



GOVERNANCE AND MANAGEMENT OF INNOVATION IN ENTREPRENEURIAL UNIVERSITIES

GOVERNANÇA E GESTÃO DA INOVAÇÃO EM UNIVERSIDADES EMPREENDEDORAS

RENATA SCALSAVARA

Universidade Comunitária da Região de Chapecó (Unochapecó)
Programa de Pós-Graduação em Ciências Contábeis e Administração (PPGCCA)
Chapecó, Santa Catarina, Brazil
Master's Degree in Accounting and Business Administration
ORCID: <https://orcid.org/0009-0006-8409-6434>
E-mail: renatascalsavara@gmail.com

CLAUDIO ALCIDES JACOSKI

Universidade Comunitária da Região de Chapecó (Unochapecó)
Programa de Pós-Graduação em Ciências Contábeis e Administração (PPGCCA)
Chapecó, Santa Catarina, Brazil
Ph.D. in Production Engineering
ORCID: <https://orcid.org/0000-0003-3418-8155>
E-mail: claudio@unochapeco.edu.br

Scientific Editor: Juliana Fabris

Submission: October 06, 2025. Revision: May 19, 2026. Acceptance: July 10, 2026. Publication: August 13, 2026.

How to Cite: Scalsavara, R., & Jacoski, C. A. (2026). Governança e gestão da inovação em universidades empreendedoras. *RG - Revista Gestão Organizacional*, 19(2), 29-47. <http://dx.doi.org/10.22277/rgo.v19i2.8674>.

ABSTRACT

Objective: To analyze the governance and management structure of the innovation sector at entrepreneurial universities operating under federal, state, and community models.

Method/Approach: The study adopts a qualitative approach, using content analysis with a priori-defined categories, through multi-case studies.

Main results: Governance structures for the innovation sector are linked to the institutions' offices of the president and include an innovation agency, an incubator, a technological innovation center, and a technology park. It was found that, to stimulate the development of innovative and entrepreneurial activities, the institutions adopt a variety of initiatives, programs, and structures. Universities establish partnerships with the government and with companies to address social needs, contributing to regional development and fulfilling the new role they are called upon to play. Financial resources come from economic grants for projects selected by funding agencies and from companies located in the technology parks. The distinguishing features of governance structures are as follows: at state universities, the centralization of intellectual property and entrepreneurship within a single department; at

federal universities, the presence of representatives from different areas of the university and society on the Innovation Board; and, at community colleges, investment in startups.

Theoretical/practical/social contributions: The study contributes to understanding the context of entrepreneurial universities and their role in the knowledge society. It provides insights for the analysis and direction of policies aimed at universities, with a view to fostering innovation and entrepreneurship, as well as prompting reflection among administrators on the need to rethink the traditional model of education and current governance structures.

Originality/relevance: This study advances discussions on innovation and its implications for universities, highlighting different governance models and their roles in promoting innovation and regional development.

Keywords: Innovation. Entrepreneurship. Governance. Universities.

RESUMO

Objetivo: analisar a estrutura de governança e de gestão da área de inovação em universidades empreendedoras dos modelos federal, estadual e comunitário.

Método/abordagem: a pesquisa adota uma abordagem qualitativa, com análise de conteúdo com categorias definidas *a priori*, por meio de estudos multicascos.

Principais Resultados: estruturas de governança da área de inovação vinculadas a reitoria das instituições, contando com agência de inovação, incubadora, núcleo de inovação tecnológica e parque tecnológico. Identificou-se que, para estimular o desenvolvimento de atividades inovadoras e empreendedoras, as instituições adotam ações, programas e estruturas diversificadas. As universidades estabelecem parcerias com o governo e com empresas para atender às demandas sociais, contribuindo para o desenvolvimento regional e para o cumprimento do novo papel que são demandadas a cumprir. Os recursos financeiros são provenientes de subvenções econômicas a projetos contemplados por agências de fomento e por empresas instaladas nos parques tecnológicos. Os diferenciais encontrados nas estruturas de governança são: na universidade estadual, a centralização da propriedade intelectual e do empreendedorismo em um mesmo setor; na universidade federal, a presença de representantes de diferentes áreas da universidade e da sociedade no Conselho de Administração da área de inovação; e, na universidade comunitária, o investimento em *startups*.

Contribuições teóricas/práticas/sociais: o estudo contribui para a compreensão do contexto das universidades empreendedoras e do papel que desempenham na sociedade do conhecimento. Oferece subsídios para a análise e o direcionamento de políticas voltadas às universidades, visando fomentar a inovação e o empreendedorismo, além de provocar reflexões entre gestores sobre a necessidade de repensar o modelo tradicional de educação e as atuais estruturas de governança.

Originalidade/relevância: o estudo contribui para o avanço das discussões sobre a área da inovação e seus desdobramentos nas universidades, evidenciando diferentes modelos de governança e suas implicações na promoção da inovação e do desenvolvimento regional.

Palavras-chave: Inovação. Empreendedorismo. Governança. Universidades.

1 INTRODUCTION

The transition from an economy based primarily on physical capital and low-skilled labor to a knowledge-based economy has significantly expanded the role of universities in contemporary society (Audretsch, 2014). This shift ushers in a new environment for wealth creation and the promotion of economic and social growth, in which universities are no longer viewed merely as institutions for training qualified professionals but instead assume broader and more strategic roles (Audy, 2017). These transformations have had a direct impact on traditional teaching and research activities, requiring a reconfiguration of universities' roles in light of new social and economic demands (Rubens et al., 2017).

In this context, the university's new role now encompasses, in addition to the development of qualified human capital, the transfer of knowledge and technology—through patents, licenses, and cooperation agreements—and the promotion of new ventures, especially startups. This set of changes marks the emergence of the phenomenon known as the entrepreneurial university (Audretsch, 2014; Pereira, Dathein & Conceição, 2014).

