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Organizational and institutional change analysis: the case of Barcelona activa business incubator*

Geovanny Perdomo Charry**, José Arias-Pérez***, Nelson Enrique Lozada Barahona****

Abstract

Introduction. Business incubators play a key role in the development of regional economies that drive job creation, technological development and innovation. However, there is an evident lack of studies that examine successful experiences in detail. **Objective.** To analyze organizational and institutional change in the Barcelona Activa incubator (BA), in Spain. **Materials and methods.** The research is qualitative and a case study strategy, by means of document analysis and interviews, was used. **Results.** BA assumes that the traditional model of incubator may be not enough to ensure the takeoff and the sustainability of the new businesses. **Conclusions.** Incubators could become an agent of local development that plays an important role in the development of the regional innovation system, assuming additional functions such as the promotion of digital culture, technology transfer, early internationalization of enterprises, the creation of venture capital funds and the management of human talent. In addition, it contributes to the design of public policies on innovation and business development.

Keywords: business incubator, entrepreneurship, organizational studies, organizational change, institutional change.

**Análisis del cambio organizacional
e institucional: el caso de Barcelona
incubadora de negocios activa**

Resumen

Introducción. Las incubadoras de empresas

juegan un papel clave en el desarrollo de las economías regionales porque impulsan la creación de empleo, el desarrollo tecnológico y la innovación, sin embargo, es notoria la ausencia de estudios que examinen en detalle experiencias exitosas. **Objetivo.** Analizar el cambio organizacional e institucional de la incubadora Barcelona Activa (BA) en España. **Materiales y métodos.** La investigación es cualitativa y se empleó la estrategia del estudio de caso a partir del análisis documental y la realización de entrevistas. **Resultados.** BA asumió que el modelo tradicional de incubadora puede ser insuficiente para asegurar el despegue y la sostenibilidad de los nuevos negocios. **Conclusión.** Las incubadoras pueden convertirse en un agente de desarrollo local que juega un papel importante en el desarrollo del sistema regional de innovación, asumiendo funciones adicionales como el fomento de la cultura digital, la transferencia de tecnología, la internacionalización temprana de los emprendimientos, la creación de fondos de capital de riesgo y la gestión del talento humano, además de sus contribuciones al diseño de política pública de innovación y desarrollo empresarial.

Palabras claves: incubadora de empresas, emprendimiento, estudios organizacionales, cambio organizacional, cambio institucional.

**Análise do câmbio organizacional e
institucional: o caso de Barcelona
incubadora de negócios ativa**

Resumo

Introdução. As incubadoras de empresas jogam um papel importante no desenvolvimento das economias regionais porque impulsam a criação de emprego, o

* The research article is derived from the doctoral thesis: Analysis of Organizational and Institutional Change: a Comparative Study two incubators.

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desenvolvimento tecnológico e a inovação, porém, é notório a ausência de estudos que examinem em detalhe experiências exitosas. **Objetivo.** Analisar o câmbio organizacional e institucional da incubadora Barcelona Ativa (BA) em Espanha. **Materiais e métodos.** A investigação é qualitativa e se utilizou a estratégia do estudo de caso a partir da análise documental e a realização de entrevistas. **Resultados.** BA assumiu que o modelo tradicional de incubadora pode ser insuficiente para assegurar o despegue e a sustentabilidade dos novos negócios ademais. **Conclusão.** As incubadoras eles podem converte-se um agente de desenvolvimento local que

joga um papel importante no desenvolvimento do sistema regional de inovação, assumindo funções adicionais como o fomento da cultura digital, a transferência de tecnologia, a internacionalização precoce dos empreendimentos, a criação de fundos de capital de risco e a gestão do talento humano, ademais de suas contribuições ao desenho de política pública de inovação e desenvolvimento empresarial.

Palavras chaves: incubadora de empresas, empreendimento, estudos organizacionais, câmbio organizacional, câmbio institucional.

