REVISTA DELOS DESARROLLO LOCAL SOSTENIBLE

Public-private partnership strategies for the implementation of innovation centers: the ciat case (Santarém - Pará)

Estratégias de parceria público-privada para a implementação de centros de inovação: o caso ciat (Santarém - Pará)

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ABSTRACT
As a strategy to promote regional development, leverage new business niches and disseminate a culture of entrepreneurship and innovation in its area of operation, the Santarém Commercial and Business Association - ACES, in association with the Guamá Foundation, presented to the Government of the State of Pará a proposal to create an Innovation Center in the municipality. Based on this case, this article revisits the fundamental concepts for the differentiation of innovation environments and presents the state of the art of the project by pervading the construction steps of the ACES Tapajós - CIAT Innovation Center and the integration process between universities, companies, governments, and social organizations for its execution. ACES, as a backbone organization, identified 43 potentially relevant external partners, of which four are essential for space consolidation. As a counterpart, the Government of Pará allocated more than three million reais for the CIAT's implementation. The initiative, inaugurated in March 2023, involves more than 350 associated members, groups of researchers and university students, companies, and independent professionals. This essay, therefore, records the first steps for these partnerships and the network's ability to deal effectively with the current socioeconomic, environmental, and technological transformations underway in the Amazon.

Keyword: ACES, Santarém, innovation center, collaboration networks.

RESUMO
Como estratégia para promover o desenvolvimento regional, alavancar novos nichos de negócios e disseminar uma cultura de empreendedorismo e inovação em sua área de atuação, a Associação Comercial e Empresarial de Santarém – ACES, em associação com a Fundação Guamá, apresentou ao Governo do Estado de Pará uma proposta para a criação de um Centro de Inovação no município. Com base neste caso, este artigo revisita os conceitos fundamentais para a diferenciação de ambientes de Inovação e apresenta o estado da arte do projeto perpassando as etapas de construção do Centro de Inovação de Aces Tapajós – CIAT e o processo de integração entre universidades, empresas, governos e organizações sociais para a sua execução. A ACES, como entidade integradora, identificou 43 parceiros externos potencialmente relevantes, dos quais quatro são essenciais para a consolidação do espaço. Em contrapartida, o Governo de Pará alocou mais de três milhões de reais para a implementação do CIAT. A iniciativa, inaugurada em março de 2023, envolve mais de 350 membros associados, grupos de pesquisadores e estudantes universitários, empresas e profissionais independentes. Este ensaio registra os primeiros passos para estas parcerias e a capacidade da rede para lidar de forma efetiva com as atuais transformações socioeconômicas, ambientais e tecnológicas em curso na Amazônia.

Palavra-chave: ACES, Santarém, centro de inovação, redes de colaboração.

1 INTRODUCTION

Seeking to reposition itself in the context of innovative entrepreneurship in Brazil, the State of Pará has been redesigning its governance strategy to better take advantage of the great Amazonian potential and support new business models, especially digital ones and those related to the Bioeconomy, which includes the creation of a specific state plan for the theme and the launch of notices for the "StarUp Pará"[1] program, among other initiatives. When it comes to startups, Pará is already responsible for 24% of initiatives in the northern region, according to ABSTARTUPS[2] (2020), second only to Amazonas, which has 29%, with the most expressive segments being communication and media (8.3%), health and well-being (6.2%) and Internet (6.2%). Such a rise in the population of startups created a demand for specialized services and flexible workspaces.

In line with the trend, in 2020, the SECTET[3] took an important step in the matter with the launch of another component of StartUp Pará, the "Pará Ecosystem", a digital platform database with a map of entrepreneurship and innovation players in the state, identifying technology-based institutions, research institutes, universities, technology parks, incubators, startups, accelerators, junior companies, investors, innovation hubs and any ventures that involve technological innovation (FAPESPA, 2020). The initiative created awareness and spurred discussions about innovation habitats throughout the state.

Based in a region distant from the State Capital, the Commercial and Business Association of Santarém – ACES identified gaps in the local ecosystem and resolved to create an articulation to foster the creation of such habitats in the west Pará region. At first signed terms of cooperation with other regional institutions, such as universities and government agencies to elaborate plans and to build and operate innovation habitats. The first was UFOPA[4], in August 2020, celebrating a ten-year partnership with the objective of scientific exchange and technical cooperation. In the same year, a three-year cooperation agreement was formalized with BioTec

[1] Program carried out by the Fundação Amazônia de Amparo a Estudos e Pesquisas (FAPESPA) and by the SECTET, aims to identify the vocation of the entrepreneurship ecosystem in the State of Pará.
[2] Acronym in Portuguese for Brazilian Association of Startups.
[3] Acronym in Portuguese for Science, Technology, Professional and Technological Education Secretariat of Pará.
[4] Acronym in Portuguese for Federal University of Western Pará.

Amazônia[5] (ACES, 2021). The local SEBRAE[6] office, although not through a formal partnership, has been active in the discussions and sponsored business missions to other ecosystems to support the movement.

As a result of this efforts a first draft of the project was elaborated. Realizing that the input of the local Government was necessary, a partnership proposal was presented to the Government of the State of Pará for the implementation of an Innovation Center - IC in Santarém, a center capable of promoting and disseminating knowledge and innovation through the connection with other regional ecosystems (such as the Açaí Valley of the Pará Association of Technology and Innovation, the Business Incubator from UEPA[7], the State sponsored PCT Guamá[8], and private innovation and entrepreneurship hubs (ACES, 2021), as well as attracting investments, entrepreneurship programs and providing infrastructure to lower the barriers to entry for aspiring entrepreneurs.

Given this context, this essay deepens the discussion about the partnership between ACES and the State Government, which took place in 2021 through the Guamá Foundation, another partner who joined ACES in the mission to establish an IC in west Pará. The Guamá Foundation is a social organization that manages several projects and innovation habitats in the State of Pará, such as the PCT Guamá, the Estação das Docas, the local implementation of MCTI's[9] Centelha Program, the local implementation of APEX's[10] Export Qualification Program - PEIEX, among other on-demand projects. This partnership was essential to give ACES access to the resources offered by the Pará Government to create and operate the IC.

