

Research Article

Strategies in Innovation Policies: a comparative study

Estrategias en Políticas de Innovación: un estudio comparativo

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Abstract: Public policies are fundamental to innovation because they establish guidelines to encourage the development of a region and nation. The purpose of this paper is to analyze the differences and similarities between two policies of global development – the Goal 9' of Agenda 2030 and the Brazilian National Science, Technology and Innovation Strategy 2016-2022. We focused on the presence or the absence of incentives for open innovation, especially with the adoption of Hackathon, Bootcamp and Crowdfunding practices. The methodology involved a comparative study between Goal 9' of Agenda 2030 and the Brazilian National Science, Technology and Innovation Strategy 2016-2022. We used the Content Analysis method to evaluate both of those policies based on the Categorical Analysis technique. As a result, we found that both policies encourage open innovation practices, but Hackathon, Bootcamp and Crowdfunding strategies are not explicitly discussed in these policies.

Keywords: open Innovation; science, technology and innovation; 2030 Agenda; Sustainable Development Goals; hackathon; bootcamp; crowdfunding.

Resumen: Las políticas públicas son fundamentales para la innovación porque establecen directrices para fomentar el desarrollo de una región y una nación. El propósito de este artículo es analizar las diferencias y similitudes entre dos políticas de desarrollo global: el Objetivo 9 de la Agenda 2030 y la Estrategia Nacional brasileña de Ciencia, Tecnología e Innovación 2016-2022. Para ello, nos centramos en la presencia o ausencia de incentivos para la innovación abierta, especialmente aquellos relacionados con la adopción de prácticas de Hackathon, Bootcamp y Crowdfunding. La metodología utilizada incluyó un estudio comparativo entre el Objetivo 9 de la Agenda 2030 y la Estrategia Nacional Brasileña de Ciencia, Tecnología e Innovación 2016-2022. Para evaluar ambas políticas, se utilizó el método de análisis de contenidos basado en la técnica de análisis categórico. Como resultado, se demostró que ambas políticas fomentan las prácticas de innovación abierta, pero las estrategias de Hackathon, Bootcamp y Crowdfunding no se incorporan explícitamente en estas políticas.

Palabras clave: innovación abierta; ciencia, tecnología e innovación; Agenda 2030; Objetivos de Desarrollo Sostenible; hackathon; bootcamp; crowdfunding.

1. Introduction

Innovation has been a fundamental element for the development of nations. Countries need innovation to grow and solve problems. Innovation should provide better performance for organizations, the Government, and society, being reflected in the improvement of the population's quality of life. Therefore, investment in the promotion of an economy based on knowledge and learning is paramount since they constitute the resources that feed innovation.

National innovation systems (NIS) are a reality in different countries and contexts. According to the Organization for Economic and Cooperation Development (OECD) "The concept of national innovation systems rests on the premise that understanding the linkages among the actors involved in innovation is key to improving technology performance" (OECD, 1997, p. 9). The systemic approach to innovation, "[...] emphasizes the importance of the transfer and diffusion of ideas, skills, knowledge, information and signals of many kinds" (OECD, 2005, p. 32). Thus, the influence of external institutions to the business context for the generation and implementation of innovation is recognized, which is now understood as a dynamic process based on learning and interaction.

Complementary to NIS, the concept of innovation ecosystems has grown stronger in the last two decades. An important point related to the concept of innovation systems is that the concept of ecosystem includes the participation of individuals not necessarily linked to institutions, which characterizes open innovation. For this reason, the ecosystem includes independent professionals, consultants, researchers, and students who contribute to organizations.

Practices such as Hackathon, Bootcamp and Crowdfunding have been adopted in this context; the first two focusing on the development of innovative products, services and methods, and the third, focusing on financing for the implementation of innovations which are generally developed by startups.

Considering the assumption that national actions influence and are influenced by the actions of other nations, the creation of policies at a global level - which may be implemented by different nations, which commit themselves to establish their own policies in line with objectives outlined globally - has been a strategy adopted by international organizations. Thus, in the innovative context, as well as in political, health, etc., the creation and implementation of public policies that establish guidelines and directions that are desired for a given nation or region is fundamental for their respective development.

Therefore, the present research aims to analyze the convergences and divergences between a policy for global development - Agenda 2030, more specifically the Sustainable Development Goal 9 (SDG9) - and the Brazilian National Science Technology and Innovation Strategy (Estratégia Nacional de Ciência, Tecnologia e Inovação - ENCTI) 2016-2022 with regard to the presence or absence of incentives for open innovation, especially with the adoption of Hackathon, Bootcamp and Crowdfunding practices.

