

ICEST 2020

International Conference on Economic and Social Trends for Sustainability of Modern Society

LATIN AMERICAN EXPERIENCE IN INNOVATION MANAGEMENT (EXAMPLE OF SOUTHERN CONE COUNTRIES)

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Abstract

Innovations are integral to the development of modern economy. Latin America is turning into a developing region, which occupies its own place in the system of economic international relations, and connects Europe and Asia, makes investments into African economy and also offers some own management methods. State innovation management in each country has its own structure and mechanisms. This research shows the characteristics of management of innovation economy in three countries of the Southern Cone (Uruguay, Argentina, and Chile). On the basis of the systems approach, institutional approach, case method, peer reviews, analysis of government and party documents, statistical data, the authors draw a conclusion on general and particular features of national innovation management programmes, their goals and objectives. The research shows the problems and opportunities of multilateral cooperation in the sphere of innovative development, highlights the key features of subregional projects, as well as the results of attracting investment from non-regional partners.

2357-1330 © 2020 Published by European Publisher.

Keywords: Latin America, innovation management, innovation economy, sustainable development.



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1. Introduction

The Latin American experience in innovative development may be interesting for Russia as it is an example of economic modernization under the conditions of long-lasting political and economic turbulence, regional integration crisis (Kheifets & Khadorich, 2019), acute social contradictions, and conflict of elites. The problems of regional innovative development were already researched not only within the regional scale, but also in more detail – for individual countries, subregions, and specific areas of economic and social spheres of public life. Notably, the Southern Cone countries – Argentina, Chile, and Uruguay – are claimed to be the leaders of technological development on the continent. Despite political dynamics and ideology shifts in national governments, the goals of innovative development, sustainable economy, and the formation of knowledge-based economy are still high on the agenda.

Thus, for example, in his inaugural speech, Uruguay's President, Lacalle Pou (2020), stressed that one of the main goals of the country's domestic and foreign policy is to make it a regional leader in terms of investment, as well as the center of regional technological communication. Similar goals are proclaimed by the governments of other Southern Cone countries - Argentina and Chile, and the Southern Cone itself can be an example of trilateral cooperation for implementing national technological development strategies.

In literature of the subject, some authors have already considered the impact of innovations on the employment sphere (Crespi et al., 2019), modernization of tertiary education (Marcellino & Peixoto Borin, 2019), technological development in Latin America including the Southern Cone countries (Arocena & Sutz, 2003). The researchers' attention is focused on the innovative development of certain sectors of economy that are basic for national economies – agriculture (Castro Scavone, 2018), forestry (Aboal et al., 2018), energy (Ardanche et al., 2018), medicine (Dapueto et al., 2018). It is worth mentioning though, that little attention is given to the analysis of the evolution of state institutions related to innovation management, to the comparison of their structure in different countries of the region, and in general, and to the characteristics of national innovation economy management systems.

2. Problem Statement

Global technology transfer is forming the basis for the development of innovation economy in Latin America as well (Stuart Fuquen & Olaya Escobar, 2018). In the context of researching the peculiarities of the formation of the innovation economy in the Southern Cone countries, this means that the participation of countries in building regional innovation environment has not only positive consequences but forms a set of challenges and problems both for national economies and for the economic development of the whole subregion and the continent. The experience of innovation management in each specific country is adopted by its neighbors, which leads to the creation of similar institutional structures but with different goals and principles of work.

The main problem of this research is to characterize the specifics of planning and implementing innovative development in the Southern Cone countries in the national and regional context. Identifying regional and subregional features of innovation management requires to compare national cases and to identify general and specific features of innovation management in each country, namely:

- characteristics of the innovation management structure in the Southern Cone countries

- identification of fundamental principles (goals) of national innovation management systems
- determination of the place and role of innovations in domestic and foreign policy of national governments, and the key features of sub regional cooperation management.

2.1. Characteristics of Innovative Management Structure in Southern Cone Countries

In existing publications on the subject, the authors have already attempted to analyze the activity of certain state institutions in Uruguay (Buckstein et al., 2018), Argentina (Niembro, 2020) and Chile (Barton et al., 2019) concerning technological development planning. Mostly, they have considered the history of the institutions, the place and role of individual institutions in the state innovation management system, but they have not compared national experience, nor have they identified the problems and challenges which are created by each institution, and scarcely have they mentioned the specifics of scientific communication in each of these countries.

2.2. Identification of fundamental principles (goals) of national innovation management systems

The innovation management system consists of several elements – scientists and think-tanks directly engaged in research and development; the management of scientific centers and branches; financial mechanisms and institutions designed to provide resources for technological development; state innovation management bodies. The interaction of these elements is based on scientific communication which has national traits, including principles of performance, goals and objectives (Confraria & Vargas, 2019). Each of the countries determines priority principles of the innovation management system in its own way, finds its own solutions to the problems of research funding, the ratio of public and private partnership.

