# INCUBAÇÃO E ACELERAÇÃO: COMO CONSEGUIR QUE AS COMPANHIAS INCIPIENTES DE CONHECIMENTO INTENSIVO SAIAM DA FASE DA "GARAGEM"

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**Resumo:** Quando uma "idéia de negócios" transforma-se em uma "companhia nova e formal", o seu criador sai da familiaridade do seu território. Às vezes, conta com algum conhecimento sobre o mercado objetivo, e é evidente que se deve realizar um esforço que envolva investimentos, devem-se enfrentar custos e riscos e, com sorte, numa segunda instância, gerará um ganho ou retorno. As ferramentas para sustentar a criação e o crescimento das companhias inovadoras têm sido provadas em nível internacional, já que hoje existe uma rica variedade de exemplos disponíveis. Existem programas de incubação e aceleração de todos os tamanhos e formas, com uma grande quantidade de diferenças conceituais. Este trabalho estuda os negócios que precisam de muito conhecimento, e as visões que se têm adotado para a sua promoção, com uma ênfase especial no aporte realizado pelas incubadoras e os aceleradores das empresas. Abrange questões-chave e oferece sugestões relacionadas às: a) características dos negócios que precisam de muito conhecimento e considerações para lhes oferecer apoio; b) diferenças entre incubação e aceleração e os papéis que desempenham diferentes atores (agências, os setores privado e acadêmico, etc.); c) ao que deve ser implementado para fomentar as companhias incipientes, para apressar a taxa de crescimento e transformação em companhias bem sucedidas.

**Palavras-chave:** Incubadora; Crescimento e Conhecimento.

**Resumo:** When "business ideas" become "official startups," their creators are forced to leave their comfort zones. Sometimes they know just a little about their target markets, and it is quite clear that investments must be made, costs and risks should be faced, and, hopefully and eventually, there will be profits and returns.

Tools to support the creation and growth of innovative companies have been tested at international level, so today a rich variety of examples is available. Incubation and acceleration programs come in all shapes and sizes, with many conceptual differences.

This paper examines knowledge-intensive businesses and the approaches adopted to ensure their promotion, with a particular emphasis on the contribution of incubators and business accelerators. It addresses key issues and offers suggestions regarding: a) knowledge-intensive business characteristics and considerations for their support; b) differences between incubation and acceleration as well as roles played by actors involved (agencies, private sector, academic etc); c) requirements to foster startups, to accelerate both their growth rate and their transformation into successful companies.

## 1. PRESENTATION

When a “business idea” becomes an “official start-up” their creators (academician or industrial) go out from the familiarity of their territory. Sometimes he/she knows just a little of the peculiarities that characterize Knowledge Intensive Businesses (KIBs); we all know that KIBs do prosper in the knowledge economy and they have been placed centre stage in many national economic development efforts because of their potential for high growth. While macro socio-political factors affect the overall climate for innovation and development, the need for support services for neo-entrepreneurs is undeniable.

It is quite clear that neo-entrepreneurs should do investments, face costs and risks and hopefully in a second moment they will obtain, in positive case, a profit. Therefore they have to invest with a strong degree of uncertainty on their future results. For this a start-up presupposes, as base element, a professional mentor, a business partner or “active CEO” who helps it growing as fast as possible, who makes the entrepreneur aware and enables it to carry on not-marginal investments with a strong amount of risk: the incubators of ideas and the accelerators of enterprises.

There is no single definition of "incubator"/”accelerator” that is globally adopted. This is because there is no single meaningful definition of "incubator"/”accelerator”. The dominant “definitions” are more descriptions of what they do rather than definitions. Business incubation and acceleration have an essential role to play on how new knowledge intensive companies are developed in a region. If successfully managed, incubation /acceleration processes, do reduce the failure rate and enhance the growth rate of new businesses.

Business incubation and acceleration plays an important role in economic development, particularly for emergent countries because these innovative and potentially high growth companies will form the foundation of tomorrow’s core industries. They are key players of industrial innovation and technology commercialisation; providing an effective tool for the stimulation of commercial innovation, particularly innovation driven by advances in technology. Supporting and encouraging the development of creative industries with high growth potential; stimulating variety and competition within the market place; initiating fundamental economic development and re-industrialisation.

