducive destination and has a more complex urban and economic structure than the other municipalities in the region. Then a selection of identified institutions was held to pinpoint the key players involved in tourism in the city/region. This decision was relevant to the fact that one of the authors was the president of CTCN at the time of the research (2016), a position that gave him a well-updated view of the social agents effectively involved with the instance of governance and regional tourism.

The map of the network observed in this first stage was made from the relationships established between the main actors related to tourism in the region to identify which actor(s) had higher centrality within that network. Accordingly, analysis of the sociogram in the formed network by this instance of governance (Fig-

ure 1) presents a set of links and interconnections existing between their groups and nodes. The production of this sociogram generated a total of 319 nodes and 514 edges and an autoloop of interconnections established between the social agents of the network. Among these connections, a total of 20 weak-loop agents were observed, where they fulfill the role of filling the structural holes of the network by interconnecting one or more nodes or groups.

From this result, the 'node betweenness centrality' tool sets its calculation parameters, assigning a value considering the shortest path to all vertices and the connections between them. The calculation also considers the relations directed and undirected and for all possible small paths it is established the value of 1 and for the shortest paths is used the value of 0 (Social Network Analysis, 2011). In this regard, the more near connections and interconnections are established by a node, the closer to 1 (one) will be its index, indicating the higher its interactions and its power to influence other nodes in the network will be. It assumes a centrality stance on the condition that it has no restrictions on access to other groups that are equally influential or not.

Figure 1 - Observed Network Sociogram of the Caminho Novo Tourist Circuit



Source: the authors (2017)

Table 1 present indexes found for each institution of the observed network of the CTCN in descending order, from which it is possible to scale the intensity of the connection and established centrality by each agent in the observed network.

**Table 01** – Institutions’ index of observed network

Institution	Index
Juiz de Fora and Region Convention & Visitors Bureau (Juiz de Fora e Região Convention & Visitors Bureau - JFRC&VB)	1.0
Brazilian Association of Bars and Restaurants / Minas Gerais Forest Zone (Associação Brasileira de Bares e Restaurantes/zona d mata mineira - ABRASEL/ZM)	0.93
Juiz de Fora Municipal Tourism Council (Conselho Municipal de Turismo de Juiz de Fora - COMTUR-JF)	0.70
Caminho Novo Tourist Circuit (Circuito Turístico Caminho Novo - CTCN)	0.44
Juiz de Fora Hotels, Restaurants, Bars and Similar Union (Sindicato de Hotéis, Restaurantes, Bares e Similares de Juiz de Fora - SHRBSJF)	0.44
State Secretariat of Tourism of Minas Gerais (Secretaria de Estado de Turismo de Minas Gerais - SETUR/MG)	0.42
Federal University of Juiz de Fora (Universidade Federal de Juiz de Fora - UFJF)	0.35
Mata Mineira Development and Innovation Working Group (Grupo de Trabalho Desenvolvimento e Inovação na Mata Mineira - GDI-MATA)	0.33
Minas Gerais Tourist Circuit Federation (Federação dos Circuitos Turísticos de Minas Gerais - FECITUR)	0.21
Santos Dumont Municipal Tourism Council (Conselho Municipal de Turismo de Santos Dumont - COMTUR-SD)	0.17
Economic Development Council (Conselho de Desenvolvimento Econômico - CDE-JF)	0.16
Secretariat of Economic Development, Labor and Tourism of Juiz de Fora (Secretaria de Desenvolvimento Econômico, Trabalho e Turismo de Juiz de Fora - SDETTUR)	0.14
Council of Labor, Employment and Income Generation of Juiz de Fora (Conselho do Trabalho, Emprego e Geração de Renda de Juiz de Fora - CMGER-JF)	0.13
Federal Institute of Southeast Minas (Instituto Federal do Sudeste de Minas - IF-SUDESTE)	0.05
Rural Union of Juiz de Fora (Sindicato Rural de Juiz de Fora)	0.04
UFJF Regional Center for Innovation and Technology Transfer (Centro Regional de Inovação e Transferência de Tecnologia da UFJF - CRITT)	0.01
Others	0.00

**Source:** the authors (2017)

The visualization of this 'observed network' presents, as a general panorama, the existence of many central entities that can exert direct and indirect influence on the complex relationships formed in a network of social and institutional relations. The sociogram indicates that this centrality is mostly composed of entities linked to or belonging to the city of Juiz de Fora. Some are local (COMTUR JF) and others, although they have regional coverage (such as Convention Bureau, ABRASEL/ZM, among others), they have headquarters in the city of Juiz de Fora, where they mostly act. When viewing the contents through the regional lens grounded in public tourism policies, the CTCN appears in fourth place, with 0.44 index, shared with SHRBSJF. That result demonstrates that the regional instance of governance is far away from its ideal position as a central agent, tourism promoter, and responsible for regional governance of the policies of the sector. This result reinforces the polarity of the city of Juiz de Fora indicating an imbalance in the tourism development processes in the region, still concentrated in its inductor destination.