After a revision with the aid of the Guamá Foundation, the project was submitted and the government of Pará through its SECTET, along with letters of support from several entities in western Pará, such as UFOPA, SEBRAE, SENAI[11], and Municipality of Santarém. SECTET evaluated the project, and after careful consideration allocated in 2023 more than three and a half million reais (R$ 3.58M) for the implementation of IC ACES Tapajós - CIAT, with the mission

[5] Social Organization for Scientific and Technological Development based in Belém (PA), focusing on the development of agribusiness and food technologies; bioproducts; sanitation; renewable energies and valuation of ecosystem services.
[6] Acronym in Portuguese for Brazilian Micro and Small Business Support Service.
[7] Acronym in Portuguese for State University of Pará.
[8] Acronym in Portuguese for Guamá Science and Technology Park.
[9] Acronym in Portuguese for the Brazilian Ministry of Science, Technology and Innovation.
[10] Acronym in Portuguese for the Brazilian Trade and Investment Promotion Agency.
[11] Acronym in Portuguese for the Brazilian National Service of Industrial Training.

of promoting regional development based on the integration of key players, leveraging new business niches and disseminating an entrepreneurial and innovative culture. This experience may be of value to others searching for a way to create innovation habitats and therefore, this study produced a historical account of the first stages of the CIAT project and a contextualization of the Santarém region, its bottlenecks, and potentialities. Reference cases in the creation of innovation habitats were also presented, as well as a characterization of the types of innovation habitats that are comprised by the ACES strategy.

1.1 CONTEXTUALIZATION

Located in western Pará, between the two largest Amazonian cities – the State Capital of Pará - Belém at 700km, and the State Capital of Amazonas - Manaus at 600km, Santarém has 308,339 inhabitants (IBGE, 2021), making it the third most populous city in the state. With two large rivers flowing in front of the city - the Tapajós River and the Amazonas River - it has become strategic as a route for the transport of Brazilian agricultural production that arrives at its ports through the highways BR-163 (namely Cuiabá-Santarém) and BR-230 (known as Transamazônica), consolidating its political, cultural, and economic influence in the region.

Such characteristics have been helping to boost the growth of the municipality which, since 2010, has practically doubled its GDP[12] per capita, reaching R$ 16,829.8 in 2019, with emphasis on the segments of commerce and services, ecotourism, extractives, light industries, and the agriculture sector (IBGE, 2020). These segments are responsible for a balance of 2,303 new jobs, placing Santarém in 4th place among the ten municipalities in Pará with the highest balance of jobs accumulated in the year 2022 - until September (MTE-CAGED, 2022).

ACES also dialogues with the Municipality of Santarém through its GGI/DRS[13] and with the Pará State Government through its CODEC[14] to enable the creation of an industrial district in the city (ACES, 2023) in order to structure and support the productive and innovation system at the regional level, in an effort to relocate industries current installed in residential areas and to promote the verticalization of Amazonian products, most currently exported as raw materials.

[12] Gross Domestic Product.
[13] Acronym in Portuguese for Integrated Management Group for Sustainable Regional Development.
[14] Acronym in Portuguese for the State of Pará Economic Development Company.

Another relevant factor in Santarém is the presence of state and federal HEI[15], in addition to several private HEI authorized by the MEC[16], which makes the municipality a regional university center and reinforces the potential for the creation of new spaces aimed at research, innovation and fostering entrepreneurship, despite the worrying limitations regarding the absorption of locally trained professionals, one more reason to encourage the creation of potentially integrating spaces and connect them to the already existing web of ecosystems.

In the regulatory scope, Pará has specific legislation (Law 8,426/16 - updated by Ordinary Law 9,233/21 and regulated by Decree 1,713/21) on incentives for innovation, scientific and technological research, and non-routine engineering, aiming to promote technological, economic, scientific and social development in the context of competitiveness and sustainability by facilitating cooperation agreements between the actors of the quadruple helix, allowing the State to participate in a minority of the social capital of certain businesses, stimulating the development of innovative companies, contributing to the economic and social growth of the region (SECTET, 2021).

1.2 ACES HISTORY

Founded in 1945, ACES had 352 members at the end of 2022. Its mission is to strive for the socioeconomic development of the municipality, based on a systemic vision that takes advantage of the influences received and generated by the entity. Throughout its existence, it has engaged in various campaigns, including the "Movement Against Darkness" which resulted in the extension of the power transmission line from Tucuruí to Santarém; the construction of the bulk port of the company Cargill; the paving of the BR-163 highway; the construction of the PA-370 road, an essential road for logistical integration in the region; among other important struggles for both infrastructure and administrative autonomy of west Pará (ACES, 2023).

To promote diversity and align itself with the best associative practices, the entity founded 1999 the CME[17] and, in 2003, the CONJOVE[18]. ACES also has sectoral chambers for Infrastructure, Tourism and Environment, Commerce, Real Estate, and Industry and

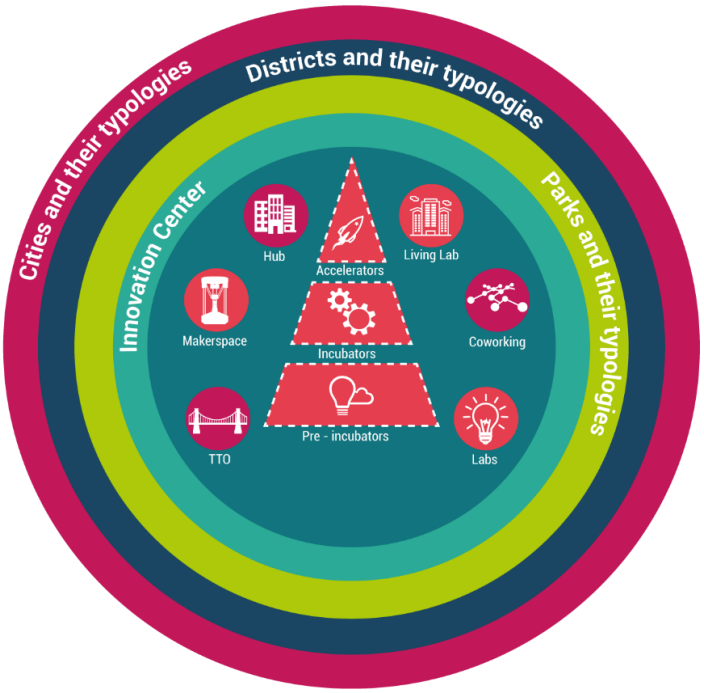
[15] Higher Education Institutions.
[16] Acronym in Portuguese for the Brazilian Ministry of Education.
[17] Acronym in Portuguese for the ACES Council of Businesswomen.
[18] Acronym in Portuguese for the ACES Council of Young Businesspeople.