The entrepreneurial university is characterized by its ability to translate the results of teaching and research into practical applications, technologies, innovations, and new businesses. To this end, institutions are modernizing their structures and developing support mechanisms to enable faculty and students to engage in entrepreneurship. The infrastructure provided in this environment brings the university closer to its role as a natural incubator for ventures by fostering experimentation, innovation, and the creation of technology-based companies (Etzkowitz, 2013).

University structures supporting entrepreneurship are modeled after the phenomenon observed in the United States, where different regions have established institutional mechanisms to encourage innovation, forming what are known as innovation ecosystems (Etzkowitz & Zhou, 2018). As a result, regions with a high concentration of universities tend to exhibit greater entrepreneurial dynamism and the emergence of new innovative ventures, especially startups (Silva et al., 2021).

In this regard, there has been a significant increase in the number of startups originating in the environment (Klofsten et al., 2019), which has in turn prompted universities to adapt their structures to meet society's new demands (Compagnucci & Spigarelli, 2020). It is therefore necessary to deepen our understanding of university structures focused on entrepreneurship and innovation, especially in light of the new demands presented by the knowledge society (Casado, Siluk & Zampieri, 2012), which calls for solutions capable of boosting economic productivity and promoting wealth creation geared toward economic and social development (Compagnucci & Spigarelli, 2020).

Given this context, the research question of this study is: How are governance and management structured in the innovation sector at entrepreneurial universities operating under federal, state, and community models? Thus, the objective of this research is to analyze the governance and management structure of the innovation sector at entrepreneurial universities across these different institutional models.

The relevance of this study is grounded in the strategic role played by universities in regional development, particularly through the generation of scientific knowledge, technology transfer, the training of a skilled workforce, the creation of new ventures, job creation, and the strengthening of partnerships with society (Audretsch, 2014; Compagnucci & Spigarelli, 2020).

As a contribution, this research broadens our understanding of the entrepreneurial university and its role in the knowledge economy by incorporating the promotion of economic, social, and cultural progress into its institutional mission. Furthermore, it provides guidance to university administrators by presenting the governance structures and mechanisms adopted by Brazilian entrepreneurial universities, thereby contributing to the improvement of institutional practices. The study also assists public policymakers in formulating and directing policies to strengthen innovation and university entrepreneurship, given the central role these institutions play in regional development. Finally, it encourages institutional leaders to rethink traditional models of education and management structures in light of contemporary societal transformations.

The study is also aligned with the Sustainable Development Goals (SDGs)—a set of 17 global goals established by the United Nations (UN)—particularly SDG 8 — Decent Work and Economic Growth — and SDG 9 — Industry, Innovation, and Infrastructure — by addressing the promotion of innovation and the creation of job opportunities as central elements of development.

2 ENTREPRENEURIAL UNIVERSITY

The redefinition of the university's role and purpose in the 21st century stems, to a large extent, from growing social demands for solutions capable of addressing complex economic and social problems (Audretsch, 2014), as well as from the transition from an economy based on physical capital to one grounded in knowledge, which is recognized as the primary factor of production (Audretsch, 2009). This process accompanies the advance of contemporary economic development and marks the transition from an industrial society to a knowledge-driven one (Etzkowitz, 2013).

At the same time, political and financial pressures that intensified beginning in the 1990s prompted universities to expand their engagement with society and contribute more directly to local economy. This trend accelerated following the 2007 economic recession (Rubens et al., 2017). The reduction in public funding allocated to universities (Audretsch, 2014; Guerrero, Urbano & Fayolle, 2016; Rubens et al., 2017; Trequattrini et al., 2018; Compagnucci & Spigarelli, 2020) has led institutions to seek new ways of operating and interacting that can ensure institutional sustainability, including diversifying revenue sources and strengthening external partnerships (Audy, 2011; Guerrero, Urbano, and Fayolle, 2016; Rubens et al., 2017).

In this context, fostering entrepreneurial activities positions the university as a strategic partner of industry and government (Cerver Romero, Ferreira & Fernandes, 2021), giving rise to the innovation model known as the Triple Helix. This model proposes systemic interaction among universities, industry, and government, establishing relationships focused on knowledge generation, technology transfer, the promotion of innovation, and the creation of support structures for entrepreneurship—such as incubators and technology parks—thereby contributing to regional economic development (Etzkowitz, 2013).

The expansion of university functions simultaneously creates challenges and opportunities (Audy, 2017), as universities no longer act exclusively to train professionals but also promote the creation of enterprises through business generation mechanisms, incubation and acceleration programs, coworking spaces, and innovation environments, such as science and technology parks. This new landscape demands new forms of interaction among the stakeholders involved, redefining the relationships between teaching, research, and

innovation, as well as the connections between universities, industry, and government (Etzkowitz, 2013; Audy, 2017).

The growing demand for interaction, combined with scientific and technological advances and the multidisciplinary nature of science, has driven institutional and legal changes to meet new social demands (Guerrero et al., 2014). In this regard, the enactment of the Bayh-Dole Act in the United States in 1980 marked a milestone by encouraging universities to translate research findings into practical and economically viable applications. The legislation established intellectual property rights and commercialization policies that enabled universities to transfer technologies derived from government-funded research to the private sector (Audretsch, 2014; Rubens et al., 2017; Etzkowitz & Zhou, 2018).

As a result, several regions in the United States began to recognize universities as engines of economic growth (Guerrero et al., 2016), fostering collaborative environments between universities and companies, most notably in Silicon Valley (Pazmino, 2021). The experiences associated with Stanford University are considered early milestones of the entrepreneurial university, demonstrating the success of university-industry cooperation and stimulating the emergence of spin-offs and startups that gave rise to significant clusters of innovation and job creation (Pazmino, 2021; Pahurkar, 2015). This knowledge-based regional development model subsequently spread throughout the United States and to various regions worldwide (Etzkowitz, 2017).

