

EXTENSÃO UNIVERSITÁRIA E UNIVERSIDADE INOVADORA: UMA REVISÃO EXPLORATÓRIA NO REPOSITÓRIO INSTITUCIONAL UFSC

*UNIVERSITY EXTENSION AND INNOVATIVE UNIVERSITY: AN EXPLORATORY REVIEW IN THE
UFSC INSTITUTIONAL REPOSITORY*

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Resumo: Esta pesquisa tem o objetivo de analisar a produção acadêmica sobre as temáticas universidade inovadora e extensão universitária, constantes no repositório institucional da UFSC. É um estudo qualitativo, com abordagem exploratória, utilizando o método Systematic Search Flow (SSF). Como resultados, tem-se que a gestão universitária é crucial para os projetos de extensão na promoção de resultados junto à sociedade; verificou-se que o termo universidade empreendedora é mais utilizado que, universidade inovadora, significando a atuação no ensino, pesquisa e na extensão, esta entendida como inovação e empreendedorismo, com a transferência do conhecimento para o mercado, via utilização de mecanismos de proteção, tornando-se ativo intangível. A emergência da universidade inovadora/empreendedora é evidente no ecossistema de inovação, considerando a cooperação universidade-indústria-governo, uma vez que a tríade pesquisa, ensino e extensão representa os pilares para o alcance das ações da universidade junto à sociedade.

Palavras-chave: Universidade empreendedora. Universidade inovadora. Inovação. Ensino-pesquisa-extensão. Extensão universitária.

Abstract: *This research aims to analyze the academic production on the themes of innovative university and university extension, in the institutional repository of UFSC. It is a qualitative study, with a bibliographic approach, using the Systematic Search Flow (SSF) method. As a result, university management is crucial for extension projects in promoting results for society; it was found that the term entrepreneurial university is more used than innovative university, meaning acting in teaching-research-extension, which is understood as innovation and entrepreneurship, with the transfer of knowledge to the market, using mechanisms of protection, becoming an intangible asset. The emergence of the innovative/entrepreneurial university is evident in the innovation ecosystem, considering the university-industry-government cooperation since the teaching-research-extension triad*

represent the pillars for the scope of the university's actions in society.

Keywords: *Entrepreneurial university. Innovative university. Innovation. Teaching-research-extension. University extension.*

1. INTRODUÇÃO

The university faces several challenges, including the questioning of its role and actions, besides teaching – its ability to approach the society, in terms of research and extension, which has its social nature, linked to the service of socioeconomically vulnerable communities, and the extension seen from the perspective of innovation and entrepreneurship, approaching the market. In Brazil, the inseparability of teaching-research-extension constitutes the fundamental axis of the university and reflects the quality of academic work, contributing to the approximation between university and society.

According to Etzkowitz and Zhou (2017, p. 24):

Organizational policies, practices and innovations aimed at translating knowledge into economic activity and solving societal problems have spread across the world. Thus, academy is inspired to play a creative role in economic and social development, from an independent perspective, in addressing government, industry and citizen priorities.

Thus, how to connect the university to society, fostering entrepreneurial and innovative thinking? The universities have a core competitive advantage linked to the continuous flow of their students, which provides new ideas that could help spin the triple helix model of university-industry-government relations, establishing partnerships (ETZKOWITZ; ZHOU, 2017).

Therefore, universities are encouraged to extend and strengthen their actions beyond their walls, considering the potential impacts that these activities can stimulate on the community, companies, governments and on the organizations and institutions in their

surroundings (GIMENEZ; BONACELLI, 2018).

This study translates into a scenario in which innovation and entrepreneurship, increasingly, become necessary for organizational contexts, including in the university. We seek to analyze the academic production of innovative university and university extension at UFSC institutional repository.

2. THEORETICAL BACKGROUND

2.1 Historical considerations about university extension programs

Mazzilli (2011) discusses the idea of university in Brazil bringing some historical notes. The Brazilian educational system, as well as its implantation, has a powerful influence on the European model of university, anchored to the classic university functions, based on the conservation and transmission of culture, instruction of professions and the addition and construction of new knowledge. These models are consistent with the movements of the 18th century, which influenced the universities in their social role, in view of the rearrangement of forms of production, social organization and power structure. In this period, we observed the industrial revolution, the rise of capitalism, and the propagation of liberal ideas.

