# ASSESSING THE BUSINESS INCUBATORS' PERFORMANCE REFERRING THE LOCAL DEVELOPMENT IN ITALY

# Christian Corsi

Assistant professor, University of Teramo, Italy

\*Daniela Di Berardino\*

Assistant professor, University of Chieti-Pescara, Italy

#### **Abstract**

Literature assign to business incubators an important role in promoting innovative entrepreneurship and economic growth. This study investigates the relationship between incubators performance and local development in Italy, focusing on those characteristics of regional contexts that enhance the role of incubators. Using a sample of 162 incubators, the regional economic index for 18 regions and the performance data for 405 new technology ventures located within these regions, we show that the local context features play a positive effect on the incubators performance. The nature of founders team of incubators is also important to implement effective entrepreneurial initiatives, while the sectorial specialization isn't an essential requirement for the success of NTVs. Different factors of local context contribute positively to generate an environment that enhance the incubators' activities.

**Keywords:**Incubators, new technology ventures, regional context, geographic proximity, performance

# Introduction

Science parks, incubators, technology clusters and technopoles 26 have become a growing phenomenon that attracts the attention of several financing programs and researches. These organizations provide social, technological, managerial and financial resources for the start up phase of a new venture that transform a technology-based business idea into an innovative firm. However, literature shows that new technology ventures (NTVs) are highly vulnerable and fail in few years after the incubation phase (O'Shea and Stevens, 1998; Zahra and Covin, 1993) due to the high financial needs, the commercial efforts in markets niche and the lack of managerial competences. Literature on this topic can be divided in different issues (Phan et al., 2005): those studies that analyze the performance and the features of incubators (Rothaermel and Thursby, 2005; Bigliardi et al., 2006; Scilitoe and Chakrabarti, 2010; Löfsten and Lindelöf, 2003); those that focus on entrepreneurial activities that derived from these intermediaries (Grandi and Grimaldi, 2005); those that attempt to provide an assessment of the incubated firms, their performance and the entrepreneurial orientation of their founders (Almus and Nerlinger, 1999; Ferguson and Olofsson, 2004). Several studies criticize the use of the rate of firm survival as variable that explain the performance of incubators (Monck et al., 1988; Siegel et al., 2003; Barbero et al., 2012) preferring the local

<sup>&</sup>lt;sup>26</sup>In this paper we refer to the broader concept of incubator by including in it also the categories of science parks, technopole or innovation pole and technology clusters. Although the research has been conducted jointly, is shown below the parts relating to Christian Corsi and Daniela Di Berardino: Christian Corsi: sections 3, 4, 5.1, 6; Daniela Di Berardino: sections 1,2,5, 5.2.

development indexes or the market success of tenured ventures, the employment growth or innovation delivered, because the survival of incubated start-ups does not necessarily imply their development (Oloffson and Wahlbin, 1993). Other studies shows that a regional economy may benefit from the presence of incubators, specialized universities research centers and from the genesis of NTVs that interact with mature firms (Patton and Kenney, 2010; Sternberg, 2014). In the other way, regional context may contribute to the knowledge transfer between producers and users of technology and so enable the role of incubators and their performance. Supporting the creation and the growth of innovative ventures is therefore becoming one of the priority policies for emergent economy and countries with a weak innovation system. This research aims at analyzing the relationship between the development of the context and the performance of incubators located in it, specifically, among the characteristics of context and the ability of incubators to promote local development and the generation of new ventures with good performance. To this purpose, the research is based on a sample of 162 Italian incubators, broadly understood, recorded on the 31st of December 2013 and located in 18 regions, in relation to which some ISTAT territorial indicators have been extracted, according to important characteristics of the local productive and innovative system.