Different models of supporting the creation and growth of innovative companies have been experimented at a European and international level, so today a rich and wide variety of examples is available. Before going into explore the specific characteristic of incubation and acceleration it is meaningful to understand knowledge intensive businesses.

## 2. KNOWLEDGE INTENSIVE BUSINESS (KIB)

Knowledge-based businesses have in general intellectual property at their core – sometimes but not always registered through the patent and trade mark systems which need to be properly understood to be used effectively (hence specific knowledge and advise is required). Early stage investors in KIBs will be interested in obtaining an IPR to adds value to the intangible assets. At the same time some changes are being experienced in the internationalization of supply chains for both core knowledge intensive businesses like software and more traditional businesses where knowledge content is increasing.

Organizations supporting knowledge based business should be aware that research activities, development and design, early stage financing and commercialization may occur in a "glocal" basis, that's to say with some tasks developed locally but/and others looking globally (for example the access to business contacts). For doing this it is require a sophisticated international network and skills that are distinct from those sufficient to deal with a more traditional business which is rooted in the local and/or national market.

Another key issue is the qualification of actors involved in the process of supporting a new knowledge intensive business (consultants, angel investors, managers). Probably, if the project is very attractive, they may want to take the risk together with the entrepreneur, by paying fees or offering services; then negotiating a risk sharing deal which will allow these actors to take part in the revenue expected from the new company. Again specialist help needed at different points in the establishment and development of the new knowledge intensive business.

Because of the intrinsic characteristics of KIBs, to foster their birth and to sustain them until they become established, a range of active tools are required; this include:

- Incubators/accelerators as a key component of an incubation process.
- seed and venture funding usually in several roundo.
- specialist advice on such aspects as IP, international marketing and distributed systems management to accelerate the growing process.
- Entrepreneurship programs to stimulate interest, develop skills and build enterprise management teams.

## 3. INCUBATION AND ACCELERATION PROCESSES

All around the world several models have been developed and improved regarding incubation and acceleration. There are cases of public and private infrastructures focused on different stages of a company development, providing customised services, spaces and sometimes financial resources. We have incubators of ideas, incubators for companies, accelerators to speed up the growth/ expansion phase, infrastructures which are specialised by sectors, such as ICT or Biotech incubators and accelerators, as well as more generalist infrastructures.

The scenario is especially wide and not only that: every region has interpreted by its own way the concept of incubation and acceleration itself, adapting it to the local needs and the infrastructure to be developed. This makes the task of defining the right ingredients for a successful incubator or accelerator quite a challenging one:

Incubation and acceleration programs come in all shapes and sizes, given different local business environment, entrepreneurial culture of the society and initial conditions; moreover there are highly successful models of all types – non-profit and for-profit, mixed use and niche market, and everything in between. One size does not fit all!

Benchmarking activities to evaluate and define the success factors of existing models have been realised and many recommendations have been formulated at various levels, both on company selection criteria, services to be offered, role of the different stakeholders, dimensioning of spaces, etc. Bellow are listed some conclusions from best practices (please go to page 6 "Good Practice in Incubation: Literature Review").

Experience shows that a one for all model of success does not exist: any incubator and/or accelerator has to find its own equilibrium based in first place, on demand and regional needs, secondly, should take account of the objectives and strategy pursued by the incubator and nurturing with deep knowledge about similar activities, and third should consider the available resources both human and financial. Last but not least, the role of innovation in economic development is increasing in importance as we shift from a resource-based economy to one focused on the management and application of knowledge.

### 3.1 Incubation vs Acceleration

It is worthwhile to highlight existing differences between the concept of the accelerator - mainly services and financial tools targeting the "speeding up" of the initial development phase of the new venture, also exploiting the international dimension, connected with a strong policy on entrepreneurship - and the incubator - spaces and grants lowering the expenses during the start up-phase, often connected with regional policies for employment.

There are two approaches underlying different visions of regional development and request different marketing and implementing actions:

- the "acceleration process" is strictly linked with entrepreneurship policies - firms that want to succeed and make a "quality leap";
- while the "incubation process" is closer to employment policies - self employment and job-crisis solving, more than launching active enterprises in modern sectors with high potential.

However many universities, in particular those presenting an extensive research base, have set up incubators trying to catch the benefits from their research results and keep researchers and PhD entrepreneurs nearby the institution.