The concept of the European university model has its origin on the German and English models, which its principles anchored in the dissociation between teaching and research, the conservation and transmission of knowledge. On the other hand, the German model has brought to light the explanation of a new paradigm, with the consolidation of scientific research as a function of the university, being the first experience of integration of these two bases. The French model, which later became explicit in the Portuguese and Latin models, was characterized by different aspects of the German and British standards, being associated with the formation of public servants for the state (MAZZILLI, 2011).

For Gurgel (1986) the origin of the Brazilian university extension connects with

two aspects: the model of European popular universities, which sought to offer courses of shorter duration and for the population and the North American model of extension, which aimed at providing services, under the influence of two proposals: cooperative or rural extension and university or general extension. According to Diniz (2012), these two fronts were present at the origin of the Brazilian university extension, as well as in its later developments, having a strong influence (to a lesser or greater degree) in the construction of extension practices and policies.

According to Mazzilli (2011) the French model was perpetuated in Latin America for a certain period, being interrupted by the university movement of Córdoba-Argentina in 1918, being considered an important milestone for the extension activities, since it represents the manifestation in the search by reform of university bases. The university extension incorporation “as a means that makes it possible to concretize the university’s commitment to the people and make it a center par excellence for the study of the great national problems” (MAZZILLI, 2011, p. 4). As a result of the movement, the extension programs between the years 1920 and 1930 consolidated in the world scenario, being explicit in the legislation of the great majority of countries. For Gurgel (1986) the proposal of Cordoba shows its importance, from the moment it builds spaces for the formation of a more critical university.

For Nogueira (2013, p. 33), “the first legal registration regarding to university extension is in Statute of Brazilian Universities, Decree No. 19,851 of April 11, 1931”. According to article 42 of the decree: “The university extension will be carried out through courses and conferences of an educational or utilitarian nature, both organized by the various institutes of the university, with prior authorization from the university council”. The article still states in paragraph 1: “The courses and conferences referred to in this article are intended primarily for the dissemination of useful knowledge to the individual or collective life, to solve social problems or the propagation of ideas and

principles that safeguard the high national interests” (BRASIL, 1931).

This first step towards the extension of legal scope shared a close relation with the nationalist principles. However, the extension still had to go a long way until obtaining some highlight, being verified as an isolated activity (DINIZ, 2012).

Regarding the emergence and evolution of university extension in the country, it is possible to perceive three well-defined moments: “the period of pioneering experiences, the period of isolated experiences and the dissemination of ideas and the development of actions from the social movements, and the period of greater institutionalization of university extension” (ROCHA, 1984, p. 54-55).

The first period happened between the years of 1912 and 1930 and is characterized by the foundation of the Popular University and Superior School of Agriculture and Veterinary of Viçosa, having as strong influence the American college Land-Grant Colleges, which contributed to the foment of ideas for the construction of extension courses and the provision of services based on university extension.

The second period happened between the years of 1930 and 1968, being characterized by the student movements in favor of the university reform, with emphasis the national commotion, that aimed at the institutionalization of the extension, via statute of the universities in 1931. Then, the following years are marked by the consolidation of some important fronts related to extension, such as the University of Brasília, the cultural extension service of the University of Pernambuco and the Rondon Project.

The third period of the national institutionalization of the extension happened between the years of 1968 and 1976, being its fundamental foundations, the “advent of the Law nº 5.540, the dissemination of extensionist ideas by the Council of Rectors, the emergence of the Advanced Campuses as strategic extension proposals, and the emergence of the National Coordination of CRUTACs - CINCRUTAL”, characterized by the structuring character, with the emergence of the Ministry of Education and

Culture (MEC) and Coordination of Extension Activities (CODAE), as well as an administrative set for planning.

