IASP International Association of Science Parks and Areas of Innovation

32nd IASP World Conference on
Science Parks and Areas of Innovation 2015

Beijing, China

Reference Center for Business Incubation: a proposal for a new model of operation

Parallel Session 3:

Incubation and growth

Author :

Carlos Bizzotto

ANPROTEC, Brazil

Hosted by:

中关村 Z-Park ZHONGGUANCUN SCIENCE PARK

Reference Center for Business Incubation: a proposal for a new model of operation

Executive Summary

This paper proposes a new operation model for business incubation, called Reference Center for Business Incubation – CERNE. It was structured as a maturity model of the capacity of incubators to systematically generate successful innovative enterprises. This model has four fundamental pillars: adding value to the incubatees, a dynamic incubation process, sustainability of the incubator and its integration with its environment. CERNE is implemented sequentially, at four levels of maturity, so that the incubator can initiate a given process when there is sufficient maturity to do so. The results reported by managers have been significant and highlighted among them are: improvement of the quality and quantity of the business ventures, systematization of the business incubation process, expansion of the interaction with the other participants in the innovation ecosystem and more professional management of the business incubator with a view to achieving sustainability.

Introduction

The number of incubators has clearly grown in recent years, especially in developing countries. In Brazil, for example, the number of incubators has been increasing systematically over the past 10 years, reaching 384 incubators in 2012.

This growth has also occurred in other countries around the world, such as Russia, India, China and South Africa. In these countries, incubators are assuming an increasingly important role in the socioeconomic development of different regions.

Besides the increased quantity, a change in the incubators' performance over time in order to meet the needs of entrepreneurs and innovative companies has also been observed.

Therefore, it is important to note that the incubators no longer focus on physical space for tenants, but instead on providing value-added services that promote the rapid growth of the supported companies.

However, there is a lack of operating models of incubators to establish the critical elements for systematic generation of successful innovative companies and, at the same time, allow the integration of the incubator with an innovative environment in the area.

It is within this context that this study is presented, aiming to propose a new operating model for business incubators, which makes the incubation process more agile and also integrated into the regional innovation ecosystem.

Business Incubator Concept

The consensus among industry experts is that there is no concept of a business incubator that is accepted by all. This is mainly for two reasons:
a)Evolution: incubators have been evolving rapidly in terms of services offered and the position in the regional innovation ecosystem;
b)Regionality: each region / country has a different understanding of what a business incubator is.

Despite this lack of consensus on the concept of business incubators, it is possible to identify three different generations of business incubators, as proposed by Bruneel[1] (2012):
a)First Generation: the focus was the provision of physical space, of good quality and at low cost, in addition to offering shared resources such as auditoriums, meeting rooms, common use equipment, among others. Allen proposed a typical definition of this generation: "a business incubator is defined as a facility that provides affordable rent to new and small firms, shared office and logistical services, and arranges business management and financial assistance" (ALLEN[2] , 1988). Another important characteristic of this generation is the incubator's role as an environment to transform the technologies generated in universities and business research centers, in a strategy that can be understood as "technology push".

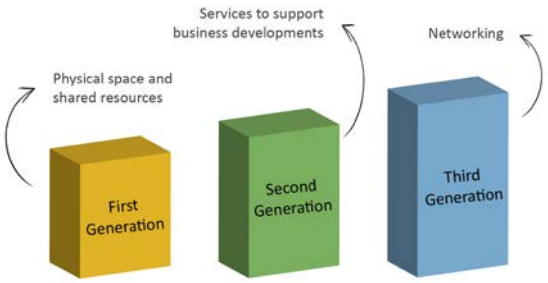
b)Second Generation: the focus of this generation is no longer only in the physical space and shared resources but also in enhancing services to support business developments such as training, mentors,

1. Bruneel J, Ratinho T, Clarysse B, et al., 2012, The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations, Technovation, Vol:32, ISSN:0166-4972, Pages:110-121
2. ALLEN, D.N. "Business Incubator Life Cycles". Economic Development Quarterly 2 (1), 19–29, 1988.