Regulations governing technology transfer have fostered the development of innovative ventures, prompting governments to formulate public policies to strengthen innovation, entrepreneurship, and economic development (Autio et al., 2014). In Brazil, the Innovation Law (Law No. 10,973/2004, updated by Law No. 13,243/2016 and regulated by Decree No. 9,283/2018) is a central instrument in this process, as it encourages scientific research, technological development, and innovation. The legislation streamlines public-private partnerships, establishes tax incentives for research and development, fosters collaboration between scientific institutions and companies, creates mechanisms to finance innovative businesses, and strengthens intellectual property protection policies.

These legal frameworks aim to bring science and industry closer together by creating guidelines and incentives that foster innovation among companies, research institutions, and universities, and by facilitating inter-institutional relationships focused on regional development (Pazmino, 2021; Fischer et al., 2020). According to Sguissardi (2011), such legislation has expanded the possibilities for companies to utilize universities' physical, material, and human resources, as well as intensified technology transfer processes.

In light of these transformations, the university is no longer solely a generator of knowledge and a trainer of professionals but also serves as a promoter of entrepreneurship, innovation, and the creation of new ventures (Etzkowitz, 2013; Audretsch, 2014). Thus, in addition to its traditional functions of teaching and research, the university now plays a direct role in regional economic development by supporting entrepreneurs and fostering the creation of new businesses (Pahurkar, 2015).

The university, in its traditional mission, plays a central role in training qualified professionals, generating knowledge through scientific research, and promoting university extension programs, thereby building relationships with society. These three dimensions—teaching, research, and outreach—are not at odds with the logic of the entrepreneurial university (Etzkowitz, 2013; Autio et al., 2014; Audy, 2017). On the contrary, they constitute

its foundation. High-quality academic training fosters the development of entrepreneurial skills, scientific research promotes innovation, and extension programs facilitate the transfer of knowledge and technology to society. In this sense, the entrepreneurial university does not replace these functions but rather redefines and integrates them, orienting them toward the generation of economic and social value (Etzkowitz, 2013; Audy, 2017).

The concept of the entrepreneurial university is grounded in the integration of academic and business objectives (Etzkowitz, 2013), promoting the development of an entrepreneurial academic model that stimulates the creation and management of innovation environments and entrepreneurial ecosystems around the institution (Klofsten et al., 2019). In this process, the university assumes the role of an innovation facilitator by establishing entrepreneurial training programs, setting up incubators and science and technology parks, and promoting the commercialization of internally generated knowledge (Etzkowitz, 2013; Audretsch, 2014; Etzkowitz & Zhou, 2018).

To enable these activities, the entrepreneurial university integrates itself into networks and partnerships that constitute a system of interaction, collaboration, and cooperation (Guerrero et al., 2014). These relationships enable greater efficiency in carrying out institutional activities, foster the transfer of knowledge and technology, create new businesses, and develop solutions to social challenges (Audretsch, 2014).

The university-industry relationship helps address internal gaps within companies by providing access to qualified human capital and scientific infrastructure, thereby enabling the development of innovative technologies, products, and services (Pazmino, 2021). Companies benefit from innovation in processes and products, enhancing their competitiveness and their entry into new markets (Fischer et al., 2020). The government, in turn, reaps benefits from the innovative solutions proposed by startups, job creation, and increased tax revenue (Perin, 2015).

As this new role is embraced, it becomes necessary to restructure the university's mission in light of changes in its institutional purpose (Etzkowitz, 2013; Siegel & Wright, 2015). The promotion of entrepreneurship and economic and social development is now understood as the university's third mission, serving as a unifying element between teaching and research (Etzkowitz, 2013; Compagnucci & Spigarelli, 2020). This is, however, a phenomenon still in the process of consolidation, gradually being incorporated by institutions and undergoing continuous understanding and adaptation (Compagnucci & Spigarelli, 2020). This context also generates internal tensions between the traditional missions of teaching and research and the new role of promoting innovation and economic development (Audy, 2011).

Finally, although they share similar historical backgrounds and institutional conditions, entrepreneurial universities have distinct characteristics that reflect different institutional arrangements, historical trajectories, and unique organizational features, highlighting the diversity of existing models (Guerrero et al., 2014).

3 METHODOLOGICAL ASPECTS

The study analyzes the governance and management structure of the innovation sector at entrepreneurial universities operating under federal, state, and community models. It is characterized as a descriptive, qualitative study conducted through a multiple-case study. As a selection criterion, it was determined that participating institutions should be among the top ten in the 2023 Ranking of Entrepreneurial Universities (RUE), compiled by Brasil Júnior—the

Brazilian Confederation of Junior Enterprises. Additionally, we selected the highest-ranked university in each of the three institutional models, while also taking into account the time constraints of conducting the research. However, given the lack of response from the highest-ranked state university—even after several attempts to contact it via email and telephone—the second-ranked institution in that model was selected.

To preserve the institutions' identities, the universities are presented according to the model to which they belong, and the order of presentation reflects their position in the aforementioned ranking. The characteristics of the analyzed universities are presented in Table 1.