Finally, Gurgel (1986, p. 176) considers that: “extension should be seen as an enabling space for establishing a connection with the working class, allowing an exchange of knowledge, in which the university learns from popular knowledge and advise the populations in the sense of their critical emancipation”. In the following section, some considerations about extension curricula will be presented.

2.2 Curriculum extension

The origin of the circularization of extension comes from the consolidation of Law 13.005 of 2014, which refers to the National Education Plan (PNE). Regarding the strategies provided by the Law, Goal 12 aims to: “raise the gross enrollment rate in higher education to 50% (fifty percent) and the net rate to thirty-three percent (33%) of the population of 18 (twenty-five) to 24 (twenty-four) years, ensuring the quality of the offer and expansion to at least 40% (forty percent) of new registrations in the public segment”. Paragraph 12.7 provides: “to ensure, at least, ten percent (10%) of the total credits required for graduation in university extension programs and projects, directing their action, primarily, to areas of great social relevance” (BRASIL, 2014).

For Imperatore, Pedde and Imperatore (2015) the advent of the circularization of extension gives the universities the challenge of reflecting on the concepts and practices of extension, the curriculum and the institution itself. For Tomaz and Santos (2017), the construction of the new National Education Plan, foreseen for the 2014-2024 decade, arises from the need to update institutional, academic and curricular structures, which also reflect the perspectives of the postdoctoral period, influenced by neoliberalist ideas and which are reflected in the current scenario of Brazilian higher education, in the sense of expanding access to higher education and technical schools, as well as in the quality of teaching, of

teachers, of their appreciation, and the access by young people to high school and higher education, among others.

2.3 The challenges of today's university: the emergence of an entrepreneurial university

Clark (1998) first theorized the concept of the entrepreneurial university with the publication "The Entrepreneurial University: Demand and Response". According to the author, the demands that are installed in universities arise from all sides and in a faster way than the institutions can deal with, evidencing an "imbalance thesis" in the relationship between university-environment.

According to Etzkowitz (2013, p. 487-489):

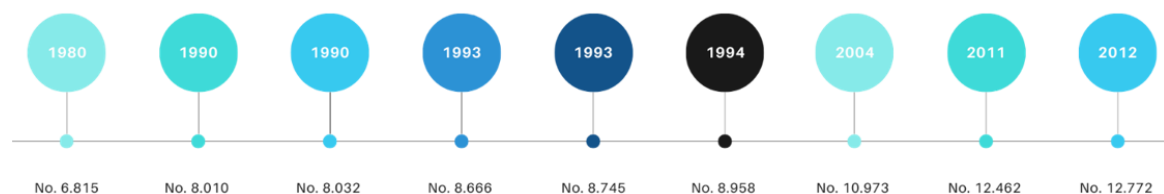
The entrepreneurial university is an emergent phenomenon resulting from the working out of an 'inner logic' of academic development that previously expanded the academic enterprise from a conservator to an originator of knowledge [...] involves extension from ideas to practical activity, capitalizing knowledge, organizing new entities and managing risks.

Under the backdrop of the university in contemporary times, the academic transformations that have so much guided the university ecosystem along its timeline, open space for other transformations, those of a social nature, imputing in the university, the sum of a series of aspects far beyond the limits imposed by the academic environment (OTANI, 2008).

For Clark (2001) the diversity of demands and challenges will influence the path of universities. The central point of the question is precisely how institutions respond and use their forces to meet these demands and challenges. Proactive universities shape their environments as much as they are shaped by them.

In Brazil, the Innovation Law was formalized in 2016 (No. 13.243), which brings the main legal frameworks about innovation of the country (see Figure 1), providing incentives for scientific development, research, scientific and technological capacity building and innovation (BRASIL, 2016).

Figura 1 - Legal milestones for innovation in Brazil.



Source: Authors.