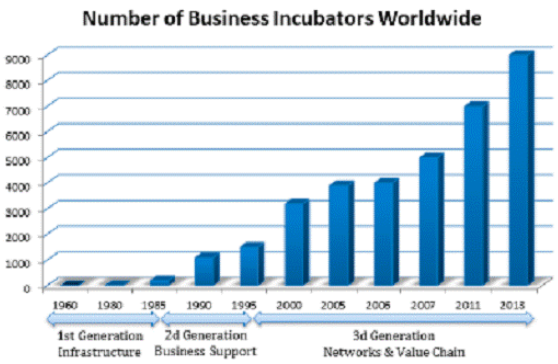
coaching, among others. Duff (DUFF[3] , 1999) proposed a typical concept of this second generation: “a business incubator may be defined as an organization which offers a range of business development services and access to small spaces on flexible terms, to meet the needs of new firms. The package of services offered by a business incubator is designed to enhance the success and growth rates of new enterprises thus maximizing their impact on economic development”. Therefore, this generation has a clear bias concept of "market pull".

c)Third Generation: in addition to the concepts provided for the incubators of the previous two generations, the third generation incubators focus on the creation and operation of networks to access resources and knowledge, linking the incubator with the innovation ecosystem in which the business is inserted. A typical concept of this generation is presented in the study by infoDev: “a business incubator is an organization that accelerates and systematizes the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: Incubator space, business support services, and clustering and networking opportunities” (infoDev[4] , 2010)

The following figure shows the three generations of incubators described above, highlighting the focus in each one of them.



According to Ryzhikov (2013), as shown in the following figure, the first generation of incubators took place between 1960 and 1985, the second generation was from 1985 to 1995 and the third generation started in 1995.



Source: Vasily Ryzhonkov, 2013 (https://worldbusinessincubation.wordpress.com/2013/12/24/review-of-20-business-incubation-models-summary-of-the-series-problems-of-business-incubation/)

3. DUFF, Andrew. “Best Practice in Business Incubator Management”. Available at http://www.eifn.ipacv.ro/include/documentations_files/bestpracrpt.pdf

4. infoDEV. “Global Good Practice in Incubation Policy Development and Implementation. Available at http://www.infodev.org/infodev-files/resource/InfodevDocuments_834.pdf

Business Incubators Operation Models

According to Dory[5] (2002), a model "is an abstract representation of some aspects of interest of a system under study or development, aimed at understanding, communicating, explaining, or designing these aspects".

Therefore, it is necessary for the incubator model to be in line with the evolution of the concept, as discussed above. In addition, it should be a representation of how the incubators should operate to achieve their goals. Vasily Ryzhikov (2013) did an extensive study on proposals for incubators operating models, involving the analysis of about 20 models created by researchers, consultants and incubator managers from 1985 to 2013.

As a result of this study, Ryzhikov proposes that the business incubators' operating models are, in general, aligned with one of the three dimensions shown in the figure below.

•Operation: in this dimension, models vary according to the focus in the incubator (structure) or the incubation (processes). Although the tendency is to focus more in the incubation process, as noted earlier, it is important that the incubator has a good structure to fit their companies.
•Abstraction: while some models have a high level of abstraction (black box), others detail the processes that the incubators must take to achieve their goals (white box).
•Interaction: traditionally, the incubator operating models have focused on business incubators (operations) without considering their interaction with the regional innovation ecosystem (development).

Therefore, a business incubator operating model needs to consider the three dimensions proposed by Ryzhonkov and at the same time, be in line with the characteristics of a third generation incubator.

Reference Center for Business Incubation - CERNE Model

In line with what has occurred in other parts of the world, the Brazilian movement of incubators is growing. According to the publication named "Study, Analysis and Proposals on Business Incubators in Brazil" prepared by the Brazilian Association of Science Parks and Business Incubators (Anprotec - Associação Nacional de Entidades Promotoras de Empreendimentos Inovadores) and the Ministry of Science, Technology and Innovation (MCTI), published in 2012, Brazil has 384 incubators that support about 3,800 companies (associated and incubated). In those environments, more than 2,500 companies were graduated, with revenue of US$3.5 billion[6] and generating about 30,000 jobs.

