

# Collaborative governance in coping with the covid-19 pandemic: a study based on the Quadruple Helix model

## A governança colaborativa no enfrentamento da pandemia de covid-19: um estudo a partir do modelo Hélice Quádrupla

Caroline da Rosa<sup>1i</sup>

Orcid: <https://orcid.org/0000-0001-5984-9189>

Sérgio Luís Allebrandt<sup>2ii</sup>

Orcid: <https://orcid.org/0000-0002-2590-6226>

Daniel Knebel Baggio<sup>3iii</sup>

Orcid: <https://orcid.org/0000-0002-6167-2682>

### Abstract

This study aimed to analyze collaborative governance in the context of coping with the COVID-19 pandemic in a municipality in Rio Grande do Sul State (southern Brazil) from the perception of government, companies, universities and civil society helixes. Interviews were carried out with representatives of each helix and consultation of municipal decrees regarding measures to protect against COVID-19. The content analysis technique was used. Our findings showed that the Executive Power took actions to face the pandemic within the scope of the *Comitê de Enfrentamento do Novo Coronavírus* [Committee to Combat the New Coronavirus], which had the participation of representatives from various segments of the public and private sectors. It cannot be said that collaborative governance was implemented, as there was no integrated action of all the helixes in the search for consensus in managing the pandemic, emphasizing the companies' dissatisfaction with the measures adopted by the government.

**Keywords:** public management; decision making; innovation.

### Resumo

O objetivo deste estudo foi analisar a materialização da governança colaborativa no contexto de enfrentamento da pandemia de COVID-19 em um município gaúcho, a partir da percepção de diferentes hélices (governo, empresas, universidade e sociedade civil). Realizaram-se entrevistas com dois representantes de cada hélice e consulta a decretos municipais relativos a medidas de proteção ao COVID-19. Os dados foram analisados pela técnica Análise de Conteúdo. Os resultados apontaram que as ações para o enfrentamento da pandemia foram tomadas pelo Poder Executivo no âmbito do Comitê de Enfrentamento do Novo Coronavírus, que contou com a participação de representantes de vários segmentos do setor público e privado. Não se pode afirmar que houve a concretização da governança colaborativa, pois não se observou uma atuação integrada de todas as hélices na busca pelo consenso na gestão da pandemia, com destaque para o descontentamento da hélice empresa perante as medidas adotadas pela hélice governo.

**Palavras-chave:** gestão pública; tomada de decisão; inovação.

<sup>1</sup> Universidade Regional do Noroeste do Estado do Rio Grande do Sul (Unijuí), Ijuí, RS, Brasil. E-mail: [carolinedarosa91@gmail.com](mailto:carolinedarosa91@gmail.com)

<sup>2</sup> Universidade Regional do Noroeste do Estado do Rio Grande do Sul (Unijuí), Ijuí, RS, Brasil. E-mail: [allebr@unijuí.edu.br](mailto:allebr@unijuí.edu.br)

<sup>3</sup> Universidade Regional do Noroeste do Estado do Rio Grande do Sul (Unijuí), Ijuí, RS, Brasil. E-mail: [danibaggio@gmail.com](mailto:danibaggio@gmail.com)

## 1 Introduction

The new coronavirus was first reported in Wuhan in December 2019, spreading to various parts of China and gradually to other countries; it was classified as a global pandemic by the World Health Organization in March of the following year (SHAW; KIM; HUA, 2020). The first case of COVID-19 in Brazil was reported on February 26, 2020, in São Paulo (AQUINO; MONTEIRO, 2020). The pandemic changed the dynamics of the functioning of Brazilian economic sectors, given the need for social distancing and restrictive measures of non-essential economic activities (CAUNETTO *et al.*, 2022). According to the Coronavirus Panel, updated on September 5, 2022, 34,477,539 accumulated cases were reported in Brazil with a lethality rate of 2.0% (CORONAVÍRUS BRASIL, 2022).

