LUMEN ET VIRTUS
ISSN: 2177-2789

UNRAVELING INNOVATION ENVIRONMENTS: A GLOBAL REVIEW HIGHLIGHTING NATIONAL AND INTERNATIONAL CASES

https://doi.org/10.56238/levv16n45-030

Submitted on: 14/01/2025 **Publication date:** 14/02/2025

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ABSTRACT

An innovation environment is open spaces that connect to entrepreneurship, technology and innovation, fosters the promotion of new ideas and the development of lean processes, high-performance products and services. This article aims to show the Brazilian reality and international cases and their actions in their personalized environments and with a commercial portfolio. Statistically, there are market segments that have the trend of macro investment application, collaboration and networking that interact and share hubs, coworking spaces, networking events, start up and online platforms encouraging the search for innovative solutions. Just as there are countries that have developed a fully online entrepreneurship environment, it is not necessary to maintain physical companies, thus increasing the number of online companies. There are a variety of Innovation Ecosystems around the world. Throughout this bibliographic research we will observe how much our country has grown in relation to national and international innovation environments.

Keywords: Innovation Environment. Market. Technology. Technology Park.

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INTRODUCTION

According to Tidd and Bessant (2009) and Brown (2020) apud SILVA (2023, P., innovation is a continuous process of implementing new ideas, which solve problems in a viable and desirable way, both technically and economically. It is the key element in the competition between companies and industrial nations. Innovation can also be seen as a way to simplify existing complex work processes and to improve the efficiency of the value chain.

Performance indicators are elements that allow measuring the performance of the innovation habitat in areas of impact: customers, markets, products, processes, suppliers, human resources, the environment and society. However, few details are provided about which variables represent precisely the performance of the innovation habitat (SILVA, 2023, p.8708).

Stimulate entrepreneurship; promote the development of applied research, viable to be transformed into technical innovations; having a partnership with a teaching and research institution; have partnerships for the development of projects with companies, as well as seek incentives for the area of Science, Technology and Innovation.

According to Kizner (1986) who defines the entrepreneur as an individual who promotes balance in the economic system, seeking opportunities, connecting links between isolated markets. According to Schumpeter (1982) who considers the entrepreneur as a creator of instability and creative destruction. Creative destruction refers to creative destruction as the fact that an innovation often destroys the products, services, or techniques that existed before it. These conceptions lead to the same direction: to situate the entrepreneur in his relationship with modern life, with motivations that derive from economic, political and social interest and the need for recognition in the world of work. In general, the entrepreneur is perceived as the one who transforms an idea into innovation, breaks paradigms, and does so in order to generate wealth and recognition of his action. The objective of this article is to survey the national and international innovation environments to demonstrate the development of Innovation in the Entrepreneurship Ecosystem.

METHODOLOGY

According to Andrade (2010, p.25), bibliographic research is mandatory in exploratory research, in the delimitation of the theme of a work or research, in the development of the subject, in citations, in the presentation of conclusions. The article aims to explore the development of innovation environments through bibliographic research to

analyze and identify the changes that occurred along the way. Identifying the positive and negative points in relation to national and international innovation ecosystems.

RESULTS AND DISCUSSION

DEFINITION AND COMPONENTS OF INNOVATION ENVIRONMENTS

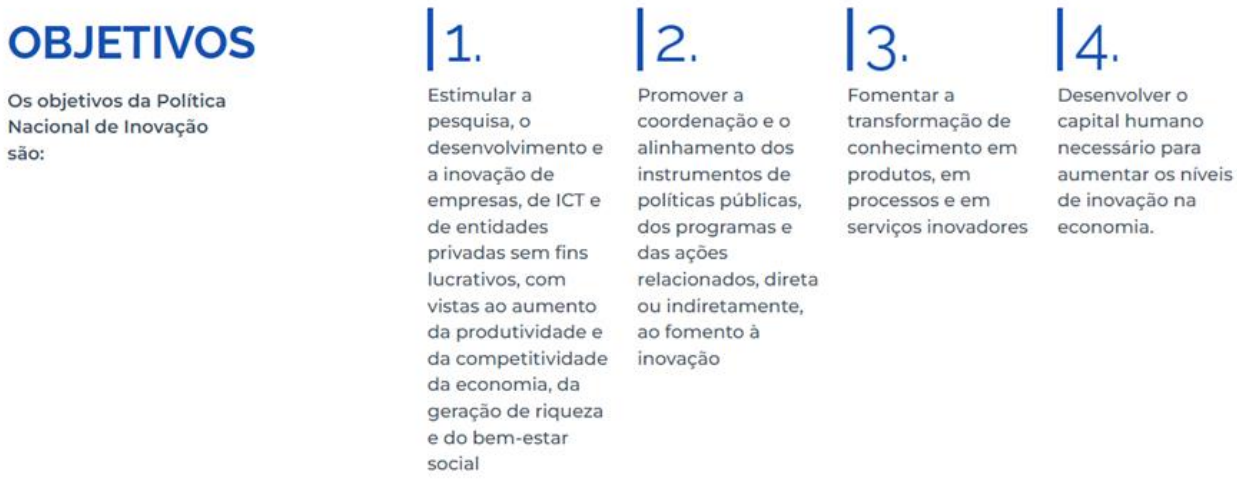
Innovation environments are open spaces that promote entrepreneurship, technology, and innovation. In addition, they articulate the connection between various actors in the innovation ecosystem such as companies, government, scientific, technological and innovation institutions (ICTs), development agencies and society (SEBRAE, 2023). Based on this information, let's get to know the different types of innovation environments.