In order to achieve the proposed objective, a comparative study was carried out between 'SDG9' of Agenda 2030 and the Brazilian National Science Technology and Innovation Strategy 2016-2022 with the application of the Categorical Analysis technique of the Content Analysis method.

The relevance of the proposed analysis is highlighted as it aims to show how aligned the Brazilian Strategy is to global goals.

2. Open Innovation and Innovation Ecosystems

As seen in the introductory section, the systemic approach to innovation considers that the knowledge shared between organizations and their professionals respectively (Moore, 1993) is the most important resource for generating innovation. An innovation system consists of different agents, such as companies, universities, research institutes, government agencies, development agencies and regulatory agencies.

In the last decades, “with the arrival of the internet, and especially social media, the interactions which are the nexus of innovation went beyond formal and institutional relationships and now encompass the contributions of individuals who are not tied to a specific institution, such as students and self-employed professional” (Silva, 2018, p. 5). This interaction with a focus on generating innovation beyond formalized relationships between organizations is at the core of the concept of open innovation.

Open innovation is a type of innovation with the partnership of several stakeholders (Chesbrough & Schwartz, 2007; Chesbrough, 2006). This is the context in which the innovation ecosystems develop (Xie & Wang, 2020; Adner & Kapoor, 2010).

These ecosystems are favorable environments for the development of open innovation. They promote interactions between researchers, managers, politicians and professionals, and stimulate group creativity. Universities and research institutes are relevant sources for knowledge (Radziwon & Bogers, 2019). Creativity generates knowledge that is at the core of open innovation (Öberg & Alexander, 2019). Knowledge sharing between individuals accelerates ecosystem innovation (Chesbrough, 2006) and is the means of interaction between members (Radziwon & Bogers, 2019). An innovation ecosystem consists of a network of relationships in which information and talents flow through co-creation and sustained value (Etzcowitz & Leycowitz, 2000).

According to Granstrand and Holgersson (2020) “An innovation ecosystem is the evolving set of actors, activities, and artifacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors” (p. 90). Open innovation is the process in the dynamics of the innovation ecosystem, as explained by Öberg and Alexander (2019) open innovation is the sharing of ideas at all levels of the ecosystem.

2.1. Hackathon in the context of the development of innovations

Hackathon is a relatively independent form of event aiming to be a starting point for the exposure of workers to innovative trends in business and technology. Considering its specificities, Hackathon, also called hack days, is an event with the participation of people from the computing area (programmers and software developers) who, for a short period (usually less than 1 week), work intensively in groups or individually in a challenge that involves the development of software or specific coding that aims at an objective proposed by the event organization (Mocker, Bielli & Haley, 2015).

These challenges are proposed and sponsored by companies and brands, such as Nokia and Unilever, which, in addition to guaranteeing an external association with innovation in the market, are also able to apply the product resulting from this competition in practice. The popularity of hackathons has been increasing in recent years (Mocker et al., 2015).

2.2. Bootcamp in the context of the development of innovations

Bootcamp is a learning practice through the intensive training of participants. The concept of Bootcamp is linked to the context of analysis, so it can vary depending on the situation. In the games area, the word bootcamp refers to games events where people gain more experience and improve their game strategy (Abreu, 2018).

According to the Brazilian Micro and Small Business Support Service (SEBRAE), startup accelerators have used Bootcamp as workshops to stimulate local entrepreneurship. Training models inspired by the United States military academies, where soldiers trained intensively, aim to teach organizations faster than conventional training (SEBRAE, 2020).

Bootcamp training for startups focuses on learning by doing in practice (SEBRAE, 2020). There are several types of Bootcamps aimed at improving the physique, learning computer programming, developing strategies for online games and startup entrepreneurship. The knowledge built in Bootcamps influences innovation and makes it possible to establish

partnerships with other professionals. Collaboration encourages the emergence of new startups and interdisciplinary learning through socialization.

The development of a bootcamp is characterized by a limited period of time and a large number of participants, often university students who are later grouped into teams. It usually takes place in a virtual environment. Bootcamps initially include theoretical classes given by employees of the bootcamp management company on contents and tools aimed at developing innovation strategies, with topics such as: disruption, innovation and strategy, corporate venture, and pitch. It can also include lectures with innovation professionals from large companies, with presentations focused on the trajectories of the speakers, considering mainly the challenges and the paths faced by them.