The need for social distancing as a preventive measure of disease protection due to the lack of vaccines demanded a combination of strong governance, the use of technologies in innovative ways, and strong community participation and solidarity (SHAW; KIM; HUA, 2020). Cross-border crises exceed the geographic, cultural, political, public-private, and legal boundaries typically administered by public managers (BOIN, 2019). Dallabrida *et al.* (2020) reported that the socio-political moment experienced in the world, especially in Brazil, presents conditioning factors that problematize the search for solutions required by unexpected and complex situations, such as the COVID-19 pandemic.

The concept of collaborative governance has emerged in recent decades as a new strategy for formulating and implementing policies and managing public programs or assets (ANSELL; GASH, 2008). Thus, it can be understood as a governmental arrangement in which one or more public agencies involve non-state stakeholders in a collective, formal, consensual, and deliberative decision-making process (ANSELL; GASH, 2008). According to Sant'Anna *et al.* (2019), collaborative governance stands compared to the traditional model of government structures, which is centralized and bureaucratic. In this proposal, the State is not necessarily the holder of the decision-making processes and the only one responsible for the results; hence, leadership should be shared with other actors (SANT'ANNA *et al.*, 2019).

The Quadruple Helix innovation model has received attention from researchers, given its focus on the relationships between government, industry, and university toward creative and collaborative solutions for regional development (MINEIRO *et al.*, 2019). The triad has recently been getting stronger with new models of knowledge generation, which include society (Quadruple Helix) and the environment (Quintuple Helix) (MINEIRO *et al.*, 2019).

Collaborative governance can occur in the relationships established between different actors (i.e., helices) in the management of public purposes; innovations can emerge from these interactions. Doin (2016), for instance, analyzed how collaborative governance occurs in the university-business-government relationship (Triple Helix) in the Educational Cooperation Program, an initiative designed and executed through a partnership between a Federal Teaching Institute, a shipyard subsidiary, an International Polytechnic Institute, and the Espírito Santo State Government. The authors identified that collaborative governance occurs satisfactorily but is fragmented as it is concentrated in top management (DOIN, 2016).

Silva, Sá, and Spinosa (2019), in turn, sought to identify existing technology parks in the headquarters of the Brazilian Army's military regions, considering the institution's need to implement a governance structure that promotes innovation development in a decentralized manner. Their findings suggested that implementing innovation governance centers of the Brazilian Army, inserted in Technology Parks, can enable the interaction of the Triple Helix (government-industry-academia) collaboratively to boost regional development.

Dallabrida *et al.* (2020) recently conducted a literature review on the term governance, integrating the concept of territorial governance and collaborative governance. The authors contextualized the case of public management related to the COVID-19 pandemic and

identified that, in the Brazilian case, it was not possible to identify collaboration in the governance practices implemented. The authors based the study on consultation of official websites and analysis of facts and initiatives of the public authorities from content released by the press (DALLABRIDA *et al.*, 2020).

To date, research that has analyzed the presence of collaboration between different actors in governance practices in the context of the COVID-19 pandemic is scarce. For example, Almeida *et al.* (2020) sought to understand the performance of public universities in Brazil in the context of the COVID-19 pandemic, emphasizing the Federal University of Rio Grande do Norte (UFRN). Other studies have, however, addressed the influences of the COVID-19 pandemic on different economic sectors, such as Caunetto *et al.* (2022), who investigated how changes caused by COVID-19 in food distribution may impact the relationship between buyers and sellers of agri-food products.

Given this context, this study sought to analyze the materialization of collaborative governance in the context of facing the COVID-19 pandemic in a municipality of Rio Grande do Sul State (southern Brazil) from the perception of different helices (government, business, university, and civil society). From the point of view of the literature, this study contributes by continuing the study developed by Dallabrida *et al.* (2020) by describing the perceptions of different actors on initiatives, collaboration, and learning generated from the moment of crisis. From a practical point of view, the results can improve collaborative governance processes in the relationships between government, business, university, and society (Quadruple Helix) in the management of public purposes.

This article is organized as follows: after this introduction, the theoretical framework is presented, in which the Quadruple Helix innovation model and the concept of collaborative governance are addressed. Next are the methodological procedures used, followed by the results and final considerations.

