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The technological ecosystem in Bolivia: analysis of the growth of startups and its impact on the Bolivian GII

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Abstract. This article is basically based on Bolivia's technological innovation indicators in recent years, but it focuses primarily on the growth of the Bolivian technological ecosystem through startups. Statistical data of the evolution of the global innovation index (GII) of Bolivia are shown , the percentage of startups by region in the Andean country. Some particularities related to innovation are also shown. technology and innovation structures.

Key words: economy, innovation , startup , technology, Bolivia.

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Научная статья
УДК 338.1

Технологическая экосистема Боливии: анализ роста стартапов и его влияние на Боливийский ГИИ

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Аннотация. Эта статья основана на показателях технологических инноваций Боливии за последние годы, но в основном посвящена росту боливийской технологической экосистемы за счет стартапов. Приведены статистические данные об эволюции глобального инновационного индекса (ГИИ) Боливии, процентной доли стартапов по регионам в андской стране. Кроме того, показаны некоторые особенности, связанные с технологическими инновациями и инновационными структурами.

Ключевые слова: экономика, инновации, стартап, технологии, Боливия.

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1. Introduction

If innovation has been a fundamental factor for growth and competitiveness throughout the history of the modern economy, its relevance seems to be even greater in the current scenario of an intensification of the pace of technological change and the emergence of all kinds of new business opportunities associated with the massive diffusion of information and communication technologies (ICTs), among others. Bolivia is no exception in terms of the relationship between productivity, economic growth and population well-being. Despite being a country that has grown at rates of approximately 5% over the last 10 years, Bolivia has experienced minimal changes in terms of productivity increases and advances in the area of innovation. The levels of investment in R&D, both public and private, are low compared to the regional average and the investments of developed countries (it is estimated

that approximately 0.16% of GDP is invested in research and development (R&D). compared to the regional average of 0.65% and the average of 2.4% of OECD member countries [Foronda Rojas 2018].

However, in recent years, the technological growth of the Andean nation has been largely motivated by the creation of science and technology startups, where the main scientific source is young innovators, and by Bolivia's geopolitical opening towards a new multipolar world and its current relations with countries of the bloc led by Russia, China and India where innovation plays a fundamental role in economic and social development in general.

2. Methodologies and Data

The methodology used by the author in this research is mainly composed of the method of historical-comparative, inductive and analytical-synthetic analysis. Existing information on the Internet is used, as well as in other references analyzed. In addition, the opinion of several experts is qualitatively analyzed and conclusions are drawn.

3. Results and discussion

The development of Bolivia, whatever the conception that incorporates the term development, goes through the application of knowledge in the productive processes and in the solution of the great national and local problems.

Bolivia - Global Innovation Index		
Date	Innovation Ranking	Innovation Index
2018	117°	22.88
2017	106°	25.60
2016	109°	25.24
2015	104°	28.58
2014	111°	27.76
2013	95°	30.48
2012	114°	25.80
2011	112°	25.44

Fig. 1. Global Innovation Index of Bolivia. Evolution in the period 2011-2018
Source: [Bolivia - Global Innovation Index n.d./2023]

This knowledge usually has 2 sources: Scientific and Technological Research, on the western side of knowledge generation, or ancestral and local knowledge, on the indigenous side, installed at the very root of our national identity. This process, called Innovation, has become the engine of Development as a transversal axis to all the actions of the national and subnational state , as defined by the National Development Plan.

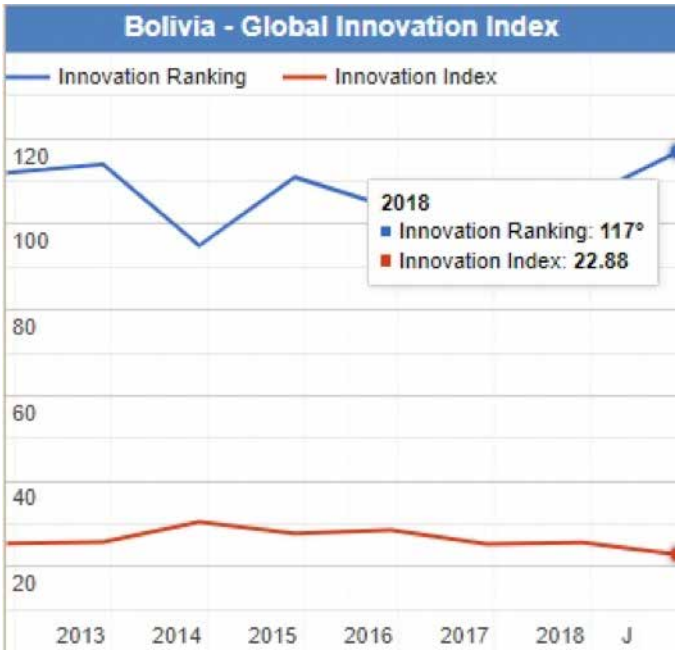

Fig. 2. Global Innovation Index of Bolivia 2018 [Foronda Rojas 2018]
Source: [Bolivia - Global Innovation Index n.d./2023]