- Coworking - its target audience is businesses in general, liberal professionals and freelancers. With the objective of sharing spaces and promoting connections at an affordable cost, flexibility and networking.
- Innovation Hub – target audience are businesses with innovation potential, whose main objective is to promote connections for the development of innovative solutions. Its main objective is to maintain visibility within the ecosystem to attract investors and partners.
- Incubator – target audience Startups in the ideation and validation phase, whose objective is to facilitate the creation and structuring of startups. The benefits promoted are technical and managerial support and physical infrastructure.
- Accelerator – Target audience is startups in the operation, traction or scale phase. The objective is to leverage the growth of startups by providing technical support.
- Technology Park – Target audience is companies with technology as a base of operation, with businesses at an advanced stage of development. The objective is to contribute to the development of innovative projects. The benefit is to guarantee the infrastructure and approximation with various actors in the ecosystem.
- Open Lab – Target audience is potential entrepreneurs, researchers and startups in the ideation phase. The goal is to explore creative ideas and make projects tangible through prototypes. The benefits are access to tools and materials for making prototypes quickly and at low cost.

Innovation is the key to sustainable development in Brazil. However, it needs effective and coordinated public policies to develop. The objective of the National

Innovation Policy is to bring the necessary synergy within the State so that it offers the necessary tools to stimulate innovative ideas and projects throughout society. (MCTI, 2024). Decree No. 10,534, of October 28, 2020, made the National Innovation Policy official and established its governance model - the Innovation Chamber. This decree was the result of a collaborative process that involved workshops, interviews and a public consultation, held at the end of 2019. The decree lays the foundation for the construction of the other elements of the policy – the Strategy and the Action Plans – as well as for its monitoring and evaluation. The principles of the National Innovation Policy are: I – integration, cooperation and intercommunication between the public bodies and entities of the Union, the States, the Federal District and the Municipalities to: a) ensure the establishment of coherent and similar priorities; and b) to provide a transparent, efficient, effective and effective response to society, based on the analysis of the interests and expectations of those covered by the policy; II – transversality in the implementation of programs and actions to foster innovation among the public bodies and entities of the Union, the States, the Federal District and the Municipalities; III – trust in the teams of the public agencies and entities of the Union, the States, the Federal District and the Municipalities that deal with the theme of innovation, so that they have the autonomy to implement programs and actions to foster innovation in their respective areas of activity; IV – observance of regional inequalities and environmental sustainability in the formulation and implementation of innovation policies; and V – support to the public manager with a view to avoiding their liability in situations where there is technological risk involved. (MCTI, 2019).

Fig.01. Objectives of the National Innovation Policy.



Source: MCTI, 2019.

The Public-Private Partnership (PPP) is a type of partnership contract between the government and the private sector to provide for the execution or management of works

and services of interest to the population in the sectors of telecommunications, energy and innovation, transportation, education, sanitation, among others. In this type of contracting, the company will be responsible for investing, financing and exploring the service.

Fig. 2: Innovation policy and strategy.

Source: Lima, 2024.

The PPPs were defined in Law 11,079/2004, which determines that the value of the contract cannot be less than R$10 million. There is no maximum ceiling. The Law prohibits the execution of contracts whose only objectives are the supply of labor, equipment or execution of public works. (CNI, 2024).

Government policies are planned with progression 2026, with an investment of 300 billion in subsidies and loans, the project resumes the role of the public power as an inducer of the development of the industry, with the use of credit lines, subsidies and local content requirements to foster national companies.