A business incubator is defined as an organization that offers a range of business development services and access to shared office space on flexible terms to meet the needs of new firms. The package of services offered by the business incubator is designed to increase the success and growth rates of new enterprises. To be more precise, a proper incubator grants a controlled environment that fosters support, growth, and protection of a new venture at an early stage before it is ready for maintain a self-sustaining operation. In today's world, where information technology and internet are natural elements of the business environment, the term "controlled environment" could be either physical (real estate and office facilities) or virtual (networks). It is a full-service organization that provides much a start-up could need, including office infrastructure, access to a contact network, technology resources, human resources, operational expertise, legal, accounting, etc.

An accelerator is a service firm that accelerate the process of starting a new venture and speed up the dynamic of company creation. It provides consulting services to reinforce the business plan and validating it, will advise a reposition if necessary, with a market oriented approach. Finally, will provide due diligence for a venture capital firm or other investors, and make available other for-hire services specific to new ventures. It leverages the broad base of skills, makes easier the access to "best practices," and benchmarking in the industry as a rocket booster for new ventures. Also included in the category of venture accelerators are early-stage incubators that are actually venture capital firms with active partnerships.

These firms or "venture accelerators" provide office space, some strategic assistance, and financial resources; all with the purpose of helping the newco accelerate. Equity requirements are similar to those of a venture capital firm. An accelerator may play many roles: capture potentially successful deals missed by venture capitalists; facilitate idea creation (ideation); enhance product and services; accelerate speed of implementation; provide supplemental management; offer more "hand holding" than a typical venture capitalist; give access to expertise in marketing, operations, human resources, technical, management, strategy, business development, financial, and others; facilitate business development and partnerships; help to find clients; facilitate sources of funding in more rounds; portfolio seed-stage ventures; provide additional deal-flow and vetting of deals for later-stage investors.

Source: META Group, Alessia Melasecche.

