All these alternative approaches have their place in the provision of direct support services to start-ups and SMEs. As well as for the direct service schemes, many of which might be supported by regional or local government as well as central government, Governments are also responsible for the design and operation of the legal and administrative environment that governs the performance of enterprise and encouragement of entrepreneurship. All the possible business support schemes outlined above, including business incubation, involve a degree of co-location and take place within the environment created for business growth so that their relative success is heavily influenced by the strengths and weaknesses that are present in this wider environment.

While reviewing the global incubation practices and preparing the four national case studies covering Brazil, Malaysia, New Zealand and South Africa, we have identified a number of key policy dimensions affecting the design and implementation of an incubation policy framework, i.e.:

- Objectives for business incubation and service mix;
- Wider business environment;
- Funding strategies and sustainability;
- Ownership and management;
- Monitoring and appraisal.

In the following sections, we provide an overview of each policy dimension, based on the results of the literature review and case studies outputs. In the final section, we include an indication of key recommendations emerged from our research, which can contribute to the successful design and implementation of incubation policies.

4. Objectives and Strategic Planning for Business Incubation

In both developed and developing economies, small and medium enterprises (SMEs) are considered crucial to fostering economic and social development and their growth is supported with a wide range of policies as outlined above.

The failure rate of small new businesses in their initial years is high in both developed and developing economies. In part this reflects the competitive environment within which the businesses are launched and also the effectiveness of the specific business idea. It is also a consequence of the lack of experience of the entrepreneur who is launching the business and deficiencies in the environment (i.e. shortage of capital, legal difficulties, lack of information, etc). A wide range of initiatives are supported by governments to try and reduce business failure rates through addressing problems in the environment (i.e. special loan funds, removing legal obstacles, reducing government administrative procedures and speeding up their operation) and by assisting new entrepreneurs to tackle their lack of experience (training programs, advisory and support services, etc).

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8 There are schemes available to measure the impact of the business environment on the ability of business to develop and thrive, the best known of which are the World Bank’s “Cost of Doing Business” http://www.doingbusiness.org/ and the Global Entrepreneurship Monitor http://www.gemconsortium.org/default.aspx
Business incubators provide focused support to entrepreneurs through a supportive environment that helps them establish their business ideas and develop their concepts into market ready products, supports the acquisition of business knowledge, facilitates the raising of necessary finance, introduces the entrepreneurs to business networks, all of which should substantially reduce the level of failure. They not only allow new entrepreneurs to start their business by reducing the related costs and risk but do also increase their chances of survival and success by building capacity and networks.

Business Incubators have attracted significant support from governments throughout the world and in a wide variety of developmental contexts. According to the case studies drafted for New Zealand, South Africa, Malaysia and Brazil the main objectives pursued by National Governments through business incubation were the following:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>BRASIL</th>
<th>NEW ZEALAND</th>
<th>MALAYSIA</th>
<th>SOUTH AFRICA</th>
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<tbody>
<tr>
<td>Economic development, employment generation (targeting disadvantaged groups) and technology commercialization</td>
<td>Generate high tech, growth-oriented and internationally competitive exporting SMEs</td>
<td>Technology transfer and Innovation</td>
<td>1. Technology transfer and Innovation</td>
<td>2. Creation and development of sustainable, globally competitive SMEs that contribute towards the accelerated growth of the South Africa economy</td>
</tr>
</tbody>
</table>

Governments see in incubators both a powerful means for supporting SME growth and for addressing a variety of socio-economic needs, which include job creation, technology and innovation transfer and thus competitiveness, local / regional development and restructuring, poverty alleviation and integration of economically disadvantaged groups. Thus public policy in support of incubation can have a number of different strategic focuses, each implying a different business development culture that will be reflected in the key skills and services provided.

Usually incubators are designed and implemented to pursue defined objectives as a part of a broader strategic framework (territorially orientated [regional strategy], or of particular policies [job creation, social policies, competitiveness], or a combination of these factors). Best practices show the need to have a strong consistency between the incubator programs and the overall economic development strategy. Where business incubation programs have been developed and conceived for standalone goals, incubators have generally turned to be of limited use with few sustainable results.