Agribusiness, which are essential for relations between the entity and the sectors to which its members belong, providing specific forums for each type of discussion (ACES, 2023).

2 THEORETICAL FRAMEWORK

There are several typologies to characterize the structural elements of innovation environments or habitats, either physically or virtually (Figure 1). Thus, to subsidize the discussion on the models chosen by ACES to compose the project, it is necessary to differentiate in concept the two proposed habitats, since the idea is to create an Innovation Center (IC) that has as one of its possible components a coworking space (CWS).

Figure 1: Typologies of innovation habitats



Source: Teixeira et al. (2017).

2.1 COWORKING SPACES

The CWS, as well as its number of members, have been growing steadily around the world (DESKMAG, 2017), but they are still a complex phenomenon to conceptualize. Historically, they began to take shape with the reuse, by state agencies, of spaces for accessing computers and the internet that have become underutilized with technological evolution and the expansion of the Internet (NAKANO et al., 2020), leaving behind the timid social interaction of

public libraries and cyber spaces for an environment with a business bias, along the lines of information technology companies in the Silicon Valley.

In theory, with a more efficient infrastructure and format for promoting informal social interactions, these environments offer the "opportunity to transfer, acquire and assimilate knowledge of explicit and implicit components" from the exchange of experiences (BOUNCKEN and ASLAM, 2019), boosting creativity and increasing innovation processes (GERDENITSCH et al., 2016). Formats, however, differ to suit the reality and social standards of each place but follow the purpose of creating the ideal conditions to make the long-awaited networking flow.

Schmidt et al. (2015) warn, however, that this versatility generates identity confusion with other flexible spaces such as "creative centers, innovation laboratories, incubators, accelerators and hacker spaces". Thus, to clarify such differences Nakano et al. (2020) identified five key roles in CWS, namely, (a) infrastructure provider, (b) community host, (c) knowledge disseminator, (d) local coupling point, and (e) global pipeline connector. The more functions they have, the greater the impact of CWS on its surroundings.

2.2 INNOVATION CENTERS

An IC is a community, physical or virtual, which allocates potential innovative entrepreneurs, startups, or specific research projects and for the creation of companies. These actors benefit from public policy instruments, such as subsidies for innovation, in addition to shared facilities, services, mentoring and consultancy aimed at connecting/optimizing the spectrum of activities between research and commercialization, support that would be unlikely without the IC (ABDALA et al., 2016).

Based on Ordinance MCTIC[19] 6.762/2019, which institutes the National Support Program for Innovative Environments - PNI and encourages the emergence and consolidation of innovation ecosystems and mechanisms for generating innovative ventures in the country, what characterize an IC is its physical facilities, which must be able to promote innovation through governance, integration, research and development activities, training/qualification programs and policies to attract investments and strengthen clusters (MCTIC, 2019), by bringing together

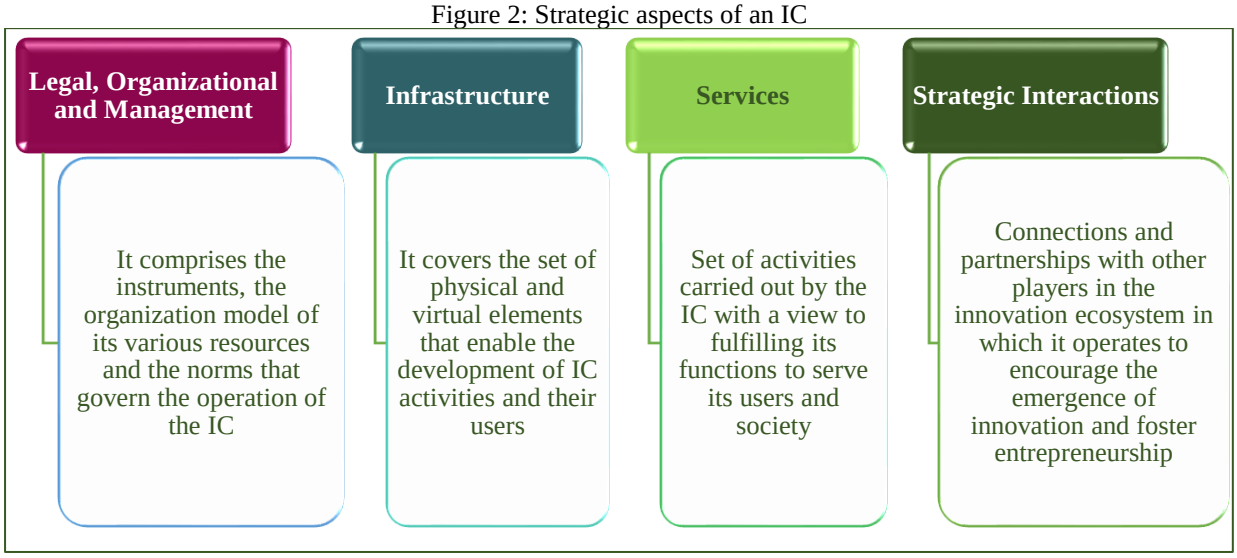
[19] Former acronym in Portuguese for MCTI, which stood for the Brazilian Ministry of Science, Technology, Innovation and Communication.

startups, accelerators, incubators, social and governmental entities, development and research institutions, companies of different sizes, anchor organizations and investors.