## 2 The Quadruple Helix innovation model and the design of collaborative governance

The Quadruple Helix model of innovation has as its antecedent the Triple Helix model proposed by Etzkowitz and Leydesdorff (1995) (MINEIRO *et al.*, 2018). The Triple Helix model was created in the context of changing relationships between government, industry, and university (ETZKOWITZ; LEYDESDORFF, 1995), originating from the New England lateral initiatives starting in the 1920s (ETZKOWITZ; ZHOU, 2017). At the same time, another group of university-government and industry-university double helices converged in Silicon Valley in the 1990s (ETZKOWITZ; ZHOU, 2017). The university is the key institution of knowledge-based societies, just as government and industry were the key institutions of industrial society (ETZKOWITZ; ZHOU, 2017).

The Triple Helix is a method that allows one to examine local strengths and weaknesses and fill gaps in the relationships between university, industry, and government (ETZKOWITZ; ZHOU, 2017). The model can identify people, relationships, institutional arrangements, and dynamic mechanisms critical to innovation and entrepreneurship (ETZKOWITZ; ZHOU, 2017). Thus, it is an innovation model in which university, industry, and government, as primary institutional spheres, interact to promote development (ETZKOWITZ; ZHOU, 2017).

The emergence of the Quadruple Helix model is part of a co-evolution of knowledge systems, which is driven by a demand for increased and differentiated participation in the development of society at large (NORDBERG, 2015). Nordberg (2015) stated that the conception of the Quadruple Helix relates to Mode 3 of knowledge production. Mode 1 concerns knowledge production in universities for application in companies, and Mode 2, developed by Gibbons *et al.* (1994), covers knowledge production in the context of application. Mode 3 deals with a perspective of sustainable development that combines innovation,

entrepreneurship, and democracy, combining vertical, horizontal, and social interactions in the regions (NORDBERG, 2015).

The Quadruple Helix model emphasizes the importance of integrating society's perspective to the State-Business-University relationship, seeking an emerging ecosystem of knowledge and fractal innovation configured for the knowledge economy and society (CARAYANNIS; CAMPBELL, 2009). Specifically, the fourth helix is associated with media, creative industry, culture, values, lifestyle, and creative classes (CARAYANNIS; CAMPBELL, 2009). Both culture and values and the way the "public reality" is being constructed and communicated by the media influence national innovation systems. A proper innovation culture is necessary to promote a knowledge-based economy (CARAYANNIS; CAMPBELL, 2009). In this model, users are at the center and drive innovation processes as co-creators (MINEIRO *et al.*, 2018).

The Quintuple Helix is an even broader model as it adds the perspective of the natural environments of society and the economy and global warming as an opportunity to live better with nature and as an innovation driver (CARAYANNIS; BARTH; CAMPBELL, 2012). It represents a model that seeks the promotion of sustainable development (CARAYANNIS; BARTH; CAMPBELL, 2012). Mineiro *et al.* (2018) reported that despite the characterizations of the Quadruple and Quintuple helixes still being eminent, the Quadruple Helix is being directed at the community and general society as the user of innovation and considerations of the non-existence of an agent for the Quintuple Helix.

The COVID-19 pandemic has impacted governments, organizations, and society. Cross-border crises exceed the geographic, cultural, political, public-private, and legal boundaries typically administered by public managers (BOIN, 2019). These crises have characteristics that make managing them challenging: multiple domains and manifestations, periods of slow development and rapid escalation, difficult mapping, multiple actors and conflicting responsibilities, and no ready solutions (BOIN, 2019).

Collaborative governance is a contemporary perspective of interest management and a means of solving complex problems (BARTZ; TURCATO; BAGGIO, 2019). Understanding its aspects proves essential for the strategic and competitive purposes of organizations, regions, and their systems (BARTZ; TURCATO; BAGGIO, 2019). These are complex management practices for processes, issues, and problems that are also complex (DALLABRIDA *et al.*, 2020).