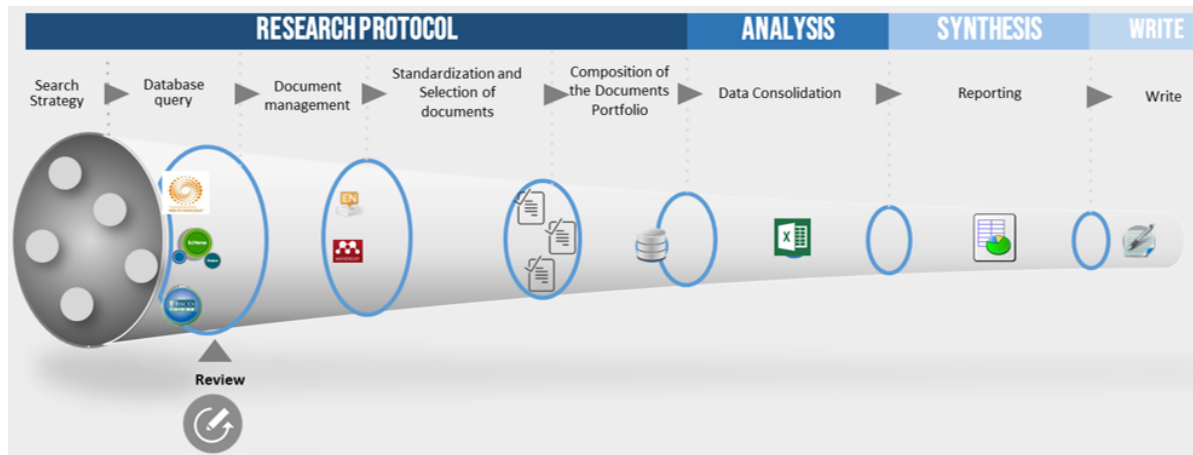
Among the main changes, it is worth mentioning Mancebo, Silva Junior and Schugurensky (2016), the changes regarding the participation of teachers, under a regime of exclusive dedication in research projects, besides facilitating the use and transition of these actors between laboratories and companies, which provides these actors with a more secure legal framework and consequently contributes to the fostering of university-company interactions and partnerships for the development of technological innovations.

According to Clark (2001), the entrepreneurial university, increasingly, will adapt to the new challenges established in the contemporary world, having as a background the emergence of new forms of knowledge, types of students, new connections of the workforce and new problem-solving skills for government and economy.

3. METHOD

This is an exploratory research, because it is sought to be more familiar with the problem, making it explicit. Regarding technical procedures, it is characterized as a bibliographical research, and its base is constructed from already developed materials - explicit in books and scientific articles (GIL, 2010). The present research has a qualitative approach, based on the Systematic Search Flow (SSF) method (see Figure 2), using systematic criteria, developed with the objective of guaranteeing the repeatability in the search process for scientific databases (FERENHOF; FERNANDES, 2016).

Figura 2 - Systematic Search Flow.



Source: Authors.

The method is divided into 4 stages - with 8 activities, the first stage being responsible for the definition of the research protocol, the second stage dedicated to analysis, the third stage for synthesis and the fourth step for writing. It is worth highlighting again the character of repeatability, which preserves those who wish to use the same descriptors, scientific bases used in this article and search period, the guarantee of reaching the same search results.

We used the Institutional Repository of UFSC - Federal University of Santa Catarina to conduct our search, seeking to achieve a better understanding regarding on internal academic publications.

We used the following descriptors: (Innovation AND university extension); (University extension AND innovative university).

Regarding the criteria for the use of scientific papers, the following inclusion criteria were used:

- Both terms present in the title OR summary.
- Scientific articles, theses and dissertations.
- Studies that address the object of interest of the research.

From the use of the key terms, 49 records were obtained. After applying the first inclusion criterion, 15 records remained. In the final filtering, after the application of the third criterion, the research reached the final scope of 14 records.