The follow-up of the event consists of applying the themes and tools studied through classes and lectures in the development of an innovation proposal for a fictitious company. This exercise begins with the disclosure of the company's descriptive material, its characteristics, activities, history, and perspective for the future. For the development of the innovation strategy, teams are entitled to a weekly mentoring with a consultant from the organizing company.

Each week, teams must fulfil tasks involving the use of the management tools presented in class, such as: Jobs to be done, which is used to understand what the customer needs and how to solve it with products and/or services (Christensen et al., 2007); the Customer Value Chains that breaks down the experience lived by the consumer throughout the purchasing process (Teixeira, 2019); the Dual Transformation that aims to innovate on two fronts, one to update the entity's core business and the other to build a business in another branch considering the existing capabilities (Anthony et al., 2017); the definition of Beachhead Markets, which consists of understanding which market segment is most suitable for the innovation proposal (Moore, 2014); and the Minimum Viable Product (MVP), which deals with a product used to test the viability of an innovative idea (Ries, 2011). The closing of the event happens with presentations of the solutions developed by the teams to the organization of the event through video and the best proposals are chosen. Winners can be rewarded in different ways, including professional hiring.

2.3. Crowdfunding as a source of raise money to fund innovative projects

Access to a source of capital is a determining factor for the development of new businesses, generally, equity alone is not enough for the creation or even expansion of startups. However, traditional sources of financing, such as banks, request collateral against the capital contributed, as companies in early stages offer greater risks and may result in default on the loaned amount. Angel investors and venture capital are possible sources of capital, but they are generally available for more mature phases of the venture, especially after the 2008 financial crisis.

That context fostered the emergence of crowdfunding. In this type of fundraising, the entrepreneur provides information about their project on crowdfunding platforms for supporters and/or investors to contribute with capital. Books, films, plays, philanthropic campaigns and even companies are examples of projects that are being funded through crowdfunding practices (Mollick, 2013). There are four modalities of crowdfunding, classified according to the reward offered to the investor; these modalities are: donation, rewards or pre-order, investment, and loan.

In the donation modality, investors do not have any profit expectations, such as philanthropic projects; in the crowdfunding of rewards or pre-orders, the final product - that results from the funding - is one of the possibilities of reward, which makes this modality an option for the initial phases of the company; the loan crowdfunding modality in Brazil was regulated by the Central Bank in 2018, and the investor receives the capital contributed plus interest, values and dates are previously stipulated - the loan is not intermediated by financial institutions; investment crowdfunding is the modality in which the entrepreneur offers securities - such as stocks or debt securities - to investors who are compensated by the company's residual result - dividend as a part of the profit.

Crowdfunding was regulated by the Securities and Exchange Commission in 2017 and has since shown significant growth for startups financing. Equity crowdfunding innovates by enabling companies to raise financial resources without the need to register as a securities company.

The crowdfunding market, especially for financial mobility - loans and investment – is still in the process of maturing, with new discussions on the expansion of funding values and the creation of secondary markets for the trading of securities. However, it is a promising way of making capital available from new investors to startups.

3. Innovation Policies

Truly relevant in the systemic approach to innovation, policies have a technical-administrative scope and a political dimension (Fernandes, 2007), as they influence the decision-making process of nations and organizations. As highlighted by Freeman and Soete (2008), the State can have a considerable influence to stimulate, facilitate delay or hinder the innovative activities of organizations. The role of public innovation policies is highlighted in this perspective. According to the OECD, these policies should focus on the interaction between institutions, stimulating interactive processes in the creation, diffusion, and application of knowledge. “[...] They emphasize the importance of the conditions, regulations and policies in which markets operate and hence the role of governments in monitoring and seeking to fine tune this overall framework” (OECD, 2005, p. 33). According to Lundvall and Borrás (1997) the innovation policies of nations must have, as their main objective, the contribution to the learning capacity of people and organizations.

Whether to solve problems already installed, to reach specific objectives or to face challenges that are to come in the short, medium and long term, policies have a fundamental role and must involve governmental and non-governmental actors, in addition to being aligned with cultural issues of the nation or region for which they are designed.

In this context, and within the scope of this article, the SDG9 of Agenda 2030 and the Brazilian Science, Technology and Innovation Strategy is discussed regarding public policies for the promotion of innovation.