According to Abdala et al. (2018), the ICs bring a social investment proposal based on business innovation with a perspective of positive impact on regional development, as in addition to sharing facilities and offering various services, they also act in identifying and taking advantage of the innovative and entrepreneurial potential of its surroundings, attracting talent and public or private investors, being able to function as "bridges" between universities and industries, contributing to the production of knowledge and facilitating technology transfer.

For Anuar et al. (2012), the main functions of ICs are to promote and communicate innovation activities, evaluate, and support innovations, advise on intellectual property, and assist in the management of projects and products in aspects related to planning, accounting, finance, logistics, marketing, and commercialization. Teixeira and Teixeira (2021) highlight four strategic aspects of IC (Figure 2).

Figure 2: Strategic aspects of an IC



Source: Teixeira and Teixeira (2021).

These environments, however, still have limitations to coordinating the different initiatives and public policies aimed at science, technology, and innovation present in the circuit, which requires the constitution of a governance structure with ecosystem breadth, that is, intra and inter-institutional.

2.3 INTERFACES BETWEEN MODELS

According to Qingzhong and Fangfang (2015), to build an environment of innovative culture, it is necessary to establish a solid base of values capable of supporting the project continuously and inducing collaboration to innovate. The productive sector has already identified this path and has been opening up to more collaborative work models with its networks of suppliers, customers, and partners, seeking to create flexible and prepared environments to accommodate and connect networks, either after meetings or in a sporadic way (DEPINÉ and TEIXEIRA, 2018).

ACES follows this trend by proposing a plan in stages in which, as CIAT evolves and takes shape, conditions are created for the implementation of other habitats such as business incubators and accelerators, adding new partners and suppliers, event organizers (hackathons, training, and lectures), real estate agents and content producers (programs and conferences), integrating key actors and strengthening the environment for the establishment of this new space (ACES, 2021). At first, ACES will implement the CIAT and a CWS in its building. It is also stablishing partnerships with entities which hold other habitats, such as UFOPA and SEBRAE, to give the public who seek CIAT access to a more diverse set of habitats located in west Pará.

In addition to building physical facilities specially prepared for this purpose, ACES has been holding discussions with public and private entities to promote greater alignment between entrepreneurial and business activities in the region and government plans, to coordinate and more effectively implement policies that not only enable appropriate infrastructural conditions to strengthen these spaces but also allow for a systematic and genuine discussion on regional cultural paradigms and serve to promote the progressive connection of IC elements to other components of the ecosystem (ACES, 2021).

3 METHODOLOGICAL ASPECTS

For the preparation of this publication, documentary research was carried out using meeting minutes, work plans, and technical reports from ACES. Such information received a theoretical-conceptual counterpoint from a bibliographical and documentary survey on the typologies of ecosystems based on academic articles, data repositories, and news on the Internet, books, and publications on the subject, a methodology that, according to Yin (2005), facilitates

the identification of the characteristics of each phenomenon, its nature, and correlation between the variables.

ACES' strategy, outlined below, is based on one of the typologies listed in VIA Group's[20] methodology, on which the steps proposed by the entity were defined with a view to creating an IC. Existing institutional agreements also served as a reference, as well as the protocols of intent based on ongoing dialogues between ACES and other institutions such as the Government of Pará, Guamá Foundation, UFOPA, SEBRAE, BioTec Amazônia, IFPA[21] and, to a lesser extent, with other entities that are part of the local ecosystem.

As a result of this arrangement, ACES, through its thematic chambers and supported by UFOPA and the Guamá Foundation, created a working group aimed at drawing up a strategic plan for the implementation of CIAT "with the mission of promoting regional development based on the integration of key players, leveraging new business niches and spreading an entrepreneurial and innovative culture" (ACES, 2021).

3.1 VIA GROUP'S METHODOLOGY FOR CREATING AND MANAGING CIS

As a result of the consolidation of academic articles with systematic reviews and analysis of cases of good practices that serve as an adaptable reference to specific realities, the VIA Group proposed models for the creation and management of innovation habitats, from their implementation and monitoring to an evaluation of the initiatives. In this sense, according to the degree of maturity and evolution of each environment, the models proposed by VIA Group bring ideas and solutions for habitats focused on pre-incubation and incubation of companies, to living labs, maker spaces, and innovation centers (DEPINÉ and TEIXEIRA, 2018).

For the creation of an IC the VIA Group indicates the formation of a planning and implementation committee; the mapping of the local innovation ecosystem; legal care such as the issuing of public notices and the creation of regulations and internal rules; exercises to create a future vision for the region; preparation of occupancy plans, marketing plans (including strategies for connecting the IC with networks of mentors, investors, and service providers) and

[20] A research group comprised of professors and students from the Federal University of Santa Catarina linked to the Department of Knowledge Engineering at the Federal University of Santa Catarina (UFSC) which specializes in research on Habitats of Innovation and Entrepreneurship.
[21] Acronym in Portuguese for Federal Institute of Pará.

others; in addition to defining the business model, which duly coordinated, culminate in the strategic plan (DEPINÉ and TEIXEIRA, 2018).

3.2 THE PATH CHOSEN BY ACES

The idea of intervening through the implementation of an IC in Santarém to integrate universities, companies, governments, and social organizations and generate innovation and development, has been the subject of local debates between representatives of Academia and other sectors for, at least, three years, after a survey carried out by ACES revealed that only one of the 20 companies that had participated in the construction of the association's current building was still in operation, highlighting the need for new strategies to keep up with market demands and society changes and actions to keep the current affiliates “alive” (ACES, 2023).

In this context, ACES and UFOPA took the first steps in August 2020 with the signature of a cooperation agreement objecting the creation of an IC using the idle space of the ACES building. The first working group focused on the elaboration of an action plan was created by members of the ACES CONJOVE and students of the course 'Innovation Environments and their Systemic Interactions', offered through PROFNIT[22]-UFOPA Professional Master’s Program (ARNI-UFOPA, 2020).