#### 4.1 Pointed Network Sociogram analysis

The production of the pointed network sociogram indicated by the social agents started from the information derived from the structured interviews applied to the entities and institutions linked to COMTUR-JF and the tourism secretariats of the municipalities associated with CTCN. The applied questionnaire requested the interviewees to indicate which entities had the highest importance for tourism management at the regional level. Also, they were asked to assign values from 0 to 10 to each mentioned entity, to indicate their level of importance for tourism in the region. The results showed that the most representative entities/institutions for the management of regional tourism are SHRBSJF, JFRC&VB, ABRASEL/ZM, SDETTUR,

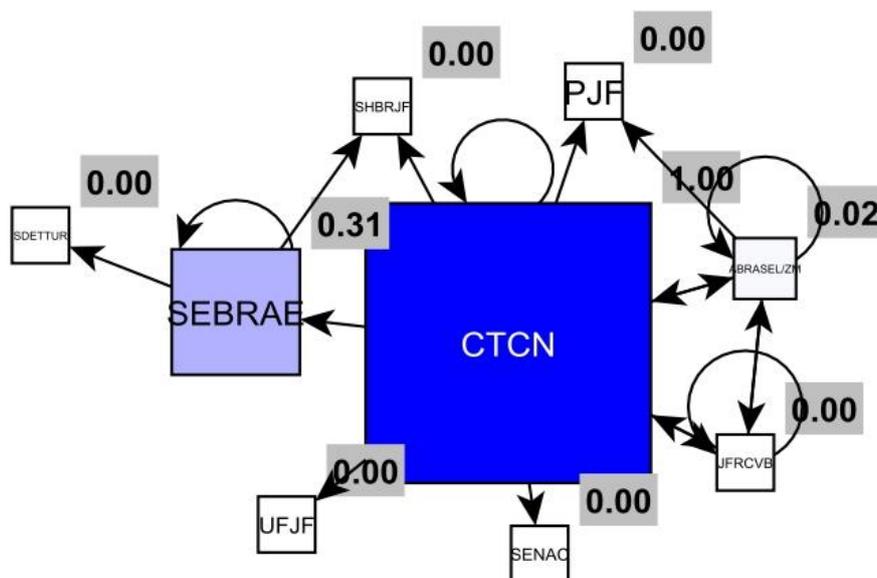
Juiz de Fora City Hall (Prefeitura de Juiz de Fora - PJF), CTCN, UFJF, Brazilian Service of Assistance to Micro and Small Enterprises (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas – SEBRAE) and National Service For Commercial Education ( Serviço Nacional de Aprendizagem Comercial – SENAC).

The sociogram produced with the information obtained indicates a network with reduced links and composed of few social agents, highlighting the presence of strong, close ties, shared within a small group that strengthens its internal connections and closes with external connections. There is also the absence of structural holes and relationships with weak ties because there are no agents who establish connections outside the restricted group maintained by the network.

Considering the simplistic character of the relational pattern maintained in this network, its interlocution with complexity is impoverished as it deviates from the basic precepts of complex systems, given that the sociogram points to 9 nodes, 18 ties, and four auto loops. In this respect, they are the patterns of behavior and interaction that guard the relationship system and position the actors according to their functionality. (Aguirre, 2011).

In the case of this network, there are only two centralities - CTCN and SEBRAE - with greater functionality, according to what is indicated by the indices generated between the relationships of the actors calculated by the yED software between nodes intercession centrality tool (Table 02).