Table 1
Characteristics of the universities

Category	State University	Federal University	Community College
Year founded/established	1966	Established in 1926 / Became a federal institution in 1969	Granted equivalent status in 1948
Institutional Type	State Public	Federal Public	Community-Based
Main source of funding	State government	Federal government	Philanthropic organization
Number of campuses	6	3	3
Levels of education offered	Undergraduate and graduate programs	Secondary, technical, and higher education	Undergraduate, graduate, and continuing education programs
Undergraduate Programs	65	69	59
Graduate Programs	166	45	20
Number of students	More than 36,000	More than 20,000	More than 73,000
Innovation Framework	Innovation agency affiliated with the Office of the President	Technology center (innovation agency) affiliated with the university administration	Office of Innovation and Development, reporting to the Office of the President

Table 1 shows that although the institutions differ in nature, size, and sponsoring entity, there is a convergence in the adoption of formal innovation management structures linked to the office of the president, reinforcing the strategic nature of this area in the context of entrepreneurial universities. Based on this characterization of the institutions, the research construct seeks to identify the characteristics present in entrepreneurial universities.

Table 2 shows the organization of the question blocks in the semi-structured interview conducted with managers from the innovation departments of the universities selected for the study. The sections were structured to cover: an overview of the profiles of the interviewed managers; an analysis of the governance models adopted by the universities to foster entrepreneurship and innovation; the identification of the funding sources used to strengthen these activities; an understanding of the characteristics considered essential for an entrepreneurial university; and, finally, the main challenges perceived in consolidating this institutional model.

Table 2
Research Framework

Block	Questions	Purpose
A	1 to 2	Identify the characteristics of the professionals interviewed.
B	3 to 7	Gather information on university governance and initiatives to promote innovation and entrepreneurship.
C	8 to 11	Identify the funding sources used by universities to foster innovation and entrepreneurship.
D	12 to 14	To examine the respondents' perceptions of the characteristics and challenges involved in establishing a university that encourages and supports innovation and entrepreneurship.

Data collection was conducted through semi-structured interviews, designed based on the literature and validated by two professors with doctoral degrees in the field. The interviews took place between June and July 2024 and involved one innovation manager from each of the three selected universities. The interviews were conducted via Google Meet and, with participants' consent, recorded and subsequently transcribed to facilitate data analysis. The average duration of the interviews was one hour.

For data analysis, the content analysis technique proposed by Bardin (1977) was adopted, structured into three stages: pre-analysis; exploration of the material; and processing of results, inference, and interpretation. The categories of analysis were defined a priori, based on the theoretical framework, and are presented in Table 3.

Table 3
Categories of Analysis

Category	Authors
A Stronger Leadership Team	Clark (2003); Taylor (2012); Urbano & Guerrero (2013).
Expanded development periphery	Clark (2023); Taylor (2012); Urbano & Guerrero (2013).
Diversified funding base	Clark (2023); Taylor (2012); Urbano & Guerrero (2013).
A dynamic academic center	Clark (2023); Taylor (2012); Urbano & Guerrero (2013).
Integrated entrepreneurial culture	Clark (2023); Taylor (2012); Urbano & Guerrero (2013).

Table 3 presents the five a priori-defined categories of analysis that guided the interpretation of data obtained from interviews with innovation managers at the three universities studied.

This study utilized generative artificial intelligence tools for text review. The authors are solely responsible for the content, analyses, and conclusions presented.

4 ANALYSIS OF THE RESULTS

4.1 PROFILE OF INTERVIEWEES

The profile of the administrators interviewed is presented in Table 4, including information on their level of education, institutional affiliation, and length of service both at the university and in the field of innovation.

Table 4
Profile of the Respondents

Manager	Level of education	Connection to the university	Work at the university	Work in the university's innovation division
State University	Doctorate	Faculty Member	18 years	3 years
Federal University	MBA	Administrative Technician	10 years	10 years
Community College	Postdoctoral Fellow	Faculty Member	40 years	25 years

Table 4 shows that the managers interviewed have high academic qualifications and extensive experience in the university environment, ranging from 10 to 40 years of service. Regarding institutional affiliation, faculty members predominate, except at the federal university. Regarding their work in the area of innovation, the administrators have experience ranging from 3 to 25 years, which indicates varying levels of maturity and involvement in innovative activities. These factors help contextualize the interviewees' perceptions, taking into account their experiences and institutional roles.

4.2 GOVERNANCE OF THE INNOVATION SECTOR

Activities focused on entrepreneurship and innovation have been part of the state university since its inception. As early as 1984, the Permanent Commission for the Protection of Industrial Property was established. Subsequently, in 1998, the Office for the Dissemination of Technological Services was created; in 2001, the business incubator; in 2003, the Center for Technological Innovation (NIT), currently structured as an innovation agency; and, in 2013, the Science and Technology Park.

In 2023, the state university's innovation agency began operating under a new management model, in which the supporting foundation assumed administrative management of the innovation policy, formalized through an agreement with the institution. The agency has approximately 60 employees, including two faculty members who serve as executive director and associate executive director, respectively, and are responsible for managing the agreement. The remaining members, responsible for carrying out activities, are affiliated with the supporting foundation and employed under the Consolidated Labor Laws (CLT). Thus, the agency maintains a direct link with the university administration while also coordinating with the supporting foundation. According to the interviewee, one of the university's distinguishing features lies in its governance structure, particularly the central role of the NIT in managing intellectual property and entrepreneurship, including the incubator.

At the federal university, efforts to organize entrepreneurship and innovation activities began in 1996 with the creation of the incubator. In 1999, the Permanent Commission on Intellectual Property (later renamed NIT) was established, and in 2000, the Regional Development Technology Center was created as an innovation agency. In 2011, the

establishment of the technology park intensified these initiatives, as highlighted by the manager interviewed.

This Center brings together the technology park, the technology-based business incubator, the junior enterprise center, and the social and educational development hub. It is directly linked to the university's administration. Its governance structure includes the Board of Directors, the Audit Committee, and the Executive Board. The Board of Directors comprises representatives from the university, SEBRAE, the state government (innovation division), and the city government (economic development division), as well as members of the business sector and companies affiliated with the park. Also noteworthy is the participation of one faculty member from each of the university's science centers.