Introduction

The organizational and institutional context of the research issue is, from one point of view, associated to the change in business incubators (this one seen as an organizational phenomenon) and, from another, to the structural changes in the economy. The latter is relevant along with social dynamics and the political interrelationships of the State institutions which, in the case of Spain¹, are represented by the National System of Science, Technology and Innovation (NSST&I). Incubators belong to it, as organizations featuring certain conditions and characteristics.

Barcelona is ranked as the first city in business development and innovation processes, especially in the Government of Catalonia and Spain (GEM, 2014). It can even be noted that BA has been immersed in the transformation of this city, thanks to the relevance and representativeness it has, showing a certain level of development, evolution and a significant international impact in the field of entrepreneurship and, more specifically, in the incubation of technology-based new businesses and innovation. Indeed, BA was initially conceived as a local incubator that favored business greenhouse in general, but its

evolution has taken it to become a successful local development agency (OECD, 2009). It belongs to several technology parks promoted by itself. Its main contributions have caused an increase in the number of company births (624 incubated companies in 25 years of operation) and in the Entrepreneurial Activity Rate² (APR) in recent years (GEM, 2014).

Therefore, this research is aimed at studying the organizational and institutional changes BA has gone through. The research has also been conducted under the standards given by the NSST&I and the national programs for business creation and incubation. The study intends to comprehend, interpret and explain, from a multidisciplinary point of view, what those changes are and which interactions are there among the fostered companies, the incubator, the business - incubator network and the community. Consequently, six theoretical approaches have been selected leading to know, interpret and explain BA's organizational and institutional changes.

The first approach uses management to study the entrepreneurship field from the school of processes, particularly the analysis levels (the fostered companies, the incubator, the business - incubator network and the community) of

1 In this country, the Spanish Parliament approved the new Law on Science and Innovation in May 2011. It aims to improve the scientific and technical research and coordination tools. It tries to migrate from Law 13, 1986, on promotion and coordination of general scientific and technical research, to this new law on science and innovation. This one aims to establish a general framework for the promotion and coordination of scientific and technical research in order to contribute to sustainable development and social welfare, through the generation and dissemination of knowledge and innovation.

2 The APR in Barcelona was 6.7 % in 2009 and 8.3 % in 2010, very similar to those figures of Catalonia (6.4 % in 2009 and 8.7 % in 2010), but above Spain's average (5.1 % in 2009 and 4.3 % 2010).

business incubators (Allen & Rahman, 1985; Brooks, 1986; Kuratko & LaFollette, 1987; Smilor, 1987; Campbell, 1989; Udell, 1990; Allen & McCluskey, 1990; Hansen et al., 2000; Adegbite, 2001; Pena, 2004; Aernoudt, 2004; Tsai et al., 2009; Scillitoe & Chakrabarti, 2010; Liu et al., 2014). The second one emphasizes the concepts related to “organization-environment” and shows evidence of its proximity to the organization theory from the contingency theory. It can provide elements to analyze changes in business incubators since it is linked to the context as a restrictive element, namely, “a set of internal and external factors which limit but do not eliminate the decision capacity of the organizational actors as the context cannot be considered as a determiner of structures or even the way organizations operate as a problem” (Crozier & Friedberg, 1990).

The third one uses the new concept of sociological institutionalism, since it focuses on the relation environment-structure. This represents an advance regarding organizational knowledge developed by the contingency movement in two senses: the first one in the concept of organizational field and / or network and the second one in the concept of environment / organizational context. The fourth and fifth approach deal with the concept of organizational change based on Crozier and Friedberg (1990) postulates and institutional change based on organizational change from DiMaggio and Powell (1999). For the analysis of organizational change, the paper proposes the adaptation perspective and also as the focus of the analysis process since any change implies a new way to execute processes. For the analysis of institutional change, the paper adopts the comprehensive perspective and also uses it as the focus of the analysis. The last approach covers the public policies as configurations of the actors (Muller et al., 2006). Therefore, the decision making and the public policies configuration (as well as models and stages of new public management) are thought based on public policies concepts, the new public management and governance in institutional analysis.