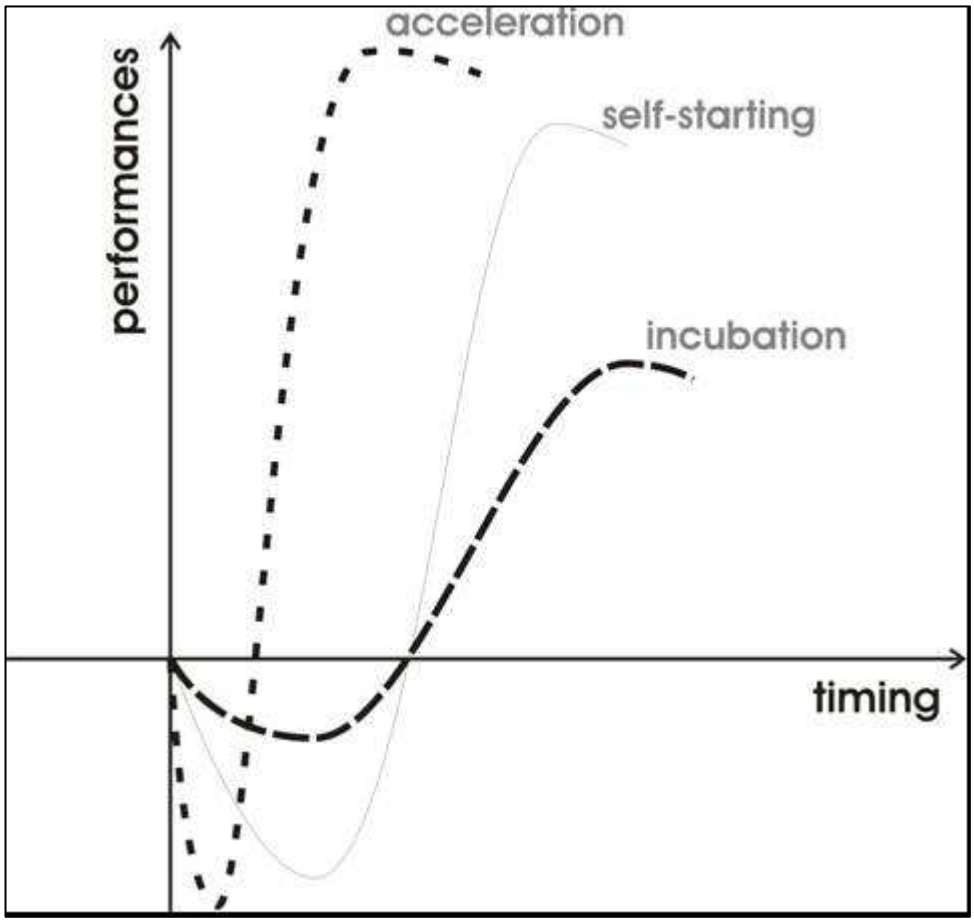



Figure 1 development path of successful companies supported by specific programs

2.1.2. Produção orgânica no Brasil

What is clear, however, is that certain models work better for certain circumstances. The location of the incubator is extremely important. In other words, not all incubators/accelerators are created equal, initial conditions do matter. Overall, the industry is new and "hot". There are a handful of incubators that provide obvious value while others may not provide as much value but are changing into accelerators (fast-tracked establishment) to meet the needs of the market. Nevertheless, business incubation or acceleration requires the successful combination of hard, soft and what is often called "smart infrastructure".

## 4. KEY ELEMENTS IN CREATING THE RIGHT ENVIRONMENT

There are some fundamental elements representing the "core" around which to create an incubator or accelerator; our experience has show us the importance of the following two elements:

- Soft elements: are those defined as "intangible", meaning services, quality of human resources, consensus, strategy to be followed;
- Hard elements: are those defined as "tangible", meaning technology elements; infrastructure, space and location.

Soft ingredients:

- Consensus – actors that are interested (local entities, banks, universities, chamber of commerce, associations) must be involved in the incubator initiative, congruence may exist between objectives and decision making, to evaluate project ideas together with the community and potential clients;
- Human Resources – it is necessary to have a broad access to knowledge: young people, dynamic, motivated and qualified, in charge of both scouting and training together with evaluation, as well as networking with private sector, it is a pre-requisite;

Hard elements:

- Technological Infrastructure – if referring to the development of new infrastructure and buildings dedicated to allocate specific companies, it is important to have an infrastructure of advanced technology.
- Efficient logistic connections – roads, trains, airports ensuring efficient connection with other national and regional poles allowing the access of qualified human resources to infrastructure (labs or university research centers), to other companies that may need them (also located in other neighborhoods or industrial areas).
- Functional articulation and size – available spaces for companies within an incubator or science park must be modular and flexible, starting from small unites. The dynamic of firms require environments providing the possibility of future expansion allowing the development of different stages of evolution.

## 5. GOOD PRACTICE IN INCUBATION: LITERATURE REVIEW

There are a multitude of models of business incubation with the following characteristics emerging as associated with good practice:

- objectives – emphasises business development rather than property provision with value added services as the key differentiating feature. Also a shift in emphasis in line with the phases of development of an incubator: a concentration on maximising occupancy in Phase 1, moving through a network building and nurturing of resident businesses in phase 2, to an expansion of span of interest as a regional driver for entrepreneurship in the third most mature phase.
- scale and configuration – accommodating more than 20 businesses with easy-in easy-out terms and flexible accommodation with linked grow-on space when graduating from the formal incubator is the best balance. A unit of around 3,000m2 is typical but there is quite a wide range around this figure.

- services provided – includes shared office facilities and services (aimed at enabling companies to give a professional image with minimal start-up cost) and more specialised business services (making available experience and skills to help the firm survive and grow). The management team of an incubator should devote 40% of time to business services albeit networking outside to access specialised services from the local business community which has proved more valuable to high growth firms (especially in the areas of finance, investment and suppliers)
- follow on services (before and after) – much emphasis is needed on stimulating the flow of new entrepreneurs (promotions, competitions, awards, networking) and assistance in the preparation for launch (training, hot desks, business plan preparation, assembly of resources) in addition to nurturing once launched. A clear exit or graduation policy is also crucial to keep the unit dynamic and structure the move out from the incubator as a key rite of passage but this should not mark the end of the relationship as services can still be provided and alumni roles can be of two way benefit.
- operations and management – incubator managers facilitate but should not get involved in running any aspect of tenant businesses. Using external support agencies is one method of avoiding over involvement. Rent and charges should be used to prepare firms for leaving the incubator – a hardening process – so there is no shock that endangers the firm's survival.
- funding – self funding is an objective but usually significant subsidies are needed at the start. These often take the form of an endowment (provision of capital for the building and early operating deficits with rental income then covering operating costs) or a service contract basis (usually time limited but often renewed for extended periods).
- governance – usually a not for profit alliance but with some mixed profit oriented elements to avoid the danger of complacency and satisfying.