6. Value obtained in a survey together with the 140 incubators in the pilot group for the implementation of the CERNE Model.
7. CERNE's team: Carlos Eduardo Bizzotto, Evelin Astolpho Francilene Procópio Garcia, Gisa Bassalo, Gonçalo Guimarães, José Eduardo Fiates, Marcos Suassuna, Regina Faria, Sheila Pires, Tony Chierighini.

Despite this contribution to the development of regions and increasing the competitiveness of companies, it was observed that the Brazilian incubators needed to be in line with the so-called Third Generation Incubators.

It is within this context that Anprotec and the Brazilian Support Service to Micro and Small Enterprises (Sebrae) worked together to build a new operating model for Brazilian incubators. The platform called Reference Center for Business Incubation – CERNE aims to promote significant improvement in the results of the incubators of different areas, both quantitatively and qualitative, through the creation of a model and standard of operation in order to increase the capacity of the incubator to generate systematically successful innovative companies.

With this, a platform is created so that the incubators of different areas and sizes can reduce the level of variability in achieving success of the supported companies.

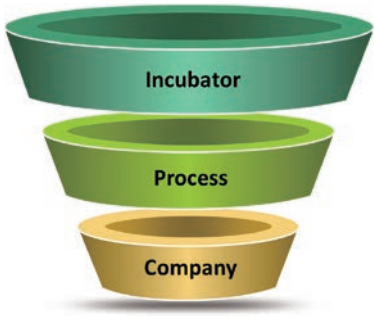
To create the CERNE Model, the ANPROTEC with SEBRAE's support, formed a team7 to develop an international benchmarking of best business incubation practices. This team proposed a first version of the model for discussion with incubator managers in Brazil.

Therefore, from the initial model, several events called "Collective Building Workshops" were held, with the participation of 450 managers from all regions of Brazil. During the workshops, the proposed model was presented to the managers, who worked in teams to review and propose changes.

After the workshops, a pilot group with 140 incubators was created to implement the model. To this end, SEBRAE launched a bid totaling US$14 million so that incubators could implement the key practices proposed by the CERNE Model. Of the pilot group, 50 incubators are awaiting certification, while the others are in the conclusion phase.

To do this, a broad qualification program was implemented, through which managers were trained in the principles, structure, process and practices of the CERNE Model in order to facilitate and accelerate the implementation process.

Continuing to support the implementation of the model, Sebrae, in partnership with ANPROTEC, in February 2015 launched a new edict providing about US$10 milion so that new incubators are able to start the new model's implantation and that incubators in the pilot group can move to the next level and maturity, as detailed below.



CERNE: Structure
The CERNE model is designed to offer both generic processes to be implemented by a business incubator (black box) and practices that must be performed so that the incubator is able to fulfill its role in the region's innovation environment. In this sense, the model was structured in three layers, as shown in the following figure.

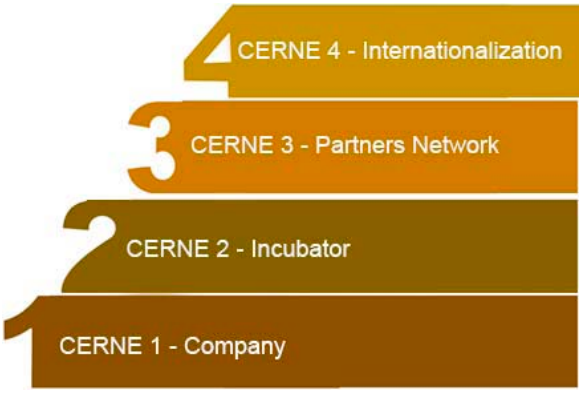
•Company: this layer includes the processes directly related to the generation and the development of companies. For this, the company is understood to consist of at least five areas:

oEntrepreneur: related to the development of the entrepreneurs' personal profiles, so that the company is successful.

oValue Proposition: related to the development and evolution of products and/or services delivered by companies to their customers.
oCapital: related to the raising of economic and financial resources for the company´s leverage.
oMarket: related to the commercial development of the company.
oManagement: related to the use of methodologies, techniques and tools for the successful management of the company.

•Process: the focus of this layer is in the processes that enable the transformation of ideas into real businesses.
•Incubator: in this layer, the focus of the process is in the incubator management as a company and in the expansion of its limits - that is, processes related to finance, people and the incubator's relationship with the environment.

