

Assessing the Performance of Business Incubators: Recent France Evidence

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Abstract

Based on original data collected from a recently implemented national program on incubators, this paper provides a first attempt to assess the performance of business incubators in France following their launch in 1999 and covering the period 2000-2009. The paper runs with the general believe that the jury is still out in terms of the overall effectiveness of these venture investments (Mian, 2011). The findings indicate that ten years after their creation, business incubators in France generally evolve without much difficulty and are well embedded in the regional innovation system. The findings also reveal that business incubators continue to create innovative entrepreneurial firms, however, they may need to further increase the professionalism of their activities that exhibit some limits regarding selection, business support, networking and graduation.

Keywords: Business incubators, Innovative entrepreneurial firm, Performance

1. Introduction

There has been recent and broad acknowledgement that innovation and technology are key performance drivers of the national economy, especially with the emergence of the knowledge-based economy (Lundvall *et al.*, 2002; Rooney *et al.*, 2005). Several countries throughout the world, especially industrialized ones, are aware of this reality and have set a goal to become leaders in innovation, seeking to catch up with the United States and Japan through intensive innovation policies (Lalkaka, 2001; Carayannis and von Zedtwitz, 2005; European Commission, 2005; Eitzbowitz *et al.*, 2005; Chandra and Fealey, 2009). It has also been recognized that start-up companies are important in achieving this goal (Lumpkin and Ireland, 1988; Timmons and Spinelli, 2003; Hayton, 2005). However, the start-up failure rate is rather high (Zacharakis *et al.*, 1999). Supporting the creation and the growth of innovative entrepreneurial companies is therefore becoming one of the priority policies for these countries (Lalkaka, 2001; Carayannis and von Zedtwitz, 2005) and especially for the European Union (European Commission, 2005).

One popular policy in this direction was the launch of technology and/or business Incubators, which are recognized to generate new venture development and technology commercialization mechanisms (Allen and McCluskey, 1990; Mian, 1997; Aernoudt, 2004; Aerts *et al.* 2007; Aaboen, 2009). Several experiments have been conducted across different countries in the world to establish business incubators or equivalent models (Allen and McCluskey, 1990; Lalkaka, 2001; Carayannis and von Zedtwitz, 2005)

Lagging well behind the USA and the UK, the public authorities in France launched their national business incubators program in 1999. The Ministry of Higher Education and Research (MESR¹) has funded several business incubator units in order to promote innovative entrepreneurial firm creation associated with universities or publicly funded research institutions, widely known as potential drivers to create wealth and employment (Siegel *al.*, 2007).

Despite their increasing popularity, there is still uncertainty about whether incubators are achieving their goals and exactly what their impact is on their tenants (Lewis, 2001; Bhabra-Remedios and Cornelius, 2003). However there is still a lack of consensus as to the overall effectiveness of these investments (Phan *et al.*, 2005, Mian, 2011). Along the same lines, this study is an initial attempt at assessing the performance of indicators in France since their launch, with

the aim of enhancing our understanding of their evolution and impact. The paper provides evidence from France based on the original data collected from a recently implemented national program on incubators.

The remainder of this paper is organized as follows. Section 2 derives theoretical framework based on systemic approach – regional innovation system – and resource-based view (RBV). Section 3 presents methods. Section 4 exhibits and analyzes results. Section 5 summarizes the main findings and discusses their implications.

2. Theoretical background

The literature emphasizes several criteria and indicators to measure incubators' performance or outcomes such as occupancy, jobs created, firms graduated (Allen and McCluskey, 1990), tenant revenues, number of patent applications per firm, number of discontinued businesses (Philips, 2002) and others (for more exhaustive lists of outcome criteria see for example Mian, 1996, OECD, 1997; Colombo and Delmastro, 2002; Chan and Lau, 2005). All performance indicators considered are directly or indirectly associated with regional innovation and resources-based issues. For this reason; one of the starting points in our work was the notion of regional innovation systems, associated with regional entrepreneurship through implementation of business incubators. We then used the resource-based view of the firm to approach the question of competitive advantage.