In practise when analysing an existing incubator/accelerator there are some indications that proves that the right business model has been adopted: it has developed facilities, resources, methods, and tools that contribute to the growth of new ventures in the community; it is integrated into the regional economic development goals and strategies; it gives priority to providing services rather than costly infrastructure; CEOs of accelerators bring former contacts/colleagues alongside to provide further partnership and access to financial opportunities; start-ups or at least grouping of them, are working in the same field so entrepreneurs can share ideas and benefit form synergies.

In addition to support services provided to companies, incubatees should be able to work in connection with other entrepreneurs in similar situations and/or more advanced stages, so they can share experiences, ideas and advice on a daily basis. Finally, accelerators should cash in on university research and turn dormant ideas into commercial businesses.

## 6. GOOD PRACTICE IN INCUBATION: LITERATURE REVIEW

### 6.1 Venture funding

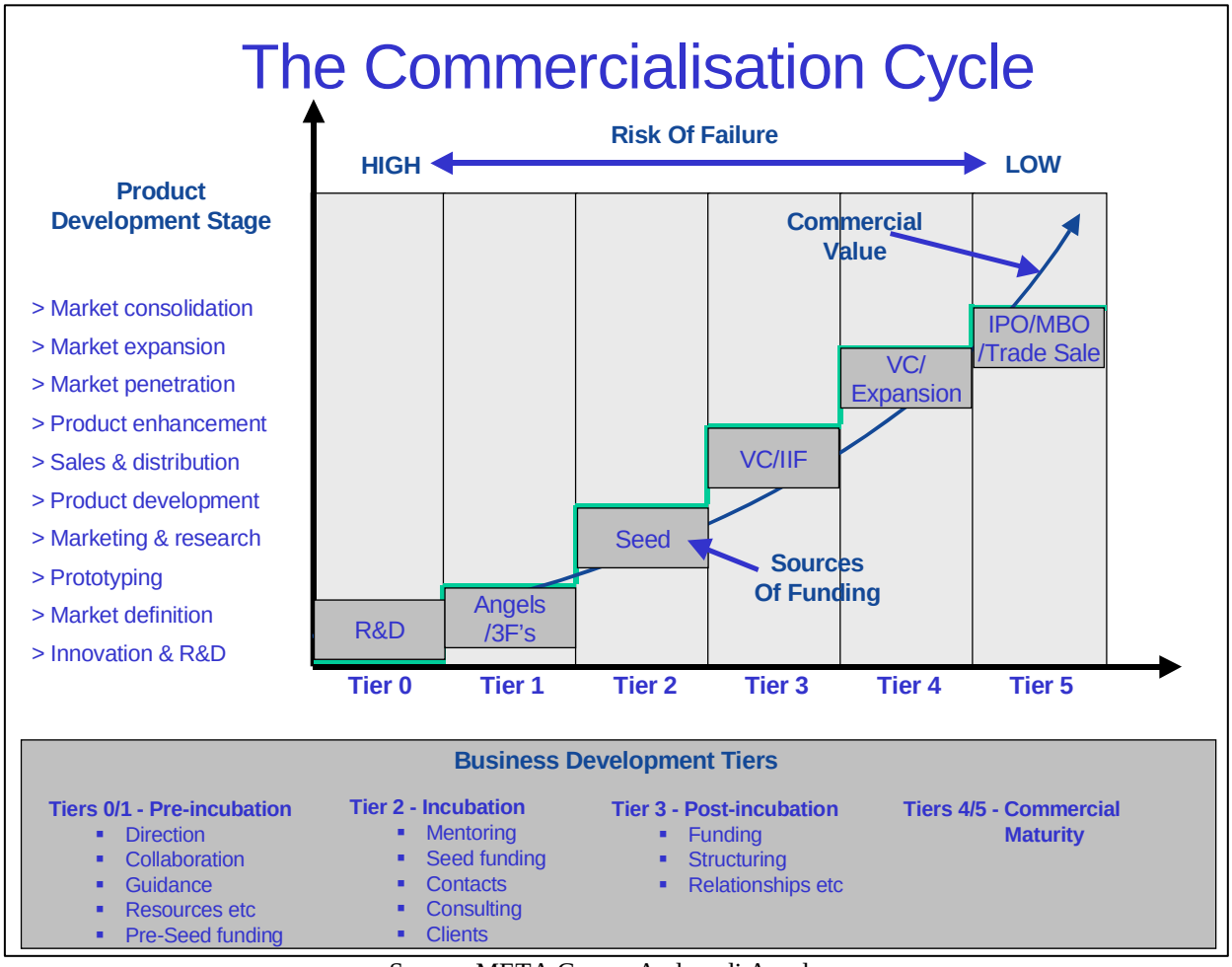
Seed funding is one of the crucial ingredients needed in the process of creation of knowledge intensive companies so, first, it has to be available and, second, it needs to be coordinated alongside other offers and tools for business support. Hence it is important to stimulate a sustainable market for business services – including the provision of finance for new knowledge based businesses – as this is the best guarantee of long term sustainability.