The students started structuring a proposal in stages, starting with the diagnosis of the ecosystem and the mapping of key actors. Such information supported the production of a plan for the execution of the first stage, more specifically aimed at the implementation and operation of a CWS (ACES, 2021). In the meantime, interactions with SEBRAE Santarém increased and UFOPA sponsored the working group a Course on Planning and Implementation of Innovation Environments taught by ANPROTEC[23], which helped to refine the work.

The working group was reinforced in October 2020 with some students from the UFOPA Doctoral Program “Society, Nature and Development” who enrolled in the course “Habitats of Innovation in Networks” of the Graduate Program in Engineering and Knowledge Management, offered by UFSC and taught by VIA professors. Although the first discussions prioritized the implementation of a CWS, the idea of building an IC ended up prevailing as members from

[22] Professional Master's Program in Intellectual Property and Technology Transfer for Innovation.
[23] Acronym in Portuguese for National Association of Entities Promoting Innovative Enterprises.

different entities (such as BioTec Amazônia[24] and SEBRAE) became part of the working group. Academia, businesspeople and government were then cooperating in the draft of the project.

During this phase, one of the most significant actions proposed by the working group was the change the ACES' charter, which now includes the role of innovation environment management among its objectives, opening a few possibilities of interaction with the Federal and State Governments regarding innovation environments according to the MLCTI[25] and Pará's Innovation Laws[26] (ACES, 2022). The group also proposed the partnership with the Guamá Foundation, which is classified as an ICT, qualifying it for incentives and benefits from the Federal and Pará State Governments regarding innovation and innovation environments.

Therefore, the Guamá Foundation is the one implementing and operating the CIAT so the IC can benefit from Guamá Foundation's experience as an innovation habitat manager and status as an ICT, which enables the CIAT to receive non-refundable public resources to equip the spaces and hire staff, as well as to pay for operation costs during its first year. The CIAT will exist inside the ACES building, sharing use of most of its facilities, and ACES will be a part of its governance, along with the Guamá Foundation and other partners.

ACES will be allowed to operate the CWS located inside CIAT, as the association is closer to the habitat's users, and ACES CONJOVE will oversee the several learning and engaging activities in the CWS so it can be more than just a space for working, but also a space for entrepreneurs to grow and find opportunities. The Guamá Foundation will also be responsible for competence and culture developing activities held by CIAT such as business missions to other innovation ecosystems, training in management and innovation for local entrepreneurs, hackathons, consulting services in marketing, management, and others. Most of the resources planned in the CIAT proposal will be invested in such activities.

A feasibility study of the undertaking was also carried out, and a matrix of risks and opportunities was constructed which served as the basis for defining objectives and their respective metrics, with the final product being the strategic plan for the creation of CIAT, which was presented to the Government of Pará by the Guamá Foundation and ACES in 2021 (ACES, 2021).

[24] A technical-scientific cooperation agreement was then signed between ACES and BioTec Amazônia.
[25] Acronym in Portuguese for Legal Framework for Science, Technology and Innovation, comprised by the Constitutional Amendment 85/2015, Federal Law no. 10.973/2004, Federal Law 13.243/2016 and Federal Decree 9.283/2018.
[26] Pará State Law 8.426/2016, Pará State Law 9.233/2021 and Pará State Decree 1.713/2021.

3.3 REFERENCE CASES FOR MODELING THE CIAT PROJECT

This section presents three examples of innovation habitats in different Brazilian cities whose models broadly cover the needs identified in the ACES work plan. These cases show how an organization can help increase the confidence of local entrepreneurs and engage them in the innovation ecosystem, allowing them to access institutional support and experience other ways of producing, innovating, selling, and relating to others in the business environment.

a) Do It Coworking: This space, inaugurated in 2019, proposes to deliver a unique experience to its users through networking, business generation, and the propulsion of talents and companies in the northern region of Brazil. Located in Belém (PA), it has a physical infrastructure ready to host businesses, including integration software, offering a new work model that values connections, whether in workstations, meeting rooms, or private rooms. Respecting the due proportions and local peculiarities, it is a business model that is very compatible with the reality of Santarém and is similar to the one planned for CIAT's CWS.

Like the "Do It" Space, the CIAT's CWS will be spread over three floors in the ACES building in downtown Santarém, offering hourly, daily, or monthly rental of workstations in shared or private offices, environments connected to the Internet, meeting rooms, auditorium, audiovisual production room, courses and lectures on entrepreneurship and innovation, networking events, information on regional economic activities, in addition to the possibility of using the fiscal address for entrepreneurs who work at home or "on the go". For this, commercial packages were created that differentiate ACES members from other customers giving further incentives for entrepreneurs to become members of ACES and developing a long last relationship with the association, one that lasts longer than the entrepreneur's stay at the CWS (ACES, 2021).

b) Manaus Digital Hub (*Polo Digital de Manaus*): It is a non-profit civil society organization, created in 2018 from a partnership between the Amazonas' SEDECTI[27] and the Manaus Digital Hub Association, with the objective of "bringing representativeness and governance to the IT&C ecosystem in Manaus, to leverage it in an integrated and organized way" (PDM, 2021). The case is strongly inspired by the quadruple helix model, which seeks to take advantage of the atmosphere of the local industrial hub to develop new business models with the potential to consolidate an alternative economic matrix for the region.

[27] Acronym in Portuguese for Amazonas State Secretariat for Economic Development, Science, Technology and Innovation.

The Manaus Digital Hub is made of companies, social organizations, research institutions, development entities, and, of course, startups that comprise the "Jaraqui Valley[28]", a voluntary community that seeks to facilitate access to these innovative initiatives to various institutions and new business development programs (G1, 2021). Drawing a parallel with CIAT and considering the regional panorama, the proposal to concentrate and qualify intellectual capital through the integration of various business segments, governments, and research institutions is quite feasible.

c) Commercial, Industrial, Services and Agribusiness Association - ACISA: The entity works to integrate key sectors of the economy in the region of the city of Passo Fundo in the State of Rio Grande do Sul and innovated in 2019 by acquiring a headquarters in which it allocated not only its administrative sector but also a space to receive essential entities to sustain its production chains, like the BRDE[29] and SINDIGENEROS[30]. The association also partnered with the local city hall and SENAI to increase the package of services offered to members and contribute to improving the regional business environment.