3.1. Goal 9 of the 2030 Agenda

The 2030 Agenda for Sustainable Development presents a set of programs, actions and guidelines that guide the work of the United Nations and its member countries. The document contains a set of 17 (seventeen) Sustainable Development Goals with its 169 (one hundred and sixty-nine) objectives. Both developed and developing countries collaborated in the consolidation of the 2030 Agenda, as they all have challenges to overcome and the ability to collaborate in promoting sustainable development in its three dimensions: social, economic, and environmental. The 2030 Agenda was officially adopted by the Heads of State and Government of the world at the ‘United Nations Summit for Sustainable Development 2015’, at the UN headquarters in New York, September 25-27. The countries involved as well as the stakeholders must act in a collaborative partnership. Among the proposed objectives, for the comparative analysis, we have given special attention to the ninth objective and its respective goals, which contemplate aspects for Industry, Innovation, and Infrastructure, as described in Table 1.

Table 1: Industry, Innovation, and Infrastructure 2016-2030.

SDG9/ TARGETS	To build resilient infrastructure, to promote inclusive and sustainable industrialization and to foster innovation
9.1	To develop quality, reliable, sustainable, and robust infrastructure, including regional and cross-border infrastructure, to support economic development and human well-being, with a focus on equitable and affordable access for all
9.2	To promote inclusive and sustainable industrialization and, by 2030, significantly increase the industry's participation in employment and gross domestic product, according to national circumstances, and double its participation in less developed countries
9.3	To increase access by small industries and other businesses, particularly in developing countries, to financial services, including affordable credit and their integration into value chains and markets
9.4	By 2030, to modernize infrastructure and rehabilitate industries to make them sustainable, with increased efficiency in the use of resources and greater adoption of clean and environmentally appropriate industrial technologies and processes; with all countries acting according to their respective capacities
9.5	To strengthen scientific research to improve the technological capacities of industrial sectors in all countries, particularly in developing countries, including, until 2030, to encourage innovation and substantially increase the number of research and development workers per million people and also increase public and private spending in research and development
9.a	To facilitate the development of sustainable and robust infrastructure in developing countries, through greater financial, technological, and technical support to African countries, to less developed countries, to landlocked developing countries and to small insulated developing states
9.b	To support national technological development, research and innovation in developing countries, including the insurance of a favorable political environment for, among other things, industrial diversification to add value to commodities
9.c	To significantly increase access to information and communication technologies and strive to make the most of offering affordable and universal access to the internet in less developed countries by 2020.

Source: Adapted from Brazil (2015, p.28)

The 'SDG 9', as well as the entire 2030 Agenda, are ambitious goals for global poverty reduction and the search for a more egalitarian and productive society (Calvillo Cisneros, 2017). The UN's intention is that the SDGs are considered by all nations in the elaboration of their policies. In the case of Brazil, the current policy that relates to SDG 9 is the Science, Technology, and Innovation Strategy, which is presented as follows.

3.2. Brazilian Science, Technology, and Innovation Strategy

Considered a medium-term strategic guidance document for the implementation of policies in the area of STI, the National Strategy for Science, Technology and Innovation 2016-2022 aims to serve as a subsidy for the formulation of other policies for the development of the country (Brazil, 2016). In this perspective, includes in its structure: the coverage scope of the National System of Science, Technology and Innovation (Sistema Nacional de Ciência, Tecnologia e Inovação - SNCTI); the major challenges to be pursued by the Country; the fundamental pillars of strategy support; and strategic themes or areas considered priority for the country's innovative development (Table 2).

Table 2: Structure of the National Strategy for Science, Technology and Innovation 2016-2022.

Pillars	Elements
Structuring Axis	Expansion, Consolidation and Integration of the National Science, Technology and Innovation System
SNCTI coverage focus	Main stakeholders Funding sources Instruments Human resources Research infrastructure
National challenges	To place Brazil among the most developed countries in STI To improve institutional conditions to increase productivity based on innovation To reduce regional asymmetries in production and access to CT&I To develop innovative solutions for productive and social inclusion To strengthen the foundations for promoting sustainable development
Fundamental pillars	The promotion of research in basic and technological science The modernization and expansion of the STI infrastructure The increased funding for the development of CT&I The training, attraction and fixing of human resources The promotion of technological innovation in companies
Strategic and priority themes	Aerospace and defense Water Food Biomes and bioeconomic Social sciences and technologies Climate Economy and digital society Energy Nuclear Health Convergent and enabling technologies

Source: the authors, based on Silva, 2018.