2.1 Regional innovation system

Recently, it has been widely recognized that innovation and technology are major performance drivers of a national economy, especially through the emergence of the knowledge-based economy (Lundvall *et al.*, 2002; Rooney *et al.*, 2005). Public authorities and policymakers continue to investigate and draw up policies for both innovation and technology. While the national and international focuses, notably dealing with technology transfer, continue to receive a great deal of interest both with respect to public policy and academic research (Reddy and Zhao, 1990; Grupp, 1994), the last two decades have witnessed many new policy approaches based on regions and regional clusters (Saxenian, 1994; Maskell, 2001; Audretsch and Keilbach, 2008). Examples of such policies include encouraging R&D spillovers, venture capital and new firm start-ups. The main objective is to favour, on the one hand, the dynamics of small and medium-sized enterprises and innovative entrepreneurial companies, which contribute to increase employment, economic growth and economic dynamics (Carlsson *et al.*, 2007; Acs *et al.*, 2008) and, on the other hand, technology transfer and innovation commercialization (Ensley and Hmieleski, 2005). Different models are then implemented under a variety of more or less synonymous labels ranging from business incubators (Phillips 2002; Carayannis and von Zedtwitz, 2005; Bergek and Norrman, 2008), Networked Incubators (Hansen *et al.*, 2000), Research Parks' (Money, 1970), Knowledge Parks (Bugliarello, 1998), Industrial Parks (Autio and Klofsten, 1998), technology or science parks (Lofsten and Lindelof, 2002), Innovation Centers (Campbell, 1989), technopoles or technopolis (Castells and Hall, 1994), clusters (Audretsch and Lehmann, 2005), Triple Helix (Etzbowitz *et al.*, 2005), to competitive clusters (Porter, 1998). Whatever the name used the overall objective of these models is to provide various institutional and relational factors or supporting infrastructures serving to facilitate and influence innovative activities, including the accessibility and availability of funds, availability of pools of educated human resources and regulatory policies for the transfer of technology (Hannon, 2005; Rothschild and Darr, 2005; McAdam and Marlow, 2007). Yet, they act as a bridge linking different actors, especially regional ones, such as academia, industry and government bodies. Interactions among these different actors shape a network of relationships that co-evolve and mutually influence each party's evolution within a regional innovation system (Tsai *et al.*, 2009) consequently helping to build entrepreneurial cultures and clusters (Wynarczyk and Raine, 2005).

Therefore, an incubator located in a geographic area with a high concentration of similar and/or heterogeneous firms will have easier access to the resources required by new entrepreneurial comers. The presence of a large number of firms in the same area or geographical location will provide new entrepreneurial firms with increased access to scientific and technical knowledge that is unavailable in areas where firms are geographically isolated or less in number.

Incubators have been observed as helping to build entrepreneurial cultures and clusters, acting as a catalyst for the development of integrated business support networks which include finance providers, universities, business schools, large companies, business professionals and government bodies (EUBICs, 2000).

2.2 Resource-based view

The resource-based view (RBV) of the firm views a firm as a bundle of resources and capabilities (Wernerfelt, 1984), which in large part determine its competitive advantage and influence its boundaries (Barney, 1999).

We use then the RBV to analyze how different resource endowments lead business incubators to pursue alternative strategies to attain competitive advantages in generating new technology or science-based firms. The heterogeneity of economic performance among business incubators is posited to be, at least in part, a direct result of the heterogeneity of

entrepreneurial beliefs and the heterogeneity of other resources and capabilities of incubators, as well as the idiosyncratic deployment of these resources and capabilities (Kor *et al.*, 2007).

Business incubators can provide a wide range of entrepreneurial services to their incubatees including evaluating innovative ideas, financing, and helping them to develop and grow. According to Dettwiller *et al.* (2006) the key elements that incubators essentially provide, include (i) services provided (ii) financing (iii) goals and structure (iv) resources and support to NSTBFs and (v) creation of an entrepreneurial milieu. Drawing on the RBV, we discuss some major types of tangible and intangible resources: which may be a significant predictor of NSTBFs formation by the incubator.

3. Methods

3.1 Context

Our main proposition is to investigate and assess the performance of business incubators in France. However, there have been several experiences involving incubation issues in France (see for example Albert and Gaynor (2001)). In this study we focus on the latest French business incubators launched in 1999.

Different types of incubators are presented by the literature according to their stakeholders, resources, internal process or objectives. Daft (2009) respectively presents approaches that deal with these issues. Each approach provides a different approach to measuring organizational effectiveness. Aernoudt (2004) identifies incubators according to their objectives. He distinguishes three main types (mixed incubators, social incubators, and basic research incubators) and two specific categories (economic development incubators, which aim to reduce the regional disparity gap and technology incubators which focus on the development of technology-oriented firms). Clarysse *et al.*, (2005) distinguish three different incubation models according to their activities and resources. Von Zedtwitz and Grimaldi (2006) identify five types of incubators according to their core services management. Aerts *et al.*, (2007) present the typology elaborated by the European Commission: the mix management and technological support topology.

This broad difference in topology and definition is probably due to the evolution of the concept. As pointed out by Lalkaka (2001), incubators have evolved over three generations. The first generation gives priority to job creation and real estate. The second generation adds to these the focus on intangible services. Finally, the third generation includes a focus on high-tech, ICT and other targeted technology (e.g. biotechnology, nanotechnology, etc.) with more intangible and high-value service (Grimaldi and Grandi, 2005; Aerts *et al.*, 2007). Therefore, whatever the name used, taking into account the period of the study, the country, and the stakeholders' purposes, the overall objective of these models is to provide various institutional and relational factors or supporting infrastructure serving to facilitate and promote innovative activities, including the accessibility and availability of funds, availability of pools of educated human resources and regulatory policies for the transfer of technology (Hannon, 2005; Rothschild and Darr, 2005; McAdam and Marlow, 2007).

