Qualis B4 ISSN: 2675-0236

ARTIGO

Listas de conteúdos disponíveis em DOAJ

Revista Processus de Políticas Públicas e Desenvolvimento Social

The Commission for Scientific Research of Buenos Aires, on a case of institutionalization of a techno-scientific policy

La Comisión de Investigaciones Científicas (CIC) de la Provincia de Buenos Aires, acerca de un caso de institucionalización de una política científico-tecnológica

ARK: 44123/multi.v6i11.1143

Recebido: 31/05/2024 | Aceito: 10/06/2024 | Publicado *on-line*: 20/06/2024

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Abstract

The analysis of Argentina's science and technology system has been carried out based on different historical periods and policies. It is for this reason that its beginning is usually associated with the 50s. By 1956, the Commission for Scientific Research was in place. Little research has been done on this institution. It is responsible for promoting Science and Technology in the province, where most universities are located. This paper seeks to analyze the creation of the aforementioned Commission as a policy designed to promote and develop science and technology in Buenos Aires. To this end, the qualitative methodology and, in particular, the analysis of documents will be used. The main source is Provincial Decree No. 21.996/56, which established the Commission. One of the most important results of this research is the identification of characteristics in both the mission and the institutional objectives of the creation of the Commission that are associated with this period. Therefore, although this organization represents the institutionalization of a policy, its history expresses a great disarticulation from the productive sector and its tendency towards the academy.

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Keywords: Science and technology management. Policies. Institutions. National System of Innovation.

Resumen
El complejo científico-tecnológico argentino ha sido analizado especialmente de acuerdo con las distintas etapas y orientaciones de política pública. De allí que sus inicios suelen estar referenciados en los años ´50. Hacia 1956 se dio origen a la escasamente explorada Comisión de Investigaciones Científicas (CIC) de la Provincia de Buenos Aires. Esta institución es la responsable de la promoción de la ciencia y tecnología en el plano subnacional bonaerense. El objetivo de este artículo es analizar la creación de la CIC de la Provincia de Buenos Aires en tanto política pública diseñada para la promoción y desarrollo de la ciencia y la tecnología en el territorio bonaerense. Para ello, la metodología utilizada es cualitativa y se nutre del análisis documental. La principal fuente utilizada es el Decreto provincial de creación de este organismo N° 21.996 del año 1956. Entre los resultados obtenidos se destaca la identificación de rasgos característicos de la etapa histórica de creación de la CIC en su misión y objetivos institucionales. De esta forma, si bien el organismo referido expresa la institucionalización de una política científico-tecnológica, tanto en sus inicios como en su historia se observa la desarticulación con el sector productivo y la fuerte orientación hacia la promoción de una ciencia academicista.

Palabras clave: Gestión de la ciencia y la tecnología. Políticas públicas. Instituciones. Sistema Nacional de Innovación.

Introduction

The majority of the specialized literature has paid a great deal of attention to the National Council for Scientific and Technical Research (in Spanish CONICET). (Yoguel, et al 2007; Beigel, 2017; Rovelli, 2017; Svampa y Aguiar, 2022; Sarthou y Castiglione, 2023). This national and de-centralised organisation, which has always had a greater or lesser degree of autonomy and articulation with the other actors within the National Innovation System (in Spanish SNI), was created at the same time as the Commission for Scientific Research (in Spanish CIC) of Buenos Aires (Gángaro, 2016).

As opposed to CONICET, the CIC aims to promote Research, Development, and Innovation in the Province of Buenos Aires. The same as CONICET, the CIC was conceived in a specific historical period with a certain orientation of policies and configuration of the market (Regalsky, 2007).

This paper seeks to analyze the creation of the CIC as a policy for the promotion and development of science and technology in Buenos Aires[4]. In order to achieve this objective, both the mission and the institutional objectives assigned to this institution by Decree Nº 21,996 of 1956 are identified.

For this purpose, a qualitative methodology is used, and a documentary analysis is carried out.

This paper is divided into three main sections. The first section is an introduction to the theoretical perspective of the subsequent analyses. For this purpose, the CIC is identified as a policy and the historical periods of design and implementation of technoscientific policies constructed by specialists in science, technology and

[4]This paper presents the progress made in the research project "*Indicators of the performance of the research function in the National System of Science, Technology and Innovation. About the UNLaM case*" 2024-2025, presented at the Universidad Nacional de La Matanza, within the Program "*Management and networking of knowledge in science and technology at UNLaM*".

innovation are described. After this first section, the second section expresses the analysis of the historical context in which the mission and institutional objectives were assigned to this organization. Finally, the third section is a presentation of the main findings of this paper.