Thus, this research work studies the organizational and institutional change BA (Barcelona, Spain) has experienced from 1986

to 2010 from a multidisciplinary framework analysis. The research tries to answer the following questions: Which disciplines favor studying BA's organizational and institutional change? What are the internal and external factors influencing BA's organizational and institutional change? Which national and regional business development policies and programs has BA incorporated? Which and how are BA's organizational and institutional changes and their interrelations regarding the transformations in the System of Science, Technology and Innovation in Barcelona, Spain? How does BA institutionalize those policies and programs in order to achieve organizational and institutional change?

Materials and Method

The empirical material of this research has been collected in a qualitative way, with information from some organizations in the regional and national systems of science, technology and innovation in Barcelona, Spain and BA (the name of the incubator), which is a practical example of what has been defined as a network of business incubation (Bollingtoft & Ulhoi, 2005; Hansen et al., 2000). BA does not lend start-up capital, nor offers professional business services (as traditional incubators do). However, it is fond of scale economies, cooperation and social interaction. According to the ideas presented in this paper and further similar contributions on this field (Stake, 1995); the analysis unit can be defined as a unit or program supporting new entrepreneurs. The selection of this case was based on validity criteria for case studies (Yin, 2003) and can be described as a technological and innovative-type incubator which has been transformed to get national and international reputation.

The empirical part in this research is based on data collected from a simple case study (Yin, 2003) in 2011 for a period of 5 months. During this time (under an agreement reached between the researcher and the incubator's head), a researcher worked two days a week at the incubator (from 4 to 8 hours a day). The data were collected by means of document revision, active observation and personal interviews with the fostered companies, with the network

incubator's managers and employees, and observations and participations in meetings and other diverse events, as well as access to archived documentation. Due to confidentiality issues, the names of the incubator's employees have been changed.

Research of BA's network and its innovative environment was based on the following sources and situations: The network activities related to the organizations and companies were researched through document revision and interviews to nine technology and innovation-typed companies which had been fostered for ten years (three companies which had been there for three years; three companies in the technological park "Nord" established four years ago; and three companies established out of BA). The interviewed people and the activities related to the network within the incubator were studied during the various encounters. On the other hand, four BA employees and two managers were interviewed in order to know their appraisal and perception.

Cased studies have many advantages due to the fact that they have a structured participation protocol (Yin, 2003). The protocol is more than just a simple questionnaire or an instrument including norms and procedures for guiding the study; it helps to the validity and the reliability on the collected information. This case study is based on analyzing documents (legal framework and documents from the organization), the interviews and the participant observation which are later systematized in the project and in the case's report, through qualitative analysis software.

Results and disccucion

Tridimensional analysis of BA's organizational and institutional change

The analysis presented here provides solutions to each of the objectives determined in the research, it also shows the different findings in the levels and analysis categories leading to

elaborate analytical connections among each of the dimensions exposed.

Dimension: objectives analysis

The results exposed here answer the five questions posed in the introduction. They start from the construction of the analytical multidisciplinary framework that integrates different theoretical perspectives for analyzing BA's organizational and institutional change, structures, categories and analysis levels defined by each perspective in order to comprehend, interpret and explain the origin, transformation and the change, in a four steps chronological way: Genesis (1986-1991), adolescence (1992-1999), adulthood (2000 – 2003) and maturity (2004 up to the present), according to the historical description proposed by Hoffman (2001) and Eshun (2004). However, before presenting these findings, it is necessary to determine the object of study in Barcelona, Spain, to later outline BA's main features and roles.

From the beginning, the city's strategic planning process took into consideration the regional innovation system's³ configuration and BA's creation, economic and technical support. This was made through increasing investment in science, technology and innovation (ST&I) and entrepreneurial development over the country's average (from 0.9 % in 1996 to 1.68 % from the country's GDP in 2009). The economic support BA received contributed to its transformation. From being a business incubator in 1986, it became a local development agency in 1992 (Table 1).