#### The business incubators and the generation of NTVs

Science parks, incubators, technology clusters and innovation pole play an important role in supporting the start-up of new innovative firms, promoting partnerships between university and industry, facilitating the transfer of technology and competencies useful for the market. Specifically, the incubator is a business initiative that promotes and supports the generation of new technology enterprises, delivers managerial services and physical spaces, provides an environment where small ventures may interact with external partners. Frequently the incubator is developed within university departments or laboratories o within the science park area. Science and technology parks may develop into innovation pole or technology clusters and, in these case, they play an important role in promoting a cooperative environment between new and mature firms, knowledge producers and users, experts and young entrepreneurs and support the sharing of best practices among firms. In the paper we refer to the term of incubator for describes the role of these intermediaries. The main advantage that literature assigns to those entities is given by cost and time reductions to start up a new venture and the added value of transferred competences, outcomes that will favor an increased survival rate of new technology ventures (NTVs) on the market and their faster growth. However, there are few confirmations of the effectiveness of this business action, especially in the long time (Ferguson and Olofsson, 2004; Squicciarini, 2009), where the effectiveness is to be understood in terms of creating performing firms that are capable of giving their contribution to the socio-economic development of the area where they operate. The incubators have usually been analyzed as a tool of regional development policy (Siegel et al., 2003; Rathino and Henriques, 2010) and, in this respect, literature measure incubators' performance focusing on the regional economic impact (Allen and McCluskey, 1990; Lundvall et al., 2002; Carayannis and von Zedtwitz, 2005; Rooney et al., 2005) and choosing these variables: new job creation, new ventures ratio, tenant sales, patent applications and other measures associated to regional innovation (Mian, 1996; Colombo and Delmastro, 2002). The regional entrepreneurial context is important for implementation of successfully incubators. Previous studies on Italian incubators investigate the characteristics and the performance of on-park firms and out-of-park ventures (Colombo and Delmastro, 2002; Bigliardi et al., 2006; Squicciarini, 2012; Salvador, 2011) Colombo and Delmastro (2002) show that on-park firms present an higher growth rate and perform better in term of innovation. Squicciarini (2012) find that tenant ventures present a comparatively better

performance in innovation outcome, but during the life cycle there are a common tendency to reduce patenting. Bigliardi et al. (2006) find some determinant factors for incubators' performance: the characteristics of regional context, the stakeholders interests, the legal form of incubators and the knowledge sharing between incubator and university. In this study the authors propose a performance measurement model for incubators, based on these elements: patrimonial structure, internal development, impact on territory; economic and financial measures. Other studies observe the type of services offered to new firms and the strategies employed by their management teams (Grimaldi and Grandi, 2005) and attempt that the real mission of incubator play an important role in the consequent strategies and policies adopted. To evaluate the effectiveness of incubators, especially in the case of public or mixed intermediaries, in this paper we highlight their ability to contribute to the development of a robust and innovative business system, in order to assess the suitability of public investments in this direction. We consider that the different nature of the incubators' shareholders may have an influence on the several directions of development. While the presence of universities can increase the chances of transferring innovative knowledge into contexts with a weak technological development (Colombo et al., 2010; Muscio, 2010), the participation of financial institutes and venture capitalists could improve the creditworthiness of NTVs, as well as the proximity to other mature firms which could promote an easier access to the end markets. Based on these considerations, it can be postulated that the geographic proximity to incubators (hp1) and the nature of their shareholders, specially financial institutions, (hp2) may positive influence the performance of NTVs.

# The role of regional context

The role played by business incubators as business activators in a local setting (Aernoudt 2004; Mian, 1996) and drivers of its economic growth (Markley and McNamara 1996), as well as their own development, in turn depend on the features and extent of the same local setting where they are located, which either support or hinder their full development and growth. In this regard, literature lacks a theoretical reference framework concerning the underlying reasons for the differences arising in the development of business incubators and the greater presence of the latter in different geographical settings. More generally, literature provides few in-depth assessments of the crucial factors accounting for their development, effectiveness and performance (Ghasemizad et al. 2011; Ghasemizad, 2009). However, a few studies (Autio and Klofsten, 1998, Ketchen et al., 1993, Weinberg et al., 2005) point out the role played by external factors and their effects on business incubators. Within this scope, Ghasemizad (2009) states that those non-organizational determiners can positively affect incubator effectiveness and development. In order to expound the topic in greater depth, the existing studies on innovation and entrepreneurship geography as well as structural and economic theories are worth noting. In this regard, business incubator development is affected by such factors as tax burdens and the local financial market drive (Bartik 1989), which hint at a flexible structural setting allowing high regional growth levels, while enabling full business development and the creation of startups, especially SME agglomerates (Qian et al., 2009). Therefore, an incubator located in an innovative setting, with plenty of opportunities to interact with local businesses and access many diverse infrastructural and business resources, is more likely to succeed and develop (Hackett and Dilts, 2004, Teece and Pisano, 1994; Albert and Gaynor, 2006).

Another equally significant determiner is the business culture found in a given geographical area, which is actualized in local venture capital initiatives, company capital development and business support services as well as the knowledge arising from local university research. The latter factor is crucial, as the role newly played by university in stimulating entrepreneurship (Etzkowitz et al., 2000; Powers, 2004; Slaughter and Leslie,