Along the same lines, the French national business incubators were launched in 1999. As of 2009, France had 30 fully operational regional incubators. 2,611 projects have been incubated with a commitment of 66.14 million Euros. Figure 1 presents the evolution in number of the projects incubated. According to the MESR, the program aims to promote the birth, the formation and the early-stage growth of new innovative entrepreneurial firms - often science or technology-based - in association with university or publicly funded research institutions. To summarize, incubators must provide the following services:

- Detection, evaluation and selection of entrepreneurship projects within higher education institutions or research institutions.
- Accommodation and logistical support of projects and new business start-ups.
- Accompanying tenants in developing/writing their business plans, including the organizational, legal, industrial, and commercial issues as well as management team recruiting.
- Information and linkage between industry, managers, financiers and scientists for the creation and financing of businesses.
- Training of entrepreneurs

Therefore assessing performance indicators chosen for this study were basically around these issues.

----- **Insert Figure 1 about here** -----

3.2 Data

Main data for the study were collected from MSER. Data cover both qualitative and quantitative analyses conducted on incubators. It also covers a telephone survey conducted over 200 tenants, during the 2002-2007 period, assessing several performance indicators. In this study, we have gathered criteria that appear crucial for incubator performance around two

fundamental issues, dealing respectively with regional innovation systems and resources. These criteria most probably have a deep effect on components of the incubator's activity, especially selection, business support, mediation and, to a lesser degree, graduation (Hackett and Dilts, 2004; Peters *et al.*, 2004; Bergek and Norman, 2008). Thus, some items around these two issues, mostly associated with these four components, were thoroughly studied to provide insight into the incubators' design and performance.

4. Analyses and results

We present and discuss results on the analyses conducted throughout French regional incubators. Analyses outcomes criteria concern the effects of regional innovation systems and resources.

4.1 Effects on Incubators' performances linked to their regional innovation system

Business incubators could have significant regional implications (Appold, 1991). In order to assess the integration of incubators within their regional innovation systems, we considered their ability to involve academic networks and generate innovation and economic development for the benefit of tenants.

In 2009, 32% of projects hosted by incubators in France stemmed from public research. 46% were at least externally linked to one public research institution. The others had no relationship with public research institutions. Figure 2 shows the evolution of the distribution of the number of projects according to their links with public research. The distribution is given by a three-year period, which represents the contract period between the incubators and the MESR. It indicates that projects stemming from public research institutions decreased over the two last periods; however, there was a little increase in projects without any real link to public research. Incubators moved progressively towards projects stemming from private research. Nevertheless, the link to public research still dominated (over 90%) because incubated projects were systematically associated to public research institutions or technology transfer offices. This result indicates that incubators were not still able to increase the impact on new business without any link to public research although they were able to provide linkages between individual entrepreneurs and higher education institutes or public research institutions. The type of link might include access and transfer of knowledge, research contracts with these institutions, transfer of people including founder-members of firms, key personnel and staff employed in firms, etc. This is more evident in the governance bodies. Indeed, persons from these institutions and from main local or regional authorities participate in selection committees and are involved in the incubators' governance bodies. Yet selection committees include other experienced local entrepreneurs, a patent and copyright attorney, an accountant, someone from the banking and financial community, an advertising and media representative, and various experts on the technical aspects of commercializing technology. Overall, representatives from different regional innovation system structures are usually involved, showing the interaction between the incubators and elements of the triple helix (Etzkowitz *et al.*, 2005), such as government, university and industry, which could generate further opportunities for new entrepreneurs.

----- Insert Figure 2 about here -----

Moreover, links between incubators and certain downstream relays seem to be strong, at least on the governance level and mainly through accommodation agreements with local Technopoles. However, results indicate that links with clusters and technology transfer offices are frail. Table 1 clearly shows that incubators belonging to regional innovation systems with a great number of academic and physical support structures are generally more efficient in terms of creation or conversion rate².

----- Insert Table 2 about here -----

Finally, local authorities actively participate in the incubators' budgets. As shown by Figure 3, local authorities provide 40% of the incubators' funding, even though budgets remain highly heterogeneous. Yet, subsidies from the MESR are also significant (30%)³. Accordingly, this indicates the important role of governmental entities in supporting ventures whose potential success is not necessarily foreseeable in the short term and which may contribute significantly to economic development in the region.

----- Insert Figure 3 about here -----

In short, although the results seem to indicate the presence of a certain amount of harmony between different regional actors, they remain insufficient to highlight the impact on incubator performance. Incubators appear to have sufficient links with regional innovation system structures which can provide the catalytic incubator environment for the transformation of 'pure' research into production or 'pure' ideas into new firms. Interestingly, the national incubators program in France has given rise to the regional distribution of incubator implementation favouring certain proximity with other regional actors and consequently networking. This may increase the possibility of information, resource and knowledge exchange (Inkpen and Tsang, 2005) and consequently innovation as a result of the combined efforts of all regional actors (Westhead and Batstone, 1998). It is noteworthy that there is a broad stream of literature on location and

the relationship between innovation and/or growth and regional development. For example, Wolfe *et al.*, (1999) have developed a theory about the characteristics of a region that will increase the likelihood of the successful incubation of start-up technology firms. Campbell *et al.*, (1988) provide some evidence that the host region will affect outcomes. However, it is difficult to propose a single or unique model as the specificities of each country or region play an essential role in their development.