ACISA's package of services includes support in the recruitment and selection of new employees for member companies, mediation of conflicts involving members through a conciliation and arbitration chamber, professional qualification programs, obtaining credit, issuing digital certificates, regularizing commercial establishments, issuance of stamps of origin for exported goods that allow access to importer tariff benefits, medical agreements and, following the trend, the provision of a coworking space. Part of these important services, including the CWS, is still not offered by ACES, which makes the ACISA case a relevant reference.

4. RESULTS AND DISCUSSIONS

4.1 THE ACES PROPOSAL

ACES identified four points of attention for the region, namely: (a) the high risk of undertaking entrepreneurship activities; (b) the lack of a culture of cooperation and innovation in businesses in the region; (c) the lack of technical capacity to elaborate projects to receive

[28] The Jaraqui, a fish much appreciated in the Amazon, had its name combined with the Silicon Valley creative economy model to baptize the digital entrepreneurship space in the city of Manaus in the State of Amazonas.
[29] Acronym in Portuguese for Regional Development Bank of the Far South.
[30] Entity that represents all retailers, from small grocery stores to hypermarkets, throughout the State of Rio Grande do Sul.

incentives and to take part in acceleration programs at national and international level, and d) the lack of public policies and government initiatives dedicated to preparing local entrepreneurs to adhere to these opportunities.

In view of this, the IC proposal emerged with the purpose of "offering an environment for the development of entrepreneurial skills, concentrating a 'critical mass' for innovation and consistently supporting local entrepreneurial and innovation initiatives" (ACES, 2021), through the formation of a support network and mentoring sponsored by science and technology institutions, governments and other entities representing the productive sector.

The IC and its CWS would start by offering technical support and advice to associates (partner entities) through events, fairs, courses, workshops, business missions and provision of economic information on the region in a format that, in addition to optimizing costs and lowering entry barriers for companies in its initial phase, it allows new entrepreneurs to access more experienced colleagues, knowledge repositories and R&D environments, serving to "bring together strategic actors and give rise to new business niches, contributing to a culture of innovation in the region" (TEIXEIRA et al., 2017).

Initially, the target audience is ACES members and new entrepreneurs (university students, IT&C professionals, bioeconomy, and others) who would be looking to share resources to gain efficiency, whether individuals or legal entities, as well as companies with innovative business models. As the proposal advanced and took shape, other actors from the private sector, government entities, representatives of civil society, and research institutions were incorporated and helped consolidate the idea of a multisectoral environment, based on the concept of the quadruple helix and with a socioeconomic and environmental function (ACES, 2021).

4.2 STRUCTURING PILLARS OF THE CIAT PROJECT

Considering the multidisciplinary character of the management process of any innovation ecosystem, especially when it comes to the integration of different economic axes, as proposed by ACES, its implementation is fundamentally supported by three integrative dimensions, according to the premises of Cassemiro et al. (2011): (a) Innovation, through technical training and support for new business models; (b) Competitiveness, with a focus on preparing projects and attracting investments; and (c) Sustainability, aimed at supporting management and training leaders.

The idea is that, while ACES acts in guidance and management support, SEBRAE, SENAI and SENAR[31] would provide support through services more focused on consulting and professional/business training for members. In this context, UFOPA, the Guamá Foundation and BioTec Amazônia would use its infrastructure and laboratories to work on technical training, research and development and the implementation of new ideas. Complementarily, the government bodies would act to define and implement public policies to support the entire structure in the timeline.

4.3 FEASIBILITY ASPECTS: REVENUES, COUNTERPARTS, AND INCENTIVES

From an economic-financial point of view, the IC's initial revenue model will consist of support coming from a partnership with the Pará State Government for the implementation, to subsidize the acquisition of furniture and equipment, and for the operating costs during the first year. In this phase, costs related to courses, training, and business missions to expand the network, strengthening management, and promoting the evolution of the regional IC concept will be carried out with resources provided for in the amendment contract signed between the Government of Pará and the Guamá Foundation, as well as in an agreement between the foundation and ACES (ACES, 2021).

In turn, ACES has already dedicated more than 350 hours of work involving at least 20 professionals in the design, planning, and execution of the project. The entity ceded part of its 1,354m² building, which already has meeting rooms, individual workstations, and an auditorium, and invested more than R$ 150,000.00 of its own resources in the renovation and expansion of the building, creating new spaces that can be shared by the different project generating organizations that will compose the IC. After the first year, the expectation is to attract new partnerships to raise funds for the maintenance of CIAT operations, in addition to the resources from the services provided by the CWS.

The current proposal plans the provision of workshops, courses, and lectures (both in the environment itself and in the company) from a range of services in which users will be able to purchase from specific products to larger packages including multiple services. In addition, the CWS must offer legal and accounting support, office boy, and secretariat, according to the client's