In general, the term "governance" refers to the act of governing in the public or private sector (EMERSON; NABATCHI; BALOGH, 2011). Governance is a process involving strategic, often collaborative, resources and relationships seeking to achieve a public policy goal (BEVIR, 2011). Ansell and Gash (2007) defined collaborative governance as a governance arrangement in which one or more public agencies involve non-state stakeholders in decision-making to implement or manage public policies in a collective, formal, deliberative, and consensus-oriented process. This definition emphasizes six important criteria: (1) the forum is initiated by public agencies or institutions; (2) forum participants include non-state actors; (3) participants are directly involved in decision-making (not merely "consulted" by public agencies); (4) the forum meets collectively and is formally organized; (5) consensus decision-making is sought, even if it is not achieved in practice; (6) the focus of the collaboration is on public management.

Emerson, Nabatchi, and Balogh's (2011) definition has a broader scope than Ansell and Gash's (2007) because it does not limit collaborative governance to formal, state-initiated arrangements and engagement between government and non-government stakeholders. Emerson, Nabatchi, and Balogh (2011) defined collaborative governance as decision-making processes and structures that constructively involve people across the boundaries of public

agencies, levels of government, and/or public, private, and civic spheres to accomplish a public purpose that could not otherwise be achieved.

Collaborative governance can include state, private sector, civil society, and community partnerships, governmental and hybrid arrangements such as public-private and social-private partnerships, community collaborators involved in collective resource management, and intergovernmental collaborative structures, among other types of arrangements initiated in the private or civic sectors (EMERSON, NABATCHI, BALOGH, 2011). Actors share goals, and there are blurred boundaries between the public, private, and voluntary sectors (DALLABRIDA *et al.*, 2020). Collaboration implies two-way communication, speaking opportunities for stakeholders, and responsibilities for collective decision-making outcomes (ANSELL; GASH, 2007).

The variables that will influence whether or not a governance model will produce successful collaboration are the previous history of conflict or cooperation, the incentives for stakeholders to participate, power and resource imbalances, and leadership and institutional design (ANSELL; GASH, 2008). Ansell and Gash (2008) identified the following as crucial to the collaborative process: face-to-face dialogue, building trust, and developing commitment and shared understanding. A virtuous cycle of collaboration tends to develop when collaborative forums focus on “small wins” that deepen trust, commitment, and shared vision (ANSELL; GASH, 2008).

The present study started by understanding the concept of collaborative governance to verify its materialization in a municipality when confronting the COVID-19 pandemic. Considering the notion of the Quadruple Helix (CARAYANNIS; CAMPBELL, 2009), we sought to investigate the perceptions of each helix (government, business, university, and civil society) about actions implemented in the municipality, the existence of a consensus in decision making, the possible innovations generated in the process, and the lessons learned from this crisis. The next topic presents the methodological procedures of the study.

### 3 Methodology

This study has an applied nature, a qualitative approach, and a descriptive objective (GIL, 2008). Regarding the technical procedures, a case study was used (GIL, 2008), which considered the possibility of materialization of collaborative governance in a municipality in northwestern Rio Grande do Sul State using the conception of the Quadruple Helix as a theoretical lens. According to Gil (2008), the case study is characterized by the deep and exhaustive study of one or several objects to obtain broad and detailed knowledge.

The data were obtained through in-depth interviews with each helix’s representatives: municipal government, entrepreneurs, university, and civil society representatives. Documentary research was also carried out based on the consultation of municipal decrees related to protection measures against COVID-19.

The in-depth interviews are an unstructured way of obtaining information and conducted individually (ZAMBERLAN *et al.*, 2014). In this technique, the researchers introduce themselves to the participants and ask questions to acquire data, while the other party is the source of the information (ZAMBERLAN *et al.*, 2014; GIL, 2008).

The semi-structured interview script covered topics such as first impressions about the COVID-19 pandemic, actions taken, decision-making forums, participation and/or demands from other representations, consensus, collaboration between institutions, and innovations and lessons learned. We used an interview script that we developed ourselves for this study.

The interviewees were initially contacted via phone, WhatsApp, and email in June 2020. They were given the option to be interviewed personally or to answer the questions



electronically and send the file with their answers by email, given the context of social distancing and protective measures (e.g., the use of masks and hand sanitizers).

