

Industry-University Cooperation and Social Innovation: Searching for a Unifying Model

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Resumo

A perspective for progress is understanding knowledge and learning as innovation basis (Lundvall, 2007) and conditions through which the improvement and change of a country's social situation has been provided. This theoretical essay emphasizes that when I-U cooperation allows the integration of social, environmental, and technological factors at SI development to obtain society benefit, it could promote these innovations and their diffusion in emerging economies development, improving social conditions of the population.

Palavras Chave

Industry-University Cooperation, Social innovation, Model

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INTRODUCTION

A perspective for progress is understanding knowledge and learning as innovation basis (Lundvall, 2007) and conditions through which the improvement and change of a country's social situation has been provided. One of these types of progress is the scientific knowledge (originated, for example, in universities and research institutes) that, such as Dalmarco (2012), leads to technological development. This is because "technological development and innovation are crucial for productivity and employment growth" (OECD, 1997, p. 12).

Although scientific knowledge originates from technological development, in other words, from attempts and errors in innovations development (Rosenberg, 1982), it is through restructuring by science that it can have an effective practical use (De-Carli, Segatto, *et al.*, 2017). This fact corroborates what Sábato and Botana Campo (1968) presents: the overcoming and development of a modern society occur by the simultaneous interaction of strategies and policies, mainly actions aimed at scientific and technological research such as those that arise in cooperative processes.

In Brazil, these factors are linked, as pointed out in articles 218 and 219 of the Constitution of the Federative Republic of Brazil from 1988 (BRASIL, 1988), to ST&I progress. In addition, it depends on government actions with fundamental research, technology, formation of human resources, stimulating companies to invest in Research and Development (R&D), and fostering relationships in a National Innovation System (NIS), among others.

An NIS is composed of a network of institutions that interrelate and contribute to the development of innovations (Albuquerque, 1996; Plonski, 2005; Stal, 2006), whose parties' interconnection provides the development of mutual competence. NIS consists of "a network of public and private institutions that interact to promote the scientific and technological development of the country" (Stal and Fujino, 2005, p. 270; Stal, 2006, p. 19) and the links that such actors develop to improve technological performance (OECD, 1997).

This relationship is based on the allocation of resources, the development of infrastructure, etc., from the government to the other parties because it "is an important agent that has the essential role of stimulating competitiveness and defining public policies to promote and stimulate the innovation" (Toledo, 2015, p. 337), being the government fundamental in the constitution of NIS (Cassiolato and Lastres, 2005). Therefore, it depends on this stimulus so that the use of knowledge and its incorporation into new production systems occurs.

When there is a relationship or an interaction between industries, universities, and government, the innovation is potentialized (Porto *et al.*, 2011) because "to have a favorable environment for innovation in a country, it is necessary actions in universities and research institutions, industries and government." In addition to achieving sustainable development and wealth generation with the ST&I development by the multiple institutional agents interacting with (Toledo, 2015, p. 312).

The university is the primary generator of knowledge-based societies and government and industry in an industrial society. The university is an institution that produces capable knowledge of promoting innovations, and the interconnection with the government makes the actors more significant than individually (Etzkowitz, 2008). The university provides, among others, knowledge and training of competent human resources (Marcovich, 1999; Póvoa, 2008). Such knowledge can be used to develop companies' innovations (Cecere *et al.*, 2014), and the parties' complementarity is the potential element of a possible commercial application of technologies (Gusberti *et al.*, 2014).

Studies such as Plonski (1995, 1999, 2005), Bonaccorsi and Piccaluga (1994), Etzkowitz and Leydesdorff (1996), Segatto-Mendes and Sbragia (2002), Segatto-Mendes and Rocha (2005), Porto (2000, 2007), Costa, Porto and Feldhaus (2010), Bruneel, D'Este and Salter (2010), Dalmarco, Dewes and Zawilslak (2011), Dalmarco (2012), D'Este, Guy and Iammarino (2013), Dias and Garnica (2013), Lind, Styhre and Aaboen (2013), Garcez and Sbragia (2013), Aguiar-Díaz *et al.* (2015) emphasizes the importance of university-industry cooperation (I-U) to the country's development.