The Center's activities are carried out by permanent staff, interns, and contracted employees, for a total of approximately 50 professionals. Of these, between 10 and 12 are university staff members, while the rest are hired with funds from development-agency-financed projects.

At the community college, the development of the entrepreneurship and innovation division began in 1999 with the creation of the Technology Management Agency, which was linked to the Office of the Provost for Research and Graduate Studies. In 2002, the science and technology park was established.

Over the years, the university has undergone several changes in its governance structure. In 2004, the innovation division was incorporated into a vice-rector's office, which came to encompass research, graduate studies, and innovation. In 2012, a specific Office of the Vice President for Research and Innovation was established. Subsequently, around 2016–2017, the innovation division was separated from research, giving rise to the Superintendence of Innovation and Development, which reports directly to the university president—a structure that remains in place today, with the interviewee heading the unit.

Currently, this Superintendency has approximately 64 employees and is responsible, among other duties, for managing the technology park and coordinating the university's community engagement. As highlighted by the manager, the technology park is the main driver of the institution's innovation strategy. Its structure encompasses different areas and sectors, including interaction with academic units and the creation of startups, prospecting and negotiation, the development of projects aligned with the institutional mission, communication, internal coordination, administrative support, and a creativity lab, where initiatives are developed aimed at creating new projects and actions involving the university, the park, companies, and startups.

The governance structure of the entrepreneurship and innovation area, common to the three university models analyzed in this study, is presented in Table 5.

Table 5
Governance Structure of the Innovation Division

Structure	State University	Federal University	Community College
Innovation Agency	X	X	X
Incubator	X	X	X
Center for Technological Innovation – NIT	X	X	X
Technology park	X	X	X

It is observed that, regardless of the institutional model, the three universities share convergent structural elements in innovation governance. In all cases, there is a body responsible for coordinating innovation activities—established as an innovation agency, albeit under different names—alongside incubators, NITs, and technology parks.

Working in concert, these structures play a fundamental role in organizing and implementing initiatives focused on entrepreneurship and innovation, thereby promoting an institutional environment conducive to project development, startup creation, and interaction with the ecosystem.

4.3 PROMOTING INNOVATIVE AND ENTREPRENEURIAL ACTIVITIES

At the state university, each program is guided by a Political-Pedagogical Project (PPP), which defines educational guidelines and specifically incorporates approaches related to entrepreneurship and innovation. To support these activities, the institution provides infrastructure, including coworking spaces, maker spaces, and a technology park. In addition, there are decentralized initiatives, as academic units have the autonomy to develop their own programs. Among these initiatives, the following stand out: junior enterprises, student-organized outreach groups—such as job fairs and challenges focused on training in technology-based tools and business models—as well as competitions for high school students aimed at developing business ideas.

In general, these initiatives aim to foster the creation of and the generation of patents. Interaction with society, in turn, has been a fundamental element since the university's founding. Although the administrator acknowledges that certain bureaucratic aspects could be improved, he emphasizes that these elements have not hindered the establishment of partnerships and institutional relationships with the external community.

At the federal university, entrepreneurial and innovative activities are fostered through diverse pedagogical approaches that integrate methodologies, spaces, and teaching methods. The programs' pedagogical projects incorporate curricular flexibility, particularly through the offering of optional and elective courses, which allows for the inclusion of contemporary and specialized topics related to entrepreneurship and innovation. In terms of infrastructure, the institution has a technology park that brings together various shared-use spaces, such as laboratories—including two dedicated to prototyping—coworking spaces, meeting rooms, auditoriums, and individual workspaces. Additionally, the university has more than 380 laboratories, which can be used in partnership with companies through shared-use agreements.

The promotion of an entrepreneurial culture is further reinforced by the participation of representatives from the science centers on the Innovation Center's Board of Directors, who disseminate information about programs that support the creation of new businesses to students. Interaction with society takes a structured form, evidenced by the formalization of contracts, technical cooperation agreements, and technological development agreements with various external organizations.

For its part, the community college stands out for offering an infrastructure dedicated to innovation, consisting of a building designed to support active learning methodologies and the development of ideas at different stages, from conception to implementation. In this context, the creativity lab—developed in cooperation with Stanford University—stands out as a central space for generating and experimenting with innovative projects. The institution also offers specific programs aimed at fostering students' entrepreneurial spirit and creating innovative ventures, providing mechanisms and structures to accelerate startup development.

Regarding interaction with society, the community college administrator emphasizes the importance of collaboration with government, businesses, and other educational institutions to establish hybrid innovation environments, such as technology parks, living labs, and cooperation networks. In this regard, he highlights that the essence of the university's innovation and development efforts lies in its ability to transform knowledge into wealth and into a driver of regional social and economic development. While acknowledging the challenges inherent in this process, the administrator stresses that interaction with the external environment is a central and inseparable element of innovation and institutional development.

4.4 FUNDRAISING

The funding sources mobilized by the universities participating in the study, particularly for activities related to entrepreneurship and innovation, are summarized in Table 6.

Table 6
Sources of funding

Source of funding	State university	Federal university	Community college
Companies located in the park	X	X	X
Projects submitted to innovation funding agencies	X	X	X
Projects and/or agreements entered into with companies	X	X	X
Incubation Programs	X		
<i>Royalties</i>	X		
Funds from the local city government		X	
Investment in Startups			X

Table 6 shows that the three universities share convergent fundraising strategies, notably generating revenue from companies located in their technology parks, submitting

projects to innovation funding agencies, and formalizing projects and/or agreements with the business sector.