1997; Meyer, 2003; Shane, 2004; Smilor et al., 1993) favours regional infrastructural development, such as scientific parks and incubators (Etzkowitz, 2006; Etzkowitz and Zhou, 2006; Gunasekara 2006; Huggins and Johnston, 2009). The above-mentioned aspects are closely linked to the knowledge spill-over theory of entrepreneurship (Audretsch, 1995; Acs et al., 2009), which improves business opportunities and supports human capital, thus typifying different geographical settings (Lee et al 2004.; Acs and Armington, 2006). The entrepreneurial behaviour adopted in a region is closely linked to business culture and represents a context determiner - though personal because it is attributed to entrepreneurs which evidently affects business incubator development and success by contributing to the effectiveness and performance of the business activities and the growth of locally incubated businesses (Rice, 2002; Christensen et al., 2010). Furthermore, consistently with institutional theory, incubator development is greatly affected by legal policies and local authority, government and university support (Eisenhardt, 1989; Scott, 2005). Indeed, most incubators are non-profit, and incubators and other business facilitators (such as scientific parks) often arise from public/private partnerships, which means that the entities involved (such as community, regional and state government authorities) greatly affect their missions and operational procedures (Phan et al., 2005). More specifically, incubators appear to draw their resources from the local regional system (government, market and other businesses), but those processes are not always mediated by market factors due to their nature, whereby they are subject to political interests in managing the funds provided for their support. Political trends and trend-setters in local authorities therefore play an essential role in their development (Lendner and Dowling, 2003). Regional policies, mediated by state government, are also crucial in stimulating and accelerating regional economic growth and (O'Gorman and Kautonen, 2001), so that incubators become the main entrepreneurship instrument to achieve that purpose. Besides the above-mentioned remarks, in a study on the Helsinki region, Finland, Abetti (2004) comments that public policies as well as educational institutions (universities and research centres) and regional and local business entities can play a successful role in the development of new incubators and high-tech businesses in order to be proactive and create a successful learning setting rather than reactive against market failure, by strategic funding and investments. The above-mentioned conditions contribute to creating an ideal setting to stimulate entrepreneurial initiatives, especially technology-based ones, and subsequently lay the foundations to start business incubator activities.

#### Data and method

The empirical analysis is based on a a statistic model, focused on business incubators features and a particular type of NTVs: the academic spin-offs. Primary data on NTVs were extracted from NETVAL database (www.netval.it) and universities websites on 31 December 2013; we assed a sample of 405 active Italian academic spin offs, equal to 54.21% of the population identified, divided into geographical macro-area clusters (North - Central - South). Secondary data collection was performed from several sources and refer to the financial statements (Infocamere, AidaBvdep) of academic spin offs. Information regarding the 167 national business incubators were gathered from institutionally websites of universities, of MIUR (Ministry of Education, University and Research), of the regional authorities and private business incubators. Data concerning the incubators' performance consider the NTVs established in the regional area, collected by the Italian National Institute of Statistics database (ISTAT) and the economic and financial performance of NTVs, measured by ROE and Current Liquidity Ratio (CLR). Input data referring to the local socio-economic context was processed through Pearson's bivariate analysis on these variables structured for single regional department: company competiveness degree, corporate demographics, risk degree in

the capital markets and, finally, industrial innovation and research dynamism. The competiveness degree is described by three variables: capital accumulation intensity (%Acc\_capital) as a percentage of gross fixed investment out of GDP percentage; company service development capacity (%Busserv), as a percentage of work units in the company service sector out of total AWUs of retail services; industrial added value (Ind\_VA) which expressed production and distribution capital gain at chained industry prices in million Euros. Corporate demographics was measured by the gross registration rate in the National Companies Register (%Buss\_gross\_enrol) and the latter expressing the net registration rate in the same register (%Buss\_net\_enrol). The capital market is described via a variable measuring funding risk (%Financrisk) as funding decay percentage. Finally, three variables are used to explain the scientific research and innovation level present on the local context: the company R&D spending rate (%Buss\_R&D) ,expressed as GDP percentage of Research & Development expenditures (both public and private); the innovation (%Innovation\_resexp), expressed as GDP percentage of intramural expenditures born by public administration, Universities and public and private entities for Research & Development activities; the R&D personnel rate within the NTVs (N\_R&DStaff). Information on incubators, concerning the nature and features of this entities, are described by these variables: Incub\_gen (% of general incubators per area), Incub\_mixpublic (mixedpublic nature), Incub\_fininst (presence of financial institutions), Incub\_uni, (presence of universities), Industry (number of incubators specialized within specific sector), Aggregated (number of aggregated entities within the region i.e. pole and technology clusters), S&TI (number of incubators and science and technology parks) and Legal nature (profit or non profit oriented).