The innovative capability of a country (or region) is conditioned to the result of the relations between economic, political, and social actors, with specific cultural and institutional conditions

,(Cassiolato and Lastres, 2008). In Brazil, this capability depends on how NIS policies are managed and by the region.

Each company, region, and/or nation has a specific technological development strategy since its insertion in specific economic, political, and social contexts, and each strategy has defined respecting the particularities of these contexts (Toledo, 2015, p. 12, translated by the authors).

De-Carli et al. (De-Carli *et al.*, 2015; 2017) show a disparity in patent deposits in Brazil's regions, with the Southeast region accounting for approximately 66% of them, followed by the South (16%), the Northeast (8%), the Midwest (6%) and the North (3%).

From the patenting lens and observing the implicit constraints, this demonstrates different regional innovative capabilities in Brazil, which corroborates with Dosi (1982), who signals a regional innovative process that depends on the influence of institutional and economic factors. Thus, if stimulated, these factors tend to generate increasing benefits and regional innovation processes.

However, some problems and/or weaknesses can discourage this situation. The main weaknesses of Brazilian NIS related to the Legal Framework and Policies, Financing, Intellectual Property, and Entrepreneurship, even with elements such as the Federal and Regional Innovation Law, which try to resolve them. For example, the Federal University of Minas Gerais (UFMG) and the Federal University of Rio de Janeiro (UFRJ) have a flexible interpretation of the legislation, allowing their researchers to create a company from patents of their own (Toledo, 2015). Stal and Fujino Campo (2005) already evidenced this concern about legal interpretation, showing que misinterpretation of such legislations can occur.

In early 2016, Brazil established the ST&I Framework (BRASIL, 2016). This action aimed to improve laws related to ST&I and to stimulate a better interaction between universities and industries, with, for example, providing university laboratories to enterprises develop research and bureaucracy reduction to acquire necessary materials, etc.

The S, T&I Framework corroborates the Federal Innovation Law Campo (BRASIL, 2004), emphasizing innovation factors incentive and scientific and technological research. Therefore, these legal aspects reduce the distance between government, industries, and universities for the expansion of technological development by the authorization through procedures, as corroborated by Stal and Fujino (2005).

This aspect shows that institutional changes, such as in the legal area, aimed at the industry growth target (Tigre, 2006) and the stimulation of innovations development by Universities and Public Research Institutes (Kuribara, 2015). Therefore, this is] highlight those actions for technological development are in a continuous evolution process.

Facing these aspects and although the NIS of developing countries, like Brazil, arise from developed countries' practices, their actions can be molded to encourage new markets creation and take advantage of technological innovation aimed at social change. In this context, it includes Social Innovation (SI) which "refers to innovative activities and services that are motivated by the goal of meeting a social need, which is predominantly diffused through organizations whose primary purposes are social" (Mulgan, 2006, p. 146).

Citizens can be involved in ideas SI generation, and it can reconfigure the boundaries between (the first – market, second – government, and third – civil society) sectors. In addition, it can create a connection between these three 'dimensions,' mainly because it aims to address broad issues of social benefit within a normatively and culturally contingent context (Nicholls and Murdock, 2012b).

Some of these aspects can emerge from social investments, from the realization of innovations that allow social aspects improvements, from identifying which innovations would be better, and from the interconnection between politics and social innovation (Mulgan, 2015).

Therefore, a technological focus and future orientation may lead to technological development for application in social and business contexts since scientific and technological development countries transform society in search of well-being, life quality, and progress.

"There is the tendency of the policies have focused on a set of actors and their environments, aiming to enhance, disseminate and do more effective results" (Cassiolato and Lastres, 2005, p. 39). Thus, specific actions can be developed to achieve regional social needs. At this point, the I-U

cooperation, previously presented and pointed out, can be a tool to highlight innovation and generate a specific kind: social innovation.

In this way, this theoretical essay emphasizes that when I-U cooperation allows the integration of social, environmental, and technological factors at SI development to obtain society benefit, it could promote these innovations and their diffusion in emerging economies development, improving social conditions of the population.