LEGAL FRAMEWORK FOR THE STARTUP

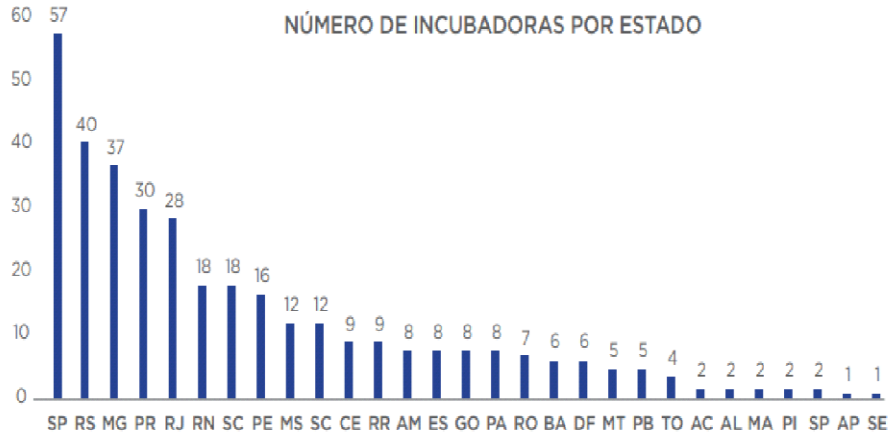
Complementary Law 182/2021, which aims to improve innovative entrepreneurship and leverage the modernization of business environments. The law presents measures to foster the business environment and increase the supply of capital for investment. It creates conditions for startups to adopt the corporate form and encourages the use of resources in the digital environment. In addition to establishing a regulatory and experimental environment that encourages simplified and legal special conditions. In the last fifteen

years, Brazil has advanced in terms of public actions to support innovative entrepreneurship. Such initiatives helped to boost the innovation ecosystem for startups in the country, but were not enough to boost its development consistently. Support for innovative entrepreneurship in Brazil exists, but it is still fragmented, unfocused and without continuity – some problems that permeate innovation policies as a whole in the country. Large-scale public actions, capable of massifying investment in innovative startups, with well-defined and permanent objectives, are still necessary. (IPEA, 2017).

INCUBATORS

Business Incubators are responsible for training entrepreneurs by offering technical, managerial support and complementary training, facilitating technological development and access to markets and investments. According to ANPROTEC, in Brazil there are 363 incubators, concentrated in the Southeast and South regions.

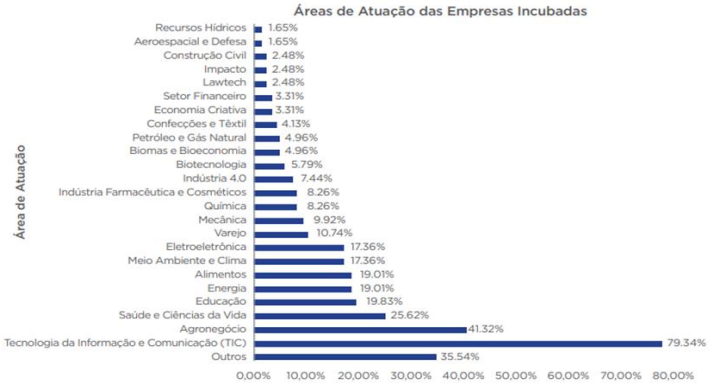
Figure 1. Number of Incubators per State.



Source: ANPROTEC, CNPq, MCTIC. "Mapping the Mechanisms for the Generation of Innovative Enterprises in Brazil". 2019.

By analyzing the graph, we can observe that the state of São Paulo has the largest number of business incubators per state and that the state of Sergipe has only one business incubator per state. In the ranking, we can see that the states of Rio Grande de Sul, Minas Gerais, Paraná and Rio de Janeiro maintain an average number of incubators between 40 and 28 incubated per state.

Graph 2. Performance of Incubated Companies.



Source: ANPROTEC, CNPq, MCTIC. "Mapping the Mechanisms for the Generation of Innovative Enterprises in Brazil". 2019.

In the graph of Mapping the Generation of Innovative Enterprises in Brazil above, we can see the performance of the incubated companies, where 79.34% is Information and Communication Technology (ICT), 41.32%, Agribusiness, Health and Life Sciences, 25.62%.