Figure 2 - Pointed Network Sociogram of the Caminho Novo Tourist Circuit



Source: the authors (2017)

**Table 2** – Institutions' index of the pointed network

Institution	Index value
Caminho Novo Tourist Circuit (Circuito Turístico Caminho Novo - CTCN)	1.00
Brazilian Service of Assistance to Micro and Small Enterprises (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas – SEBRAE)	0.31
Brazilian Association of Bars and Restaurants / Minas Gerais Forest Zone (Associação Brasileira de Bares e Restaurantes/zona d mata mineira - ABRASEL/ZM)	0.02
National Service For Commercial Education (Serviço Nacional de Aprendizagem Comercial – SENAC)	0.00
Juiz de Fora City Hall (Prefeitura de Juiz de Fora - PJF)	0.00
Federal University of Juiz de Fora (Universidade Federal de Juiz de Fora - UFJF)	0.00
Secretariat of Economic Development, Labor and Tourism of Juiz de Fora (Secretaria de Desenvolvimento Econômico, Trabalho e Turismo de Juiz de Fora - SDETTUR)	0.00
Juiz de Fora and Region Convention & Visitors Bureau (Juiz de Fora e Região Convention & Visitors Bureau - JFRC&VB)	0.00
Juiz de Fora Hotels, Restaurants, Bars and Similar Union (Sindicato de Hotéis, Restaurantes, Bares e Similares de Juiz de Fora - SHRBSJF)	0.00

**Source:** the authors (2017)

This fact can be observed by the CTCN's notes that cited in their answers a more significant number of entities as prominent for regional tourism, where the Circuit was self-mentioned. Other institutions such as ABRASEL/ZM, JFRC&VB, and SEBRAE also self-nominated, which generated a self-turn for each of them, while also quoting each other. This behavior results in two-way links between these entities and leads to the centrality being established by CTCN and SEBRAE, reinforcing that these two institutions exert higher power of influence and connection in this network. Directly, the centrality of the institutions is due to the very point they indicate, that is, the higher the number of connections in a network, the higher its centrality and its power to influence it. In the case of the network pointed by the region's tourism agents, it proved to be incipient, not very complex and with a reduced number of connections, indicating an absolute dependence of the entire region for those two entities based in Juiz de Fora.

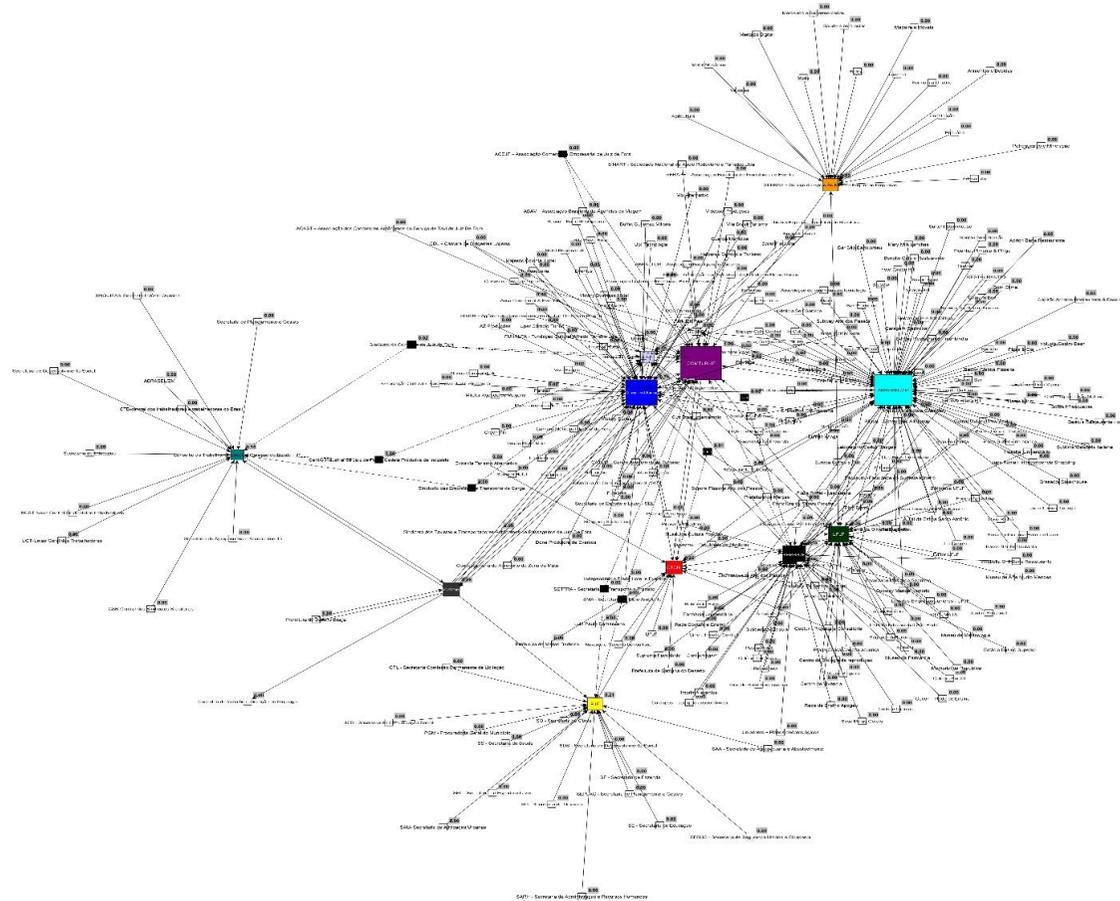
#### 4.2 Possible Network Sociogram Analysis