Additionally, specific characteristics can be observed in each institutional model. The state university supplements its funding sources with revenue from incubation programs and royalties. The federal university relies on financial contributions from the local city government, highlighting its coordination with municipal authorities. The community college, on the other hand, distinguishes itself by raising funds through equity participation in startups, which reflects a strategy of direct investment in innovative ventures.

4.5 CONSOLIDATION OF THE ENTREPRENEURIAL UNIVERSITY

To consolidate entrepreneurship and innovation activities at the university, the state university administrator emphasizes the importance of institutional openness to the market and faculty engagement in this process. According to the interviewee, it is essential to highlight the benefits derived from the knowledge produced at the university, which requires publicizing successful entrepreneurship cases stemming from academic research. This strategy is particularly relevant for changing the still-prevailing perception that graduate studies are exclusively geared toward an academic career. In this regard, in addition to highlighting success stories, the university should inform the public about the existence of support structures for business development, such as the NIT, to enhance its ability to attract and engage with the external environment.

At the federal university, the interviewee also emphasizes the centrality of interaction with the market, highlighting the need for ongoing dialogue to guide and refine research agendas. This interaction enables the academic environment to incorporate demands from businesses and society, contributing to the development of solutions tailored to real needs—the so-called “market pain points.” In this way, the university not only generates social benefits but also ensures a return on public investment by fostering job and income creation.

Regarding the benefits of university-industry partnerships, the federal university’s administrator points out that the financial resources generated by these collaborations help raise the level of maturity of the research and technologies developed, especially given the sometimes limited availability of public funds. Furthermore, such partnerships are advantageous for companies, as they reduce research and development costs by providing access to university infrastructure and qualified human resources already available at the university. For students, these interactions offer an opportunity to participate in research with practical applications, promoting a more comprehensive education aligned with the demands of the job market and facilitating their entry into the workforce.

From the perspective of the community college administrator, the success of an entrepreneurial university is directly related to its ability to identify and train individuals with the appropriate profile to work in innovation, a field recognized as requiring specific skills. In addition, the administrator highlights the need for a clear definition of the institutional purpose and a vision for the future of the innovation field—elements considered essential for guiding strategic actions.

Another aspect emphasized by the community college interviewee is the importance of leadership in driving this process. According to the administrator, it is essential to have institutional leaders—such as university presidents and vice presidents—who are committed to the innovation agenda and capable of driving and sustaining the necessary transformations.

In this regard, he argues that innovation should be understood as a strategic positioning of the university, aligned with its third mission. The importance attributed to this area can be inferred both from its position in the hierarchical structure and from the volume of resources allocated to it. Thus, structures directly linked to the president's office tend to exhibit greater strategic centrality than those at lower hierarchical levels.

Thus, in the view of the interviewee from the community college, the success of entrepreneurial universities depends fundamentally on the qualifications of their human resources, the clarity of their institutional purpose, and the existence of leadership committed to driving the innovation development process.

The main characteristics identified by the interviewees as essential to the success of entrepreneurial universities in their activities are summarized in Table 7.

Table 7
Key Characteristics for the Success of an Entrepreneurial University

Characteristic	State university	Federal university	Community college
Interaction with the market	X	X	
Highlighting cases of successful entrepreneurship	X		
Professionals with the appropriate qualifications for the field			X
Professional Qualifications			X
A university with a clear purpose			X

An analysis of Table 7 reveals both commonalities and specific differences in administrators' perceptions. For state and federal universities, interaction with the market stands out as a central element—a fundamental condition for strengthening entrepreneurship and innovation activities. Additionally, for state universities, publicizing successful entrepreneurial cases is emphasized as a strategy to highlight institutional achievements and foster an entrepreneurial culture. At community colleges, the focus is on internal aspects of the institution. Administrators emphasize the need to identify professionals with the appropriate profile for the innovation field, as well as to invest in their ongoing professional development. Furthermore, they highlight the importance of a clear institutional purpose that can strategically guide actions and establish innovation as a cornerstone of the university model.

In summary, the results indicate that the success of the entrepreneurial university stems from both its ability to engage with the external environment and the strengthening of its internal capabilities, highlighting the complementary nature of these elements.

4.6 CHALLENGES IN STRENGTHENING THE INNOVATION ENVIRONMENT

Regarding the consolidation of the innovation structure at the state university, the interviewee notes no significant difficulties, attributing this to the fact that, since its founding, the institution has been oriented toward entrepreneurial and innovative activities. This is evidenced by the existence of an innovation policy that was recently updated and approved

in light of the new legal framework for innovation. Another factor cited as a facilitator is the institutional financial management model, in which raised funds are allocated to shared institutional funds, benefiting the university's various areas across the board.

In terms of sustainability, the administrator at the state university argues that the impacts of innovation activities extend beyond the budgetary dimension, generating widespread benefits for the entire institution as a whole. Thus, she considers it inappropriate to assess the area's sustainability solely from a financial perspective, since the investments generate positive effects across multiple academic and administrative areas.

On the other hand, at the federal university, the interviewee points to the financial aspect as the main challenge to consolidating innovation, noting that, although there is institutional demand for results in this area, there is not necessarily a proportional increase in resources within the budget. This limitation may hinder the development of innovative initiatives. In addition, the administrator highlights cultural challenges both internal and external to the university. Internally, there is still resistance to university-business interaction, often associated with the perception that the institution is being privatized. Externally, she notes that local cultural characteristics can hinder the development of an innovation environment in rural regions.

Regarding sustainability, the interviewee from the federal university emphasizes the importance of business density in the innovation ecosystem, since an increase in the number of established companies contributes to higher revenues through payments for the use of the university's infrastructure and services.

At the community college, the interviewee identifies cultural changes and issues related to the legal framework for innovation as the main challenges. On the cultural front, he highlights the barriers that still exist to university-business interaction in Brazil. Regarding the legal framework, he points to difficulties at the institutional level as well as in the political and regulatory spheres, across different scales.