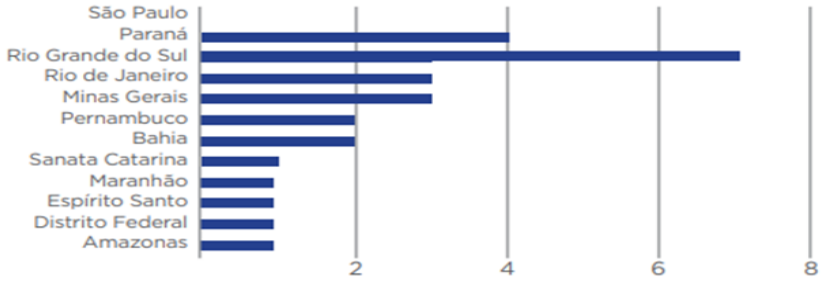
- CENTER FOR INNOVATION, ENTREPRENEURSHIP AND TECHNOLOGY – CIETEC: Its mission is: To promote innovative entrepreneurship, encouraging the transformation of knowledge into value-added products and services for the market. Cietec (Center for Innovation, Entrepreneurship and Technology), linked to USP (University of São Paulo), is recognized as the largest incubation center for technology-based businesses in Latin America. It has almost 80 incubated companies and has already graduated 140.
- USP/IPEN INCUBATOR: The largest incubator in Latin America, it has 90 startups in its Life Sciences Hub portfolio: projects that connect ICTs, Startups and Industries to solve major challenges of society and the market.
- SÃO PAULO AGRIBUSINESS TECHNOLOGY AGENCY - APTA HUB: Agro Innovation Ecosystem of the Government of the State of São Paulo, has scientific research from the Institutes of the São Paulo Agribusiness Technology Agency.
- TECHNOLOGICAL DEVELOPMENT PARK – PADETEC: Currently, Brazil has 363 business incubators, most of them linked to universities, mainly federal. And not all of them are the same, whether in focus or in the selection process, for example. Linked to UFC (Federal University of Ceará), in Fortaleza, Padetec (Technological Development Park) has become one of the main centers of laboratories and R&D (research and development) in Latin America, for the

discovery and development of new technologies. The institution has 17 resident companies, 3 associates and 70 graduates.

ACCELERATORS

Accelerators are organizations that have the purpose of supporting, with financial and intellectual capital, start-up companies that have different and promising ideas. By having an accelerator, startups are accompanied, participating in learning processes and sharing contacts (SEBRAE, 2017).

Graph 03: Number of Accelerators by State.



Source: ANPROTEC, CNPq, MCTIC. "Mapping the Mechanisms for the Generation of Innovative Enterprises in Brazil". 2019

Brazil also has, according to the study, 57 accelerators, most of which, 45 in total, are located in the South and Southeast regions. Most of them work in the agribusiness, education, electronics, health and life sciences, financial and retail sectors. The study estimates that a total of 2,028 startups were accelerated in the country. It is also estimated that a total of 4,128 direct jobs have been generated in the supported startups. In 2017, the revenue of all accelerated startups was estimated at R$474 million. The main centers of laboratories in R&D (research and development) in Latin America, for the discovery and development of new technologies. The institution has 17 resident companies, 3 associates and 70 graduates.

QUINTESSA

It is the largest accelerator in Brazil, whose main mission is "Conviction and courage to dare and create what is impossible". Quintessa was born in 2009 from the desire to undertake a new way of doing business and transform the reality of the country, founded by Leo Figueiredo. We believe that the "either/or" does not make sense, but that it is possible to have a profitable company that solves major social and environmental challenges.

More than 10 years ago, the idea of uniting 'business' and 'positive impact' seemed, to many, lunatic. Now, the reality has changed. We experienced, resiliently, attention to the

planet becoming an urgent agenda. Sustainable must be recognized as a path of no return and social must be the struggle of many. What was once a desire of some, has become a need for all. We also reinvented ourselves to accomplish much more. (Anprotec, 2023).

TECHNOLOGY PARKS

According to the Ministry of Science and Technology:

> The Technology Parks are economic and technological development complexes that aim to foster and promote synergies in scientific, technological and innovation research activities between companies and scientific and technological institutions, public and private, with support from the federal, state and municipal governments, the local community and the private sector. (MCTI, 2024).