Methodology

This analysis has been carried out on the basis of a qualitative methodology (Pérez Andrés, 2002). In addition, the methodological strategy is based on a transversal design, in which only one observation is carried out in a given historical period (Manterola et al., 2019). Our point of reference is the moment of the creation of the Commission for Scientific Research (in Spanish CIC).

This piece of research is structured around a case study (Yacuzzi, 2005). Our aim is to build knowledge about science and technology policies that have been institutionalized over a certain period of time. Despite the fact that this commission has the peculiarity of being dependent on the public administration of the province, in a federal country (Cao et al., 2016), it presents institutional objectives in accordance with National Council for Scientific and Technical Research (in Spanish CONICET), agency that is responsible for the promotion of science and technology at the national level; and other institutions of Latin America such as: the Brazilian Institute of Information in Science and Technology of Brazil (in Spanish IBICT), (De Freitas Campos et al., 2023); Superior Council of Scientific Investigations of Spain (in Spanish CSIC), (Sánchez, 2016); and the National Center for Scientific and Technological Documentation and Information of Peru (in Spanish CENDICYT), (Turpo Gebera, 2021).

It is in this context that we have begun to collect a bibliography on science and technology policy. We also examined the history of these policies in relation to the socio-economic development models implemented in Argentina since the end of the XIX century.

We then collected the norms relating to the creation of the CIC, since we were interested in analyzing both the mission and the institutional objectives assigned to this agency. Even though we have been able to obtain this information, the original Provincial Decree No. 21.996 of 1956, in which text is the CIC created, is not available as it was not published in the Official Gazette.

However, another provincial decree has been preserved. We refer to Decree No. 7.385 of 1968, which introduced some modifications to the standard approved by Decree No. 21.996 of 1956. The changes were related to the Director responsible for the functioning of the Agency, his support group, the committees, the contributions of the Director and the President, the salaries of the authorities and the industrial protection requires. In the footnotes of the decree, it was possible to identify the mission and institutional objectives assigned to the CIC when it was created, by comparing them with the new ones.

This decree has provided the information needed to carry out the analyses (Molina y Amat, 1991). Documentary analyses have been carried out since the decree. In this context, the mission and objectives of the institutions have been studied in accordance with the historical periodization proposed by various specialists who have established correlations between the phases of economic development and the scientific and technological policies designed and implemented at that time (Elzinga, y Jamison, 1996; Nochteff, 2002; Albornoz, 2009; Moreno Brid y Ruíz Nápoles, 2010; Casas et al., 2014; Núñez Jover, and Montalvo Arriete, 2015; and Chavarro et al., 2017).

Technological and scientific policies. A brief review of the history of Argentina.

The main objective of this paper is to analyze the creation of an institution promoting I+D+I in Buenos Aires. We regard the CIC to be a policy. It is therefore appropriate to begin this section with a definition of the term.

The concept of policy used in this paper refers to both action and inaction by which the state takes a position on a socially problematized issue. With this in mind, we take from Aguilar Villanueva (2009) the idea that these positions are in pursuit of some kind of goal[5]. In addition, we quote Oszlak (2007) to draw attention to issues that are socially problematic.

Issues that are socially problematic are considered to be issues that are of some kind of public interest. To put it another way, the issues that certain powerful groups consider to be matters of public concern turn out to be socially problematic issues beyond the number of members and level of popularity of the group (Oszlak y O´Donnel, 1976).

About that, Adler (1987) argues that every government has a particular sensitivity to the issues that are at stake in its time. However, this sensitivity, which allows the government to set priorities, can be fed by the interests of large mayorships or powerful minorities.

Policies can take a variety of forms. Some of them may take the form of programs or plans. Others may become formal institutions (Suárez, 1989). The last is the case of the CIC of Buenos Aires.

Having said that, the public instruments to be taken into account in this paper are the technological and scientific policies. According to Salomon (1977), technological and scientific policies are instruments aimed at promoting and developing technological and scientific research in search of innovative results that can respond to complex needs.

These public instruments have been the subject of study since a historical classification that has articulated the policies with socio-economic processes. Therefore, we can observe that the first policies in the field of technology and science in Argentina took place in the 1950s. It was linked to the import substitution process (Chudnovsky y López, 1996).

The first thing to point out is that if we look at the periodization presented by Picabea (2014), there is a disconnection between the period of technoscientific policy expansion and the beginning of the national industrialization period.