As for sustainability, the community college administrator argues that the innovation structure should be scaled according to its capacity to deliver results, adopting a logic of gradual, sustainable expansion. In this regard, he considers structural expansion that is disconnected from the actual capacity for sustainability to be inappropriate. Furthermore, he emphasizes that the field of innovation is strongly oriented toward the exploration and generation of ideas, which requires management models compatible with these dynamics.

Table 8 presents a summary of the main challenges for consolidating the entrepreneurial university, as perceived by the interviewees.

Table 8
Challenges in Consolidating the Entrepreneurial University

Challenge	State University	Federal University	Community College
Financial	*	X	
Cultural Aspects	*	X	X
Legal Framework Aspects	*		X

Note: * The manager believes that the institution faces no challenges.

Table 8 shows that at federal and community colleges, cultural factors are among the main obstacles to the consolidation of the entrepreneurial university model. Additionally, in

the case of community colleges, challenges related to the set of Brazilian guidelines designed to stimulate innovation and research stand out, underscoring the institutional and regulatory complexity that permeates the implementation and strengthening of these initiatives.

4.7 RESEARCH FINDINGS

The findings of the study show that the three types of universities analyzed—federal, state, and community colleges—have innovation governance structures directly linked to the office of the president, which underscores the strategic importance of this area. Similarly, the presence of innovation agencies, incubators, technological innovation centers, and technology parks is observed, constituting institutional arrangements geared toward promoting innovation and interacting with the external environment. These findings indicate practices aligned with the entrepreneurial university model, albeit with variations in implementation.

In this context, the university-market relationship is a process mediated by institutional and organizational mechanisms that structure and enable this interaction. Innovation agencies, technological innovation centers (NITs), incubators, and technology parks play a central role in linking scientific output to the demands of the productive sector, particularly through intellectual property management and technology transfer. The linkage of these structures to the university's senior management reinforces their strategic position. At the same time, the presence of governance arrangements involving external actors broadens the connection with the economic and social environment. Added to this are the use of funding mechanisms, institutional partnerships, and, in certain cases, direct investment in innovative ventures, which intensify and diversify the forms of interaction with the market. Thus, the relationship between the university and the productive sector does not occur directly but is organized, regulated, and enhanced by these mediating structures, reflecting distinct levels of institutionalization of innovation at the universities analyzed.

Regarding specific features, the university-in-the-state model stands out for the central role of the NIT, which integrates intellectual property management, technology transfer, and incubation activities, demonstrating a coordinated structure to support innovation. In the federal model, the distinguishing feature is the expanded composition of the Board of Directors of the Regional Development Technology Center, which includes representatives from various internal and external sectors, reinforcing the logic of interaction among the university, the government, and the productive sector. In the community model, a distinctive feature is the ability to provide financial support to startups linked to the technology park, indicating a more active strategy to foster innovative entrepreneurship and diversify funding sources.

Despite these particularities, the findings indicate convergence among the analyzed models about the dimensions of the entrepreneurial university proposed by Clark (1998) and subsequently systematized by Taylor (2012), such as the presence of a strengthened core leadership, an expanded development periphery, a diversified funding base, a dynamic academic center, and an entrepreneurial culture in the process of consolidation.

5 FINAL REMARKS

The study analyzed the governance and management structure of the innovation sector at entrepreneurial universities operating under federal, state, and community models.

The results show that, regardless of their legal status or primary source of funding, the universities examined have made progress in institutionalizing formal structures focused on innovation that are directly linked to the president's office, which reinforces the strategic role assigned to this sector.

In light of the literature on entrepreneurial universities—particularly the contributions of Etzkowitz (2013) and Etzkowitz and Zhou (2018)—the institutions analyzed exhibit characteristics of the Triple Helix model by seeking to integrate teaching, research, and market interaction. However, the findings also reveal that this integration occurs in a heterogeneous manner and is conditioned by the institutional trajectories, administrative structures, and organizational capacities of each university. This evidence reinforces the perspective that the entrepreneurial university is not a homogeneous model, but rather a process under construction, influenced by local contexts and specific institutional arrangements.

Although governance structures in the area of innovation indicate a move toward closer ties with the market, there must be clear coordination between these structures and a broader institutional strategy that balances the university's economic and social objectives.

The results of this study can serve as a basis for the formulation of institutional and public policies aimed at university innovation. They highlight the importance of establishing formal mechanisms for innovation governance that are aligned with institutional strategy and directly linked to the highest levels of decision-making, such as the university administration. Furthermore, the findings suggest that public support policies should take into account the specific characteristics of different university models, promoting greater flexibility and better adaptation of innovation support instruments. Thus, the need is reinforced for policies that not only encourage the creation of innovation structures but also strengthen their capacity to coordinate with regional ecosystems.

Regarding temporal validity, the results of this study reflect the specific context at the time of its conduct. They may change over time due to shifts in institutional structures, innovation policies, and the external environment. Thus, the findings should be interpreted as a snapshot in time, and their full stability in future scenarios cannot be guaranteed.

For future research, it is suggested that the analysis of the governance structure in the field of innovation be expanded to include a broader set of universities to encompass different administrative and institutional configurations. It is also recommended to investigate in greater depth how universities have integrated the themes of innovation and entrepreneurship into their curricula, to understand the degree of alignment among teaching, research, and extension in promoting an innovative culture. Finally, we propose to explore, in greater detail, universities' financial investments in startups originating from the academic environment, analyzing the mechanisms employed to strengthen the sustainability of projects that foster entrepreneurship and university innovation.