In the sequence, we present a theoretical framework related to the Sábato & Botana Triangle, Triple Helix, and Social Innovation. After that we attach the themes to delineate conceptual propositions and future empirical research.

THEORETICAL BACKGROUND

Technology Development in National Innovation System

The Sábato & Botana Triangle recommends a multiple and integrated action between government, productive structure, and scientific-technological infrastructure (each one representing the vertices of a triangle). The government should implement policies to stimulate the interrelations between the scientific and technological infrastructure of the productive sector (Sábato and Botana, 1968).

Each part has a specific role in this innovation process model (Stal, 2006): "The university (creates), the industry (applies) and the government (stimulates)" (Perucchi and Mueller, 2016, p. 139, translated by the authors). From these interrelationships, they can generate innovations.

Each of the vertices represents a center of convergence of multiple institutions. For example, one of the Productive Structure corresponds to the productive sectors that provide services and goods demanded by society. The Government vertices comply the set of institutional rules and administrative actions to formulate policies and mobilize resources to the productive structure and to the scientific and technological infrastructure. This Scientific and technological Infrastructure, which represents the third vertices, provides the educational systems, the laboratories infrastructure, etc. to promote technological development (Figure 1).

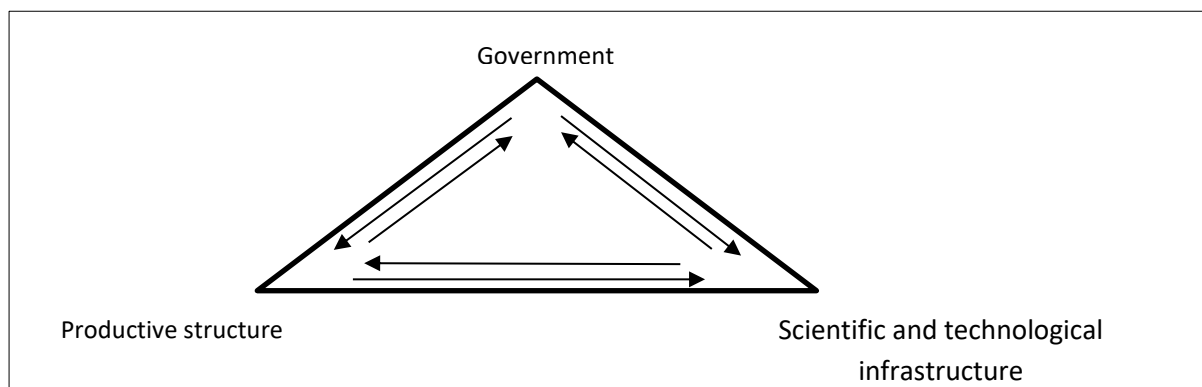


Figure 1 –Sábato & Botana Triagle. Source: Sábato and Botana (1968, p. 7, translation by the authors).

The relationship between government and scientific and technological institutions vertices is based on resources allocation, infrastructure development, etc. from the government to such institutions. The interconnection between government and productive structure depends on the discernment of both vertices to use and incorporate knowledge into new production systems. The relationship between productive structure and scientific and technological institutions allows the knowledge creation and development from both demands.

It is essential to notice that "the model has been transformed with bilateral interactions increased, until there is a strong integration between people and ideas at all levels" (Stal, 2006, p. 20, translated by the authors). The interrelations between the three vertices (government, productive structure, and scientific and technological institutions) increase the possibilities and evolutions of the interacting ones.

In this sense, Albuquerque (1996, p. 57) presents NIS as an institutions network, such as "industry, government agencies, universities, research institutes, business laboratories, scientists and engineers", whose interaction can bring better technological performance.

A NIS consists institutions' set that interrelate and contribute to the creation, development, and diffusion of technological innovations. The university has the role of training people whose competence will foster technological development (Póvoa, 2008) and scientific development (Stal and Fujino, 2005; Stal, 2006) in the country.