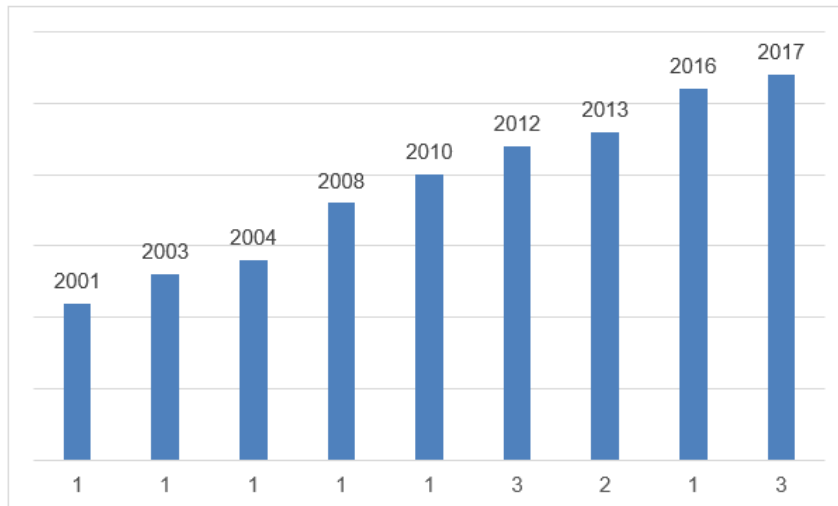
4. RESULTS AND DISCUSSION

In the following sections we will present the main results about the objectives established by this study.

4.1 Aspects analyzed

Among the results, we have the number of publications per year, considering the articles of the portfolio, according to Figure 3.

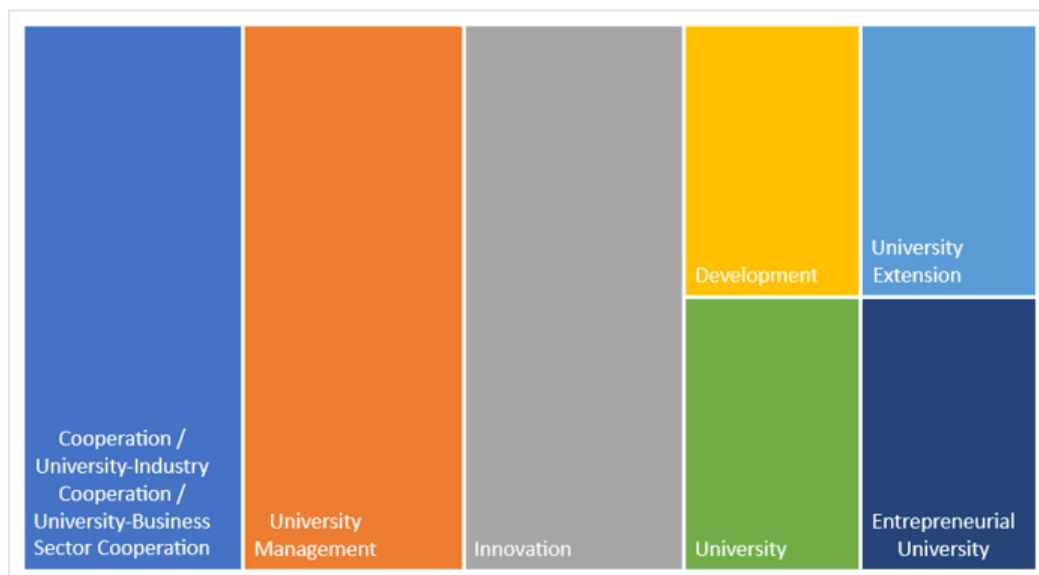
Figura 3 - Number of publications per year.



Source: Authors.

In Figure 4, it was possible to identify the keywords that were most repeated, in which Innovation and University Management were evidenced with three occurrences. The relationship university-industry stood out with three occurrences, but in different formats. All other exposed keywords have been verified at least twice.

Figura 4 - Keywords that were most repeated.



Source: Authors.

It should be noted the number of studies related to the Theses or Dissertations: the first one representing a total of 04 papers and the second a total of 10 papers.

Section 4.2 will present the main results about the analysis performed in the empirical literature for the construction of an innovative university.

4.2 The considerations of the empirical literature for the construction of an innovative university

The contributions presented by Otani (2008) discuss issues related to the construction of an entrepreneurial university, where it was possible to verify that the university context is still under the influence of an Industrial Age culture, with a focus on employee training, which contrasts with the current promotion of entrepreneurial training.