The parks contribute to bringing new ideas and technological trends to the market, in addition to contributing to the local and sectoral development of innovation. They create a cooperative environment and provide infrastructure for the development and interaction of companies, universities and research institutes. Through Ordinance 139, of March 10, 2009, the MCTI defined PCTs as "economic and technological development complexes that aim to foster and promote synergies in scientific, technological and innovation research activities between companies and scientific and technological institutions, public and private, with strong institutional and financial support between the federal governments, local community and private sector". More recently, Law 13,243, of January 11, 2016, changed the definition, establishing that a technology park represents "a planned complex of business and technological development, promoting the culture of innovation, industrial competitiveness, business training and the promotion of synergies in scientific research, technological development and innovation activities, between companies and one or more science and technology institutions (ICTs). with or without a link between them". According to the Indicators Study, the evolution of the definition of technology parks established by the government illustrates the dynamism of the segment, reflecting more pragmatic and current issues of innovation. In summary, coworking in Brazil is a trend on the rise, reflecting the transformation in work practices and business culture. The diversity of spaces and the continuous adaptation to the needs of the market contribute to its growing popularity in the country.

TYPES OF COWORKING NO WORLD

- Hubud (Bali, Indonesia) - Coworking integrated with nature, a space with a bamboo structure, sustainable, you work sitting on the floor.

- Impact Hub (Madrid, Spain) - Network of collaborative spaces that bring together large groups in garages and sustainable spaces, strictly speaking with savings in electricity.
- Urban Station (Buenos Aires, Argentina) - environment whose main focus is to facilitate the generation of business, helping the success of companies that choose this location. Space designed for meetings with large groups and corporate.
- Synergy (Belo Horizonte, Minas Gerais) - environment whose main focus is to facilitate the generation of business, helping the success of companies that choose this location. Space designed for meetings with large groups and corporate.
- 47 RONIN (Kyoto, Japan) - Environment encourages collaborative events and projects, individual accommodation, usually in rural areas.
- Crew Collective (Montreal, Canada) - Environment with meeting rooms, café open to the public and collective workstations.
- Beachub (Koh Phagan, Thailand) - Ambience with a bamboo near the beach.
- Box Jelly (Honolulu, USA) - Modern environment, meeting table and multipurpose space, it is possible to alternate meetings with board games.
- Bethaus (Berlin, Germany) - An environment focused only on technology professionals, shed style, meeting table and multipurpose space for those who learn carpentry.
- Mesh (Oslo, Norway) – Open environment with café, it has private rooms and even a nightclub. Meeting place and happy hour included.
- Village Underground (Lisbon, Portugal) - Shipping containers with shared offices and recording studio, with restaurant and event space with workshops and exhibitions.
- One Roof Women (Melbourne, Australia) **-** Exclusive environment for female researchers, integrated environment with modern décor and plants, contact with nature and includes de-stress lounges.
- Agora Collective (Berlin, Germany) - An environment focused on culture and the arts, there is a meeting place and a stage for presentations, film screenings and workshops.
- One Comowork Marina Port Well (Barcelona, Spain) - Setting in a marina, with restaurants and a meeting room, it is possible to take diving lessons or just watch the sunset.

- Naplab (Bangkok, Thailand) - Environment with shared offices, individual stations, meeting rooms and "nap room", meeting can be done at a low table or in comfortable bunk beds.
- Brooklyn Boulders (Somerville, USA) - Environment in Massachusetts, the largest of all coworkings, with more than 3 thousand square meters for those who research and like to practice sports. Meeting space, changing rooms, climbing tower and sauna, shared environment with meeting tables and floor elevations.

NATIONAL AND INTERNATIONAL CASES

Below are some examples of national and international innovation environments, where there are many other innovation environments around the world, each with its own distinct characteristics and driving factors. Successful innovation environments often combine public investment, private partnerships, academic support, and a culture that favors creativity and entrepreneurship.

PORTO DIGITAL BRAZIL

Porto Digital is one of the main technology parks and innovation environments in Brazil and is one of the representatives of the new economy of the State of Pernambuco. Located in Recife, its operations are in the software and services areas of Information and Communication Technology (ICT) and Creative Economy (CE), with emphasis on the segments of games, cine-video, animation, music, photography and design. Since 2015, Porto Digital has also started to operate in the urban technologies sector as a strategic area.

Recognized for its unique territoriality among technology parks, Porto Digital is an urban park installed in the historic center of the Recife neighborhood and in the neighborhoods of Santo Amaro, Santo Antônio and São José, totaling an area of 171 hectares in the capital of Pernambuco. The region, previously degraded and of little importance to the local economy, has been requalified in an accelerated way in terms of urban, real estate and recovery of the historical heritage built since the foundation of the park in 2000. Since then, more than 138 thousand square meters of historic properties have been restored.