At this point it is important to have a look at the position of Oteiza (1992). According to him, it is possible to find a forerunner of the existing technoscientific system in the agro-exporting model[6]. This is related to the recent changes observed in the first half of the twentieth century. A clear example of this is the creation of institutes for medical research (Bisang, 1994).

Nonetheless, the foundations of the referred system were built around four main institutions between the 1950s and the 1980s: the National Atomic Energy Commission (in Spanish CNEA); Agricultural Technology National Institute (INTA); Industrial Technology National Institute (INTI); National Council for Scientific and Technological Research (CONICET), (Bisang, 1995).

In this period, the market only has recourse to the National Innovation System for the solution of common, routine and simple problems but never for innovative

[5] This is particularly visible when the positions taken are translated into actions.

6 Specialists such as Botto y Bentancor (2018) identify the creation of the National Geographic Institute in 1872 as the first precursor of the National Innovation System. Nevertheless, the same experts are of the opinion that since the Peronist government there is an unbroken trajectory of technological and scientific policies designed and implemented in Argentina.

technologies. There has been a loss of centrality of the universities and a deepening of the problems of co-ordination between the institutions of the System.

By the 1970s, the industrialization paradigm that began with import substitution was coming to an end. Picabea (2017) analyzed the way in which the state implemented a withdrawal of the techno-productive skills strategy. This strategy was part and parcel of an earlier model, in which the accumulation of industrialization was the order of the day. In the past, it was sustained by progressive income distribution and the transfer of income to the primary export sector to protect the domestic economy.

The opening up to the external market meant the exposure of the national productive sector to a level of competence for which it was not prepared. The main consequence was an explicit demand on the National Innovation System, whose rigid and strong orientation towards engineering production, as opposed to the orientation towards soft sciences, prevented it from responding to the expected demands (Chudnovsky y López, 1996).

During the 1980s, there was a remarkable period of economic and institutional instability. All this has had a major impact on the institutions responsible for the promotion and development of science and technology policy (Albornoz y Gordon, 2011).

The changes that have taken place in the development model and in science, technology and innovation since the 1990s have been articulated with several transformations in both organizational and productive patterns that have affected the whole world (Bell, 1995). Among these changes, we can highlight the emergence of electronics, the introduction of mass-market consumer products and the systematic application of flexible organizational techniques nourished by Total Quality Management.

Therefore, Law 23.877, approved in 1990 and reenacted in 1992, represented a major change in the way in which the articulation between science and the productive sector was promoted. Instead of funding companies through institutions such as the INTA and the INTI, new organizations have been set up. The Units of Technological Articulation (in Spanish UVT) have been conceived as non-state organizations in order to mediate between the different actors of the system. Aristimuño (2019) emphasized that this paradigm shift in the management of science, technology and innovation policy reflected a shift from the public to the private sector.

The creation of the Argentine Technology Fund (in Spanish FONTAR) was part of the text of Law 23.877/90. This Fund consisted of transferring the resources previously allocated to INTA and INTI. The government then created a new institution, the National Agency for the Promotion of Science and Technology (ANPCYT). The Agency managed FONTAR in association with other instruments, the Fund for Scientific and Technological Research (FONCyT) and the Sectoral Fund of Argentina (FONARSEC).

Since 2000, the economic policy, which in the 1990s was guided by the recommendations of the International Monetary Fund (IMF) and the New Public Management paradigm (NPM), has undergone a fundamental change. Part of this change was the resignification of the productive sector and the use of a competitive exchange rate that promoted exports in conjunction with industrial promotion instruments (Varesi, 2016).

Due to that fact, there was an intention of promotion of the level of coordination among the actor of the National Innovation System. The creation of the Ministry of Science and Technology meant that a new organizational function, previously part of

the Ministry of Education, was created. This new ministry was responsible for the design and implementation of two strategic plans[7], and the promotion of transversal articulation. In addition, we have observed considerable enthusiasm for strengthening the articulation of the academic sector with the productive sector and for betting on innovations that are the product of public and private funding (Varesi, 2016).

The creation of the Commission for Scientific Research of Buenos Aires. A science and technology policy at the sub-national level

In 1956 the Commission for Scientific Research of Buenos Aires (CIC) of Buenos Aires was created. This organization represented the institutionalization of the position taken by the government in favor of the promotion of the research activities in the local territory. This is the reason for the consideration of CIC as a policy.

From the very beginning, the CIC has had a decentralized organizational structure. This structure has proved to be the best guarantee of autonomy in managing the Funds.