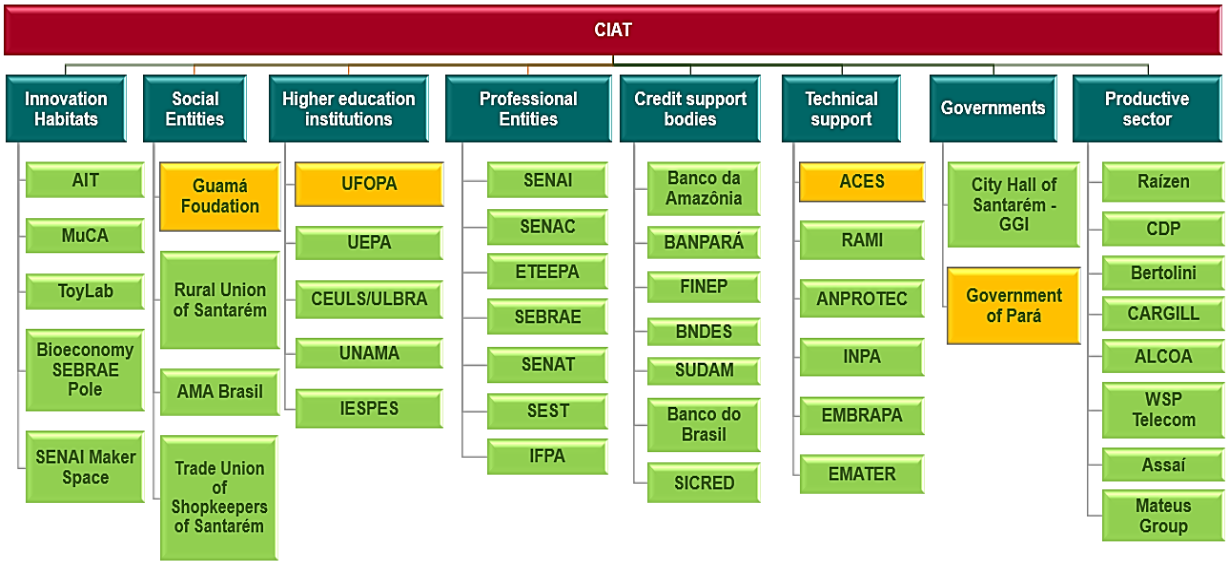
[31] Acronym in Portuguese for National Service for Rural Learning.

needs and, in the future, it is expected to include a showroom space and a marketplace service (ACES, 2021).

4.4 POTENTIALLY RELEVANT PERSONAS FOR PROJECT IMPLEMENTATION

Based on the survey carried out by Ramos-Filho et al. (2020), in addition to ACES, 37 organizations were identified (Figure 3) in eight different categories, which in some way can add value to CIAT. In 2022, this map was updated and SICRED, IFPA, and MuCa were included. The entities highlighted in orange are of vital importance and are already engaged in the project.

Figure 3: Map of key stakeholders in the Santarém territory by area of activity



Source: Ramos-Filho et al. (2020) - Adapted by the authors.

4.5 MAPPED CHALLENGES

The first challenge to be overcome is economic feasibility and perennity. To produce a model that includes commercial activities, that is, the sale of some services that may maintain the IC in the future, a risk map was prepared considering the operation dynamics, foreseeing different possible scenarios, based on a benchmark study for pricing and occupancy rates. Some of the revenue would come from services and from the CWS, and the rest would come from sponsors and partners.

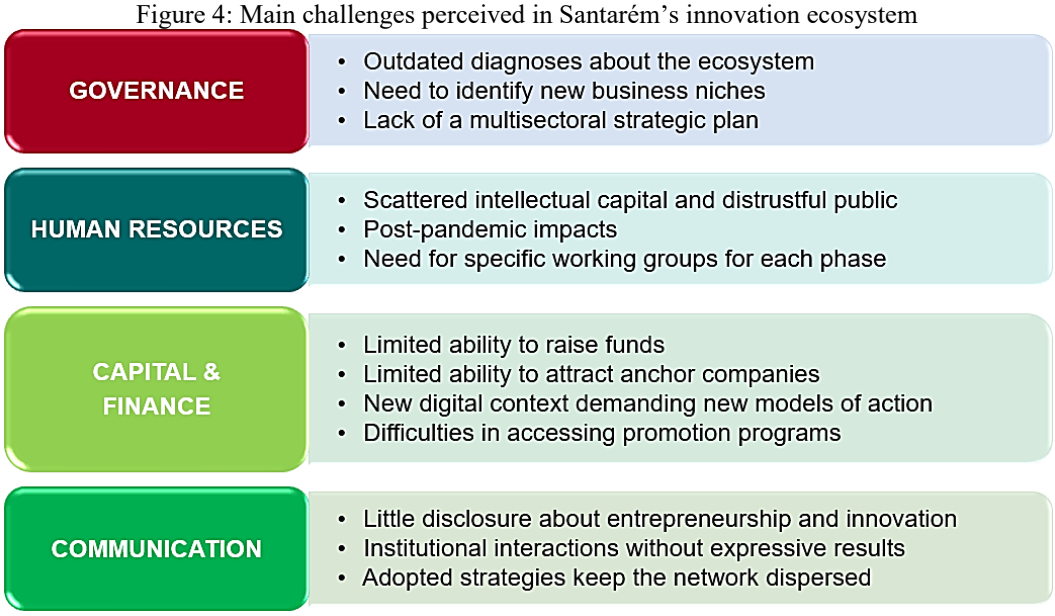
This prospection revealed that in an intermediate CWS operating scenario, revenues would correspond on average to 27% below the Economic Breakeven Point (EBP), considering an occupancy and service consumption rate of 51%. In an adverse scenario, revenues would

correspond to approximately 72% below EBP, considering an occupancy and consumption rate of 23%. Only in a favorable scenario would revenues reach the EBP, with a small profit margin, considering an average occupancy and consumption of products of 81%.

The second point is the need for continuous active management of the entrepreneur community revolving around CIAT and the CWS. Although the CWS is an important component of CIAT and it is known that these environments have been promoting changes in the "nature of work" and in the ways of working (LEIGHTON, 2015), due to their great potential to function as "spaces for improvement and concentration of social capital" (COLLEONI and ARVIDSSON, 2015), there are still criticisms of the model. Merkel (2015), for example, warns that the spontaneous exchanges between colleagues, expected in such an environment, are not so common, requiring active mediation on the part of community managers, because even in "serendipitous" meetings that can generate networking, non-CWS members who do one-off jobs don't have time to share knowledge and experiences.

In addition to these questions there are the innovation ecosystem challenges, such as the local cultural paradigms, the lack of coordination among the entities in the region, the desires of the entrepreneurial community of Santarém and the infrastructural limitations that need to be mapped so that the respective negotiations are thought out and implemented. Thus, an ecosystem analysis was carried out based on four strategic dimensions in which the factors that most negatively impact the creation of an innovation environment in the region are listed (Figure 4).