#### Results and discussion: incubators features

The empirical analysis collected a sample of 162 Italian incubators. In this sample, frequency distributions on the regional level (Table 1) appears to be homogeneous, even though a slightly higher prevalence of these entities can be observed in the northern regions. Most of these incubators are the result of public intervention, particularly by local authorities and regional development agencies and that indicates a prevalence of their non-profit character. If we consider the legal nature of these entities we identify a large part of non profit oriented incubators (59,88%) and only a few part (16,6%) with a private nature oriented to capital market for financial sourcing (spa). In the southern area, the presence of universities in incubators is significant; this leads to consider universities as a preferential tool for technology transfer from public research to the market. On the other hand, there is a weak participation in the share capital of incubators by financial institutions, primarily represented by banks, especially in the regions of the South. The predominantly public nature of those entities and their non-profit character may act as a deterrent to the attraction of financial partners, especially in the social and economic areas that are experiencing phases of stagnation. Science and Technology parks and incubators, in narrow sense, are the predominant entrepreneurial tools present in the northern regions, while in the south the 49,40% of this entities evolve into technopole and technology clusters. In the southern regions we observe a greater degree of sectorial specialization of incubators, that focus in the area of engineering, biotech and ICT. The sectorial focus decreases in the central regions, where the incubators take a multiple sectorial nature, which reveals the presence of heterogeneous technology skills, but also the absence of a specific industrial vocation within the territory. However, the 61,11% of Italian incubators prefer specialization, focusing its knowledge and services.

Table 1: Incubators

Geographic distribution	No. Incubator	% incub_gen by geographi c area	% Incub_mixpubli c	% Incub_finins t	% Incub_uni	S&T	Aggregate d	industry
CENTER	45	27,78%	77,78%	24,44%	62,22%	30,38 %	25,30%	19,19 %
EMILIA ROMAGNA	5	3,09%	80,00%	20,00%	60,00%	2	3	2
LAZIO	9	5,56%	88,89%	44,44%	100,00	5	4	3
MARCHE	7	4,32%	42,86%	14,29%	85,71%	3	4	3
TOSCANA	17	10,49%	94,12%	23,53%	47,06%	12	5	5
UMBRIA	7	4,32%	57,14%	14,29%	28,57%	2	5	6
NORTH	64	39,51%	85,94%	31,25%	68,75%	54,43 %	25,30%	37,37 %
FRIULI VENEZIA GIULIA	5	3,09%	100,00%	40,00%	100,00	2	3	2
LIGURIA	4	2,47%	100,00%	25,00%	100,00	2	2	1
LOMBARDI A	18	11,11%	72,22%	33,33%	50,00%	13	5	7
PIEMONTE	19	11,73%	94,74%	21,05%	63,16%	13	6	18
TRENTINO ALTO ADIGE	5	3,09%	80,00%	0,00%	40,00%	3	2	2
VENETO	13	8,02%	84,62%	53,85%	92,31%	10	3	7
SOUTH	53	32,72%	88,68%	9,43%	88,68%	36,70 %	49,40%	43,43 %
ABRUZZO	14	8,64%	100,00%	0,00%	100,00	1	13	14
BASILICATA	1	0,62%	100,00%	0,00%	100,00	1	0	0
CALABRIA	8	4,94%	87,50%	12,50%	50,00%	2	6	6
CAMPANIA	10	6,17%	100,00%	30,00%	100,00	2	8	7
PUGLIA	8	4,94%	100,00%	0,00%	87,50%	1	7	8
SARDEGNA	7	4,32%	71,43%	0,00%	85,71%	3	4	5
SICILIA	5	3,09%	60,00%	20,00%	100,00	2	3	3
Tot	162	100,00%	84,57%	22,22%	73,46%	79	83	99

## **Regional features**

When assessing the relationship between the number of business incubators in a region and the features of the relevant local setting (Tab.2), the findings immediately point out a significant positive ratio between the presence of various types of incubators and industry added value, the number of start-up businesses in the territory and the net registration rate in the National Companies Register. This finding shows that the entrepreneurial drive found in a given territory positively affects the presence of business incubators, which may access a favourable entrepreneurial setting for business development via incubation. However, the very incubated businesses profit from this process, as they can rely on a wider reference market where they can grow and expand with greater returns even for incubators themselves, that can rely on more resources and added value. Furthermore, the findings point out a significant positive ratio between the presence of incubators and R&D personnel and spending. This shows that the research and innovation drive in a region provides ground for development and the exchange of cutting-edge knowledge, allowing the creation and expansion of incubators, especially technology-oriented ones, where

technologically-oriented start-ups are incubated. Another significant positive ratio is the one between the presence of public-sector incubators and corporate R&D spending, which points out the positive synergistic contribution arising from co-operation activities implemented in research partnership agreements between companies and public-sector incubators, funded by local government policies for entrepreneurship development and local growth. By further analysing the findings for the various regional incubator types, there are significant positive relationships between financial-institution participation incubators and corporate service development, industry added value as well as the many variables linked to local research and innovation potential [R&D corporate spending, innovation potential, R&D staff]. This finding shows that the presence of financial partners in incubators is affected by the level of local competitiveness, entrepreneurial drive and innovation potential. This feature moreover contributes to determining their investment and funding options, consistently with the strategic trend of venture capitalists and their role in the development of innovative start-ups. A further aspect worth noting is the significant positive relationship between university participation incubators and the number of local businesses, which points out the role of universities as local entrepreneurship catalysts, profiting from the connections established with the companies located in that territory, which definitely stimulate the presence of corporate incubators in order to start knowledge spill-over processes involving universities, incubated start-ups and the local area. Therefore, based on assessment findings, the positive aspects of the features and size of the local setting appear to operate as activators of regional incubators, by determining localization options and existing conditions.