Thus, three participants answered the questions electronically and five conducted personal interviews, of which four were done in person and one online using the Google Meet platform. The interviews were recorded after the interviewees' authorization and were later transcribed. The total amount of transcribed audio was 2 h and 49 min. The transcription of the interviews and files received by email consisted of a 34-page Microsoft Word document.

The data were analyzed using the content analysis technique (BARDIN, 1977); content analysis includes techniques of communication analysis that seek to obtain, through systematic procedures, indicators that allow one to know the production or reception conditions of certain information (BARDIN, 1977). In this sense, the units of analysis were the written answers and the interviewees' transcribed responses. To organize the material, five grids were defined: actions, governance, innovation, and knowledge generated by the pandemic. Thus, the material was read and analyzed in light of the literature on collaborative governance and the Quadruple Helix innovation model; the results are presented in the following section.

## 4 Results

The first preventive measures taken by the Health Department of the municipality studied date back to February 28, 2020. At the time, the municipality had a stock of approximately 50,000 masks and had purchased special protection masks and hand sanitizers to be distributed in places with a large circulation of people. At that time, the Health Department was still waiting for higher decisions from the State as there were suspicions of other cases in Rio Grande do Sul (MUNICÍPIO DE IJUÍ, 2020).

On March 17, 2020, the mayor signed Executive Decree No. 6975, the first decree issued in the context of the COVID-19 pandemic, providing temporary measures to prevent infection in the city. Among the measures established, the following stand out: the suspension of all direct and indirect public administration acts, such as training and collective events, the recommendation to the private sector and other public agencies to suspend events with crowds of people, the suspension of classes in the Municipal Education Network and public school transport, and the creation of the Committee to Combat the New Coronavirus. The mayor — representing “government helix 1” (GH1) — explained the first measures taken to face the pandemic:

We had already been following through the media that this pandemic was happening in China [...] but nobody knew the exact dimension [...]. So, aware of this reality in the countries where this virus appeared and where it continued, we were preparing ourselves here. One day, I received the health staff in my office [...]. Well, we immediately held an extended meeting, which took place there at the Public Prosecutor's Office, where we decided to build a screening center [...] we also looked into other measures [...] we insisted a lot on the mask, we continuously put a surveillance team at the reception of the bus station [...], but before that, we had already created the Sentinel team, which is a team that faces these situations and monitors those who are affected [...]. So, all this work was done and the sanitization of the city, the rules issued by the state governor were followed [GH1, 2020].

Thus, among the actions taken by the Executive branch, in addition to those in Decree No. 6975/2020, are the following: following the rules issued by the State Government, raising awareness among the population about the need for social distancing and mask use, the creation of an exclusive screening center for people with flu symptoms, the creation of the Sentinel Team to care for suspected cases of COVID-19, the work of Sentinel Team professionals in

checking the body temperature of passengers in the municipal bus station, and the sanitization of public spaces.

Although the municipal management has created the *Comitê de Enfrentamento do Novo Coronavírus* [Committee to Combat the New Coronavirus], the mayor reported that: “first of all, we must respect the hierarchy. The state government dictates its rules, [...] but we here always converse with the possible segments that have interest in participating” (GH1).

All our meetings, before the drafting of the decrees, were evaluated with society. Of course, the final word must always be ours. We gathered the Judiciary branch, the Public Prosecutor’s Office, the Public Defender’s Office, the Trade Association, Sindilojas, the Commerce Workers Union, and hospitals and other interested parties, university (GH1).

For Sant’Anna *et al.* (2019), collaborative governance positions itself against the traditional model of government structures, which is centralized and bureaucratic. In this proposal, the State is not necessarily the holder of the decision-making processes and the only one responsible for the results; hence, leadership should be shared with other actors (SANT’ANNA *et al.*, 2019). Ansell and Gash (2007) pointed out that collaboration implies two-way communication, speaking opportunities for stakeholders, and responsibilities for collective decision-making outcomes. Despite the presence of different stakeholders in meetings prior to the issuance of the municipal ordinances, two-way communication and shared responsibility could not be verified. The government helix is the holder of the decision-making process, as observed in the mayor’s speech: “the final word must always be ours” (GH1).