From the contributions presented by Otani (2008), it is possible to conclude that in the emergency for the construction of an entrepreneurial university and in the face of the constantly changing environments, this transition fundamentally involves maintaining the university's "main mission" from of the indissociability teaching-research-extension. The author adds: "The vision of an entrepreneurial university focuses on one more aspect, or challenge, to bring universities closer to social demands, positioning themselves as vectors of economic and social development and transforming the knowledge created into added value".

The perspectives enumerated by Schmitz (2017) corroborate with Otani (2008), when discussing innovation and entrepreneurship in the university environment. It is perceived that, in the university context, innovation and entrepreneurship are understood as an effort committed by the universities to maintain sustainability in an environment that is constantly changing, having in the teaching-research-extension pillars for the generation, dissemination, economic and social development in the environment in which it is inserted, being fundamental pillars present in the innovative and entrepreneurial university.

In terms of the extension function, and the contributions to regional socioeconomic

development, the activities that stood out most concerned the creation of new businesses - with an emphasis on solving social problems, generating jobs and transferring knowledge, and the provision of scientific and technological services. As for the contributions to the institutional sustainability, it is possible to emphasize generation of financial resources with the explicit provision of services; renting subsidized by companies that use the services of technology parks; transfer of technology (licenses/royalties); and participation in established enterprises and extension courses.

In Latin America, often the extension activities are linked to social projects and vulnerable groups (SERNA ALCÁNTARA, 2007), i.e., there are currents contrary to the university's involvement with the demands of the productive sector (knowledge commercialization). However, according to Vefago, Trierweiler and Rotta (2019) the connection of extension and the third mission (innovation and entrepreneurship) is growing, and both must lead to the transfer of knowledge to society.

According to Gimenez and Bonacelli (2021, p. 12) there are different terms to relate the university's connection with society:

In Latin America, there is preference for the use of the term university extension (in the first place), while linkage to the environment or to society is usually the second most used term. Third mission, on the other hand, tends to be rarely used. However, it is understood that the three terms – third mission, extension and linkage – have common aspects, namely, putting the knowledge that is generated in the universities at the service of society, as well as collaborating with surrounding agents, which constitute a specific mission of Latin American universities (GRAO et al., 2014).

Tecchio (2010) analyzes issues related to university-company cooperation, to complement Otani (2008), by punctuating the paradigmatic change in which factors of production give place to knowledge as a factor for the generation of wealth and development - "simplistic" scope that this statement applies only to the business sector, but also to society in general, where a

scenario of constant and rapid transformations is firmly established. In this context, the author still points out the correlation between the countries with the highest knowledge dominance to build better levels of productivity and income; and consequently, to achieve better living conditions for the population; and in this sense it is necessary to construct innovative environments that can provide the necessary conditions for the dissemination of innovation.

For Tecchio (2010), the interaction of three fundamental agents: government-university-business segment - anchored in a National Innovation System - being the university considered a repository of knowledge and a fundamental basis for innovation. Despite emphasizing the importance of this relationship (university-business), the author emphasizes the inexistence of guidelines that give account of the mechanisms for the accomplishment of this interaction, which assigns it fragmentation and incipience due to the lack of specific legislation under the institutional and federal.

The lack of a clearer and more consolidated legal framework imposes and generates a series of discussions during the process, generating different visions and interpretations. In sum, according to Tecchio (2010, p. 132), the main difficulties are:

different views on University-Business cooperation, lack of clear legislation to guide the process, non-institutionalization of University-Business cooperation, lack of a culture focused on innovation and dichotomous visions between academia and the business segment.

The perspectives presented by Marcheze (2004) discuss the expansion of Brazilian higher education and its impact on educational institutions, which increasingly need to approach innovation, entrepreneurship, and the elaboration of competitive strategies to maintain their competitiveness - in the public and private spheres. As for the non-fulfillment of the large number of vacancies in universities, due to the large percentage of individuals enrolled, both in public and private education, there is an inadequacy of management in these institutions,

which cannot find solutions to the present problem. In this sense, the author proposes the appropriation and operationalization by the IES of management tools, especially benchmarking, as a way of tracking a success trajectory based on comparative analysis and the appropriation of better management practices.