The figure below shows the way META Group views the chain of funding and other ingredients needed for successful incubation.

Any effort of incubation should be focussed on Tier 1 to Tier 3 although there are implications for the sponsoring Universities of how Tier 1 is conducted. Post Tier 2 there is an approach to formal VCs for development and expansion capital, although even here there are differences as, for example, drug related biotech firms often need to be funded for multiple years of drug development even though they are in many other respects similar to other incubated firms.

Focusing on the funding areas there is a growing international experience base on seed and venture funding that can be drawn upon. The normal pattern at this stage is that the traditional financial services sector finds it difficult to provide early stage funding for knowledge intensive businesses. Reasons are related to the extra risks (technology, market and management inexperience), high transaction costs for small injections of funds, and the extended period before the emergence of returns. Additionally, there is no tangible assets upon which a loan can be guaranteed and often the new entrepreneur is not backed by personal collateral that can give comfort.

Figure 2 Venture funding and related support activities




Source: META Group, Andrea di Anselmo

Hence there is a need for public supported initiatives to reduce risks and costs of transactions; in fact many regions now have a seed funding tool in place. Key lessons are that a seed capital tool should be:

- privately managed – with decision making delegated to professionals within strategies defined by the senior board governing the program.
- commercially oriented – with criteria that emphasis the quality of the business idea rather than the novelty of the technology.
- risk oriented – with an expectation that at least half of the ventures will not succeed to grow as expected in the business plan but that this will be complemented by the two or three that do better than expected.
- well articulated – with other funding providers so that there are opportunities for others to be involved in subsequent funding rounds as the successful businesses grow
- active in support – to ensure that the financial injection is matched by other inputs of advice, information and action to help in any way to build a successful business.

**6.2 Advanced Services – advisory and support**

This subject is particularly relevant at the regional level because higher level business services are usually concentrated in the dominant metropolitan areas of any country rather than being evenly distributed around its regions. So key issue is how to bring local relevance at national level. We know that concentration arises because of the relatively low level of demand for specialist services, the relative infrequency of usage by any single client and the concentration of likely clients in larger cities. Supply follows effective demand rather than leading it meaning that there is frustration from those who have needs for such services but who are actually far away from the source of supply. There are also particular issues relating on the demand side from the infrequency of use, which means that there is little experience of defining the service needed, or in discriminating among potential suppliers to select the most appropriate provider.

The normal business services are presumed to be present in most regions although even here there are often problems of quality and extensiveness of experience when dealing with the more specialist needs of innovative knowledge intensive firms. Specialist services are usually covered by three categories listed below:

- legal services: primarily related to Intellectual Property – both in terms of protecting research findings with potential commercial value and in accessing external technologies available through the patent system.
- access to networks: business linkages, especially between international partners – primarily at the point when the technology business begins to explore external markets and has to accumulate knowledge about how to both develop and protect their interests. This typically happens earlier in the life of new technology based firms because of the small scale of national markets in specialist niche businesses.
- financial services relating to venture funding - which are normally presented as the need for venture capital but is in reality much larger and broader and includes both services to the new entrepreneurs to make their business idea investment ready and operations on the financial community to introduce several new financial instruments that meet the need of technology based firms as they change through the distinct stages of their growth.

Programmes to tackle these weaknesses on services usually have two aspects – the first relating to immediate supply of the missing facilities and the second is training programmes to improve the level of supply in the medium to longer term. A third aspect often included is a shared cost grant component to overcome resistance to buy the services because of a perception that they are too expensive which is often the case when they are not frequently purchased. These interventions should be encapsulated in a framework of "demonstration effects" to prove demand exists with an expectation that a short term intervention can lead, in the medium to longer term, effective market supply from private providers.