Considering that the entities that make up the pointed network have a set of associates, partners, and services, by including them in the network, we have the possibility of more interconnection between social agents. This question raises the chance that such a network will come out of a condition with strong, closed ties and open to a network with weak ties and structural holes that can add to it new knowledge while maintaining and breaking connections between the actors. For this, produced a sociogram with the 'possible network' (Figure 3) established between the social agents and their primary connections.

The elaboration of this sociogram of the 'possible network' can graphically represent the relational pattern that can be maintained in this social network, given that the entities were pointed out within their perception. With this, it is possible to visualize the centrality, the interconnections between agents and groups and the potential of a node to expand its connection relationships.

By inserting or removing agents in a social network, its dynamics change in the proportion of interferences suffered in the connections between its nodes. The sociogram prepared for the 'possible network' brought a new performance in the connections between the actors and directed to 276 nodes and 309 edges. However, when compared to the 'observed network' sociogram, the results for the three main influential agents remained similar to the 'pointed network' indexes.

Figure 3 - Possible Network Sociogram of the Caminho Novo Tourist Circuit



Source: the authors (2017)

This situation demonstrates that even in the face of a new context of exchange and insertion of other nodes (agents) in the network, COMTUR-JF, ABRASEL/ZM, and JFRC&VB remained in positions of higher centrality and with more established connections with other nodes and groups. The results also indicate that there is a high centralization of entities/institutions of the city of Juiz de Fora, indicating this city as a regional hub with human and institutional resources capable of reaching the entire region.

**Table 03** – Institutions' index of the possible network

Institution	Index value
Juiz de Fora Municipal Tourism Council (Conselho Municipal de Turismo de Juiz de Fora - COMTUR-JF)	1.0
Brazilian Association of Bars and Restaurants / Minas Gerais Forest Zone (Associação Brasileira de Bares e Restaurantes/zona d mata mineira - ABRASEL/ZM)	0.91
Juiz de Fora and Region Convention & Visitors Bureau (Juiz de Fora e Região Convention & Visitors Bureau - JFRC&VB)	0.71
Juiz de Fora Hotels, Restaurants, Bars and Similar Union (Sindicato de Hotéis, Restaurantes, Bares e Similares de Juiz de Fora - SHRBSJF)	0.45
Federal University of Juiz de Fora (Universidade Federal de Juiz de Fora - UFJF)	0.36
Secretariat of Economic Development, Labor and Tourism of Juiz de Fora (Secretaria de Desenvolvimento Econômico, Trabalho e Turismo de Juiz de Fora - SDETTUR)	0.26
Caminho Novo Tourist Circuit (Circuito Turístico Caminho Novo - CTCN)	0.25
Brazilian Service of Assistance to Micro and Small Enterprises (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas – SEBRAE)	0.22
Juiz de Fora City Hall (Prefeitura de Juiz de Fora - PJF)	0.21
Economic Development Council (Conselho de Desenvolvimento Econômico - CDE-JF)	0.17
Council of Labor, Employment and Income Generation of Juiz de Fora (Conselho do Trabalho, Emprego e Geração de Renda de Juiz de Fora - CMGER-JF)	0.14
Juiz de Fora Trade Union (Sindicado do Comércio de Juiz de Fora - SINDCOMERCIO-JF)	0.02
Juiz de Fora Department of Transportation and Transit (Secretaria de Transporte e Trânsito de Juiz de Fora - SETTRA-JF)	0.02
Juiz de Fora Environmental Secretariat (Secretaria de Meio Ambiente de Juiz de Fora - SMA-JF)	0.02
UFJF Regional Center for Innovation and Technology Transfer (Centro Regional de Inovação e Transferência de Tecnologia da UFJF - CRITT)	0.01
Others	0.00

In general, the analysis of the sociogram produced by the 'possible network' points to deficiencies in the PRT within the analyzed regional network, given the low centrality index presented by the CTCN instance of governance (0.25) (Table 3) and the few connections established by her. Only the analysis of the isolated sociogram already gives a good view of the current scenario of the regional network. However, its comprehension can be complemented with the study of the content of the information obtained from the social agents that compose the network.