Table 2 – Correlation Matrix: Local Context Attributes

	Tuble 2 Contention Matrix, Local Context Attributes									1		
	NoI ncu b	Inc_mi xpublic	Inc_fi ninst	Inc _un i	%Buss ervice	In_ Va	%BussGr ossenrol	%Bu ssnet enrol (2011	%Bu ssnet enrol (2012	%Bus sR&D	%publicR &DonGDP	N_R& Dstaff
No.Incub	1	,962**	,687* *	,799 **		,60 5**	,658**	,568*	,566*	,469*		,620**
Inc_mixpu blic	,962 **	1	,613* *	,835 **		,46 6				,480*		,506*
Inc_fininst	,687 **	,613**	1	,572 *	,501*	,72 8**				,544*	,491*	,763**
Inc_uni	,799 **	,835**	,572*	1			,508*					
%Busservic e			,501*		1	,61 6**				,629**	,613**	,680**
In_Va	,605 **	,466	,728* *		,616**	1				,569*		,969**
%Bussgros senrol	,658 **			,508			1					
%Bussnet enrol (2011)	,568 *							1	,581*			
%Bussnet enrol (2012)	,566 *							,581*	1			
%BussR& D	,469 *	,480*	,544*		,629**	,56 9*				1	,884**	,716**
%publicR &DonGDP			,491*		,613**					,884**	1	,567*
N_R&Dstaf f	,620 **	,506*	,763* *		,680**	,96 9**				,716**	,567*	1

#### **Incubators' performance**

We can observe the incubators' performance considering their ability to promote the generation of NTVs and supporting their economic and financial performance. The paper assumes that the nature of incubators' shareholders and the attributes of these entities are important factors to determine the effectiveness of their initiatives. Moreover, the geographical proximity between incubators, universities and firms may contribute positively to NTVs performance. The correlation matrix (Tab. 3) shows positive and significant correlations when financial institutions are present into incubators. This result confirm the positive contribution of financial actors on entrepreneurship activity, for the start-up stage and the economic and financial stability of NTVs (Hp2). The presence of university within the incubator and the sectorial specialization appear to be not significant for the NTVs performance, while if we consider the ability of incubator in promoting the generation of NTVs we identify a positive correlation between the number of NTVs and the presence of some types of intermediaries, science and technology parks and incubators, located in proximity (Hp1). Public and universities incubators have a greater propensity to sectorial specialization, but this attribute doesn't contribute to economic and financial stability of NTVs located nearby. The negative relation between ROE of these firms and the presence of aggregated entities is a critical data, that leads in-a-depth analysis of the services delivered, the policies adopted and the knowledge sharing activities between technopole, technology clusters and NTVs. If we compare the previous data (Tab.1) with these correlations, we observe that the southern regions present a greater percentage of aggregated entities. In fact, the average values of ROE in the south take a negative measure (-0,11%), confirming the ineffectiveness of such intermediaries for the economic stability of NTVs within this area. The result should be further investigated by gathering information relating the local innovation policies and the socio-cultural attributes of these regions.

Table 3 – Correlation Matrix: Incubators' performance And Attributes

		No. inc	Inc_mixp ub	Inc_finin st	Inc_uni	S&TI	Aggreg ated	industry	No.N TVs	ROENtv s	CL RN TVs
No. Incub.	Pearson		,962(**)	,687(**)	,799(**)	,834(**)	,547(*)	,767(**)	,517(* )		
	Sig. (2-code)		,000	,002	,000	,000	,019	,000	,028		
	N		18	18	18	18	18	18	18		
Inc_Mix pub	Pearson	,962(** )		,613(**)	,835(**)	,743(**)	,615(** )	,803(**)			
	Sig. (2-code)	,000		,007	,000	,000	,007	,000			
	N	18		18	18	18	18	18			
Inc_fini nst	Pearson	,687(** )	,613(**)	1	,572(*)	,833(**)			,508(* )	,514(*)	,509 (*)
	Sig. (2-code)	,002	,007		,013	,000			,032	,029	,031
	N	18	18	18	18	18			18	18	18
Inc_uni	Pearson	,799(** )	,835(**)	,572(*)		,508(*)	,676(** )	,756(**)			
	Sig. (2-code)	,000	,000	,013		,031	,002	,000			
	N	18	18	18		18	18	18			
S&T	Pearson	,834(** )	,743(**)	,833(**)	,508(*)				,578(* )		
	Sig. (2- code)	,000	,000	,000	,031				,012		
	N	18	18	18	18				18		
Aggrega ted	Pearson	,547(*)	,615(**)		,676(**)			,745(**)		-,480(*)	
	Sig. (2-code)	,019	,007		,002			,000		,044	