The country improved its overall position in the 2020 Global Innovation Index, going from 110th place in 2019 to 105th this year (among 131 countries). In Latin America, Bolivia only exceeds the level of innovation in Guatemala [Bolivia sube en... 2020].

The notable growth of startups in Bolivia, mainly created by young people, is a measure of how much the country is growing in terms of innovation. Although they do not have the necessary capital to develop, the tip of the iceberg of the Bolivian technological drive through these innovation structures is already in sight.

Support institutions indicate that there are organizational weaknesses in startups , expressed in the fact that only a third of them have started their activities with a business plan, and that only eight out of 100 have an annual operating plan. Added to this is the lack of adequate human resources [Mapeo del Ecosistema... 2020].

Bolivia is also committed to the development of its technological ecosystem, which already registers a considerable number of structures such as startups and other structures where innovation, technology, education and production are

combined in themselves. The conditions are being created to create the Bolivian unicorn. One of the sectors that is growing the most in the country and that is making its way step by step is technological finance, known as Fintech, whose objective is to facilitate financial transactions for the population and support the inclusion of more sectors through financial services.

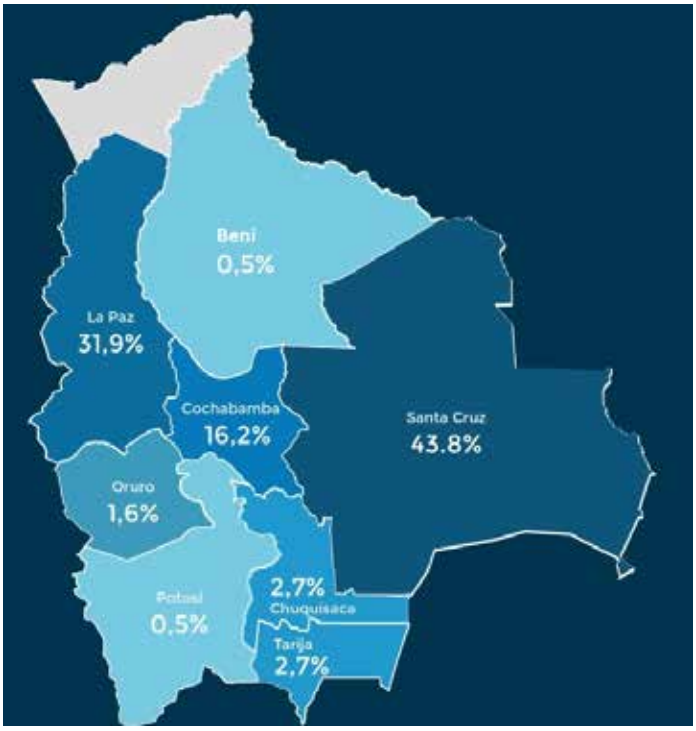

Fig. 3. Startups by region in Bolivia [Foronda Rojas 2018]
Source: [Mapeo del Ecosistema... 2020]

The data from the new Mapping of the Digital Technology Ecosystem places Fintech in fourth place, with 10% of the ventures dedicated to this activity. It is after electronic commerce, information technology solutions and logistics, other very dynamic sectors with clear objectives [En Bolivia brillan... 2022].

4. Conclusions

The results obtained are encouraging: not only are there more active startups in the ecosystem in 2022 (185), but there is a greater number of new startups , which practically doubles the data from past administrations.

Of the total number of active startups, 57% (106) have been identified in this management – in previous versions, startups identified as new meant 42% (67) in 2020 and 32% (50) in 2021 [Global Innovation Index 2022].

Therefore, there is an opportunity for the ecosystem to promote the activities that have allowed this positive dynamic of promoting the birth of new ventures. In Bolivia, the number of active technology-based ventures remains stable and active. These data show how much is being done in terms of innovation in the Andean nation, which undoubtedly places the country in a geopolitical reference center for Latin America and opens the doors to the international market of the multipolar world.

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