#### 4.3 Content analysis of interviews with social agents in the CTCN region

The third stage of the snowball method, object of this topic of analysis, consisted of the application of a questionnaire, sent by email, to SETUR-MG, and FECITUR, and by conducting structured interviews with the main tourism agents of the study region, selected on the basis of the indications made in the second round. Four variables structured the set of questions: (a) the ability of the social agents to articulate themselves in a network; (b) the degree of proximity of the relationship between social agents; (c) managerial capacity level of a tourist region; (d) the formation of regional networks between social agents.

After data collection, an adapted table by Bardin (2011) was elaborated to produce the content analysis of the questionnaires and interviews. The table was divided into rows and columns, which was inserted in the fields of the raised variable, the interviewee, the speech transcription, keywords, and lastly, an observation about the central theme pointed out in the interviewee's speech.

In the specific case of the analysis of the interviews of this research, the thematic content started from the transcription of the speeches corresponding to the previously selected variables, highlighting in bold the main content. From this, the keywords of the speech of each interviewee were pointed out.

#### *4.3.1 The ability of social agents to articulate themselves in a network*

The variable mentioned above sought to understand the behavior established among those involved in the regional network and their level of articulation. From an inter-organizational perspective, it observed that each institution could recognize its role and the other as agents capable of influencing and networking. Therefore, it started from the understanding of the complexity of interrelationship maintained between the public power, the private initiative, and the civil society, at the state, regional, and municipal levels.

The content of the interviews of this variable points to incompatibilities, deficiencies, and conflicts in the network articulation between the social agents of this region. There is a lack of dialogue between institutions and a low or no network articulation between public power, private initiative, and civil society. Very similar aspects were identified in the speeches of the entities regarding the lack of understanding of their role as tourism agents, lack of dialogue between agents, competition behavior at the expense of networking and lack of connection and convergence actions between the public power, private initiative, and civil society.

Such negative attitudes present in the region lead to a low index of networking capacity and a weakening of public tourism policies in the region, as they bring with it a reverse framework to the decentralized networking proposals proposed by current national and state public tourism policies.

#### *4.3.2 The degree of the proximity of the relationship between social agents*

The variable about the 'Degree of proximity of the relationship between social agents' was considered based on the assumption that the whole network is based on relationships, whether interpersonal or inter-institutional. Thus, this variable sought to identify relationship proximity between CTCN network agents, from a regional perspective, maintained between public, private, and civil society agents.

When analyzing and crossing the content of the speeches, it was observed that there is a low proximity of relations, misunderstanding about the essential criteria of the Regionalization Program and little investment in the instances of governance. In the same proportion, there was a low degree of proximity among social agents in the region. The low degree of interaction is reported by the state agency itself (SETURMG) and by the interviewed entities themselves, which still see as low representative and shy the degree of relationship maintained between the institutions.

#### *4.3.3 Formation of regional networks between social agents*

One of the essential criteria in the construction of regionally focused public policies is the implementation of networking involving public, private, and civil society actors. In this context, this variable aimed to identify if the entities/institutions involved in regional tourism can maintain network relationships to promote the development of tourism broadly.

The reports of the interviewed institutions indicate a strong disarticulation between public and private institutions in terms of involvement and participation in the formation of regional networks. Which ends up producing a centrality in few entities that try, shyly, to carry out actions in favor of tourism almost always focused on only one municipality, Juiz de Fora. In the CTCN's speech, the entity points out two fundamental issues that contribute to the deficiency in networking in the region. The first is related to the current stage of understanding of public tourism policies by municipalities that have not even surpassed the initial phase of the National Tourism Municipalization Program (1998) and try to compose a tourist region. The second concerns the lack of understanding of local and regional actors on the need for regional governance. The CTCN emphasizes that with the transfer of resources comes the possibility of working with municipalities to

demonstrate how it operates in a regional view. In summary, there is little maturation in the formation and basic functioning of the structure necessary for a regional tourism operation.