The previous table showed the current resources and services offered by BA. However, in order to get more accurate information about its evolution, it is necessary to chronologically present it's main changes and transformations regarding it's social object, activities, products and services, supporting resources, and the changes it has experienced regarding Barcelona's social and productive contexts (including Barcelona's town hall's intervention). The tables 2 and 3 show this.

3 The Spanish and the Catalan innovation system have defined who manages supports and executes public policies regarding ST&I and industrial development. For example, BA executes entrepreneurial, innovation, access to employment, digital culture and management human resources in Barcelona.

Questions two and three ask about internal and external factors and the policies and developing and innovation programs influencing BA. A change and transformation in the national

environment were found during the same periods of time established for the research. The following table summarizes those findings.

Table 1. Description of Barcelona Activa's resource and service offer

Questions	Description	
By which means do you offer your services? Three (3) types of resources and services	<p>1) Online contents: Digital tools and contents to create a business and make it grow (www.barcelonanetactiva.com).</p> <p>2) Innovative environments: Up to date technologies and HR consultancy services.</p> <p>3) Personalized activities: Basic and advanced entrepreneurial training.</p>	
By which means do you offer your services? Five (5) types of activities or intervention axes	1. Business creation	<p>This entrepreneur center is 1.652 m² big and is dedicated to business spirited people; it is composed by 50 workstations fully equipped (computers, broadband, printers, Wifi), 4 conference rooms, 1 auditorium for 100 people, a meeting room and a pre-incubation space.</p> <p>It offers: a) itinerary for business creation; b) assistance programs; c) Access to credits; d) tailored programs (personalized) and e) computer tools and applications.</p>
	2. Entrepreneurial Knowledge	<p>The following apparatus help developing this specific activity: a) Glòries business incubator; b) The Barcelona Nord technology park and c) temporary spaces.</p> <p>The previous facilities offer the following services: a) Business management and strategy; b) internationalization; c) business cooperation –Xarxactiva business network- and d), access to credit. Complementary services are oriented to attracting human talent to the city (Do it in Barcelona!), business cooperation, national and international networking and knowledge transfer of the model.</p>
	3. Human resources and management	These activities are offered through Porta 22, a reference center for new jobs and occupations, emerging sectors and transformation. It develops three fundamental aspects integrated by training, orientation and acknowledgement processes:
	4. Access to high quality employment	<p>a) Identification and acknowledgement of professional profiles: motivation, new opportunities, career counseling, etc.</p> <p>b) Career counseling for the new generations: personalized itinerary, training in occupations, job search, internships, workshops, etc.</p> <p>c) Improvement of professional competences: labor experience, labor and social insertion, training etc.</p>
	5. Digital culture	<p>This activity is composed by two main aspects. The first one is oriented towards digital literacy through the “<i>Iniciate</i>” program; the second one, towards professionalization through the “<i>Crece</i>” program. The tools used to carry out these programs are: a) CIBERNÀRIUM (“<i>Iniciate</i>” program), b) 10 antenae CIBERNÀRIUM libraries INÍCIATE (“<i>Iniciate</i>” program), and c) MEDIA-TIC con crece más EXPERTISE (“<i>Crece</i>” program).</p>
Who are the courses and services offered to?	The five lines or intervention axes are offered to all kinds of business spirited people in Barcelona.	

