

Business Incubation in the Italian Life Sciences and Biotechnology Sector

1. Introduction

The industrial Life Sciences and Biotechnology sector is a rapidly increasing sector in Italy: in 2007 the Blossom-Assobiotech Report ¹⁾ identified 222 biotech companies in Italy, producing a revenue of over 4 billion Euros.

Most of these companies (162) perform R&D activities in our country, employing more than 4.000 researchers, for a total of 1.2 billion Euros in R&D investments.

A large number of said biotech companies (87 companies, 40% of the total) were founded in the last six years, thus testifying the extremely fast growth-rate of the sector.

Taken as a whole, they represent a group of very young companies created under different mechanisms (academic spin-off, industrial spin-out, start-up, management buy-out, etc.), though all sharing the common feature of being “research-driven” initiatives: in most cases R&D is their core business, if not their exclusive activity.

Within such context, it might be interesting to examine some critical factors for the business incubation process, applied to the life sciences and biotech Italian sector.

2. Incubators and science parks

The role of bio-incubators and science parks in the development of new Italian biotech initiatives is testified by the number of companies located in such infrastructures - 65 out of 222, according to the above mentioned 2007 Report ¹⁾.

The number of science parks, partially or totally focused on life sciences, is rapidly increasing in Italy. The last edition of the Italian Biotechnology Directory lists a total of 9 parks ²⁾, half of which set up in the past 10 years.

The number of academic incubators is also growing in Italy. The Association of Academic Incubators, PNICube ³⁾, created in 2004, currently registers 23 affiliates.

This recent trend of growth in our country is consistent with the international acknowledgement concerning the positive impact of the “incubator-science park approach”, as shown by the survey made for the European Commission by the Centre for Strategy & Evaluation Services ⁴⁾. In 2002, when the report was published, the number of incubators (all disciplines) spread worldwide was estimated to be higher than 3.000, figure which quite likely has now considerably increased as well as the number of science parks developed around the world ⁵⁾.

2.1 Why incubation ?

A clear and concise overview of the incubation process has been published by the Politecnico of Milan ⁶⁾. Together with the basic core package offered by all incubators (space, shared services and equipment, common facilities), the overview underlines the “*real added value*” of incubators, namely the soft infrastructure provided by the tutoring, networking and funding activities. This kind of support is crucial for young firms, in particular for academic spin-offs, generally composed by teams of researchers with limited, or no, industrial and business experience.

The previously mentioned EU report ⁴⁾ reaches the important conclusion that business incubators significantly contribute to the increase in the number of new jobs available in

Europe. The report estimates around 40.000 new jobs generated within incubators every year, with an average gross cost of € 4.400 per job - a relatively low figure when compared to business standards.

The survey also significantly concludes that incubators represent a particularly effective way of promoting “*knowledge intensive, new technologies-based activities*”, which is precisely the case of life sciences and biotechnology companies.

In fact, bio-incubators located within well-established science parks often perform extremely well. For example, the incubator of the Virginia BioTechnology Research Park has led to the setting-up of 50 new companies in just seven years since its foundation; out of this group, 16 have successfully graduated and three of them have gone public ⁷⁾.

2.2 Critical factors

The key areas in which a business incubator must support a young entrepreneurial activity are often grouped in three major categories: a) space and infrastructures b) business support and c) financing.

Within these categories a number of factors are shared by all businesses and are, to some extent, quite obvious: for instance, the availability of equipped laboratories and offices, common facilities, business consultancy and services, access to finance, etc.

Other issues are more specific to given technological areas. In particular, with respect to incubators dedicated to biotech companies, the physical proximity to high level research institutions and the access to state-of-the-art technology platforms are essential.

Finally, we believe that other critical factors, which we briefly discuss in the following sections, are also particularly relevant in the present Italian situation, and well known to those involved in incubation activities in our country.

3. Seed capital

The amount of seed capital invested every year in Italy is still very limited. The last annual report edited by AIFI ⁸⁾ gives a figure of 28 million Euros invested in 2006 in early stage operations. This figure represents less than 0.8 % of the 3.7 billion Euros invested in the same period in the Italian private equity and venture capital market (mostly expansion and buy-out operations).

Quite obviously, this represents a serious limit to the initiatives aimed at supporting new and innovative start-ups. Moreover, the lack of Italy-based venture capital companies, specialized in the biotech sector, is seriously curtailing post-seed investments.

An alternative source of financing for start-ups are local and regional closed investment funds, which in some cases allocate a percentage of their resources to early stage projects, however not necessarily research-driven companies ⁹⁾.

The recent experience of initiatives such as those of Z-Cube ¹⁰⁾ and Eporgen ¹¹⁾, i.e. seed capital companies which have successfully supported the development of a number of start-ups in the biotech and life sciences field, gives us some hope for the future.