4.2 The entrepreneurial process and resources effects

Considerable resources are being devoted to incubators. In the following we discuss some tangible and intangible resources such as physical structures, human capital, and finance. The analysis is mainly based on the results of a telephone survey conducted over 200 incubatees between 2002 and 2007. Figure 4 presents the global assessment of various service delivery items of the survey. Service delivery is the core activity of an incubator covering the entire entrepreneurial process from the start-up of a firm to moving out of the incubator. Services are rated from 1 to 4; with an average rating of 2.5 for satisfied half-incubated firms.

----- Insert Figure 4 about here -----

Apart from financial resources, incubators benefit from an appropriate physical infrastructure, often close to academic support structures especially as local authorities have strongly encouraged the latter to take a more active role in regional economic development. Universities and other higher education institutions are important sources of new scientific knowledge. Industry can gain access to this knowledge or resources by developing formal and informal links with higher education institutes (Lösftén and Lösftén, 2002). Furthermore, studies indicate that the physical design of the service area plays an important role in creating the atmosphere (Grönroos, 2000), which might attract new ventures. Table 1 shows the importance of the presence of academic support structures regarding the number of ventures created by an incubator. For example, areas such as Rhône-Alpes, Île-de-France, and PACA with multiple academic institutions display strong rates of new entrepreneurial firm creation.

Moreover, technical expertise, market knowledge and managerial experience are essential criteria for incubators to select potential tenants (Aerts *et al.*, 2007; Aaboén, 2009). Incubator staff should also be able to pool scientists and engineers with suitable qualifications and know-how to meet the needs of the new tenant. Therefore, beyond physical investment, the accumulation of valuable human capital and knowledge assets are likely to be important features of new science or technology-based firms development (Dew *et al.*, 2004; Fang *et al.*, 2010). As incubators cannot have any major advantages over tangible infrastructures (computers, offices, etc.), valuable human resources such as specially skilled or talented business developers, or resources that take the form of embedded tacit routines, tend to be difficult to replicate and can therefore constitute a source of sustainable competitive advantage for the incubator. Incubators that have more skilful business developers, with different backgrounds, specializations and experiences, dedicated to the graduation process will therefore have a greater propensity to create new ventures.

The telephone survey indicates that entrepreneurs globally appreciate incubator staff. 84% of respondents have a positive to very positive view of incubation. 95% of respondents would advise new entrepreneurs to integrate an incubator and 88% to integrate their incubator. Teams are dynamic and master the basic coaching skills. Staffs provide motivating services for entrepreneurs especially during the set-up phase. They bring assistance in defining and writing a business plan to describe the concept and characteristics of the venture and to analyze its financial feasibility (this was clearly shown by Figure 4). The aim being to clarify the project in order to transform the initial concept into physical and tangible components (Bhave, 1994). The business plan is a best practice illustrating the interaction between the different regional actors who support the Business Incubator. It will, for instance, provide clear terms of partnership between the local government, business community and credit providers. While findings on the link between writing a business plan and performance are contradictory, several studies are indeed convincing about the role of business plans on new venture performance (Lumpkin and Ireland, 1988; Delmar and Shane, 2003; Haber and Reichel, 2007). Furthermore, the results indicate the various efforts made by incubator staff to provide new entrepreneurs with entrepreneurial training (general training in management techniques), access to low-cost facilities and services, such as skilled consultants, government officials, bankers and venture capitalists, and networking with relevant actors in the region, although some efforts are still required. For example, 46% consider service training to be insufficient. Only 39% are fully satisfied with the quality of training. Considering the applicants' lack of experience, courses relating to accounting, financial management, law, contracts, patent strategies, marketing, and negotiation are required, as successful entrepreneurs are typically able to handle these various skills (Hood and Young, 1993) conducive to business performance and growth (Bird, 1993; Haber and Reichel, 2007). As argued by Smilor and Gill, (1986) and Lyons (2000) the lack of managerial skills is one of the crucial fail factors for new entrepreneurial firms, despite their specialized knowledge.

Moreover, 36% of respondents feel that networking was medium to poor, while the great majority appreciates it. Interestingly, networking is a fundamental success factor for new entrepreneurial firms (Hansen *et al.*, 2000; Tsai *et al.*, 2009), not only for inter-organizational interactions but also for the efficient transformation of technology or knowledge into commercialized products or services. That is why the brokerage role of the incubator is crucial over the entire entrepreneurial process as it links various kinds of actors and consequently acts as information sources for tenants.

Moreover, some weaknesses are perceived, particularly on access to financing which is a crucial feature not only for innovation (Mytelka and Farinelli 2003) but also for the creation and development of start-ups in their early stages (Chandra and Fealey, 2009). The survey emphasizes that while incubators facilitate access to some financial services for their incubatees, limits in financial engineering and support for fundraising (business angels, venture capital, etc.) are observed and recognized. Table 2 clearly shows that capital essentially comes from the founders especially in the case of firm creation. The role of foreign investors remains minimal. The problem is not only specific to France but also prevails across the world. More than 60% of all incubators in the world never raise funds for their startups and only 10% ever realize an IPO (Hansen *et al.*, 2000). As pointed out by Aernoudt (2004) *“an interaction between business angel networks and real incubator managers should be developed as their combined action might have a great influence on the entrepreneurial climate in Europe, leading to more New Technology Based firms, more entrepreneurship and consequently, to more projects for the incubators and for the business angel networks”*. While some recent studies have found mixed results regarding the influence of venture capital firms on the development and performance of new entrepreneurial firms (Fredriksen *et al.*, 1997; Chen, 2009), it appears that a venture capitalist with a lower degree of market scope competence and a higher degree of technology breadth competence is likely to better enhance the entrepreneurial firm’s performance (Chen, 2009).