Porto Digital is the result and national reference of a coordinated action between government, academia and companies, known as the "Triple Helix" model. Porto Digital was considered by the National Association of Promoters of Innovative Enterprises

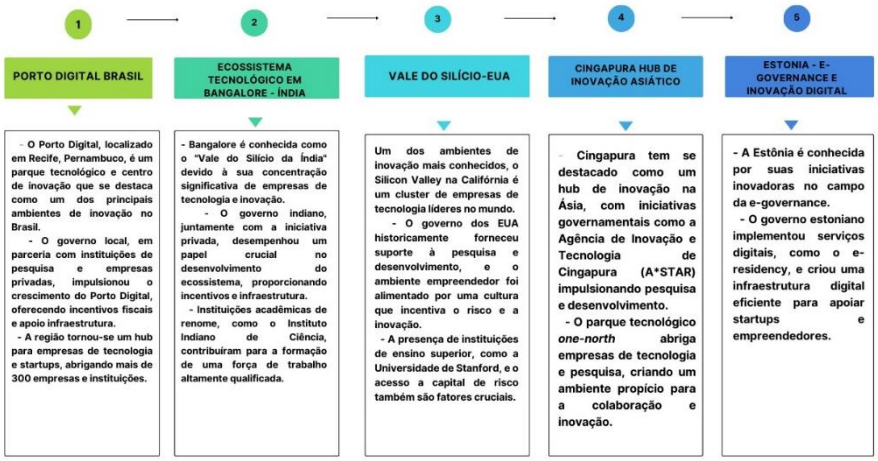
(Anprotec), in 2007, 2011 and 2015, the best technology park in Brazil. Since the end of 2014, the park has also been operating in the city of Caruaru, located in the Agreste region of the State of Pernambuco, with the Armazém da Criatividade (Warehouse of Creativity).

Porto Digital is currently home to more than 350 companies and institutions in the Information and Communication Technology (ICT), Creative Economy (CE) and Technologies for Cities sectors. The park has business incubators, business accelerators, research and development institutes and associated service organizations, as well as several government representations.

The park also has a higher education institution, CESAR School, an initiative of CESAR - Center for Advanced Studies and Systems of Recife, twice considered the best Science and Technology institution in the country by the Financier of Studies and Projects of the Ministry of Science and Technology (FINEP). Porto Digital also has the Armazém da Criatividade (Creativity Warehouse), an advanced unit in the city of Caruaru, in the Agreste region of Pernambuco.

Porto Digital has already attracted dozens of companies from other regions of Brazil to the Recife neighborhood, as well as several multinationals and technology centers. Now, with the territorial expansion to the neighborhoods of Santo Amaro, Santo Antônio and São José, and the interior of the state, the expectation is that, by 2025, the number of companies in the park will reach 500 to 600 and employ around 20 thousand people.

Fig.03: Innovation Environments Infographic



Source: Lima, 2024.

SILICON VALLEY

Silicon Valley is a region located in the San Francisco Bay Area of California, in the United States. It is known as one of the world's leading centers of innovation, technology, and entrepreneurship. The name "Silicon Valley" derives from the material used in the

manufacture of silicon chips, which are widely used in the technology industry. The region encompasses several cities, including Palo Alto, Mountain View, Sunnyvale, Cupertino, and San Jose. It is home to many of the world's most prominent tech companies, including giants such as Apple, Google, Facebook, Intel, Cisco Systems, and many others. It is also home to a number of startups, incubators, accelerators, and venture capital firms. Silicon Valley has a long history of innovation and entrepreneurship, dating back to the 1950s when Hewlett-Packard was founded. In the decades since, the region has become a magnet for talented scientists, engineers, and entrepreneurs, who have come together to drive the development of innovative technologies and drive the digital revolution. The presence of renowned universities, such as Stanford University, has been instrumental in the development of Silicon Valley. The region is also known for its unique business culture, characterized by collaboration, idea sharing, risk mindset, and the ability to attract talent from around the world (Piazza, 2023).

ESTONIA WITH THE E-RESIDENCY PROGRAM

The e-Residency program gives access to the European business environment and increases the chances of closing partnerships and raising funds in euros and dollars (FORBES, 2023). The e-Residency is a virtual ID issued by the Estonian government that gives access to the country's electronic services to people of any background. This identification is granted to foreigners who wish to have virtual access to the country's business environment (it is not an authorization to live in Estonia). "In Estonia, 99% of government services are carried out entirely online. This administrative model changed the look at the country's bureaucratic system, so that they understood that for virtual companies, there is no difference between an Estonian founder and a foreign founder.