REFERENCES

- Audretsch, D. B. (2009). The entrepreneurial society. *The Journal of Technology Transfer*, 34, 245-254. <https://doi.org/10.1007/s10961-008-9101-3>
- Audretsch, D. B. (2014). From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer*, 39(3), 313-321. <https://doi.org/10.1007/s10961-012-9288-1>

- Audy, J. L. N. *Entre a tradição e a renovação: os desafios da universidade empreendedora*. In M. C. Morosini (Org.), *A Universidade no Brasil: concepções e modelos* (2.ed., pp. 265-274). INEP.
- Audy, J. L. N. (2017). A inovação, o desenvolvimento e o papel da Universidade. *Estudos Avançados*, 31, 75-87. <https://doi.org/10.1590/s0103-40142017.3190005>
- Autio, E., Kenney, M., Mustar, P., Siegel, D. & Wright, M. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097-1108. <https://doi.org/10.1016/j.respol.2014.01.015>
- Bardin, L. (1977). *Análise de conteúdo*. (L. A. Reta & A. Pinheiro Trad.). Edições 70.
- Brasil. *Lei Complementar nº 182*, de 1º de junho de 2021 (2021). Institui o marco legal das startups e do empreendedorismo inovador. Brasília, DF: Diário Oficial da União. <https://www.in.gov.br/en/web/dou/-/lei-complementar-n-182-de-1-de-junho-de-2021-323558527>.
- Casado, F. L., Siluk, J. C. M., & Zampieri, N. L. V. (2012). Universidade empreendedora e o desenvolvimento regional sustentável: proposta de um modelo. *Revista de Administração da UFSM*, 5, 633-649. <https://doi.org/10.5902/198346597755>
- Cerver Romero, E., Ferreira, J. J. M., & Fernandes, C. I. (2021). The multiple faces of the entrepreneurial university: a review of the prevailing theoretical approaches. *The Journal of Technology Transfer*, 46(4), 1173-1195. <https://doi.org/10.1007/s10961020-09815-4>
- CLARK, B. R. (2003). Sustaining Change in Universities: Continuities in Case Studies and Concepts. *Tertiary Education and Management*, 9(2), 99–116.
- Compagnucci, L., & Spigarelli, F. (2020). The Third Mission of the university: A systematic literature review on potentials and constraints. *Technological Forecasting and Social Change*, 161, 120-284. <https://doi.org/10.1016/j.techfore.2020.120284>
- Etzkowitz, H. (2013). *Hélice Triplíce: universidade-indústria-governo: inovação em movimento*. EDIPUCRS.
- Etzkowitz, H., & Zhou, C. (2018). *The triple helix: university - industry, government: innovation and entrepreneurship*. Routledge. <https://doi.org/10.4324/9781315620183>
- Fischer, B., Guerrero, M., Guimón, J. & Schaeffer, P. R. (2020). Knowledge transfer for frugal innovation: where do entrepreneurial universities stand?. *Journal of Knowledge Management*, 25(2), 360-379. <https://doi.org/10.1108/JKM-01-2020-0040>

- Guerrero, M., Urbano, D., Cunningham, J. & Organ, D. (2014). Entrepreneurial universities in two European regions: a case study comparison. *The Journal of Technology Transfer*, 39(3), 415-434. <https://doi.org/10.1007/s10961-012-9287-2>
- Guerrero, M., Urbano, D., & Fayolle, A. (2016). Entrepreneurial activity and regional competitiveness: evidence from European entrepreneurial universities. *The Journal of Technology Transfer*, 41(1), 105-131. <https://doi.org/10.1007/s10961-014-9377-4>
- Klofsten, M., Fayolle, A., Guerrero, M., Mian, S., Urbano, D. & Wright, M. (2019). The entrepreneurial university as driver for economic growth and social change - Key strategic challenges. *Technological Forecasting and Social Change*, 141, 149-158. <https://doi.org/10.1016/j.techfore.2018.12.004>
- Pahurkar, R. N. (2015). Creating Entrepreneurs through Entrepreneurial Universities. *Management*, 5(2), 18-54. <https://doi.org/10.5923/j.mm.20150502.04>
- Pazmino, A. V. (2021). A necessidade de ações de inovação na universidade. *Gestão & Regionalidade*, 37(112), 85-100. <https://doi.org/10.13037/gr.vol37n112.6207>
- Pereira, A. J., Dathein, R., & Conceição, O. A. C. (2014). A empresa e seu ambiente de interação: os limites da Teoria dos Custos de Transação e o alcance da Teoria Institucionalista Evolucionária. *Economia e Sociedade*, 23(1), 33-61. <https://doi.org/10.1590/S0104-06182014000100002>
- Rubens, A., Spigarelli, F., Cavicchi, A. & Rinaldi, C. (2017). Universities' third mission and the entrepreneurial university, and the challenges they bring to higher education institutions. *Journal of Enterprising Communities: People and Places in the Global Economy*, 11(3), 354-372. <https://doi.org/10.1108/JEC-01-2017-0006>
- Sguissardi, V. (2011). *Universidade no Brasil: dos modelos clássicos aos modelos de ocasião?* In M. C. Morosini (Org.), *A Universidade no Brasil: concepções e modelos* (2.ed., pp. 275-289). INEP.
- Silva, L. S. C. V., Kaczam, F., Dantas, A. B., & Janguia, J. M. (2021). Startups: a systematic review of literature and future research directions. *Revista de Ciências da Administração*, 23(60), 118-133. <https://doi.org/10.5007/2175-8077.2021.e80666>
- Taylor, M. P. (2012). The entrepreneurial university in the twenty-first century. *London Review of Education*, 10, 289-305.
- Urbano, D.; Guerrero, M. (2013). Entrepreneurial Universities: Socioeconomic Impacts of Academic Entrepreneurship in a European Region. *Economic Development Quarterly*, 27(1), 40-55. <https://doi.org/10.1177/0891242412471973>