----- Insert Table 2 about here -----

Other weaknesses are also revealed in project management, with time to market and quality (tested products to customers) of market access, sales, and market penetration both at national and international levels. Although the international issue is raised by applicants to their incubators, it has not been followed by real action (67% have discussed the issue with their incubator). That is why incubators often strive to fill these weaknesses by improving the quality of the physical design of the service area and hosting infrastructure (Kuratko and Sabatine, 1989).

Additionally, respondents find that incubators are struggling to assist team constitution, such as pooling managers, scientists and engineers with suitable qualifications and know-how that are essential for new entrepreneurs to engage in new venture development (Dew *et al.*, 2004; Fang *et al.*, 2010). For instance, 32% of respondents feel that the incubator team had no specialized skills for project engineering, whilst managerial skills are the strongest contributor to small venture performance (Smilor and Gill, 1986; Lyons 2000; Haber and Reichel, 2007).

Another limit concerns the management of economic and operational performances of post incubated firms. Monitoring these firms is important as it provides an understanding of the limits or problems that prevent their development and consequently their performance. Studies on venture performance show inconsistent findings. For example, Siegel *et al.*, (2007) compare various performance indicators for firms located on science parks and for firms located off sciences parks in the UK. Their findings report that companies incubated within U.K. science parks show poor performance. In a similar vein, based on Sweden evidence, Löfsten and Löfsten (2002) show some differences between the experience of firms on- and off- park in respect to innovation and marketing issues. Furthermore, firms on science parks have a rate of job creation which is substantially higher than for entrepreneurial firms in general.

Interestingly, as studied by Löfsten and Löfsten (2002), job creation by incubatees may indicate incubator performance. It is noteworthy that two thirds of the net new jobs and 95% of radical innovations have come from entrepreneurial firms (Timmons and Spinelli, 2003; Chen 2009), especially high-tech new ventures (Hayton, 2005). The results show that the average number of job created by incubatees is relatively low (Table 3). More than a third of the incubators have failed to create firms with more than 20 employees. Figure 5 shows the share of created firms with more than 20 employees. One major explanation of this result may be related to the tenant selection process, shedding light on its weakness or limitation. Careful and appropriate tenant selection may strongly increase the likelihood of tenant success, and consequently incubator performance (Aerts *et al.*, 2007). The selection or screening process is one of the incubator’s main activities (Hackett and Dilts, 2004; Peters *et al.*, 2004; Bergek and Norman, 2008). Therefore, incubators should rigorously examine applicants in order to increase their chances of success, subsequently causing a positive effect on employment and economic growth.

----- Insert Table 3 about here -----

----- Insert Figure 5 about here -----

5. Conclusion

5.1 Summary of findings

Ten years after their creation, the functional structures of business incubators in France are likely to evolve without much difficulty and are well-embedded in the regional innovation system.

The survey reveals that business incubators generally continue to create innovative entrepreneurial firms, often technology or science-based. However, business incubators may need to further increase the professionalism of their main activities that exhibit some limits: selection, business support, networking and graduation.

The main and common finding regarding these limits may be related to the role of business developers as the knowledge workers of the incubator. While business developers are likely to provide important services, advice as well as resources in a business friendly climate, particularly during the start-up phase, some limits, concerning networking and graduation policies in particular, are highlighted. The findings indicate that incubatees lack access to complementary financing structures, crucial to the sustainable development of new ventures. Business developers or incubators struggle to connect incubatees, especially to bankers and venture capitalists, as well as to the outside world. This handicap may be explained by the young age of the business incubators program and particularly the fact that incubators are unable to bring out highly competitive business, which should attract venture capitalists. Furthermore, mediation is relatively inexistent within some support structures such as R&D Common Structures, Competitive Clusters and Technology Transfer offices.

Moreover, training courses offered to applicants are somewhat deficient. These are likely to affect project management in terms of time to market, national and international market penetration and sales. There also appears to be a deficiency in providing tenants with appropriate human capital resources to build their teams. Additionally, the tenant selection process is insufficiently rigorous.

One major and consciously perceived consequence of these results concerns employment. The survey shows that the number of job created by incubatees is relatively low.

These findings clearly indicate the importance of interaction between business incubator structures, services and policy for the benefit of performance (Allen and McCluskey, 1990). These interactions are deeply influenced by local conditions or relevant regional innovation systems (Peters *et al.*, 2004).

5.2 Implications

The results of this survey have some crucial implications:

The first implication emphasizes the importance of skilled business developers for the entrepreneurial process. Incubators should recruit skilful business developers, with different backgrounds, experiences and especially having a former entrepreneurial experience, which can facilitate the creation of social networks and consequently the process of establishing a new venture. This will enable incubators to improve the networking and access to crucial services required by incubatees, particularly for financing. The business plan can be one important tool to clearly outline the venture establishment process by thoroughly identifying the different partners supporting business incubator operations.