2.3. Determination of the place and role of innovations in domestic and foreign policy of national governments and the key features of sub regional cooperation management

Innovation management is directly linked to international cooperation both within the Southern Cone subregion and within cross-regional cooperation, particularly, South-South cooperation. The analysis of programs and results of trilateral cooperation, the content of joint projects allows us to identify the main directions of innovative development as well as challenges and opportunities of attracting investment and their impact on the development of human capital and smart economy. The countries of the Southern Cone occupy similar positions in Human Development Index, but the structure of their investment and the innovation management in the sphere of social development are different.

3. Research Questions

This research poses several questions:

- How does state innovation management work in the Southern Cone countries?
- What is the ratio of public and private initiatives in innovation management?
- What are the main directions of innovative development in the Southern Cone countries and how are they correlated with national development programs and foreign policy strategies?

4. Purpose of the Study

The purpose of this research is to identify general and specific features of the management of innovation economy in the Southern Cone countries.

5. Research Methods

First of all, the research is based on the systems method in which innovation management is analyzed as a complete system consisting of actors who have their own interests and functional relationships between them.

The authors also use the institutional method showing that management of innovation economy is linked to the creation and development of institutions, the goals and objectives of which differ in each national case. The research is based on the case method in which every national innovation management system is seen as a separate case with its own solution, as well as challenges and opportunities.

The authors systematically examine the activity of national agencies and commissions created in recent decades by the governments of the Southern Cone countries to solve the problems of innovative development. On the basis of the analysis of national technological development strategies and strategies for developing smart economy, the research shows what goals are pursued by the countries in the subregion, what instruments are used to enhance scientific research and to introduce new technology into everyday life.

An important source for the research was the statistical data gathered by Ibero-American General Secretariat (SEGIB), which allowed us to identify the features and directions of international cooperation of the Southern Cone countries in the field of innovations, and particularly to determine in which areas of economy the countries are recipients of financial assistance and in which projects they act as donors. This enabled us to highlight the features of national innovation management systems.

The programs of current governments of the Southern Cone countries, as also election programs of incumbent presidents played a special role for this research. These documents enabled us to make a conclusion on the place and role of innovations in domestic policy, on the significance the authorities give to innovative development, and, indirectly, on the significance assessment given by the voters to the development of the state innovation management system.

6. Findings

All the countries of the Southern Cone have developed their own innovation management system. In recent years they have adopted the laws that regulate the structure of state bodies which manage technological development, as well as the ratio of public and private initiatives. It is Chile that has gained the greatest experience in managing innovations. Since 1990s the Agency for International Cooperation has been in operation there implementing one of its main tasks – attracting investment in the country's technological development and bringing national inventions to the regional and international hi-tech market. In the 2000s the states of the subregion established special state bodies and budget funds to serve as a link between scientific institutions and production. Back then, national innovation development programs were drawn up.

It is important to note that while in Uruguay the National Agency for Research and Innovation and “Uruguay XXI” Agency are interdepartmental structures, in Argentina a separate ministry deals with innovation development issues, and in Chile it is the responsibility of an agency under the Ministry of Economic Development. This allows us to draw a conclusion about the goals and objectives of innovation management. In the case of Uruguay, it is about focusing on foreign markets, participating in modernizing regional and sub regional infrastructure, attracting specialists and resources from beyond the region. In Argentina, the main task of the Ministry of Science, Technology and Innovations is to integrate individual regions of the country into a single technological space, to transfer technology within the country and to overcome differences in social development and production levels in different parts of the country. In Chile, the goal of innovation management is the development of industrial production which is the main area of international cooperation: Chile is the recipient of South-South cooperation funding, primarily for projects in the sphere of production, and in this very sphere it is a donor for the countries of the region, including Uruguay and Argentina.

The common problem for all countries is a low level of funding of the technological sphere. Experts say (Araneda Guirriman et al., 2017) that with the increase in budget expenditures on innovation management, the share of the budget allocated directly for technology development remains extremely low – about 1% of GDP. In this regard, the countries are looking for opportunities and forms of attracting external resources. In Uruguay, innovation projects are financed by the Agency itself, which, in turn, raises finance from both private investors and regional and international structures, for instance, by attracting funds from Inter-American Development Bank, using targeted UN programs, MERCOSUR resources, etc. In Argentina, a special fund was created to solve financing problems – CONICET, which accumulates all the country’s leading scientific projects and seeks opportunities to implement their results in production. In Chile, there is a system of grants for innovation projects as well as funds for certain sectors of economy (for example, there is a fund that supports innovations in agriculture).

It is worth mentioning that in all three countries the importance of innovations in public life, solutions to everyday problems, and interaction between citizens and authorities is growing. In this context, we should note Uruguay’s leadership in e-democracy and e-governance which became possible after the country had adopted technology from Finland. It is in social projects, including governance, healthcare, social security and protection that Uruguay acts as a donor of financial and human resources for South American countries as well as for African and Asian countries in the framework of South-South cooperation.