Such interrelations come from demands for institutional changes, like legal, financial, and political aspects, aiming for industrial growth (Tigre, 2006). As a result, the performance of which institutions would affect the 'innovation system': the way they "interact with each other and with institutions - including policies, affects system development" (Cassiolato & Lastres, 2005, p. 37).

In this sense, the Triple Helix appears to develop the cooperative relationship between actors of the innovation process: the university, industry, and government (Etzkowitz, 2008), each one according to its role. But they become interdependent through the knowledge transfer because "in addition to multiple interactions, each one of the members has functions previously exclusive to the other two and considers a network was formed among the various institutional structures by helix" (Stal, 2006, p. 21).

In Triple Helix, the university stands out because it is an innovation source in an economy based on knowledge (Leydesdorff and Etzkowitz, 2003; Etzkowitz, 2008). Moreover, it is also a key element for society to acquire knowledge. It should be noted that the level of involvement among the interacting partners conditions the exchange and/or knowledge development (Bonaccorsi and Piccaluga, 1994).

The unleashed role by each agent of triangle vertices may trigger an increasingly better process in their action or another space. The I-U cooperation can be a stimulus and a source to take place more and more proficiently. From this interactivity, technological innovations emerge (Cassiolato and Lastres, 2005).

Industry-University Cooperation

I-U Cooperation can involve different actors: big companies, entrepreneurs, and even an 'informal company.' When we talk about university, it may be "any institution of higher education, university or college, public or private [...] an entity associated with the institution [...] or even an individual researcher" (Plonski, 1995, p. 34, translated by the authors). Segatto-Mendes and Sbragia (2002) highlight that such cooperation is fundamental to the country's technological growth and scientific development in the academic world, being advantageous for all the country.

The I-U cooperation "involves a process of transfer and transformation of products and services and aims to increase the knowledge bases of both participants" (Segatto-Mendes and Sbragia, 2002, p. 69). Such cooperation allows access to resources by the interacting parts (Garcez and Sbragia, 2013; Lind, Sthyre and Aaboen, 2013), for example, for the renewal and application of developed knowledge (De-Carli, Segatto-Mendes, *et al.*, 2017). In this sense, it consists of "an interinstitutional arrangement that allows the union of research efforts of public and private sectors" (Segatto-Mendes and Sbragia, 2002, p. 70, translated by the authors) to generate technological development (De-Carli, Segatto, *et al.*, 2017).

I-U cooperation is one of the ways to develop and/or build knowledge, given the chance of mutual exchanges. Because of that, it provided advantages for both sectors and the country itself, (Segatto-Mendes and Sbragia, 2002; Plonski, 2005; Tigre, 2006). In this case, when the knowledge is developed, two alternatives are opened: one for industry, because of access to knowledge and / or skills they do not have, and another for the Scientific and Technological Institutions (STI)ⁱ, which can develop topics for research and production of papers (PÓVOA, 2008), to cite just a few aspects.

Using STI's Technology Transfer Offices (TTO) to search for partnerships is one option for modernizing industrial parks. It happens because among the possibilities: buying foreign technology, developing domestic R&D, and establishing partnerships with universities and research institutes (López-Martínez *et al.*, 1994), especially in developing countries (Zeng, Xie and Tam, 2010), the I-U cooperation is considered in the Brazilian context one of the most indicated instruments for the promotion of the technological and economic development (Segatto-Mendes and Sbragia, 2002; Segatto-Mendes and Rocha, 2005).

Póvoa (2008) emphasizes that this cooperative relationship makes innovation possible. In an NIS, a fundamental element for innovation, the relationship between industry and universities is developed through joint research. It can contribute to the economic development of the country. This interaction also makes possible, among others, the use of science and technology as catalysts of social change (Plonski, 1995).

Therefore, from the moment there are governmental incentives for knowledge centers to interact with industries, which, according to Tigre (2006), are generally the drivers of the economic development of countries, there will be a more excellent proficiency of technological innovations. Hence, the development of cooperative activities for I-U technological development should be stimulated and increasingly emphasized.

It should not be emphasized only for economic development but also to develop means and/or mechanisms that generate social innovations, as presented in the following section.