For Souza (2016), the aspects related to university social responsibility, increasingly, are evident and assume a role of great importance for the institutions, much due to the ethical and legal aspects inherent in these processes, amid the returns to be committed education institutions to society. For the author, this responsibility is based on four fundamental pillars: management, teaching-research-extension, being possible to verify a great influence committed by these projects in a great chain of actors internal and external to the organization. Social issues are addressed within the university environment in a more generalized and voluntary way, requiring a more specific action by the management of the extension in the institutions as well as the promotion of debates and the emergence of environments that work the theme, so to build a more favorable culture for the dissemination of social projects. It is important to emphasize the importance of promoting the inseparability between teaching-research-extension, to open the way for the strengthening of the theme and its dissemination among the actors involved.

The contributions presented by Muller (2001) collaborate with the contributions made by Souza (2016) in emphasizing the important role of non-profit institutions, in face of the challenges required by society, which require rapid and efficient responses. For the author, the recognition of university institutions by the tripod society-business-government is fundamental for its sustainable perpetuation over time, constituting a growing spiral of recognition from the managerial (strategic and operational) efficiency, which will be explained in obtaining (loans), clients, projects, political support, partnerships, financing for projects and conducting joint actions (university-company), which contributes to the strengthening of teaching-research-extension activities. In this

context, the management of the financial variable is fundamental within the university context, to enable the conduction of its projects; From this point of view, the author emphasizes the emergence of the Balanced Scorecard as an important instrument for making available constructs for the general visualization of the institution.

The contributions presented by Barros (2017) collaborate with the perspectives of Tecchio (2010), addressing issues related to the important role played by universities in the business context, with the aim of strengthening innovation within organizations through partnerships established between university-enterprise, the light of the triple-helix theory. Against this background, it was possible to identify, as limitations for the strengthening of cooperation between the two actors, the necessary bureaucracy to establish partnerships, structure and teaching time and communication problems.

For Pacheco (2017) the establishment of knowledge management practices in the university environment is fundamental for the management of teaching-research-extension activities, to intensify and make possible the consolidation of the principle of indissociability of this triad as well as in the establishment of constant institutionalization of knowledge by the organization. For the author, the institutionalization of knowledge makes possible its use as a stimulus for the consolidation of innovation in teaching-research-extension activities, under the background of the absolute vision of the environment, creative routines and dialogue, considered by the author, key elements in this process.

Borges (2013) discusses the importance of university management of extension projects for the promotion of results, under the background of social management. The integration of teaching-research-extension activities as well as the strengthening of partnerships between university and organized civil society are important activities and make possible the dissemination of social entrepreneurship and its contribution to building a society with

sustainable development.

Under the background of the Innovation Law enacted in 2004 (No. 10,973), which, among other things, established measures for structuring an internal body in universities and federal institutes, called the Nucleus of Technological Innovation (NIT). It is possible to verify that, according to Souza (2013), the performance of NITs through any innovation process is important for establishing the ideal structure in the university environment, as already pointed out by Barros (2017), to construct a good dialogue with all actors in this process and create a cleaner and easier way of communication, attributing to NITs the role of interlocutor in this process.

For Franco (2003), the use of information technology is increasingly evident in the university environment, and this promotion is committed by consolidating the teaching-research-extension triad in its use in relation to structural, procedural, and behavioral university aspects, being possible to verify the influence of these technologies in the organizational aspects, in the university environment.

According to Azevedo (2012), university extension plays an important role in the university environment, because it articulates and makes feasible in an inextricable way with teaching-research the relationship with society. Thus, university management emerges, with a fundamental role in this process when it comes to the use of evaluation tools for the continuous improvement of internal institutional processes, and it is possible to verify that the permanent use of these instruments is essential to contemplate all items proposed by the MEC, SINAES and National Extension Plan.

It was possible to verify, from the contributions presented by Pereira (2012), that universities have the conditions to contribute to the technological development of companies through the teaching-research-extension triad. From the point of view of the case studied, there is a need for a cultural change in the university environment, with the aim of breaking down barriers and aligning the discourse of the various actors involved in the innovation process, so

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