For these to be implemented, CERNE is designed as a maturity model of the incubator's capability in generating successful innovative companies. This way, the model has four levels of maturity as shown in the figure below.

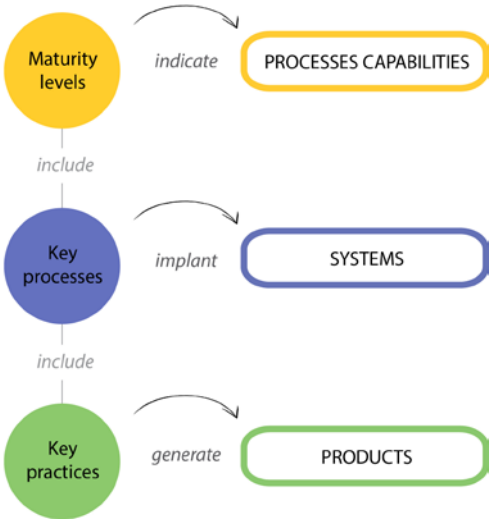


•CERNE 1 – Company: in this first level, all the processes and practices are directly related to the development of companies. Accordingly, in addition to processes such as planning, qualification, consultancy, selection and monitoring, practices directly related to the management of the incubator were also included. These practices, in turn, have a very close connection with the development of companies, such as the financial management and management of physical and technological infrastructure. By implementing this level, the incubator must demonstrate its ability to prospect and select good ideas and turn them into successful innovative businesses, systematically and repeatedly.
•CERNE 2 – Incubator: the focus of this level is to ensure effective management of the incubator as an organization. Therefore, the incubator must implement processes that enable its strategic management, the expansion of services provided and target audience, besides the evaluation of its results and impacts.
•CERNE 3 – Partners Network: the focus of this level is to consolidate a network of partners to expand the incubator's operations, creating capable and effective tools to meet non-resident companies. Therefore, at this level, the incubator strengthens its role as one of the nodes of the networks involved in the process of promoting innovation.
•CERNE 4 – Internationalization: at this level, from the implanted structure at the previous levels, the incubator has sufficient maturity to act internationally and systematically promote the globalization of incubated companies.

Thus, each maturity level (CERNE 1, CERNE 2, CERNE 3 and CERNE 4) is a step of the incubator to position itself as an innovation environment that acts professionally and that generates significant results for the development of its region and country.

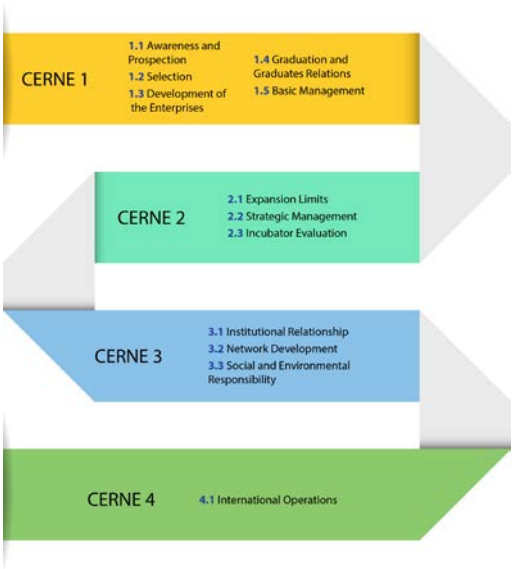
Each maturity level contains a set of key processes that seek to ensure that the incubator is using all

the good practices related to that level of maturity. The following figure shows that each level of maturity comprises one or more key processes, which in turn are formed by two or more key practices.



CERNE: Key Processes and Key Practices

The proposal is that incubators implant maturity levels in the proposed sequence, in order to optimize resources and facilitate the model implementation process. The key processes that incubators should implement are shown in the following figure.