4. Fiscal incentives

In this area, the position of Italy is very weak. The recent law “Finanziaria 2007” introduces tax credit incentives - up to 10% of R&D costs - for the three-year-period 2007-2009. The percentage rises to 15% when R&D costs are referred to projects carried out in collaboration with public research institutions.

Although a positive first signal from our Government, such fiscal measure is largely insufficient to hope to compete successfully with science parks located abroad. For example, the “BiotechCity” park in Laval, Québec, offers an impressive list of fiscal incentives, including reduced governmental and regional taxes, tax credits on salaries, rental and facilities costs and tax credits on property ¹²⁾.

Another remarkable case, much closer to our country, is represented by science parks located in the area of Barcelona, which are able to offer a very competitive regional and national tax incentive package ¹³⁾. Not surprisingly, Spain has been recently mentioned as the country offering “*the most favourable fiscal incentives to Research and Development within the OECD*” ¹⁴⁾.

5. Attracting researchers

The ability to attract skilled researchers from other regions is a critical point for incubators and science parks. A good scientific and industrial environment is a crucial requirement. Other factors that might make a difference include: a) life-quality standards in the area where the incubator is located; b) transport infrastructures (local airport, railway connections); c) relocation costs (e.g. house rental) and d) services for foreign people (e.g. foreign language schools and nurseries).

As regards some major obstacles peculiar to Italy, we need to mention: a) the general reluctance to move from one’s native town, still deep-rooted in Italian mentality; b) the rigidity of the Italian labour market, which hinders partners’ and relatives’ relocation; c) the absence of fiscal incentives for researchers coming from foreign countries.

The way this last point has been seriously taken into consideration and addressed by the previously mentioned Science Park in Laval is meaningful. Indeed, the Government of Québec now offers a very competitive and highly attractive “5-year tax holiday” to foreign specialists hired in the region ¹²⁾. Analogously, a similar approach has been undertaken by the Spanish Government, whose package of investment incentives includes a 5-years 24% flat rate taxation on the personal income of foreign individuals hired for the first time by Spanish companies.

6. Management

The management of biotech companies is a delicate issue all over the world. A common opinion shared by most people working in the field is that “*there are many more good ideas than good managers in the world*”. This popular sentence has been reported also by A. Foeller in a recent paper ¹⁵⁾, which points out two important features. First, a biotech manager must combine general skills, common to any company’s good manager, with specific attributes related to the peculiarities of biotech start-ups, notably the need to manage the transition “*from science-oriented to commerce-oriented thinking*”. Secondly, different managerial skills are required as the company grows. In other words, when shifting from the early stage to the commercialization and operational stage, the ideal company manager must be able to change accordingly or, at any rate, be flexible and rapidly evolve consistently with corporate changes.

This is not an easy task and explains why there is a shortage of experienced candidates, especially in Italy where the sector is very young. The “first generation” of our biotech managers are engaged in the challenge of transforming their companies, founded in the past ten years, into integrated pharma companies. In some cases, they have already gone through a successful IPO experience, mostly on foreign Stock Exchange markets ¹⁶⁾.

For more recent start-ups, and for future initiatives, it would be advisable to attract experienced managers from abroad, including Italian managers who have had a

successful experience outside Italy and might be motivated to return to their own country. Should such candidates' financial requests exceed the available budget of start-ups, forms of "temporary management" ¹⁷⁾ or "shared management", could be considered.

7. Post-incubation stage

Incubation normally takes 3-5 years, after which the successful biotech start-up "graduates" and leaves the bio-incubator. At this stage "physical space" may rather soon become an issue. The initially small group of people (typically from 5 to 10) might have probably and considerably increased, thus requiring a location suitable to at least 20-30 people. For this reason, the science park hosting the incubator should be able to offer equipped space, typically within the range of 200-1.000 m². A specific building should be available for such purpose within the science park itself: among possible others, a remarkable case in point is represented by the Babraham Research Campus, offering premises to graduates of their bio-incubator within the so-called "BioDevelopment buildings" ¹⁸⁾.

Even more importantly than lab space, funding and business development become crucial at this stage. The initial start-up needs to develop into a more structured company, able to attract "real" investment capital (e.g. venture capital companies, industrial partners). In this delicate post-incubation stage, assistance and tutoring in business development and partnering may be necessary and should also be provided by the bio-incubator's management.

8. Conclusions

The discussion entertained in the paper can be summarized by the following three major policy recommendations, which could increase and sustain the likelihood of successful bio-incubation initiatives in Italy.

Policy Recommendation 1

Fiscal incentives are very important to attract both skilled human resources as well as financial investments.

Policy Recommendation 2

It is important to promote the growth of appropriate managerial abilities and culture of biotech firms, to successfully drive their business from the start-up, more research oriented, phase to the commercial stage.

Policy Recommendation 3

Seed and venture capital sectors are very important to foster innovative companies. Since the biotech sector is highly technical, specialized and competent seed and venture capitalists are needed.

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