For Etzkowitz and Zhou (2017), the government’s role in the Helix model must be moderating, not controlling. The government may be the best candidate to create a “consensus space,” bringing together the relevant protagonists to design and implement innovation projects (ETZKOWITZ; ZHOU, 2017). An issue present in the context of facing the pandemic was the discontent of entrepreneurs with some measures taken by the Executive Branch, for example the suspension of non-essential services (Complementary Executive Decree No. 6981/2020; Executive Decree No. 7.013/2020), the establishment of the single work shift (Decree No. 7132), and the allocation of federal funds to rent rooms in a hotel to isolate infected people.

One of the representatives of the university helix (UH) considers that the measures adopted by the municipal government were “adequate in the beginning and raised doubts in the measures taken recently” (UH1). Another representative of the university helix (UH2) understood that the municipal management implemented adequate measures according to protocols observed in other municipalities. Similarly, one of the representatives of the civil society helix (SCH) stated: “I supported it from the beginning, even though we did not participate in this debate, although it was the moment that we had to see social distancing” (SCH2).

The business class participated in various meetings with the Executive Branch, in which their demands and dissatisfactions with the measures taken by the city government to face the pandemic were expressed. The dissatisfaction with the actions taken by the municipal administration was observed in the speech of one of the representatives of the business helix (BH): “I think that these are some wrong actions, completely wrong [...] in small businesses there is no agglomeration [...], people are taking decisions without considering the business, this was the measure that many entrepreneurs went to the ACI to complain, they were not consulted” (BH1). The presence of the entrepreneurs’ discontent, in various moments, exposes the absence of consensus in decision making.

[...] We worked with the businessmen who did not like the idea, but it was very important for them and everyone because we wanted to avoid the worst [...]. We are

at the orange flag, as we could be at the red flag, and at the red flag, everything is more difficult and much more complex, especially in the economic sector (GH1).

In this sense, one can note a reaction from the Executive Branch to the discontent of business owners regarding the measures taken: “When the committee decided to close the business, the business owners got together and retook the discussion” (UH2). One of the BH representatives who participated in meetings with the Executive Branch stated that there was dialogue and negotiation when it was understood that the measures could be more lenient:

As a representative entity of the business class, we have always been attentive and engaged in the discussion forums for confronting the pandemic. We exercised our ability to dialogue and expressed our opinions in all decisions. We negotiated flexibilities when there was the understanding that the measures could be more lenient, and we supported the rigidity of the actions when we understood that the moment required more severe actions (BH2).

In the knowledge-based society, the university is a key player in developing the space for knowledge, innovation, and consensus, being a primary institutional sphere such as the industry and government (ETZKOWITZ; ZHOU, 2017). In the context of coping with the COVID-19 pandemic, the interviewees highlighted the actions of the university of the region in conducting rapid tests to verify the contagion (BH1; GH2), changing the teaching regime (UH1, SCH2), and securing information for decision making (BH2, UH1). One of the representatives of the civil society helix stated that the university did not place itself as an entrepreneur at the beginning of the pandemic as there was not enough information:

The university established a line of work with the Municipal Administration and health agencies and was present in this movement. However, it did not place itself as the one that, let’s say, leads the movement, even because I understand the university itself had little scientific information that could establish a line of work from the front [...]. Of course, after some stages, the university started to participate in research with the Federal University of Pelotas; it also started testing to identify the virus, but, in the beginning, it was also very cautious about being present (SCH1).

According to one of the interviewees from the university helix (UH2), the institution sought to organize itself to enable social withdrawal, create a committee for crisis management, develop initiatives to support the regional community, and establish a specific communication strategy, among other initiatives. The interviewee added that the University had appointed two epidemiology specialists to assist in the decision-making of the city’s Committee to Combat the New Coronavirus. Also, according to this representative, the University will be part of a municipal leadership group that intends to study initiatives for the challenges presented by the “new normal” in the region as a whole.