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9 This is also confirmed by the Benchmarking Study for European Incubators undertaken by the “Centre for Social and Economic Study” in 2002.
Strong consistency with overall economic goals needs then to be combined with a long term approach (on average at least 10+ years), needed to ensure the establishment and sustainability of the incubation industry as well as the proper functioning of the business environment where incubators operate.

Policy makers should consider a deeper investment in understanding the drivers of success in particularly effective business incubation models. These investments should be followed with pilot initiatives that seek to test the findings and replicate these models in a variety of environments.

In the four countries that we have considered for our case studies, incubation policy has a long term approach and is usually part of clear strategic frameworks that have been developed and further refined during the years. The need to update and to be flexible in targeting emerging needs and/or weaknesses in the incubation system as well as to identify and replicate good local practices has turned out to be crucial in all cases.

<table>
<thead>
<tr>
<th>STRATEGY FRAMEWORK</th>
<th>BRASIL</th>
<th>NEW ZEALAND</th>
<th>MALAYSIA</th>
<th>SOUTH AFRICA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The PNI (National Incubation Support Program)</strong> is designed to support new incubator creation and the expansion of existing ones. Incubation is now well coordinated within the SME support policy and the S&amp;T Initiative, although it started as a bottom-up product of multi-polar initiatives by a wide coalition of local promoters. PRIME is the most recent step towards an increased support to innovative SMEs with high growth potential.</td>
<td>Incubators are supported under the Incubator Support Program (ISP), launched in 2001. Other programs supporting enterprise development are provided by New Zealand Trade and Enterprise (NZTE) Incubator Development Unit (IDU) residing within NZTE. There is a good integration of ISP into SME support systems and RED strategies.</td>
<td>The National Incubator Development Framework which led to the establishment of a specific incubator support program in 2002.</td>
<td>National Industrial Policy was launched in January 2008 and foresees also small enterprise support. The Small Enterprise Development Agency (SEDA) is in charge of coordinating SMEs support intervention. Incubation policy was piloted in 2001 through the GODISA program and is currently part of the STP (SEDA Technology Program).</td>
<td></td>
</tr>
</tbody>
</table>

Incubation can also be included in the strategy framework for invigorating an industry cluster that is already attractive within a country or a region. In this case, launching incubators in industries that are already of interest to the national or regional authorities tends to imply that the businesses in such an incubator will be able to draw on a wider array of support services and programs than otherwise. In addition, the incubator will serve a larger purpose than simply helping a small subset of businesses in policy isolation. As a result, usually these incubators will not be narrowly focused on niche sectors but have a mixed nature in order to ensure a critical mass of deal flows.
The incubator should plan to support businesses in an industry that is structurally and contextually feasible and attractive in the country or region in which it plans to operate. For example, a biotech incubator focused on pharmaceuticals will struggle in a region where sufficient R&D funding is absent. At the same time, the incubator must have a substantial feedstock of suitably qualified and interested entrepreneurs. It is therefore useful to perform market research to identify the size and the requirements of their target market before proceeding too far in investing in its final portfolio of resources and services.

In general, a feasibility study is an important and necessary step, to design the business incubator and assess whether or not and how an incubator might be feasible. This is an important prerequisite for public support. The NBIA notes: “Providing detailed answers to critical questions, a feasibility study helps business incubator developers decide whether a business incubator will prove effective in a particular setting, by determining if the proposed project has a solid market, sound financial base, strong community support, and true champions. Beyond that a feasibility study identifies obstacles that business incubator organizers might have to overcome and offers options for surmounting them. It also may look at whether a proposed business incubator will further a community’s broader economic development goals.”

A useful tool for anyone considering to set up an incubator is the “Mixed-Use Incubator Handbook: a Start-up Guide for Incubator Developers” published by infoDev. The handbook is aimed at the context of developing countries to address the needs of these communities, which are often radically different from those prevailing in Europe and the United States where education, business training, and public institutional support belong to a more mature corporate environment. It is designed to help developers think through all the issues involved in establishing an incubator and outline a solid business plan to support the necessary fund raising.

We have set out here below the main different policy objectives pursued by governments through support to business incubation.