Figure 4: Main challenges perceived in Santarém's innovation ecosystem



Source: The authors.

4.6 KEY STEPS AND ELEMENTS FOR PREPARING THE DIAGNOSIS AND STRATEGIC PLAN

For the elaboration of the strategic plan for the implementation and operation of CIAT, the nine elements recommended by Launonen and Viitanen (2011) were taken as a basis: (1) the existence of a physical space whose service infrastructure is being finalized by ACES; (2) the concrete possibility of implementing training programs at the IC; (3) the existence of signed agreements that make possible the use collaborative spaces for tests and prototyping – already in progress with UFOPA; and (4) the existence of specific environments for R&D activities in the region (at UFOPA, SENAI, MuCA and other local entities).

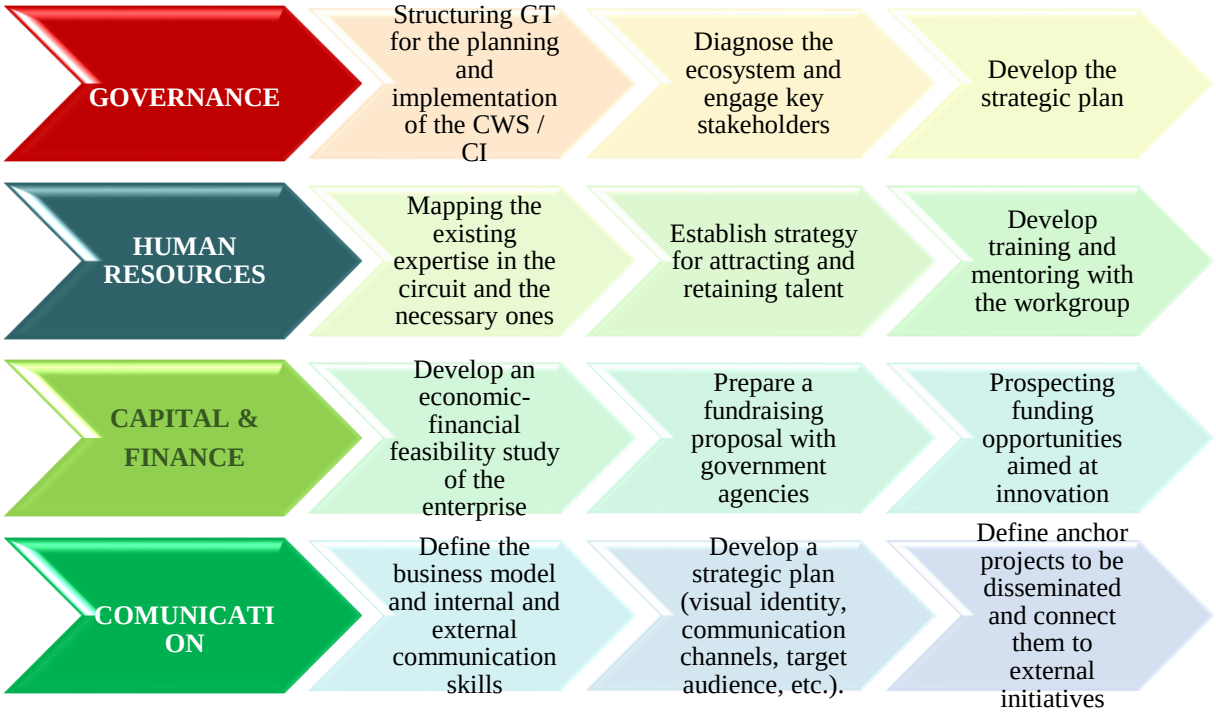
Continuing with the elements of Launonen and Viitanen, this scenario should be strengthened by (5) the adoption of awareness strategies for small and medium-sized companies identified as "potential associates"; in addition to (6) seeking to create the ideal conditions to attract large anchor companies; (7) implementing programs and policies to strengthen these clusters, disseminating technology transfer actions and leveraging digital business ideas; (8) fully supporting startups with proven viable business models; and (9) systematically structuring spaces and connections between actors in the innovation ecosystem both locally and nationally.

Complementarily, based on the ideas of Cassemiro et al. (2011), five essential actions are considered to tackle the shortcomings and bottlenecks identified in the CIAT innovation

ecosystem: (1) building on institutional strengths through the concentration of intellectual capital; (2) the structuring of an environment for the development of local entrepreneurial capacities; and (3) consistent support for mapped initiatives ranging from business design to access to credit, permeated by mentoring and frequent feedback loops.

This set of factors (4) emphasizes the healthy competitiveness of the associates and helps to calibrate the focus of initiatives to cover new market niches and build a truly collaborative network. Also, (5) public policies must be articulated with the active participation of government, in both executive and legislative branches (CASSEMIRO et al., 2011). Considering these points, the working group defined the central lines of the action plan, which are consolidated and unfolded in Figure 5.

Figure 5: Dimensions and respective key actions for implementing the CIAT proposal



Source: The authors.

5 FINAL REMARKS

The purpose of creating a multisectoral environment focused on innovation and entrepreneurship in the western region of Pará responds to a need to adapt to the effects of globalization and the digitalization of production processes. In the case of Santarém, ACES has conducted actions through a “connectionist” approach to achieve an innovation process that is

not only technological and scientific but also administrative and political, which should materialize in more efficient organizational methods and socioeconomic models.

Hicks and Faulk (2018) highlight the relevance of ICs in supporting job and income generation and increasing technology transfer and innovation, which is why these spaces have been recommended in public policies. It is this energy, which generates wealth and new possibilities, that ACES wants to capture, and it is what moves the professionals who work on the CIAT proposal, after all, entrepreneurship and innovation are two sides of the same coin and need to walk together.

Even though we are aware that the interaction and construction of collaborative networks do not represent an automatic result of having an innovation habitat there, we bet on the engagement of companies, governments, ICTs, development agencies, and civil society organizations, for the creation of an organizational atmosphere - in the form of an IC - that effectively promotes the necessary interactions and takes advantage of local potential, combining different knowledge and resources to achieve regional innovation and development.

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