The second implication stresses the importance of the interaction that must exist between incubators and fundraising actors such as business angels, venture capital and so on. Agreements with these actors are key aspects that must be a focal point. As pointed out by Aernoudt (2004) *one of the biggest barriers for the development of incubators in Europe is the lack of entrepreneurship and the underdevelopment of seed financing and business angel networks.*

The third implication deals with the role of the MESR which has implemented and partially funded the national program. The MESR must strengthen its leadership role in the network to disseminate best practices. The consolidation of different innovation support services is urgent in order to enable the early identification of projects and researchers. It is noteworthy that links between incubators and the scientific community are currently inadequate. Thus, incubators and services supporting innovation should progress in better defining their respective roles and achieving a greater number of mature projects.

The MESR could also test a method of financing incubator objectives, so as to enable those which have the possibility to accommodate more projects and create more business. These issues must continue to be conducted in conjunction with local authorities as major players in the creation of innovative companies.

Finally, this work is a first attempt to provide a report on the French national incubators program. While the findings show that business incubators in France exhibit some common features with other national programs, particularly concerning the influence on business incubators of regional conditions including resources, local entrepreneurial

environment, harmony amongst local authorities, presence of academic and physical support structures, etc., more refined research, both qualitative and quantitative, is required to carefully identify the determinants of Business incubator performance in France.

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Notes:

Note 1. MESR : Ministère de l'Enseignement Supérieur et de la Recherche

Note 2. Conversion rate measures the ratio between the total number of created firms and the total number of applicants' projects over the period 2000-2008.

Note 3. Distribution is almost the same for previous years

Table 1. Academic and physical support structures by region

Incubators	Region	Conversion Rate	Physical Support Structures			Academic Structures
			Clusters	R&D Common Structures	Structures of Transfer and Diffusion of Technologies	
SEMIA	Alsace	0.85	1	0	5	0
IRA	Aquitaine	0.68	3	8 à 10	13	4
EMERGYS	Bretagne	0.69	3	4 à 7	9	4
LANCEO	Centre	0.55	3	8 à 10	6	1
SEINARI	Haute-Normandie	0.31	2	2 à 3	8	1
AGORANOV	Île-De-France	0.86	6	>10	3	15
INCUBALLIANCE	Île-De-France	0.71	6	>10	3	15
PARIS BIOTECH SANTE	Île-De-France	0.52	6	>10	3	15
LRI	Languedoc-Roussillon	0.75	3	4 à 7	1	3
MIPY	Midi-Pyrénées	0.56	3	8 à 10	14	4
EURASANTE	Nord-Pas-de-Calais	0.58	6	8 à 10	7	6
MITI	Nord-Pas-de-Calais	0.41	6	8 à 10	7	6
BELLE DE MAI	Provence-Alpes-Côte-d'Azur (PACA)	0.74	9	2 à 3	5	8
CREALYS	Rhône-Alpes	0.49	10	>10	2	13
GRAIN	Rhône-Alpes	0.57	10	>10	2	13

Sources: adapted from MSER-DGRI-Service des entreprises, du transfert de technologie et de l'action régionale (2010) : Recherche et Développement, Innovation et partenariats 2009

Table 2. Initial capital origin of firms created between 2006 and 2009

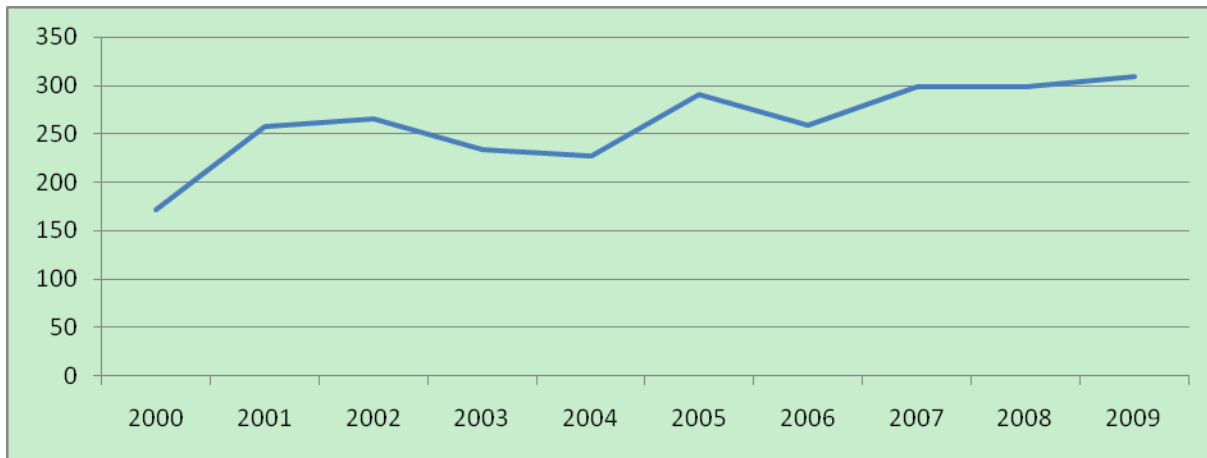
Source of funding	Firms indicated in 2006 (894) %	Firms indicated in 2008 (937) %	Firms indicated in 2009 (215) %
Founders	79.4	70.1	98.38
Business angels	8.4	9.8	0.83
Seed money	4.4	6.9	0.35
Venture capital	7.8	6.7	0
Banks	5.1	6.2	0
Others	-	0.3	0.44