industry	N	18 ,767(**	18 ,803(**)		18 ,756(**)		,745(**	18	18	
maustry	Pearson	)	,803(**)		,/30(**)		)			
	Sig. (2-code)	,000	,000		,000		,000			
	N	18	18		18		18			
No.NTV s	Pearson	,517(*)		,508(*)		,578(*)				
	Sig. (2-code)	,028		,032		,012				
	N	18		18		18				
ROENtv s	Pearson			,514(*)			-,480(*)			
	Sig. (2-code)			,029			,044			
	N			18			18			
CLRNtv s	Pearson			,509(*)						
	Sig. (2- code)			,031						
	N			18						

<sup>\*\*</sup> significance at level 0,01 (2-code).

#### **Conclusion**

The analysis highlights that the presence of incubators, science parks, technopole and technological clusters may generate local technological spillover affecting the generation of NTVs. These intermediaries attract groups of research-intensive firms, stimulating innovative practices but the geographic proximity with them is not sufficient to guarantee a good economic and financial performance of NTVs. Paradoxically, in presence of aggregated entities, represented by technology clusters and innovation pole, the NTVs have a lower profit performance, which requires consideration about the role of the local economy on the effectiveness of incubators. A better result can be observed only in presence of financial institutions that participate in the share capital of the incubators, which takes on both a public and a private nature in the sample. The nature of the partners of an incubator acts, therefore, as a predictor for the effectiveness of the entrepreneurial initiatives of the these entities; hence, the choice made by a private investor, in this case by banks, to keep on investing in an incubator can be said to be is often driven by the expectations of the return on investment, here intended in a broad sense, which is related to them. The contribution of public incubators, that is the regional and university ones, is even less effective, although they represent most of the business facilitators activated in the context observed. The geographical proximity between business facilitators and firms meaning to create innovation on the territory is not a sufficient condition to guarantee the establishment of relations capable of contributing effectively to the economic and financial outcomes of the firms involved. In addition, the analysis reveals that the features and dimensions of the local context can affect in a sensitive manner the numerousness of incubators in a certain region. Indeed, the presence of a very strong industrial system, which produces high value added for the regional area, stimulates the creation of new firms in the area and therefore incubators have a fertile ground for their establishment in order to generate new start-ups. Another element affecting significantly the presence of incubators in a region is the innovation capacity and the generation of new knowledge through research and development of a local context. In this sense, play a key role the universities here located and local governments to development public policies to support entrepreneurship, economic growth and innovation through research funding and agreements partnership between universities, incubators and the regional entrepreneurial system. This aspect become more obvious considering the strategic investment decisions made by the agents of the local financial system, as it observes that

<sup>\*</sup> significance at level 0,05 (2-code).

incubators participated by financial institutions are more numerous in those local contexts who appear more competitive, innovative and vibrant in entrepreneurial sense. Essential elements to attract one of the major forms of financial resources of incubators: the venture capital.

#### **References:**

Abetti, P.A. Government-supported incubators in the Helsinki region, Finland: infrastructure, results, and best practices. *The Journal of Technology Transfer*, 29(1), 2004, 19-40.

Acs, Z. J., and Armington, C. *Entrepreneurship, geography, and American economic growth* (pp. 1183-1211). Cambridge: Cambridge University Press, 2006.

Acs, Z. J., Braunerhjelm, P., Audretsch, D. B., and Carlsson, B. The knowledge spillover theory of entrepreneurship. *Small business economics*, 32(1), 2009, 15-30.

Aernoudt, R. Incubators: tool for entrepreneurship?. *Small Business Economics*, 23(2), 2004, 127-135.

Albert, P., Gaynor, L. Technology business incubation management: Lessons of experience. In M. Monsted, et al. (Eds.), *High-tech Entrepreneurship*. Italy. Virkedager, 2006, 315-340.

Allen, D.N., and McCluskey, R. Structure, Policy, Services, and Performance in the Business Incubator Industry. *Entrepreneurship Theory and Practice*, 15 (2), 1990, 61–77.

Almus, M., and Nerlinger, E. Growth of New Technology-Based Firms: Which Factors Matter?, *Small Business Economics*, 13, 1999, 141–154.

Audretsch, D. B. Innovation and industry evolution. Mit Press, 1995.

Autio, E., and Klofsten, M. A comparative study of two European business incubators. *Journal of small business management (Print)*, 36(1), 1998, 30-43.