INNOVATION ECOSYSTEM IN ISRAEL

Writer, executive and investor Inbal Arieli, one of the 100 most influential people in Israeli high technology, shared, on Wednesday (20), at the Ministry of Science, Technology and Innovation (MCTI), data and experiences that have taken the country to this level. "Israel is a small country, has a small market and, unlike other regions that are leaders in innovation, it operates in several segments. It does not have specific expertise," said Inbal Arieli. "How can we create an environment in our ecosystem where you can innovate on almost anything? Success lies in being dynamic, flexible and knowing how to adapt. This is critical," he added.

The author explained that two factors – innovation and entrepreneurship – act as multiplying forces. In addition to the culture of entrepreneurship, other aspects justify the ecosystem. Among them, the investment of about 5% of its GDP (Gross Domestic Product) in research and development; the presence of large multinationals, where young people gain experience, and the greater attraction of venture capital than any other country. In 2022, there were more than $15 billion.85% of the funding coming from abroad. Israel cannot finance everything and, in addition, the relationship with other countries is important. Startups are open to the world," commented Arieli. (MCTI,2023)

CHALLENGES AND LESSONS LEARNED

Below are some of the common challenges faced by innovation environments, along with lessons learned from successful and unsuccessful experiences in different parts of the world:

Successful innovation environments are characterized by a combination of balanced regulation, diverse funding, effective cross-sector collaboration, a supportive business culture, adaptive education, robust technology infrastructure, and open immigration policies. Studying experiences from different parts of the world offers valuable lessons on how to overcome specific challenges and create sustainable innovative ecosystems.

Below are the common challenges faced by innovation environments with their characteristics, challenges, and lessons learned:

- Regulation – challenges faced are excessive regulation limits innovation and the absence leads to unethical practices. Countries such as Singapore and Estonia have adopted flexible approaches to regulate innovative sectors, promoting a favorable environment for technological development.
- Funding – Challenges faced are limited access to finance can be a significant obstacle for startups and innovative companies. The lessons learned are that successful ecosystems, such as Silicon Valley in the United States, highlight the importance of a variety of funding sources, including angel investors, venture capital, and government incentives.
- Cross-sector collaboration – challenges faced are the lack of cross-sector collaboration can hinder the integration of large-scale innovations. Lessons learned from experiences in Finland and Sweden demonstrate that partnerships between government, industry and academia are crucial to driving innovation, promoting collaboration and knowledge exchange.

- Business culture – challenges faced are in relation to traditional organizational cultures can resist change and innovation. Lessons learned are ecosystems such as Tel Aviv, Israel, emphasize the importance of a company culture that values experimentation, risk tolerance, and learning from failure.
- Education and capacity building – challenges faced are the lack of specialized skills can be an impediment to innovation. Experiences in South Korea and Singapore highlight the need for flexible education systems and ongoing training programs to develop and maintain relevant skills.
- Technology infrastructure - Inadequate infrastructure can limit the adoption of emerging technologies. Lessons learned are the cases in China and India that highlight the importance of investing in robust technological infrastructure, such as broadband networks and data centers, to support innovation.
- Immigration policies - Immigration restrictions can make it difficult to attract international talent. Experiences in Canada and Australia underscore the importance of open immigration policies to attract and retain global talent.

INTERNATIONAL COLLABORATION IN INNOVATION

Transnational collaborations between countries to create innovation environments have become increasingly common, driven by globalization, technological advances, and the search for shared solutions to global challenges. Several cases highlight the benefits and challenges of this approach, involving bilateral agreements, exchange programs, and partnerships between global companies.

Benefits:

1. Access to Complementary Resources: Transnational collaborations enable access to complementary resources, such as technical expertise, infrastructure, capital, and human talent, that may not be available in a single country.
2. Diversity of Perspectives: Transnational innovation environments promote diversity of perspectives and approaches, stimulating creativity and innovation through the integration of different cultures, experiences, and skills.
3. Reduced Risks and Costs: Sharing risks and costs is another significant benefit. Transnational collaborations can help divide the investments needed for research and development, making projects more economically viable.
4. Acceleration of the Innovation Process: Collaboration between countries accelerates the innovation process, as parties can mutually benefit from

technological advancements, accelerating the adoption of new ideas and solutions.