Social control takes place through the participation of individuals in the public sphere, organized in groups or not, “enabling the exercise of their human multidimensionality” (MAGALHÃES; SOUZA, 2015, p. 153). One of the interviewees highlighted that social control over the Public Administration was not observed in the process of confronting the pandemic: “civil society could have created joint bodies to empower themselves and manifest” (SCH1); “we failed to empower the civil society movement in the sense of showing yes, we fight for life but then we want public policies in the economic field” (SCH1).

Other interviewees believed that there was social participation in municipal management: “the majority has positive participation, but part not as a result of the positions led by the President of the Republic and businessmen (UH1)”; “our entity is a representative association of the business class and civil society. We receive support and representation from



several voluntary organizations and sectorial leadership in articulating our actions and decision making” (BH2).

Tenório and Rozenberg (1997) stated that social participation must obey some assumptions: there must be awareness about the actions, that is, those involved must have an understanding of the process that is being experienced; it cannot be forced, nor a mere concession, and it must occur through the interest of the individual, without coercion or imposition. Social control varies according to the predominant model of public administration, the existence and intensity of citizen participation in producing the public good, and the prevailing management style (MAGALHÃES; SOUZA, 2014).

Innovation has broader significance in knowledge-based societies (ETZKOWITZ; ZHOU, 2017). Entrepreneurial initiatives do not only include actions of individuals forming companies but also organizational and individual entrepreneurial initiatives. Universities, government, and civil society organizations can be entrepreneurial, and innovations can result from the collaboration of individuals and organizations in various institutional spheres (ETZKOWITZ; ZHOU, 2017).

Most interviewees perceived innovative actions, at least of the incremental kind, taken when facing the pandemic. One of the business helix representatives stated that “there was nothing so surprising in terms of innovation, although we had to change a little the way we do things” (BH1). In the same way, one of the representatives of the university helix affirmed that “the institutions implemented more adaptations [than] innovations; [...] some of these did go through incremental innovations” (UH2).

Among the changes perceived by the interviewees, mask and hand sanitizer production, donations, changes in the hygiene of commercial establishments, changes in the hygiene habits of the population in general, greater flexibility and partnership on the part of institutions, and holding meetings online stood out. According to a representative of the business helix, “various institutions have sought innovative, supportive, and collaborative solutions to make economic activities feasible without neglecting health care and life” (BH2).

Considering the expectations of the interviewees regarding possible changes in the community after the pandemic, most said they did not believe in significant changes, despite recognizing that advances have already occurred in the dynamics of society. One of the representatives of the government helix stated that he is concerned about the issue of unemployment, literacy, and safety in the municipality (GH2). This representative adds that working with closed institutions, such as retirement homes and penitentiaries, will be necessary. Other possible changes mentioned by the interviewees were the fragility of the economy, changes in the health, education, and professional training systems, valuing personal relationships, and more use of digital platforms.

Regarding the lessons learned from the pandemic, some aspects mentioned by the interviewees included the organizations’ cost management, the importance of organizational strategies, the valorization of socialization, the importance of dialogue and inter-institutional relationships, health and hygiene care, the importance of investing in science, the need for public policies at the municipal, state, and federal levels, and a new conception of domestic life.

Collaborative governance can be understood as an arrangement in which one or more public agencies directly involve non-state stakeholders in collective, formal, consensus-driven and deliberative decision-making to create or implement public policies or manage public programs or assets (ANSELL; GASH, 2008). The Helix Innovation Model, in turn, highlights the leadership role of innovation organizers and initiators, which can be individuals or organizations, to bring diverse actors together in a common project; it is a dynamic process for innovation that draws on the knowledge, consensus, and innovation (ETZKOWITZ; ZHOU, 2017).