Barbero, J.L., Casillas, J.C., Ramos, A., and Guitar, S. Revisiting incubation performance. How incubator typology affects results. *Technological Forecasting & Social Change*, vol. 79, 2012, 888-902.

Bartik, T. J. (1989). Small business start-ups in the United States: Estimates of the effects of characteristics of states. *Southern Economic Journal*, 1004-1018.

Bigliardi, B., Dormio, A.I., Nosella, A., and Petroni, G. Assessing Science Parks' Performances: Directions from Selected Italian Case Studies. *Technovation*, 26, 2006, 489-505.

Carayannis, E.G., and von Zedtwitz, M. Architecting gloCal (global–local), real-virtual incubator networks (G-RVINs) as catalysts and accelerators of entrepreneurship in transitioning and developing economies: lessons learned and best practices from current development and business incubation practices. *Technovation*, 25, 2005, pp. 95–110.

Christensen, L. J., Parsons, H., and Fairbourne, J. (2010). Building entrepreneurship in subsistence markets: Microfranchising as an employment incubator. *Journal of Business Research*, 63(6), 595-601.

Colombo, M. G., and Delmastro, M. How effective are technology incubators?: Evidence from Italy. *Research Policy*, 31(7), 2002, 1103-1122.

Colombo, M. G., D'Adda, D., and Piva, E., The contribution of university research to the growth of academic start-ups: an empirical analysis. *Journal of Technology Transfer*, 35, 2010, 113-140.

Eisenhardt, K.M. Agency theory: An assessment and review. Academy of management review, 14(1), 1989, 57-74.

Etzkowitz, H. The new visible hand: an assisted linear model of science and innovation policy. *Science and Public Policy*, 33(5), 2006, 310-320.

Etzkowitz, H., and Zhou, C. Triple Helix twins: innovation and sustainability. *Science and Public Policy*, 33(1), 2006, 77-83.

Etzkowitz, H., Webster, A., Gebhardt, C., and Terra, B. R. C. The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research policy*, 29(2), 2000, 313-330.

Ferguson, R., and Olofsson, C. Science Parks and the Development of NTBFs – Location, Survival and Growth. *Journal of Technology Transfer*, 29, 2004, 5-17.

Ghasemizad, A. A Study of Factors Influencing the Improvement of Technology Business Incubator's Effectiveness: An Explanatory Model. *World Academy of Science, Engineering and Technology*, 3, 2009, 1012-1018.

Ghasemizad, A., Kazemi, M., Abbasi, A., and Mohammadkhani, K. Improvement of technology business incubators effectiveness: An explanatory model. *African Journal of Business Management*, 5(22), 2011, 9278-9285.

Grimaldi, R., and Grandi, A. Business incubators and new venture creation: an assessment of incubating models. *Technovation*, 25(2), 2005, 111-121.

Gunasekara, C. The generative and developmental roles of universities in regional innovation systems. *Science and Public Policy*, *33*(2), 2006, 137-150.

Hackett, S.M., and Dilts, D.M. A real options-driven theory of business incubation. *The Journal of Technology Transfer*, 29(1), 2004, 41-54.

Huggins, R., and Johnston, A. The economic and innovation contribution of universities: a regional perspective. *Environment and Planning C: Government and Policy*, 27(6), 2009, 1088-1106.

Ketchen, D.J., Thomas, J. B., and Snow, C.C. Organizational configurations and performance: A comparison of theoretical approaches. *Academy of management journal*, *36*(6), 1993, 1278-1313.

Lee, S.Y., Florida, R., and Acs, Z. Creativity and entrepreneurship: a regional analysis of new firm formation. *Regional studies*, *38*(8), 2004, 879-891.

Lendner, C., and Dowling, M., University business incubators and the impact of their networks on the success of start-ups: an international study. *Paper presented at the 2003 International Conference on Science Parks and Incubators*. Rensselaer Polytechnic Institute, Troy, NY. Lewin, 2003.

Löfsten, H., and Lindelöf, P. Determinants for an entrepreneurial milieu – Science Parks and business policy in growing firms. *Technovation*. 23(1), 2003, 51-64.

Lundvall, B.A, Johnson, B., Anderson, E.S., and Dalum, B. National systems of production, innovation and competence building. *Research Policy* 31, 2002, pp. 213-231.

Markley, D.M., and McNamara, K.T. Economic and fiscal impacts of a business incubator. *Economic Development Quarterly*, *9*(3), 1995, 273-278.

Meyer, M. Academic entrepreneurs or entrepreneurial academics? Research–based ventures and public support mechanisms. *R&D Management*, 33(2), 2003, 107-115.

Mian, S.A. Assessing and managing the university technology business incubator: An integrative framework. *Journal of Business Venturing*, 12(4),1997, 251-285.