Source: adapted by MESR-DGRI-C3 from DIANE

Table 3. Personnel of incubated and created firms between 1999 and 2007

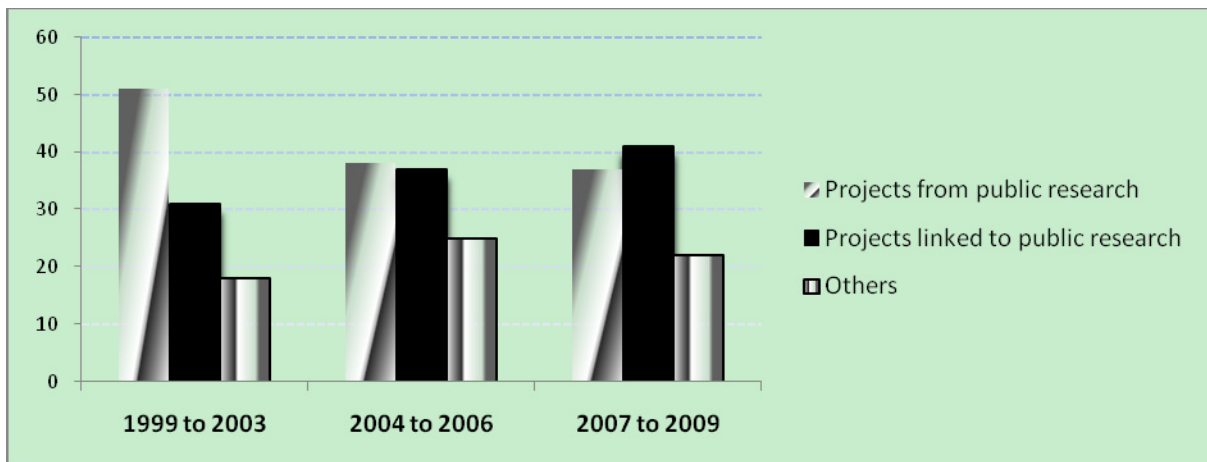
Year	Number of firms indicated	Personnel of firms indicated	Average
1999	5	62	12
2000	32	378	12
2001	51	308	6
2002	42	287	7
2003	60	287	5
2004	54	248	5
2005	70	301	4
2006	76	312	4
2007	40	133	3
Total	430	2316	
Global Average			5

Source: DIANE Database, March 2010, and MESR-DGRI-C3



Source: MESR-DGRI-C3

Figure 1. Evolution of the number of incubated projects



Source: MESR-DGRI-C3

Figure 2. Relationship of incubated projects with public research (in %)