•CERNE 1

o1.1 Awareness and Prospection: It involves maintaining a documented ongoing process for community sensitization regarding entrepreneurship and for the prospection of new ventures. There are three key practices involved in this process: Attraction, Prospection and Potential Entrepreneurs Qualification.

o1.2 Selection: It involves maintaining a documented ongoing process for the selection of companies. This process should include a well-defined methodology, selection criteria and trained professionals to evaluate the companies, taking into account at least the following criterion: entrepreneurship, value proposition, capital, market and management. This key process consists of three key practices: Proposals Reception, Evaluation and Contracting.

o1.3 Development of the Companies: It involves maintaining a documented ongoing process for the generation and growth of companies, including the provision of value added services (training,

consultancy, participation in events, access to investors, among others) that promote the fast development of the companies. This process also includes the need for the incubator to assist in planning and continuous monitoring of the companies. There are three key practices involved in this process: Planning, Value Addition and Monitoring.

o1.4 Graduation and Graduates Relations: The incubator should keep a systematic process to assist companies in the "status change" of "Incubated Company" to "Graduate Company", in addition to structuring actions for the continuity of the incubator interaction with the graduate company. This key process consists of two key practices: Graduation and Graduates Relations.

o1.5 Basic Management: It involves the maintenance of a minimum structure in management, physical and technological terms, enabling the systematic generation of successful companies. This includes the existence of practices that operationalize the institutional model, operational services, financial management, communication and marketing, physical and technological infrastructure, providing support to the companies. This key process consists of five key practices: Institutional Model, Financial Management and Sustainability, Physical and Technological Infrastructure, Operational Services, Communication and Marketing.

•CERNE 2

o2.1 Expansion of Limits: It involves systematic and formal processes to expand the target audience and/or the services provided by the incubator to improve its results. To do this, the process contains two key practices: Services to Organizations and Ideation environments.

o2.2 Strategic Management: The incubator should have a systematic and documented process for planning and for strategic management, which would structure and track at least its identity, goals, actions and targets in defined scenarios. To do this, this process contains two key practices: Strategic Planning and Strategic Management.

o2.3 Incubator Evaluation: It involves systematic and formal processes to evaluate the results and impacts of the incubator. To do this, this process contains three key practices: Operational Evaluation, Quality Evaluation and Impact Evaluation.

•CERNE 3

o3.1 Institutional Relationship: It involves systematic and documented processes on the positioning of the incubator as a proactive agent in a network of organizations to propose public policies aimed at promoting entrepreneurship and innovation. To do this, this process contains three key practices: Interaction with the Surrounding Areas and Participation in Public Policy Definition.

o3.2 Network Development: It involves systematic and documented processes to expand the limits of its operations, through a network of organizations that have common interests, sharing expertise and resources. This key process includes three key practices: Mentors Network, Supply and Demand Management and Virtual Incubation.

o3.3 Social and Environmental Responsibility: It involves the establishment of a policy aimed at the adoption of good social and environmental management practices. This key process includes two key practices: Environmental Management and Social Responsibility.

•CERNE 4

o4.1 International Operations: It involves systematic and documented processes of international operations that enable the expansion of resources (financial, technological and human), knowledge and markets for the incubator and for companies. To do this, this process contains two key practices: Internationalization of Incubator and Internationalization of Companies.

CERNE Ecosystem

So that the Brazilian incubators can quickly implement the new incubation model, ANPROTEC created a support structure, as shown in the following figure.

•Governance: involves the practices and relationships between ANPROTEC, SEBRAE and other organizations, in order to optimize the access and use of resources. In this context, the governance of the CERNE Model aims to, ultimately, ensure significant improvements to business incubators, for the incubated companies and additionally for the CERNE Model itself. Accordingly, the governance was divided into four layers, complementing each other and providing a flow of information that makes it possible to achieve its goals.

- oIncubation: this layer, composed of the incubators, generates information on the progress of implementation of the CERNE Model and incubator's impacts on the economy of the region.
- oSupport: this layer involves the work of the consultants who support the incubators in the implementation of the CERNE Model, especially the CERNE Accredited Consultants. The goal of this layer is to identify and systematize, from the interaction with the Incubation layer, the needs for improvement in the incubators management.
- oEvaluation: composed of ANPROTEC Evaluators and SGC consultants (SEBRAE), this layer is to evaluate the progress of the project, both in terms of implementation of key practices, to provide data to other layers in the planning and implementation improvement actions in the CERNE Model and in the business incubators.
- oIntegration: this layer, composed by the CERNE ANPROTEC Team and the Innovation and Technology Access Unit Team – UAIT-SEBRAE, handles the information prepared by the previous layers and proposes strategies and actions for faster implementation of the CERNE Model in incubators, improving the results and the development of the CERNE Model.
- oManagement: composed of ANPROTEC and SEBRAE representatives, this layer establishes guidelines, programs, projects and actions for the development of the CERNE Model and consequently the results of incubators and the success of the incubated companies. In this sense, this layer provides feedback to the other layers in relation to improvements to the CERNE Model and the reduction of bottlenecks identified in the incubators.