Challenges:

- Cultural and Regulatory Divergences: Cultural and regulatory differences can create significant challenges. Different legal norms and business practices can make it difficult to efficiently integrate operations and implement common strategies.
- Intellectual Property Protection: Protecting intellectual property can be challenging, as intellectual property laws can vary from one country to another. Ensuring a fair distribution of benefits and the protection of intellectual property rights is crucial.
- Language Barriers: Language diversity can be an obstacle to effective communication. Overcoming language barriers is essential to ensure successful collaboration.
- Economic Inequalities: Countries with significant differences in terms of economic development may face challenges in the equitable distribution of the benefits of innovation, which can lead to tensions and imbalances.

ROLE OF GOVERNMENT POLICIES:

Government interventions play a crucial role in fostering innovation environments. Some exemplary cases include:

1. Singapore: The Singaporean government has implemented proactive policies, such as tax incentives and investments in research and development, to transform the country into a hub for technological innovation in the region.
2. Finland: With an emphasis on education and research, Finland has implemented policies to develop a highly skilled workforce, thereby stimulating the innovation environment.
3. Germany: Germany is known for successful partnerships between government, industry, and academia, promoting applied research and technology transfer.
4. China: China has adopted aggressive research and development investment strategies, as well as policies to support technological innovation, driving its rapid growth on the global stage.

In summary, transnational collaboration to create innovation environments offers significant opportunities, but it requires strategic approaches to overcome challenges.

Government policies play a key role in promoting these environments, and it is necessary to balance incentives, remove barriers, and ensure the equitable distribution of benefits.

THE FUTURE OF INNOVATION ENVIRONMENTS

For 2024, the secretary prospects, with the support of other MCTI secretariats, investment in other areas. "I highlight here among the novelties the creation of a national program in connection with other secretariats of the ministry for quantum technologies, strengthening this sector that is strategic for any country", he said "The secretariat will also strengthen investments in innovation environments and ecosystems, "especially mechanisms, incubators, accelerators and innovation hubs that support the generation of new business". Also according to Guila, the idea is to strengthen the capacity of universities, institutes and companies that do research in connecting and strengthening the Technological Innovation Centers (NITs), which promote the transfer of technologies.

In 2023, the MCTI also announced the More Innovation program, which brings together instruments to support companies in a joint action with the Ministry of Development, Industry, Commerce, and Services (MDIC), Finep, and BNDES. The initiative adds up to R$66 billion in investments in companies' innovation projects by 2026. Of the total amount, R$41 billion are from the FNDCT, of which R$16 billion are non-reimbursable resources. The value related to credit will have the lowest nominal interest rates in history for innovation: 4%. It will be the largest investment ever made in the area. National Fund for Scientific and Technological Development (FNDCT), in investing in the Brazilian reindustrialization policy.

CONCLUSION

The Innovation Ecosystem is a broad environment with multiple possibilities for national and international development, through the insertion of innovation policies, focused on science, technology and innovation. Brazil has been following the example of other countries such as Israel, Singapore, the United States and China. In recent years, our country has stood out as a country that advances in the face of technological innovation aimed at Agribusiness, as well as has focused on the development of entrepreneurship in Startups.

The Innovation Policy provided autonomy for the technological innovation centers through the creation of laws aimed at innovation, science and technology. With this, it was possible to develop innovation ecosystems and technology parks. Still, we have a lot to advance following the example of countries like Israel, Estonia and Silicon Valley. The

Innovation Ecosystem aims to incubate chain companies with a focus on Science, Technology and Innovation, conquering new national and international markets. Currently many countries have noticed that Brazil is the main breadbasket of the world rich in Biodiversity, with a raw Bioeconomy to explore. We are a country with immeasurable wealth and we are moving towards the consolidation of sustainability. There is still a lot to do to achieve total stability, but we have already advanced a lot, we still need to develop more technology parks in Brazil, especially in the central regions of each state.

FUTURE PROSPECTS

The future perspectives in relation to the innovation ecosystem are to develop more technology parks, consolidating the ecosystem in each state of our country, thus consolidating the innovation, science and technology network. For this, we need public policies to maintain the focus on promoting projects submitted via public notice to be able to leverage the development and expansion of Technology Parks. The Innovation Centers should focus on the development and expansion of companies, keeping the focus on prospecting new businesses that generate consolidated Startups in Science, Technology and Innovation. That is why it is of fundamental importance that all agencies that work with entrepreneurship, R&D, and S&T join forces to develop projects focused on problems and thus develop their entrepreneurial skills to leverage the technological market with a focus on sustainability.

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