Mian, S.A. Assessing value-added contributions of university technology business incubators to tenant firms. *Research Policy*, 25(3), 1996, 325-335.

Monck, C. S. P., Porter, R. B., Quintas, P., Storey, D. J., and Wynarczyk, P. *Science Parks and the Growth of High Technology Firms*. London: Croom Helm, 1988.

Muscio, A. What drives the university use of technology transfer offices? Evidence from Italy. *Journal of Technology Transfer*, 35, 2010, 181–202.

O'Gorman, C. and Kautonen, M. Policies for New Prosperity: Promoting New Agglomerations of Knowledge Intensive Industries, Proceedings, *Conference on Technological Entrepreneurship in the Emerging Regions in the New Millennium*, Singapore, June 28–30, 2001.

Olofsson, C., and Wahlbin, C., Firms Started by University Researchers in Sweden - Roots, Roles, Relations, and Growth Patterns. Paper presented at the 1993 Babson Entrepreneurship Research Conference, Houston, TX, 1993, 25–27.

O'Shea, R. P., Allen, T. J., Chevalier, A., and Roche, F. Entrepreneurial orientation, technology transfer and spinoff performance of US universities. *Research Policy*, 34(7), 2005, 994-1009.

Patton, D., and Kenney, M. The role of the university in the genesis and evolution of research-based clusters. In Fornahl, D., Henn, S., & Menzel, M-P (Eds.) *Emerging Clusters* (Cheltenham, UK: Edward Elgar), 2010, 214-238.

Phan, P. H., D. S., Siegel, and Wright, M. Science Parks and Incubators: Observations, Synthesis and Future Research. *Journal of Business Venturing*, 20 (2), 2005, 165-182.

Powers, J.B. R&D funding sources and university technology transfer: What is stimulating universities to be more entrepreneurial? *Research in Higher Education*, 45(1), 2004, 1-23.

Qian, H., Haynes, K.E., and Riggle, J.D. Incubation push or business pull? Investigating the geography of US business incubators. *Economic Development Quarterly*, 25(1), 2011, 79-90.

Ratinho, T., and Henriques, E. The role of science parks and business incubators in converging countries: Evidence from Portugal. *Technovation*. 30(4), 2010, 278-290.

Rice, M.P. Co-production of business assistance in business incubators: An exploratory study. *Journal of Business Venturing*, 17(2), 2002, 163-187.

Rooney, D., Hearn, G., and Ninan, A. *Handbook on the knowledge Economy*. Edward Elgar, 2005.

Rothaermel, F. T., and Thursby, M. Incubator firm failure or graduation? The role of university linkages. *Research Policy*, 34(7), 2005, 1076-1090.

Salvador, E. Are science parks and incubators good "brand names" for spin-offs? The case study of Turin. *Journal of Technology Transfer*, 36(2), 2011, 203-232.

Scillitoe, J. L., and Chakrabarti, A. The role of incubator interactions in assisting new ventures. *Technovation*, 30(3), 2010, 155-167.

Scott, W.R. Institutional theory: Contributing to a theoretical research program. *Great minds in management: The process of theory development*, 2005, 460-484.

Shane, S.A. Academic entrepreneurship: University spinoffs and wealth creation. Edward Elgar Publishing, 2004.

Siegel, D.S., Westhead, P., and Wright, M. Science Parks and the Performance of New Technology-Based Firms: A Review of Recent UK Evidence and an Agenda for Future Research. *Small Business Economics*, 20 (2), 2003, 177-184.

Slaughter, S., and Leslie, L.L. *Academic capitalism: Politics, policies, and the entrepreneurial university*. The Johns Hopkins University Press, Baltimore, 1997.

Smilor R.W., Dietrich G.B., and Gibson D.V. The Entrepreneurial University: The Role of Higher Education in the United States in Technology Commercialization and Economic Development. *International Social Science Journal*, 135, 1993, 1-11.

Squicciarini, M. Science Parks' tenants versus out-of-Park firms: who innovate more? A duration model. *Journal of Technology Transfer*, 33, 2009, 45-71.

Sternberg, R. Success factors of university-spin-offs: Regional government support programs versus regional environment. *Technovation*, 34(3), 2014, 137-148.

Teece, D., and Pisano, G. The dynamic capabilities of firms: an introduction. *Industrial and corporate change*, 3(3), 1994, 537-556.

Weinberg, M. L., Allen, D. N., and Schermerhorn, J.R. Interorganizational challenges in the design and management of business incubators. Review of Policy Research, 10(2-3), 1991, 149-160.

Zahra, S.A., and Covin, J.G., 1993, Business Strategy, Technology Policy And Firm Performance. *Strategic Management Journal*, 14(6), 1993, 451-478.