Social Innovation

Social innovation (SI) emerges from the intention of providing to society the conditions through which it can create means and/or mechanisms capable of changing its reality. It should be of broad social benefit within a cultural context with specific demands (Nicholls and Murdock, 2012b), i.e., it responds to a local need. Such innovation may originate from the first (private), second (public), or third (non-governmental) sector (Nicholls and Murdock, 2012b; Jenson and Harrison, 2013).

But, SI can also be visualized as an umbrella concept, according to the researcher Frances Westley, from Waterloo University, in an interview with Weber (2012). Thus, it is a broad concept that includes entrepreneurship ideas, social enterprise, and social technology. Therefore, this innovation refers to motivated activities to resolve social needs with new, effective, efficient, and sustainable solutions through the application of ideas (products, services, models), creating values, social relations, and collaboration (Bignetti, 2011; Borzaga and Bodini, 2014).

This kind of innovation originates as i) a response to social problems; (ii) a challenge faced by particularly vulnerable groups; (iii) an initiative from civil society; (iv) governance through laws and/or means through which it is possible; (v) an alternative economic organization (Jenson and Harrison, 2013).

There are numerous social challenges and needs that contribute to territorial development for developing countries. Because of that, resolving social problems becomes something latent and determinant of their evolution (Have and Rubalcaba, 2016). In this sense, these authors highlight four approaches to the arising of a SI: 1) community psychology, which consists of verifying how widespread changes are manifested in society; 2) creativity research, which focuses on how SI can be applied in society; 3) social challenges, i.e., how society must face its reality; 4) local development, i.e., how SI can help society inclusion and growth.

In this perspective, SI is linked to new services and activities whose motivation is to attend social issues (Mulgan, 2006) with the commitment to social transformation (Dagnino, Brandão and Novaes, 2004), by social system changes able to solve problems with alternative solutions (Lawrence, Phillips and Tracey, 2012).

With research and technology development and the inclusion of new working methods (Dagnino, Brandão and Novaes, 2004), alternative solutions can be proposed to social precariousness issues (Brunstein, Rodrigues and Kirschbaum, 2008) and life quality and quantity (Pol and Ville, 2009). Consequently, the created knowledge from SI would solve community problems (Alves, Segatto and De-Carli, 2016).

It should be noted that, although SI creates social value (Marshall, 2011), there are two main conceptual lines: i) as a participatory social process and ii) as a result (Nicholls and Murdock, 2012a). The first main conceptual lines relate to the relationship created between people so that new ideas are implemented to achieve common goals (Mumford, 2002); it depends on individual relations and interaction (Cajaiba-Santana, 2014). The second main conceptual line tries to develop innovations with a social purpose, i.e., to achieve a social need (Mulgan, 2006), improving the lives quality and quantity (Pol and Ville, 2009), with social value stands out to individual interests (Phills Jr., Deiglmeier and Miller, 2008).

The governments may encourage partnerships for social value creation (Phills Jr., Deiglmeier and Miller, 2008), i.e., “the public sector can encourage social innovations that emerge from public organizations” because this stimulus of actors interact is socially innovative (Jenson and Harrison, 2013, p. 17).

From this perspective, it is understood that the SI concept adopted in this study is consistent with Mulgan (2006), i.e., a social need attended by organizations linked to fulfilling social objectives. It should be emphasized that SI arises from actors in the social system and through learning and cooperation (Neumeier, 2012). Therefore, developing I-U cooperation to SI realization can be an essential factor, as highlighted below.

THEORETICAL PROPOSITIONS REGARDING THE UNIFYING FRAMEWORK

Based on the assumption that "innovation may previously occur in any economic sector, including public services such health or education" (OECD, 1997, p. 19) and that "innovation is not always linked to technology" (Carvalho, Reis and Cavalcante, 2011, p. 14), this study purposes it may be essential to analyze the I-U cooperation and its action to social innovations development.

Segatto-Mendes and Sbragia (2002) point out that studying I-U cooperation in Brazil is essential for technological and economic progress. It should be observed as it has done in developed countries because they can stimulate academic knowledge improvement and conduct policies, such as the Bayh-Dole Act in 1980, which, according to Póvoa (2008), was an American law that facilitated the process of obtaining patents funded by federal resources and their possibilities of commercialization by the universities.