Although the original decree 21.996/56, which established the CIC, is no longer available on the Internet, it is possible to access essential parts of it through the decree 7.385 updating it, approved in 1968. In the decree 7.385/68, we were able to find the initial mission of this institution:

> "*To promote, encourage, direct and carry out scientific and technical research, within the general policy established by the Executive Power, seeking a correct coordination of all the efforts, especially in the local area, and to advise on subjects within its competence to the Executive Power and the organisations of the Province and others recurring*" (Artículo 4 del Decreto 21.996/56).

First of all, it is possible to observe that, according to the perspective presented in this paper, the creation of the CIC can be placed in a certain period in which the National Innovation System began to take shape (Bisang, 1995). It should be noted that the CIC was already in existence before CONICET, which was the last organisation to be identified as a pillar of the national innovation system (Svampa y Aguiar, 2022).

Furthermore, one of the main concerns of the actors at the time was clarified by the organizational mission assigned to the CIC. We refer to the problem of coordination between the institutions of the system. Chudnovsky y López (1996) stands out the coincidence between the national and sub-national levels of organization on the aforementioned concern visible in a particular part of the decree of creation of the CIC. In line with the above-mentioned mission, the institutional objectives that the CIC must achieve were as follows:

- To present the plans and the programme of work to the authorities of the provinces.
- to state the priorities to the reaching themes which could be of interest for the Province and the Nation, to the extent that this does not constitute a restriction on its use.
- To propose the carrying out of research or of special projects, and any other type of instrument that could be capable of fostering the development of Science and Technology to the Executive Power.
- The creation of research centers and the granting of subsidies within the framework of approved plans and programs.
- To provide up-to-date information on the performance of research, development and innovation in the province, and to collect and disseminate this material for research.

[7] The first of these instruments was the Bicentenary Medium-Term Strategic Plan for Science, Technology and Innovation (2006-2010). The second instrument was the Innovative Argentina Plan 2020 (Benbi y Molinari, 2018).

- To disseminate the results of technical and scientific work carried out to facilitate their use.
- To propose the award of scholarships and scientific prizes.
- To establish links with institutions that may be requested for the achievement of institutional objectives.

First of all, it is important to point out that there is no reference to the articulation with the productive sector in the institutional objectives that are presented. If we get a look at how Chudnovsky y López (1996) describe this period of history, we can see that the lack of mention of this link with the productive sector is a feature of the national innovation system before the 2000s. While both INTA and INTI were created for the assessment of the productive sector, CIC and CONICET worked mainly with the academic sector.

Indeed, the importance of scholarships and scientific prizes was introduced as one of the objectives. It refers to the traditional method of accumulation of valuable antecedents in the academic and scientific career (Cano, Chuchuy, y Unzurrunzaga, 2020). In this line there is the search for the creation of new centres for research and development, the performance of the research activities and the concerns about the dissemination of the results of scientific research.

Summaries

This paper seeked to analyze the creation of the CIC as a policy for the promotion and development of science and technology in Buenos Aires[8]. In order to achieve this objective, both the mission and the institutional objectives assigned to this institution by Decree Nº 21,996 of 1956 were identified.

For this purpose, a qualitative methodology was used, and a documentary analysis was carried out.

As this paper has shown, the CIC constitutes a sub-national policy aimed at promoting science and technology. In spite of its creation in 1956, the CIC has maintained its decentralized structure and its autarchy to this day.

It is also noteworthy that both in the mission and in the institutional objectives of the foundation of the CIC, we can see elements that are expected for that period considering that the National Innovation System was in process of creation, as specialist highlight.

It is pending for future research the consideration of the evolution that this institution has had across its history. At present, the CIC has several instruments that were acquired across the time. We assume that the history of the CIC might have stops and goes in its trajectory that could represent a substantive learning source since both this institution and the CONICET are the two institutions in charge of fostering and funding scientific careers.

Acknowledgments

This study was conducted at the Secretaría de Ciencia y Tecnología of the Universidad Nacional de La Matanza. The results were obtained in the research project "Indicators of the performance of the research function in the National System of Science, Technology and Innovation". About the UNLaM case", approved by the National System, which is part of the programme "Management and Networking of

[8]This paper presents the progress made in the research project "*Indicators of the performance of the research function in the National System of Science, Technology and Innovation. About the UNLaM case*" 2024-2025, presented at the Universidad Nacional de La Matanza, within the Program "*Management and networking of knowledge in science and technology at UNLaM*".

Knowledge in Science and Technology at UNLaM", carried out between the referred Secretary and the Departamento de Ciencias Económicas of the University.
The project research team is larger than the authors of this article. We would like to acknowledge them and the University which has given us the resources to develop our research.

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