7. Conclusion

The research showed that in the Southern Cone countries vertical links predominate in innovation management systems, while horizontal communication – collaboration of various departments, cooperation between regions – is not fully developed. It seems obvious that governments have a lot of work to do to distribute functions among established agencies which often overlap today. For instance, The National Innovation Council in Chile is not properly institutionalized acting primarily as an expert and advisory body, while the National Agency for Research and Innovation in Uruguay is simultaneously subordinate to several ministries.

Communication among the actors of innovation process remains a significant problem. Governments are looking for opportunities to expand interaction between producers, scientific institutions and end users trying to regulate the directions of innovation development through systems of public procurement, private-public partnerships, and by identifying and financing priority sectors of the economy. In general, citizens' awareness of national innovation management systems, innovation developments and government measures on technological development remains low. We can note that the share of private initiatives is small and the state retains its fundamental role in the sphere of technological development.

The problem is a lack of technological cooperation among the countries of the Southern Cone. On average, each country implements about 40 projects through South-South cooperation, however, less than 10% of projects are carried out by neighbors. It seems clear that innovation process remains locked within the national framework.

In general, the process of innovation management in Latin America, including the Southern Cone countries is only at the start. State technology management mechanisms are in the process of being formed. The common feature for all countries is to seek sufficient resources to implement innovation projects including human resources, and to reduce the cost of bureaucracy at the same time. Innovation development and the establishment of a smart and sustainable economy are proclaimed a priority for national governments, and it is obvious that new steps will be taken in the nearest future to raise the efficiency of innovation management and to expand regional cooperation in the technology sector.

Acknowledgments

The Project of the Russian Fund for Fundamental Research 19-014-00042 "The Place of Latin America in the New World Order: Prospects and Challenges".

References

- Aboal, D., Rovira, F., & Veneri, F. (2018). Knowledge networks for innovation in the forestry sector: Multinational companies in Uruguay. *Forest policy and economics*, 97, 9-20.
- Araneda Guirriman, C., Rejas, L. P., & Ponce, E. R. (2017). National Innovation System: Reflections and analysis of the Chilean case. *Idesia*, 35(4), 111-117.
- Ardanche, M., Bianco, M., & Cohanoff, C. (2018). The power of wind: An analysis of a Uruguayan dialogue regarding an energy policy. *Science and public policy*, 45(3), 351-360.
- Arocena, R., & Sutz, J. (2003). Inequality and innovation as seen from the South. *Technology in Society*, 25(2), 171-182.
- Barton, J. R., Roman, A., & Rehner, J. (2019). Responsible research and innovation (RRI) in Chile: from a neostructural productivist imperative to sustainable regional development? *European planning studies*, 27(12), 2510-2532.
- Buckstein, D., Hernandez, E., & Usher X. (2018). Assessing the impacts of the innovation promotion programs aimed at the productive sectors: The case of ANII in Uruguay. *Estudios de economía*, 45(2), 271-299.
- Castro Scavone, P. (2018). The mechanization of agriculture in Uruguay 1908-2010, application of a logistic model to measure its trajectory. *Revista uruguaya de historia economica*, 8(13), 9-29.
- Confraria, H., & Vargas, F. (2019). Scientific systems in Latin America: performance, networks, and collaborations with industry. *Journal of technology transfer*, 44(3), 874-915.
- Crespi, G., Tacsir, E., & Pereira, M. (2019). Effects of innovation on employment in Latin America. *Industrial and corporate change*, 28(1), 139-159.

- Dapueto, J. J., Viera, M., & Samenow, C. (2018) A Tale of Two Countries: Innovation and Collaboration Aimed at Changing the Culture of Medicine in Uruguay. *Hec forum*, 30(4), 329-339.
- Kheifets, V. L., & Khadorich, L.V. (2019). Union of South American nations: Clouded prospects. *World Economy and International Relations*, 63(2), 85-93.
- Lacalle Pou, L. (2020). *Discurso completo del presidente Luis Lacalle Pou en la Asamblea General, Presidencia del Uruguay*. <https://www.presidencia.gub.uy/comunicacion/comunicacionnoticias/-lacalle-pou-discurso-completo-asamblea-general>
- Marcellino, I. S., & Peixoto Borin, E. C. (2019). The role of universities in Latin America innovation systems: reflections on the cases of Cuba and Uruguay. *POLEMICA*, 19(1), 145-162.
- Niembro, A. (2020). Disparities between regional innovation systems in Argentina during the period 2003-2013. *Economía sociedad y territorio*, 20(62), 151-186.
- Stuart Fuquen, H., & Olaya Escobar, E. S. (2018). A technology transfer strategy based on the dynamics of the generation of intellectual property in Latin-America. *Intangible capital*, 14(2), 203-252.