Source: Own elaboration

Table 2. BA's Chronological stages 1986-2010

Aspect	Genesis (1986-1991)	Adolescence (1992-1999)	Adulthood (2000-2003)	Maturity (2004-2010)
Type of organization	<i>Business Incubator</i>	<i>Local development agency</i>	<i>Local development agency</i>	<i>Development agency as an innovative environment</i>
Social Object	Promoting high quality jobs and the creation of innovative companies.	Assist the transformation of Barcelona as a key entrepreneurial, business growth, innovation, human talent and quality employment initiative.		
Activities	<ul style="list-style-type: none"> • Business creation • Business growth 	<ul style="list-style-type: none"> • Business creation • Business growth • Access to employment 	<ul style="list-style-type: none"> • Business creation • Business growth • Access to employment • Economic development • Digital Culture 	<ul style="list-style-type: none"> • Business creation • Business growth • Access to employment • Economic development • Digital Culture • Human talent management • Technological transfer
Products and services	<ul style="list-style-type: none"> • Entrepreneur supporting program and business incubator • Business Entrepreneur woman program 	<ul style="list-style-type: none"> • Entrepreneurship and incubation program • Facilities and high caliber human talent available • Diverse training programs 	<ul style="list-style-type: none"> • Entrepreneur initiative and incubation • Facilities, human talent available on site and virtually • Personalized programs • Support networks and cooperation 	Own mixed innovative model which includes the facility network, on site and online assistance
Historical milestones	<ul style="list-style-type: none"> • BA was created in 1986 as Business Incubator "Glories" • BA led the ODAME (entrepreneur women) program in 1986 	<ul style="list-style-type: none"> • BA created the workshop schools program to access employment in 1994 • BA got in charge of Barcelona's economic promotion in 1996 • BA created the Occupation Barcelona Entrepreneurship Awards. 	<ul style="list-style-type: none"> • BA set the first virtual incubator in Europe called BarcelonaNetactiva in 1999 • BA created Cibernàrium in 1999, in order to promote digital culture • BA established "The Entrepreneur's Day" in 2001 • BA implements "Barcelona Business" to promote the city's economy in 2003 • BA created the Center for the Entrepreneurial Initiative in 2003. 	<ul style="list-style-type: none"> • BA started its personalized training programs in 2003 • BA created the Porta22 program in 2004; a place for new jobs • BA created the Nord Technology Park in 2005; a park for entrepreneurial development and internationalization • BA created the Nou Barris Technology Park in 2010; a university spin off

Aspect	Genesis (1986-1991)	Adolescence (1992-1999)	Adulthood (2000-2003)	Maturity (2004-2010)
Main Changes	<ul style="list-style-type: none"> • INEM allocated a certain percentage to create BA. • BA signed alliances with other European employment promotion programs in order to find economic support • Transition from an employment culture to a business creation one. • First and only organization carrying out incubation activities. • BA establishes relations with private entities and universities 	<ul style="list-style-type: none"> • BA becomes a local development agency. • BA leads the transition from a traditional economy to a technology and services economy. • Structural change of both activities; BA's key to promote access to employment. • BA starts its incubation activities. • BA starts its career counseling activities. • BA inserts training and an entrepreneurship culture in the environment. 	<ul style="list-style-type: none"> • BA becomes the main promoter of innovative environments in the city • BA configures and starts its mixed innovative model. • BA becomes the heart of innovation and entrepreneurial initiative networks in the city. • BA merge the Center for the entrepreneurial initiative and the Glòries incubator to form one facility. 	<ul style="list-style-type: none"> • BA creates a new incubation environment for business and their growth and internationalization: the Park Nord. • BA creates a risk capital business: Barcelona Emprén. • BA validates and consolidates its mixed innovative model • BA consolidates its national and international cooperation networks. • BA becomes an international referent for business creation and incubation. • BA starts a knowledge transfer process of its model. • Due to the crisis, BA starts copayment of some resources and services.

Source: Own elaboration

Table 3. Chronology of the factors, policies and programs in Barcelona and their incidence in BA

Aspect	Genesis (1986-1991)	Adolescence (1992-1999)	Adulthood (2000-2003)	Maturity (2004-2010)
Internal Factors	<ul style="list-style-type: none"> • Basic resources and services (HR incubation model, facilities) • Response to change (from employment to entrepreneurship) 	<ul style="list-style-type: none"> • Superior resources and services • BA's transformation • Strategic alliances • Operation of innovation and entrepreneurial programs • Location and facilities • Training and communication 	<ul style="list-style-type: none"> • Specialized resources and services (legal and finance assistance) • Mixed innovative model (on site and online) • Business, work, support, facility and finance networks 	<ul style="list-style-type: none"> • Personalized resources and services • Organizational assets (brand name, reputation etc) • Innovative environment • Innovation district • Spaces for negotiation and strategies • Technology transfer