#### 4.3.4 Managerial capacity level of a tourist region

This variable raised from the shared management structure pointed out by PRT (2013), worked at management levels covering the national, state, regional, and municipal levels. For the regional scale, it was established to the instance of governance as responsible for tourism management in its region. From this assumption, the variable sought to identify the perception of social agents about the management developed within the context of the broad and active participation of all entities/institutions involved with tourism in this tourist region.

As a negative aspect, this variable pointed to the inexistence of a professional with exclusive dedication to perform all management and administrative part of CTCN, considered extremely necessary for its operation and the execution of projects and actions of regional articulation. Another weak point is related to the overlap of regional entities that act in tourism, all concentrated in a single municipality, Juiz de Fora.

Considering what the collected data points out, noises were observed in the regional management process influenced by the misunderstanding of the role of each agent within the decentralization process. The tip of this system (municipality), where public policy actions should take place more directive, end up being deficient, a consequence of the municipal interference itself and the lack of inter-municipal and inter-institutional cooperation that do not produce synergistic decisions.

## 5 CONCLUDING REMARKS

The regionalization and decentralization of management as a public tourism policy rely on regional instances of governance, which have the role of being the forum for discussions aimed at managing, planning, and developing tourist territories based on the agglutination of their municipalities and agents that make up the regional tourism system. In this context, the strengthening of these instances in Minas Gerais is part of the state planning strategy designed to manage and produce effective results in territorial tourism planning.

The network articulation in the Caminho Novo region, the object of this research, proved to be deficient with a low index of articulation power among the public, private, and regional civil society sectors. As a result of this, the degree of proximity of relationships suffers interference that needs to be adjusted when the focus is on working with tourism at the regional level through networking and decentralized management. Regarding the density of relational ties maintained between social agents including the public, private, and civil society sectors it does not seem to be sufficient to sustain and shape a robust regional network that can be consolidated to produce systemic actions in this region.

At the level of regional management, financial barriers, low participation, excessive centralization, poor understanding of tourism policy criteria, immaturity to network, lack of an executive manager, municipal interference, an overlap of entities, can be indicated as causes that converge and hinder the managerial capacity of a tourist region.

Quite clearly, in both the observed and the possible network sociogram, the CTCN, which should be the most central agent for being the regional instance, still appears marginally and loses its character as a central agent. This finding sets precedents for other entities acting regionally to assume the centrality of the network, but this does not put them in the condition of regional interlocutors with the state, as their representativeness is limited to specific segments within the tourism and does not contemplate the entire tourism system.

The two analyses (sociograms and content analysis) carried out indicated converging points that reflect the current state of tourism management by Caminho Novo's instance of governance during this research period. One of these points is the lack of a consolidated regional network that can be visualized both in the sociograms of the pointed and possible networks, as well as in the discourse of the interviewed entities.

In the surveyed region, based on the data analyzed, the context of interconnected systemic networks has not yet well assimilated by social agents. There are also reductionist behaviors that prevent interaction in municipal and regional networks, and that distance themselves from systemic and complex interactions. In this context, tourism as a complex system operates within system-wide patterns, and any change brought about by the implementation of new public policies produces a natural need for self-adaptation, self-regulation, so that the system needs to be shaped.

In this retroactive systemic behavior, the development of public policies at the regional and municipal levels, according to the results, proves to be insufficient, since the proposal of shared management and decision making with synergistic efforts proposed by the tourism policies is not yet fully achieved. The data analysis also pointed to the municipal and regional interference that reproduces within a principle of discontinuity of public management, that is, there is a constant interruption of programs and projects that are often replaced by others with each change of management of local executive powers.

One of the characteristics that identify the CTCN region is the disparity between the municipalities: on one side there is a regional pole city - Juiz de Fora - which centralizes a diversity of aspects, and on the other hand there are a number of small municipalities, lacking adequate political-administrative structure and with an extremely low annual budget forecast, insufficient for investments and costing specialized labor. Even with the cultural and historical elements that unite the region, creating conditions for regional integration has become a significant challenge for local and regional managers. It is understood that there is a certain distance between what the federal (PRT) and state (Tourist Circuits) public tourism policies propose and the reality of the municipalities of the studied region. For the regional instance of governance to fulfill its role as a coordinator and promoter of tourism development, it is necessary to remedy the weaknesses of the administrative, political structures of the municipalities that compose the CTCN.

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