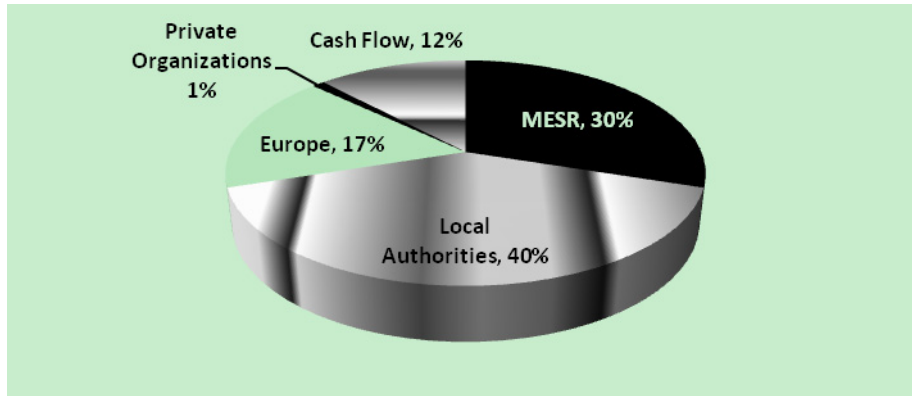
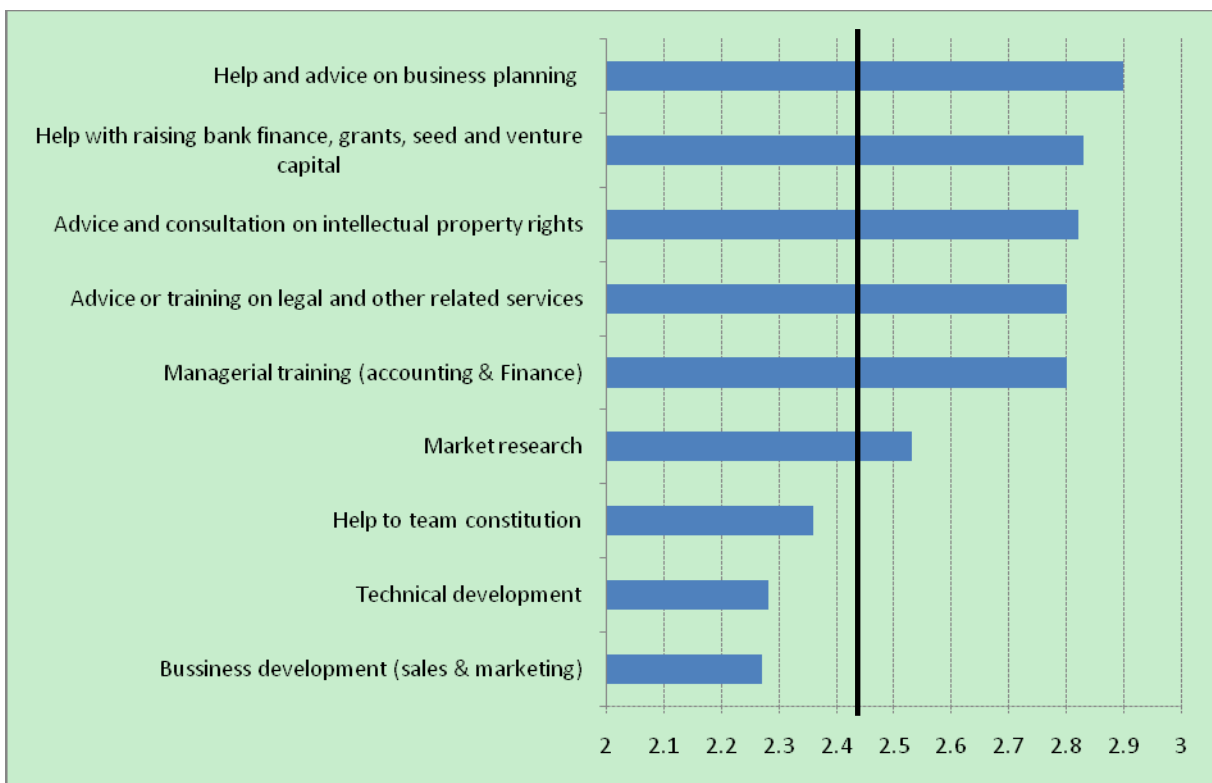
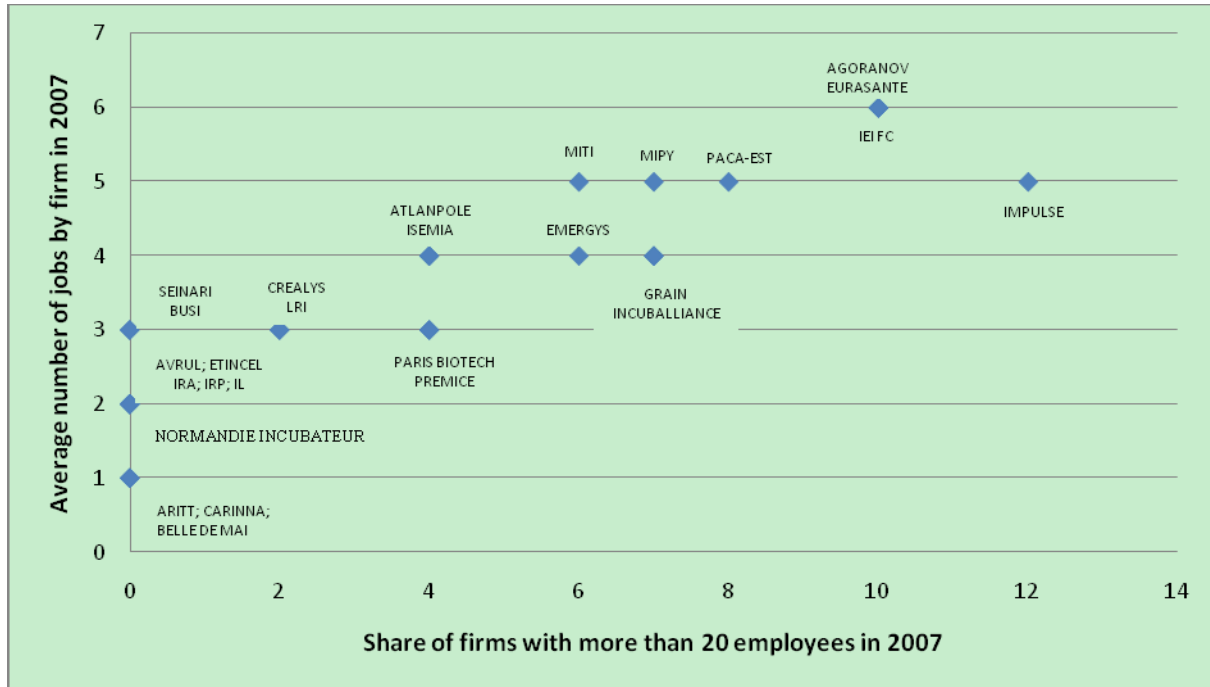


Figure 3. Distribution of budget for 29 incubators in 2008



Source: CM International - 2009

Figure 4. Global assessment of some service delivery items



Source: CM International- 2009; MESR

Figure 5. Incubators - Distribution of firms with more than 20 employees