Therefore, if a country is technologically backward due to its social and cultural characteristics, such as educational levels and political, commercial, industrial, and financial institutions (Abramovitz, 1986), the strengthening of an interaction through which knowledge is created that fosters the achievement of social innovations can corroborate the adequate performance of universities and industries.

At the NIS, I-U cooperation is an instrument of social change since innovations and technologies can generate it. This change comes from high social impact innovations, specifically for insertion and improving life quality, called Social Innovation (SI).

SI can be an element through which people develop means and/or mechanisms that solve daily problems and vulnerabilities. Because it is an under-construction concept (Cajaiba-Santana, 2014), it can be presented by the umbrella proposal by Frances Westley in an interview with Weber (2012), including or distinguishing the concepts of entrepreneurship, Social Technology, and Social Innovation (Jenson and Harrison, 2013). It is supposed to be a profitable field of research in this 6eyw.

Moreover, after surveying databases considering articles title, abstracts and 6eywords about both terms together, i.e., industry-university cooperation/collaboration and social innovation, without any delimitation of dates, only some studies were evidenced.

At Web of Science database, 17 studies were found dated between 2000 and 2016, four of them in journals and the other in events. At none of them, however, it was possible to note an approach related to social innovations, but the social term.

At Scopus database, 13 studies were found dated the period 2000 to 2015, six at journals and others at events. From these, a single one, by Closs and Ferreira (2012), refers to the social role made by Universities. The others deal with the topic of I-U cooperation in diverse spheres but not referring specifically to SI.

At Science Direct database, only two studies were found, one from 2014, which propose a model to increase efficiency in higher education based with I-U cooperation, and another one from 2012 about the relation of this kind of cooperation in the Netherlands about innovation at nanotechnology sector. Again, none of them addresses the SI aspect in I-U cooperation.

At ‘Portal de Periódicos Capes’ (a Brazilian database) the same study about cooperation in the Netherlands, from 2012 quoted in the previous paragraph was evidenced.

It should be noted that eight of the found papers, at this survey, appear in more than one database, which indicates a few studies related to the subjects, although indirectly, treated together.

The SI concept analysis from the perspective of the I-U cooperation and its contribution represents a study not yet covered by the current literature. Thus, we have the first theoretical proposition originated from the considerations of this essay:

Proposition 1: I-U cooperation can be an instrument to social innovations development.

If "innovation is a social process, which involves people communicating and sharing ideas" (Tidd, Bessant and Pavitt, 2008, p. 431, translated by the authors), the development of social innovations allies to this perspective, i.e., the cohesion through which people can interact to transform their reality to promote life quality and social insertion.

Linked to this and because there are different definition of social innovation, and about its cause and effect relationship, or on specific policies to follow, to promote social innovation (Jenson and Harrison, 2013), at this study we understood SI like social need attended by organizations whose principle is linked to the fulfillment of social objectives (Mulgan, 2006).

There are distinct variations in the role of universities and public research institutes, which may be linked to the region, government and market incentives, to a country's economic and social development level (Póvoa, 2008). Understanding its regionalized performance and focused on innovation development may help a local social change, and signals the relevance of studies focused on this issue. And so, the second proposition of the study is presented:

Proposition 2: If an I-U cooperation use public resources, it is easier to approach with society and promote social insertion.

In this sense, "at Knowledge society, it becomes even more fundamental to strengthen teaching and research institutions, within an orchestrated strategy of long-term planning" (Cassiolato and Lastres, 2005, p. 40, translated by the authors). There is an opportunity to incorporate such strategies into the possibility that universities transfer their knowledge and develop strategies through which public resources are more widely applied through strategies that stimulate social innovation.

In this way, the results of public resources research can be transferred to society, with concrete channels and actions between university and industry as a way to resolve the "waste of knowledge and technologies that could have social interest" (Stal, 2006, p. 150, translated by the authors).

