The evolution of universities' relations with the business sector in Brazil: What national publications between 1980 and 2012 reveal

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A evolução das relações da Universidade com o setor empresarial no Brasil: o que revelam as publicações nacionais entre 1980 e 2012

Este trabalho aborda as mudanças nas relações entre universidades e empresas (U-E) no Brasil em atividades de inovação, com base em levantamento dos artigos publicados nos principais periódicos nacionais ou apresentados em congressos brasileiros e regionais mais relevantes, entre 1980 e 2012. O ano de 1980 marca a criação dos Núcleos de Inovação Tecnológica (NIT), primeira iniciativa do governo de estímulo à transferência de conhecimentos das universidades para empresas. O segundo foi a Lei de Inovação, instituída em 2004. O pressuposto é que, após esta lei, cresceria a produção acadêmica sobre o tema, com novas propostas de modelos e reflexões para melhoria desta relação. A metodologia empregou abordagem qualitativa, exploratória, utilizando pesquisa bibliográfica, estudo bibliométrico e análise de conteúdo em 247 trabalhos. A revisão da literatura contempla trabalhos internacionais que mostram problemas e sugestões de melhorias, enquanto no Brasil ainda se discute se esta colaboração deve ocorrer, e se este é um papel legítimo da universidade. A análise de conteúdo revelou poucos trabalhos sobre novas configurações e processos de gestão da parceria. As conclusões mostram que as relações U-E ainda não constituem um processo regular e amplamente aceito nas universidades públicas brasileiras, e refletem um viés ideológico contrário à cooperação com empresas.

Palavras-chave: cooperação universidade-empresa, inovação, núcleos de inovação tecnológica, propriedade intelectual, universidade empreendedora.

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1. INTRODUCTION

There is still a long way ahead towards cooperation between universities and companies in Brazil, in the search of efficient models to increase the country's degree of innovation. This is a natural partnership in developed countries, where firms seek external sources of knowledge, despite having vast resources and their own R&D laboratories (Chesbrough, 2003).

The increasingly rapid pace of creation of new goods and services demands sources of creativity that go beyond the boundaries of firms, and cooperation with customers, suppliers, research institutes and even competitors is already common. Cooperation is most needed in emerging countries, where universities are the main source of knowledge that can lead to innovation, and agents of economic and social changes. But it is in these countries that cultural differences and prejudices inhibit collaboration (Economic Commission for Latin America and the Caribbean [ECLAC], 2010, p. 33).

In Brazil, this cooperation is needed in a broad spectrum of sectors and activities in view of the past. From the early 1950s throughout the 1980s, Brazilian economic policy favored industrialization based on an import substitution strategy, with large presence of state-owned enterprises in industries linked to the primary sector (mining, petrochemical, steel) and in granted public services, and multinational companies rose in the consumer goods sector (Mello, Maculan, & Renault, 2011). The country grew at high rates, with the protection of tariff and nontariff barriers that kept it away from international competition without the widespread practice of products and processes' innovation. Established multinationals innovated in their home countries, hindering local technological qualification through learning. Hence, Brazilian companies in general have no tradition in conducting R&D, given the high costs and risks of this activity, and also a history of protectionism that encouraged the entry of foreign capital and technologies to increase competitiveness (Coronel, Azevedo, & Campos, 2014).

On the other hand, the science and technology (S&T) policy aimed at technological autonomy, by sending abroad teachers to get Master and PhD degrees to allow the establishment of graduate courses in Brazil. This dissociation between the two policies resulted, years later, in a group of highly trained professionals working at universities and public research institutes, without concern for the of companies' needs, which were met by imported technologies. Since the economic liberalization in the early 1990s, domestic companies have been forced to adopt modern actions to face competitors in the country, after the arrival of new foreign companies. Innovation was necessary and technological capability became the main objective of the industrial policy, for which cooperation with universities was essential (Mello *et al.*, 2011).

In 1993, a comprehensive study commissioned by the Ministry of Science and Technology and the World Bank

concluded that a new policy for S&T should perform apparently contradictory tasks: "to encourage freedom, initiative and creativity of researchers and, at the same time, establish a strong link between their activities and the needs of the economy, of the educational system and of the society as a whole" (Schwartzman, 1993 p. ii). At the time, this topic gained great relevance. The University of São Paulo (USP) Journal published the *University-Industry Dossier* (1995), IBICT (Brazilian Institute of S&T Information) edited the book *University-Industry Interaction*, in two volumes (1998, 1999) and the Journal of Management (RAUSP) published a special issue on the subject in October/December 1999.

In the last decade, open innovation was pointed as the preferred path for companies' growth, through the collaboration among firms, universities, research institutes, suppliers and customers. The famous quote by Henry Chesbrough (2003) - "not all brilliant scientists work in your company" – features well this new era of innovation.

Recently, international literature has been discussing new concepts such as "academic science", "entrepreneurial university", "capitalization of knowledge", "academic entrepreneurship", and the differences in the underlying values of this transformation (Lam, 2011; Siegel, Wright, & Lockett, 2007; Etzkowitz, 2008). Critics mention "commercial science" "academic capitalism" and "privatization of knowledge" (Oliveira & Velho, 2009; Chauí, 1995).

The first Brazilian governmental efforts to bring universities and companies together in innovation projects date back to 1980, and resulted in the creation of the Technological Innovation Offices (NITs) in 1981, a program of the National Council for Scientific and Technological Development (CNPq), with the support of FINEP - Innovation and Research. However, as it occurs in several public initiatives, over time financial resources became scarce, many organizations failed to keep them in activity and most were closed (Medeiros, Stal, & Souza, 1987). Other programs and laws to stimulate cooperation followed: Act 8661/93 (tax incentives for innovation), Act 8248/91 (tax incentives for Information Technology companies), Partnership for Technological Innovation (a program of FAPESP - São Paulo Foundation for Research Support, 1995), Green-Yellow Fund (2000), other sectorial funds with calls for partnership projects, and the Innovation Act (2004). In Article 16, this act requires that public S&T institutions establish Technological Innovation Offices for the purpose of managing their innovation policy, and sets their minimum skills. Over three decades, there has been progress, especially with the institutionalization of these technology transfer offices, but there are still thoughts and attitudes contrary to cooperation.

In addition to the Innovation Law, other government actions encouraged partnerships between universities and companies, such as the Good Law (Law 11,196/2005), which grants tax incentives to firms that conduct R&D, even if such activities are commissioned to universities and research institutes. And the

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