The structure of the Strategy, which constitutes a basic policy with regard to the development of Science, Technology and Innovation (STI) in Brazil, allows us to realize that it was formulated in order to seek solutions to national challenges and with a focus on strategic themes.

In this perspective, it is appropriate to clarify the extent to which the strategic themes and challenges listed in the Strategy are also addressed in the 2030 Agenda.

4. Methods

Authors should discuss the results and how they can be interpreted in perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

To achieve this paper's objectives, we did a comparative study between SDG 9 of Agenda 2030 and the National Strategy for Science, Technology, and Innovation 2016-2022. This method was selected because the Comparative Study can be applied in simultaneous analysis of two or more alternatives, emphasizing its similarities and differences. As Blondel (1999) and Altamiro and Martinez (2011) alert, we must avoid situations that are totally similar or totally different, preserving a certain degree of analogy which will make the comparison possible.

In this perspective, the argument to explain why these two policies were chosen is that both focus on development, although have no complete similarity in scope.

The central focus of this comparative analysis was to understand the convergence of these two development policies. As a complement, and considering the assumption that information and knowledge are the fundamental elements for development, the Content Analysis method was applied to the result of the comparative study in order to understand whether the two policies analyzed include the presence of concepts, processes and or open innovation practices described in items 2.1, 2.2. and 2.3 of this article. The choice of this method is supported considering Bardin's (2009, p. 44) explanation:

A set of communication analysis techniques aiming to obtain, by procedures, a systematic and objective description of the message content, indicators (quantitative or not) that allow the inference of knowledge related to the production / reception conditions (inferred variables) of these messages.

From this perspective, we defined three categories of analysis:

- 1) Presence of hackathon incentives
- 2) Presence of Bootcamp incentives
- 3) Presence of crowdfunding incentives

This category analysis provided recognize the presence or absence of practices to facilitate the open innovation process described in 'Agenda 2030: DSG 9 – Industry, Innovation and Infrastructure' and in the National Strategy of science, technology and innovation 2016-2022.

5. Results

We noticed that both policies converge in the following points:

- Concern with Innovation development Infrastructure: National Strategy for Science, Technology and Innovation continually refers to the National System of Science, Technology, and Innovation, confirming that the actions recommended are guided by the systemic approach to innovation. The importance of the country's research infrastructure is emphasized.
- Production processes must be inclusive, and, additionally, must be economically, environmentally, and socially sustainable. These results should be the focus of SNI agents, who must collaborate.
- Small companies and startups support, including, tax subsidizes and affordable credit.
- Scientific research strengthening. SNCTI expansion, consolidation, and integration, with special attention to regional asymmetries reduction in STI production and access.
- Attention to digital economy, expanding technology information and communication access, and especial attention to cybernetic security, which must be a priority theme in CIT&I policies.

From the Agenda 2030 Objective 9 and ENCTI 2016-2022 convergences, but not limited to it, we focus our analyses on verifying open innovation, looking for incentives to each of these categories: Hackathon, Bootcamp, and Crowdfunding.

5.1. Category 1: Incentive to Hackathon

The content analysis by category demonstrated the absence of incentive in the SDG 9 to directly perform Hackathon, similarly to the systemic approach, which is clearly evidenced when it proposes the strengthening of scientific research, the creation of technological hubs, incubators and partnerships between Brazilian companies and other leading organizations abroad in specific areas. Scientific and industrial environments can evidently promote hackathon in innovation generation processes, and they do; however, SDG 9 does not mention the involvement of people who are not part of innovation agents within the scope of the SI.

Although hackathon is not directly cited in the basic text of SDG 9, the dissemination of news of the referred objective by the United Nations mentions it as a practice for the generation of innovation. For example, the virtual development marathon HACKCOVID19 (Organização das Nações Unidas, 2020), which brought together 983 participants and was promoted by the

Brazilian Center for Physical Research, the Oswaldo Cruz Foundation and the National Laboratory for Scientific Computing, with support from the United Nations for Development.

Regarding the ENCTI 2016-2022, although not explicitly mentioned, the analysis showed the presence of an incentive to hackathon when the Strategy promotes the presence of articulation mechanisms between the centers that generate knowledge and the users of its products.