Despite the presence of representatives from various segments in the Committee to Combat the New Coronavirus, discussions of the measures taken by the city government with the business community, and the initiatives from the university, government, companies, and civil society, it cannot be said that there was the concretization of collaborative governance in confronting the pandemic because an integrated performance of all the helices seeking consensus was not observed. One of the interviewees stated “I still cannot see any collaborative movements; they are very fragmented” (SCH1). Nonetheless, some interviewees believed that the decisions made in the scope of the Committee to Combat the New Coronavirus had a collaborative role, as can be observed in the following statements:

Since the beginning, there was a different way of working through a committee [...] it has even become a broader committee because it included the education part. However, inside it, there is a legal part, so it has the participation of the City Hall, the Public Prosecutor’s Office, the participation of representatives of the real estate agencies, the commerce and retail, the industry, so it has always had this representation [...] we always waited for the State and made a decision (GH2). All our decisions were based on dialog and interaction with other representative entities of the municipality. Even in moments of disagreement, we moderated by collective decisions based on technical criteria and expert evaluations (BH2).

Our findings corroborate Dallabrida *et al.* (2020), who identified that, in the Brazilian case, there is no collaboration in the governance practices implemented in the pandemic, and Doin (2016), who identified that collaborative governance occurs in a fragmented way in the university-business-government relationship (Triple Helix) in the Educational Cooperation Program in Espírito Santo State because it is concentrated in senior management. Moreover, the results of Almeida *et al.* (2020), in turn, suggested that, although the process of collaborative governance is not simple to implement, at the moment of a crisis caused by the pandemic, the context of the Rio Grande do Norte Government evidenced elements of collaborative governance as it engaged with the Federal University of Rio Grande do Norte (UFRN) and sought consensus about the actions. Almeida *et al.* (2020) emphasized that this was an innovative experience in the state, in which the UFRN was called not only to dialogue but to the decision-making in confronting the pandemic.

## 5 Concluding remarks

This study aimed to analyze the materialization of collaborative governance in the context of confronting the COVID-19 pandemic in a municipality of Rio Grande do Sul State from the perception of different helices (government, business, university, and civil society). Specifically, we sought to investigate the actions implemented in the municipality, the existence of a consensus in decision making, and possible innovations and knowledge generated in this process.

Collaborative governance involves different actors in making decisions for public purposes. For governance processes to be collaborative, consensus must be sought among the participants, with two-way communication and shared responsibilities. The Helix Model of Innovation, in turn, studies the relations between government, industry, and university (Triple Helix) and, more recently, also integrates society (Quadruple Helix) and the environment (Quintuple Helix) in the processes of knowledge and innovation generation for regional development.

The theoretical lens of the Quadruple Helix allowed us to investigate the performance of a municipal government, a university, companies, and civil society representations of a municipality in the context of managing the COVID-19 pandemic considering the concept of economy and knowledge society, which increasingly values intangible resources. In this sense,

the crisis context provided some innovations to institutions and the community, even if of incremental type.

Our findings indicated that the Executive Branch took action to face the pandemic within the Committee to Combat the New Coronavirus, which counted on representatives from various segments of the public and private sectors. Nevertheless, it cannot be said that collaborative governance was achieved because an integrated performance of all the helices in the search for consensus in managing the pandemic was not observed. Likewise, we observed the dissatisfaction of the business helix with the measures adopted by the Executive Branch.

Despite our promising data, this study has limitations, such as interviews being conducted with only eight representatives (two from each helix). Moreover, data analysis was carried out mainly based on the perceptions presented by the participants. Hence, the evidence provided herein can be enriched through additional interviews with actors who participated in the Committee to Combat the New Coronavirus and, in this context, the issue of social control in this public decision-making space can be observed.

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<sup>i</sup> Doutoranda em Desenvolvimento Regional (Unijuí). Bolsista Prosuc Capes. Ijuí, RS, Brasil.

<sup>ii</sup> Doutor em Desenvolvimento Regional (UNISC). Professor do PPGDR - Universidade Regional do Noroeste do Estado do Rio Grande do Sul (Unijuí), Ijuí, RS, Brasil.

<sup>iii</sup> Doutor em Contabilidade e Finanças (Universidad de Zaragoza). Professor do PPGDR - Universidade Regional do Noroeste do Estado do Rio Grande do Sul (Unijuí), Ijuí, RS, Brasil.