Immediate supply is usually stimulated by a publicly funded programme where specialists are contracted to offer services to the target communities. Choices of providers, with some form of accreditation of suppliers, are the usual features if the shared cost grant method is being used but a single supplier is a normal feature of the fee for service contract method. Where the latter method is adopted the service is usually offered on a first come first served criterion for a relatively short time (say two years) on the basis that it will identify more accurately if there is really a sufficient need to justify a longer term response from the supply side - i.e. it will prove and demonstrate the market potential of the region for these specialist services.

Training programs are needed for capacity building, for stimulating the supply of services in the longer term, and because of its specialist nature it is usually tackled at a national level, although the training may be provided by a regional agency which has the relevant competences. The distribution of the expanded trained supply usually reinforces the established pattern of supply, i.e. it remains dominantly in the metropolitan area, which is entirely to be expected given the normal market perspective.

## 7. KNOWLEDGE INTENSIVE BUSINESSES WITHIN A REGIONAL INNOVATION SYSTEM

Drawing upon support infrastructures and programs for KIBs, mostly if publicly promoted, it is necessary to put great caution to the resources, their degree of use and allocation. "If the horse does not drink, it is useless to create a fountain", this is what remembers us an old saying. Some interventions, as for example those to eliminate numerous strangling of the local economy or those that carve on the cost and the quality of the production factors, like vocational and professional training, infrastructures (materials and intangibles), have to be actually skilled by the public authority, while other more specific, should born from the inside of the entrepreneurial and professional world.

There are, however, many of existing tools not fully used at regional level, like public structures already arranged to assist the enterprises that not exploit adequately their production, in such case those are heavy costs for the system, but they do not bring any additional value to it. There is also international experience and know how that could be actually transferred from region to region, and adapted to different conditions (industrialized countries vs emergent countries). This could be supported by international expert consultants working together with operational teams created in interested regions and the aim should be focused on building capacities and contribute to policy design.

It is necessary to strengthen the conviction that the territory it is not a simple container of the economical activity or a further production factor, but a relational space prepared to

develop or to bound the stimuli and dynamics for changes to be. Therefore the territorial space becomes "actor of development". It is the so-called "proactive space", a package of key initiatives (public and privates) governed by a public private partnership (PPP) respondent to the "complex of the actors".

Every area is potentially a "proactive space", but the degree in which it actually becomes one, depends on the extent of cohesion, mixed with innovation and strategic behaviours of the community. It is the bridge to link together the regional dimension and the international one – the international network dimension is where we highlight one of the most important differences between the accelerator and the incubator.

Regarding the policy making process, there are policies to favour enterprises and policies to favour territorial systems: they proceed in parallel, but they cannot be disregarded the one from the other. Besides, public interventions should be always less "for sectors" and more "for factors" if the objective is to support research and training activities hence to supply the territory.

Although the changing role of the "public hand" experienced in the last years (from strong administrative control to targeted interventions and regulation), still targeted programs continues to be decisive for the creation of environmental friendly "institutions" (legal, normative, infrastructural, social and cultural) favourable to innovative and knowledge intensive companies (at all stages) and consequently to sustainable development.

It is necessary that existing organizations provided mainly with bureaucratic-administrative skills look forward to taking the role of actors of "wealth generation", pro-active at local development by looking globally. This new empowerment of local systems, can be regulated across vertical criteria of subsidiarity between the different levels of government, in a way that the lowest level nearest the enterprises, is allowed to develop a mechanism of governance that goes over the traditional offering of services, absorbing all the aspects of the collective life at local level to better respond to the globalisation exigencies.

In deep analysis has revealed sound political implications, in particular the opportunity to re-orientate public intervention towards policies capable to build, from the low level, local development processes mostly in territorial contexts affected by "special delays". Such a logic should govern the active role of the local actors, public and private in partnership, called to be the promoters and implementers of the regional development strategy. Together with the "public hand" it is necessary a "private market-oriented view" to better understand and respond to the needs and aspirations of new KIBs and start ups, in order to create maximum value, support structures as incubators and accelerators professionally managed, and cultivate a network that will not only financially assist the clients, but also participate actively. In any case, the incubator or the accelerator is a business and should be run with a commercial approach independently from the origin of funds (public program vs privately own).

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