•Documentation: Two sets of materials were created to detail and guide the implementation and certification model in an incubator:

- oImplementation Documents: three documents that explore all the model's details, making it possible to understand and to implement it in specific circumstances:
  - ·Executive Summary: describes the principles, the model structure, its organizational logic and the benefits that can be achieved by the incubators from the implementation of processes and key practices proposed by the CERNE Model.
  - ·Reference Term: covers the principles, the structure and all the details of the CERNE Model, including a detailed description of each of the key practical proposals for each maturity level. This document also includes a glossary for the alignment of the vocabulary used for all organizations involved.

·Implementation Guide: explains and guides the CERNE Model implementation process, including the goals, evidence, examples and tips to make this process more objective.

oCertification Documents: three documents describing the entire certification process regarding the CERNE Model, so that the incubators understand, in detail, the evidence that will be required by the auditors during the certification process:

·Executive Summary: focused on the stakeholders entities and incubators leaders, the document presents the principles and stages of the CERNE Model Certification, as well as the benefits that can be achieved by its compliance evaluation.

·Reference Term: aimed primarily at the incubators management teams, consultants and evaluators, this document presents details and types of the certification process, non-compliance types and the glossary.

·Certification Manual: aimed at the incubators management teams, consultants and evaluators, this document seeks to clarify how the CERNE Certification will be made, showing step by step the forms and requirements for its compliance evaluation.

•Training: training courses regarding the CERNE Model were held, with detailed explanation of the process of implementing of each of the practices of different maturity levels proposed by the model. In all, over the last three years, more than 1,000 incubator managers, consultants and evaluators were trained.
•Accredited Consultants: a process of accreditation of consultants was created so that the incubators could have increased security in hiring professionals to help with the implementation process of the CERNE Model.
•Approved Software: like the process for the consultants' accreditation, the ANPROTEC created a software approval process to assist in the process of implementation of the CERNE Model and to keep the incubator operation in line with the model.
•Accredited Auditors: to ensure an independent evaluation of the process implemented in each incubator, ANPROTEC held a training and selection process of auditors who will verify that the practices are implemented in accordance with the proposed CERNE Model.

CERNE: Certification Process

The CERNE Certification aims to verify if the incubator management system was implemented according to the requirements of the CERNE Model, according to the level of maturity selected.

The certification process was structured so that there is low variability of certification results. The goal is that two teams of evaluators reach the same results in terms of compliance of key practices implemented by the incubator and the evidence required by the CERNE Model.

It is important that incubators' management teams understand the certification process as an ally to improve their results as it clearly indicates the practices that do not comply with the defined model. In this sense, the certification process has four certification possible types:
•Preliminary Evaluation: the goal of this evaluation is not obtaining the Compliance Certificate regarding the CERNE Model, but to get an independent evaluation of the implementation status of the key practices of the desired maturity level. Accordingly, the preliminary evaluation can be used by the incubator's manager to check if the incubator is already prepared for the certification process.

•Certification: aims to evaluate the level of compliance of the incubator in relation to the CERNE Model's key practices, issuing the Compliance Certificate according to the maturity level and the stages of evolution of the

selected practices. This certificate shall be issued only if the incubator can show that it has implemented all the evidence required by the key practices of the selected maturity level. Regardless of whether it is entitled to be issued with the Compliance Certificate or not, the incubator will receive an evaluator's report, indicating the level of compliance of each of the key practices regarding the CERNE Model. The Compliance Certificate will be valid for 24 months.