Aspect	Genesis (1986-1991)	Adolescence (1992-1999)	Adulthood (2000-2003)	Maturity (2004-2010)
External Factors	<ul style="list-style-type: none"> Governmental Policies Economic Crisis Socio political change Resistance to change 	<ul style="list-style-type: none"> Governmental autonomous policies Socio economic conditions Entrepreneurial knowledge and skills Technological change 	<ul style="list-style-type: none"> Government policies and programs Ciudad de Negocios (City of Business) Entrepreneurial knowledge and skills Other supporting services 	<ul style="list-style-type: none"> Co-creation of Governmental Policies and programs Ciudad del conocimiento (City of Knowledge). Entrepreneurial culture Entrepreneurship and innovation ecosystem
External Factors	<ul style="list-style-type: none"> Spain enters the European Union City's strategic plan 	<ul style="list-style-type: none"> Metropolitan Strategic Planning Olympic Games organization. Economic support from Europe 	<ul style="list-style-type: none"> Changes in the entrepreneurial environment. Regional innovation system. Institutional Adaptation 	<ul style="list-style-type: none"> Economic crisis New economic development model. Institutional obstacles for business creation. Stable government (30 years).
Policies	<ul style="list-style-type: none"> <i>Internal action</i> is the investment policy in structure aspects and complementary services. Business development is linked to local job initiatives. 	<ul style="list-style-type: none"> <i>External action</i> deals with the actors' proximity, the strategic perspective and the relationships among the actors. Entrepreneurial development is oriented towards business promotion 	<ul style="list-style-type: none"> Balanced action (internal and external), deals with the economic promotion and the social wealth of the autonomous community from local endogenous development models. Business development policies are directly linked to the city, the region and country's economic development. 	
Programs	<ul style="list-style-type: none"> Support network generation, labor reinsercion and self-employment promotion. Barcelona's Central Strategic Plan objectives were to consolidate the city as an entrepreneurship metropolis in Europe. 	<ul style="list-style-type: none"> Fortifying the logistics and facilities for entrepreneurial development. Technological Innovation Capacity for creating new job opportunities Generating new added value activities. Sustained industrial productivity. 	<ul style="list-style-type: none"> Generate, attract and retain creative human talent through agreements and high quality job. Links between the production system and education. Entrepreneurial skills The public sector as a promoting agent of R&D + I production activities. Institutional coordination through a metropolitan economic promotion agency. Technological infrastructure and knowledge regarding the global environment. 	<ul style="list-style-type: none"> Fundamentals for La Ciudad del Conocimiento (City of Knowledge) Labor market in the metropolitan area. Entrepreneur spirit and new economic activities creation like innovative and creative business. The City's Educational Project leading to educate leaders and entrepreneurs. Knowledge, finance and technological transfer infrastructure. Barcelona digital SME's internationalization. BizBarcelona, as an innovation and entrepreneurship zone.

Source: own elaboration

Even policies and programs have behaved in the same way factors have. The dynamics of BA and Barcelona's transformation and change has been linked to permanent organizational adaptation to the environment. Some examples of this are the mentioned programs: Woman Entrepreneur, innovation and entrepreneurship, business creation and incubation, SMEs' internationalization, "BizBarcelona", "Barcelona Business", "Do it in Barcelona", "Porta22", "Distrito 22", Cibernarium, workshop school, Occupation Barcelona Entrepreneurship Awards and "Entrepreneur's Day". These and other activities have been institutionalized with time, thanks to the innovative environment generated by BA, Barcelona's City Hall and Generalitat de Catalunya.

Dimension: levels of analysis

Among the results obtained by the four levels of analysis defined in this research (Fostered company, Incubator, Network and Community), we find the aspects characterizing BA's profile, experience and typology, chronologically showing its various changes and transformations: genesis, adolescence, adulthood and maturity (table 4).