Plonski (1995) signaled that I-U cooperation catalyzes social change. However, the literature still needs to develop studies and/or mechanisms to use I-U cooperation interinstitutional structures in a more direct and incisive way, such as social innovation. The literature survey shows that this perspective as a driver of SI development still needs to be explored.

This is evidenced from the search carried out in different database (Web of Science, Scopus, Scielo and Portal de Periódicos Capes), considering the terms industry-university cooperation/collaboration and social change together at articles title, abstract and keywords without any dates delimitation.

A few studies have been found. At Web of Science database, eight studies were found in the period from 2012 to 2015, one at a journal and the other in events. However, one of them, from Manuel Heitor (Heitor, 2015), was also found at Scopus and Science Direct bases and discuss how global university partnerships can facilitate a new era of international affairs and promote political and economic relations, which may have a link to the country economic and social development. At Portal de Periódicos Capes, no study was found.

After this research, it is possible to note that the subjects have yet to be discussed together, or if have been discussed it happened in an incipient way. And it increases the importance of studies about I-U cooperation to SI development must be realized.

Thus, a literature gap is identified, from studies focusing on existing characteristics, barriers, instruments and mechanisms of I-U cooperation, without the SI perspective. They could be researched to propose structures considering these specificities, becoming adequately SI promoters. From this assumption, the third proposition generated from this essay is presented:

Proposition 3: No model for I-U cooperation brings universities and industries motivated to develop high-impact innovations in society, i.e., social innovations.

The relevance of I-U cooperation to developed countries is cited by authors as Plonski (1991, 1999, 2005), Bonaccorsi and Piccaluga (1994), Etzkowitz and Leydesdorff (1996), Segatto-Mendes and Sbragia (2002), Segatto-Mendes and Rocha (2005), Porto (2000, 2007), Bruneel, D’Este and Salter (2010), Dalmarco, Dewes and Zawilslak (2011), Dias and Garnica (2013), Lind, Styhre and Aaboen (2013), Garcez and Sbragia (2013), Aguiar-Díaz et al. (2015), as a possible agent for improving life quality or a possible originator factor for technological innovations, or for national competitiveness. Thus, it can be seen in another perspective, i.e., as a substantial mechanism for expanding or enhancing social innovations that allows the Brazilian population, poor and needy, to improve their conditions and quality of life.

FINAL CONSIDERATIONS

In Brazil, the innovative capability depends on which region occurs and how the National Innovation Systems (NIS) policies are managed. Although the developing economies’ NIS occurs from developed economies’ practices, their actions can be elaborated to take advantage of technological innovation aimed at social change. A specialized focus and a future orientation may lead to developing technologies for social and business applications because scientifically and technologically developed countries transform society.

In this way, this study emphasizes that industry-university (I-U) cooperation can enable the integration of social, environmental, and technological factors when developing Social Innovation (SI) for the benefit of society. From a conceptual approach, a gap was identified in the literature; namely, studies focus on the characteristics of I-U cooperation but do not include the SI perspective. Moreover, a theoretical study was developed to establish propositions that, when researched and verified, will contribute to the proposal of specific and appropriate structures for promoting social innovation with a positive environmental and social impact.

The study was developed based on the available literature on this research domain, in the search for a unifying framework, and, to this end, a theoretical background on ‘industry university collaboration’ and ‘social innovation’ was used. From this, it was possible to elaborate three central propositions: Proposition 1: I-U cooperation can be an instrument to social innovations development. Proposition 2: If an I-U cooperation use public resources, it is easier to approach with society and promote social insertion. Proposition 3: No model for I-U cooperation brings universities and industries motivated to develop high-impact innovations in society, i.e., social innovations.

From these aspects, we identify the need for studies that search for a model that deepens the analysis and characterization of I-U cooperation in social changes promotion, discussing the role of Social Innovation optimization, to make a country a better place to live in.

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ⁱ Scientific and Technological Institutions (STI) refer to Universities and Research Institutes. The Federal Innovation Law (BRASIL, 2004) uses the term STI, but this study focuses on universities. Then, from here, in this study will be used the word University.