•Follow Up Certification: this type of certification can be requested when the incubator went through the Certification Process and where it was found that 20% or more of the key practices were not in compliance with the CERNE Model. Therefore, the incubator can request a Follow Up Certification, within 3 months of the Certification date, so that the Certification Organization can visit the incubator again and evaluate only those key practices that were non-compliant.

•Maintenance Certification: the purpose of this certification is to maintain the validity of the Compliance Certificate issued by a Certification Organization. In this sense, the incubator aims to keep up the same level of current maturity. Thus, this certification is requested, in general, when the period of validity of the Compliance Certificate is close to overdue. In this circumstance, the incubator requests a Maintenance Certification to get another 12 months of validity of the Compliance Certificate.

The implementation of the CERNE Certification follows a methodology composed of seven sequential and complementary phases, as shown in the following figure.

•Certification Request: a business incubator associated with ANPROTEC manifested, to a certification organization (accredited by the Association), the interest in having its incubation process evaluated regarding the CERNE Model. For this, the incubator must submit a set of documents and forms, defined by the certification organization.

•Documentation Evaluation: the forwarded documentation is evaluated by the certification organization to verify if the incubator is associated with ANPROTEC and if all the information requested were filled. This evaluation also includes an analysis of the clarity and quality of information sent by the incubator.

•Team Training Evaluation: after the evaluation of the documentation sent by the incubator, the certification organization defines the evaluation team that will perform the evaluation. Two evaluators will be appointed for each audit, one being the leader.

•Evaluation Planning: the evaluators team defined by the certification organization draws up the Evaluation Plan, which contains at least the date and the type of evaluation, in addition to the activities to be performed.

•Evaluation: on-site evaluation of conformity of the key practices implemented by the incubator regarding the defined CERNE Model. During the audit, the team of evaluators will look for evidences that demonstrate this compliance.

•Technical Issue Report: the evaluation team prepares a technical report explaining the level of compliance of each practice key assessed in relation to the defined CERNE Model.

•Compliance Certificate Issue: if the evaluators team has verified all the evidence defined by CERNE Model, the certification organization issues a Compliance Certificate attesting that the incubator has implemented all the key practices of CERNE's level maturity and the selected progress stage.

Conclusion

The process of creation and implementation of the CERNE Model in Brazilian incubators has generated significant changes that directly impact the competitiveness of supported companies and the economy of the different regions of the country.
The construction of the model was done collaboratively with hundreds of managers from all regions of the country. This facilitated the managers' adoption of the model. Each year, ANPROTEC has monitored the evolution of the results of the incubators. What is observed is important positive changes, including the following:

a)Incubated Companies' Development: we can see a clear improvement in the type and range of services offered by incubators. Now there is a clear concern with the development of entrepreneurs, which goes beyond business. This is a direct result of CERNE, which has inserted the Entrepreneur axis in the development of incubated companies. This way, the development of business is more complete and comprehensive. Many managers reported that they used to offer services in a maximum of three areas: technology, market and management (those being the main ones).

b)Monitoring Incubated Companies: before CERNE, almost 2/3 of the incubators were not systematic monitoring the evolution of the incubated companies. With the implementation of CERNE, a very large mobilization towards implementing this practice (although most still in development) occurred. This has had immediate impact in the definition of the services provided and in the interaction with the incubatees as its evaluation process is clearer and more transparent.

c)Interaction with the Surrounding Areas: increasing awareness of the need to interact with other Innovation Ecosystem organizations in the region in order to promote the region's development through innovation started to be a stronger action in the direction of integrating the incubators operations with accelerators, coworking spaces, parks, universities, etc.

d)Management: there has been a significant improvement since the launch of CERNE. Incubators are seeking to improve financial managements, interacting more with the stakeholders. Additionally, there has been a great effort to structure a management team, with the maintenance of a manager working 40 hours.

e)Attraction of companies: although this was already a common practice of the incubators, the launch of CERNE induced the incubators to take a more proactive stance, seeking new business proposals, instead of waiting for it passively.

f)Selection: the big change here was the expansion of the importance of Innovation criteria. An important percentage of the incubators did not give sufficient attention to this criterion. The CERNE put innovation at the heart of the selection process.
Note, therefore, that the implementation of the CERNE Model put the Brazilian movement of incubators at higher-level results.