Dimension: Analysis categories

The main categories for this analysis are based, first of all, on entrepreneurial analysis from the school of processes. This school centers on the individual in a dialogic relation between personal development and economic value creation (Pereira, 2007). This approach is evident in BA not only due to the incubation process continuity but also because, according to the interviewed entrepreneurs, there is a close relation between their personal and professional development. BA has supported them since the beginning at their Center for Entrepreneurial Initiatives. Secondly, the previously mentioned internal and external factors limit but do not eliminate the choosing capacity of the organizational actors (Crozier & Friedberg, 1990). Some external factors like the governmental policies, the supporting measures and the financial support to entrepreneurs have limited the actors' capacity but, at the same time, they have generated the

possibility of creating new ways of overcoming these barriers through new resources, services and organizational skills which strengthen the process (for instance, new financing programs and legal assistance: Barcelona Emprénde, a risk capital company).

The third category analyses BA's organizational change during 25 years. It reassures that this change and transformation process has been created collectively by the fostered company (Crozier & Friedberg, 1990), the incubator, the network and the community. The articulation and operation of the Center for entrepreneurial initiatives, the Glories incubator, the creation of Nord technological park and the design implementation and validation of the Mixed Innovation model, among others, support the changes. The fourth analysis category shows that Barcelona's economic and business community and BA have evolved and become a key factor to understand their own historical change. For example, BA's transformation of becoming a local development agency is valued by the members of BA as an innovation environment molding the city's entrepreneurial ecosystem.

The last category deals with policies and programs which have also changed. At the beginning they were promoted, supported and implemented by the State but, through time, they are now co-created by public and private actors for local development. This mechanism of creating and executing policies and programs can be seen expressed at BA's Board of Directors, where all the actors of the ecosystem are present. It strengthens the City town hall and Generalitat's improvement in terms of governance (Ramírez, Vargas & De la Rosa, 2011) since one of the main competent actors required is the government (as well as the productive sector, universities, the chambers of commerce, etc).

Finally, the *analytical connections* shown are related to the entrepreneurial and innovation factors, policies and programs, since they are considered a key external factor to generate an entrepreneurial culture in the city. Equally, the different internal factors have been influenced by external ones such as the technological change, the economic crisis, the reluctance to change and the financial support measures, among others.

Table 4. Evolution of the aspects in BA's analysis levels

Level of Analysis	Aspects	Genesis (1986-1991)	Adolescence (1992-1999)	Adulthood (2000-2003)	Maturity (2004-2010)
Fostered company	Entrepreneur's Profile	<ul style="list-style-type: none"> • Technicians and / or professionals • 30 to 40 years old • Not much labor experience required 	<ul style="list-style-type: none"> • Professionals • 30 to 40 years old • Some labor experience required 	<ul style="list-style-type: none"> • Graduate Professionals • 25 to 40 years old • Extensive work experience required • Competent in two languages • Trained in entrepreneurship 	
	Company's profile	<ul style="list-style-type: none"> • Technology company (TC) • Average of 2.5 entrepreneurs • Average of 3.1 employees • Located in 4 sectors 	<ul style="list-style-type: none"> • TC and innovation • Average of 2.8 entrepreneurs • Average of 3.4 employees • Located in 6 strategic sectors 	<ul style="list-style-type: none"> • TC, innovative, creative • Average of 3.1 entrepreneurs per company • Average of 4.1 employees • Located in 12 strategic sectors of the city 	
Incubator	Incubator's profile	<ul style="list-style-type: none"> • 35 incubated companies • Specialized incubator 	<ul style="list-style-type: none"> • 350 incubated companies. • Local development agency. • Incubation activity 	<ul style="list-style-type: none"> • 259 incubated companies • Local development agency. • Specialized and virtual incubation activity • Innovative environment 	
	Incubation process	<ul style="list-style-type: none"> • Traditional incubation process (pre-incubation, incubation and post incubation) 	<ul style="list-style-type: none"> • Traditional incubation process (pre-incubation, incubation and post incubation) 	<ul style="list-style-type: none"> • Mixed incubation model (on site and online). • Entrepreneurial acceleration. • Internationalization of companies 	
	Incubator's trajectory	<ul style="list-style-type: none"> • Business creation • Business growth 	<ul style="list-style-type: none"> • Business creation • Business growth • Access to employment 	<ul style="list-style-type: none"> • Business creation • Business growth • Access to employment • Digital culture • Human talent management 	
Network	Typology	Allied incubator	Network incubator	BA as the main network: <ul style="list-style-type: none"> - Business network - Support network (consultants). - Finance network - Facility network 	
Community	Innovative network	BA as business incubator	BA as local development agency; it develops incubation activities	BA as innovative environment: <ul style="list-style-type: none"> - Centers for entrepreneurial initiative. - Technology parks - Technology bridges, etc 	
	Innovation and entrepreneurs-hip ecosystem	Innovation, Technology and Science National System	Innovation, Technology and Science regional system	Entrepreneurship ecosystem	Innovation ecosystem