5.2. Category 2: Incentive to Bootcamp

There was no evidence of bootcamp incentive in the ODS 9 of Agenda 2030. However, considering the assumption that bootcamp constitutes one of the ways to achieve items 9.a and 9.b, which are support and incentive to the technology, technique, research and innovation development, we can conclude that the ODS 9 is not opposed to the realization of the bootcamp, since the referred items of ODS 9 focus on the development of certain sectors in developing countries, and not on the tools, methods or practices applicable to achieve the desired result

Considering the focus on tendencies, tools, innovations, innovative cultures, innovation ecosystems, cooperative projects, new initiatives, integration processes, research groups and networks, instruments and cooperative projects in ENCTI 2016-2022, the presence of incentives, not only to bootcamp, but also to hackathon and crowdfunding is found.

5.3. Category 3: Incentive to Crowdfunding

Crowdfunding incentives were found in ODS 9 of Agenda 2030. As highlighted in item 9.3, there are the presence of different types of financial services and special lines of accessible credit to startups and small companies.

Corroborating the 2030 Agenda, ENCTI 2016-2022 demonstrates the national challenges for STI and highlights that [...] Instruments of cost sharing and capital contribution incentivizes the business environment (Brasil, 2017, p. 65), therefore, we can see the presence of differentiated strategies incentives for startups and innovative projects financing, among which, crowdfunding.

Regarding crowdfunding, we noticed that this type of financing has been largely linked to the financing of startups and innovative projects. In Brazil, the development of regulations relevant to the provision of new sources of financing (such as crowdfunding) for small companies has been the subject of efforts by regulations of the National Financial System, such as the Central Bank of Brazil and the Securities and Exchange Commission at Brazilian Strategy.

In summary, the analysis by categories revealed the panorama described in Table 3.

Table 3. Categories analyses summary.

	Category	Incentive to		
		Hackathon	Bootcamp	Crowdfunding
Context unit	Agenda 2030 - ODS 9	A-	A-	P+
	National Science, Technology and Innovation 2016-2022	P+	P+	P+

Code: (P+) =Present; (A-) =Absent.

Source: the authors, 2020.

The analysis by categories revealed that ENCTI 2016-2022 incentivizes hackathon, bootcamp and crowdfunding, although this is not explicitly mentioned in the Strategy text. In relation to Agenda 2030 SDG 9, since none of the open innovation practices was mentioned directly, it was possible to demonstrate that crowdfunding is encouraged when the SDG 9 deals with accessible credit. However, this does not mean that Agenda 2030 is contrary to hackathon

and bootcamp, in fact, it happens because it is a generic and global guideline, its objectives do not include the description of strategies and practices for the generation of innovation and the creative process.

6. Final remarks

The comparative study and content analysis brought in this article aimed to shed light on the potential of STI to face global challenges focused on sustainable development and to understand to what extent public policies for STI in Brazil are aligned (or not) with global guidelines for development.

In this perspective, this article has achieved the objective of analyzing the convergences and divergences between a policy for global development, Agenda 2030, more specifically 'Goal 9' and the Brazilian Strategy for Science, Technology, and Innovation 2016-2022 in Brazil. The presence or absence of incentives for open innovation, especially with the adoption of Hackathon, Bootcamp and Crowdfunding practices.

Both globally with the SDG 9 of Agenda 2030, and locally in the Brazilian context, through ENCTI 2016-2022, the establishment of guidelines for joint action between institutions was confirmed through partnerships between universities, companies, government, research centers, agencies regulation and financing, in a clearly systemic approach.

It would be interesting that strategies for the concept of open innovation, considering the participation of individuals - independent of institutional ties, such as the participation in hackathons or bootcamps for the development of innovative solutions, or even the participation as a supporter/financier in crowdfunding campaigns were explicitly addressed in their approaches, challenges and fundamental pillars, this way promoting even further the encouragement of practices such as those analyzed here.

In conclusion, we can affirm that SDG 9 of Agenda 2030 and ENCTI 2016-2022 are aligned regarding their guidelines and approaches. We believe that the reason why the open innovation practices analyzed here are partially absent, is because the structure of the public policy analyzed is too generic to encompass this specificity. However, the practices and strategies analyzed are compatible with the scope and guidelines of both SDG 9 of Agenda 203 and ENCTI 2016-2022. In this perspective, future studies that specify policies linked to the 2030 Agenda are suggested and the Brazilian Strategy should also be the focus of analysis in order to highlight practices and strategies that can boost the generation of science, technology and innovation for the development of nations.

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