Source: own elaboration

Conclusions

The theoretical and empirical evidence in this research work supports our initial questionings concerning the five categories

(entrepreneurship processes, internal and external factors, policies and programs, organizational change and institutional change). We consider that the *raison d'être* of change analysis is based on the capacity of developing

collective actions improving entrepreneurship particularly business incubation. Behind question 1, there is the capacity of researchers for studying, selecting, adopting and integrating the perspectives into wider theoretical analytical and multidisciplinary frameworks; these lead to know, interpret and explain change (in business incubators) in a holistic way. The previous theoretical interaction was useful to explain, in a complementary way, the factors, policies and programs, the entrepreneurial process, organizational and institutional change and their level of incorporation and institutionalization into BA's innovative environment.

The reasoning to question number 2 comes from outlining that internal and external factors have changed and evolved towards an organized construction and towards conjoint governance of the collective actions between the actors and the system. From another point of view, factors limit but do not eliminate the choosing option of the organizational actors. It is reflected in the responses of Barcelona's Town Hall and BA to changes, BA's adaptation to the environment and vice versa, innovation in BA's assistance model and the creation of an adequate innovative context for entrepreneurship.

The reasoning behind question number 3 lies in stating that one of the external key factors for entrepreneurial development and innovation in a determined context are the governmental policies and programs. At the beginning, they were issued from the system towards the actors; however, nowadays it is conceived as a collective construction and distributed among public and private sectors from the lowest organizational level to the highest ones and vice versa. A clear example of this situation is the creation of new technology parks, the "Center for Entrepreneurial Initiatives" (Center for entrepreneurial initiatives), co-financing technological research, the "Day of the Entrepreneur" and many other activities which have emerged from the incubator's (fostered companies, incubator, network, community) needs and requirements.

The reasoning behind question 4 shows that the most significant changes experienced by BA are its transformation into a local development agency (without ignoring the incubation

activity), stretching the activities of this agency, the generation of the entrepreneurial culture, the offer and demand of products and services, the positioning of the innovative environment, virtual incubation, entrepreneurial acceleration, business development policy and program co-creation and innovation in BA's mixed customer service model.

The reasoning behind question 5 shows the ways and the means BA has used to transit from a bureaucratic style into self-management and governance of the system's actors. BA has incorporated and institutionalized the policies and programs in such way due to the financial and technical support it has received since the beginning from the City's Town Hall; BA has also handled how to anticipate to national and international environment changes by proposing innovative schemes of assistance to business spirited people. On the other hand, the main contribution of the paper is on the methodological aspect, because the case study was mainly articulated with the theory of organizational and institutional change to analyze chronological transformations of a successful business incubator at four levels of analysis.

Future research should consider these innovative models' further development, their configuration and impact, their transformation and changes through time. Besides, future research should include comparative studies on business incubators in different countries and on the relations and interactions among fostered companies – incubators - networks – communities. These multiple levels of analysis would offer valuable information on the incubation process (Hackett & Dilts 2004).

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