4.1 Promotion of new Business Sector, especially in Innovation and ICT

Currently, incubators are more and more intended to provide a convergence of support, towards creating growth-potential, technology based ventures. They are meant to promote technology innovation through interaction with universities and research centers, introducing new ventures to functioning clusters of high technology enterprises and direct advisory services for enterprises initiating innovative products and services. Thus incubation becomes part of a wider program for the encouragement of research and development (R&D) technology transfer and innovation and can call on a wide range of support programs.¹⁰

¹⁰ The Brazilian case study illustrates a development path where the majority of incubators are sponsored by Universities, linked to the business sector and financed by a variety of government programs. In Brazil these incubators act as focal points of complex networks that bring together funding sources, researchers and enterprises to encourage start-ups to take advantage of the research being undertaken in the country.
In some cases the incubation aim has been to introduce to an economy new business services and business models that are clearly required for the area to continue to compete successfully. ICT is the classic model for this, where incubators have enabled a range of new ICT based commercial business services (from bookkeeping to sales, to after sales services, servicing of ICT equipment etc.) often tailoring available packages to specific needs or creating innovative delivery mechanisms for service delivery, enabling other economic activities to gain efficiency and expand their operations more rapidly. While such businesses were often based on tried and tested approaches they have to innovate in service delivery, marketing, packaging and pricing to meet needs in different business environments, helping to build performance of other businesses, thus improving competitiveness across a region.

The role of business incubation in these programs facilitates the intersection of innovation and entrepreneurship thus having a particular powerful impact on the environment. The incubator becomes a place where wages go up because these new firms must compete on human capital and knowledge, where businesses grow from small to medium, and where local economies connect themselves to global economies.\(^\text{11}\) Their goal is not to support all start-ups, but rather those with the capacity to scale and grow, sometimes called *dynamic enterprises*.

This mainstreaming of technology transfer and innovation can be seen both in developed and developing countries, as shown in the table below.

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### Promotion of new business sector, especially in innovation and ICT

<table>
<thead>
<tr>
<th>Developed economies</th>
<th>⇒ Primary objective is to establish technological leadership of local SMEs and make the local economy more competitive on international markets.</th>
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<tbody>
<tr>
<td></td>
<td>Technology transfer and ICT models developed:</td>
</tr>
<tr>
<td></td>
<td>• incubators can be more industry-specific in terms of technology field and consequently marketing, information and training <em>(specialized research-technology based incubation)</em>. Incubation is often included in a wider strategy for the development of technology-based clusters, for instance focusing on automotive technologies, biotechnology, electronics, new material, energy saving and environmental protection. This is quite typical in the EU.</td>
</tr>
<tr>
<td></td>
<td>• incubators are established as <em>general research-technology based business incubators</em> and have a mixed use. This is the case in the USA where the vast majority of tech incubators are not established as specific to any particular industry.</td>
</tr>
<tr>
<td></td>
<td>• Business incubation with university relationship. A common path is the creation of strong linkages with the university system to ensure a structured inflow of relevant resources, information and new ideas, as well as of clients and spin-offs coming from research centres and their staff(^{12}). In other cases, incubators are directly set up within or by university campus to promote the research commercialization. This is very popular in the USA.</td>
</tr>
<tr>
<td>Larger developing countries (like Brazil and South Africa)</td>
<td>⇒ Primary objective is to promote technology transfer and become knowledge based economies.</td>
</tr>
<tr>
<td></td>
<td>Technology transfer and ICT model developed:</td>
</tr>
<tr>
<td></td>
<td>• <em>General research-technology based business incubators:</em></td>
</tr>
<tr>
<td></td>
<td>◊ initial focus on simple business incubators with technology as a central theme</td>
</tr>
<tr>
<td></td>
<td>◊ located in industrial estates or clusters</td>
</tr>
<tr>
<td></td>
<td>◊ linkages with the R&amp;D institutions are gradually supported and developed together with various related policies (incentives, tax structure, real estate development, foreign direct investments, skill-development and education programs)</td>
</tr>
<tr>
<td></td>
<td>◊ incubation may be sponsored to help build local services and suppliers, which also helps localize ownership, to key industrial clusters(^{13}).</td>
</tr>
<tr>
<td></td>
<td>• Business incubation with university relationship. The Brazil case indicates the importance of the Universities to their model of business incubation. Essentially, the university or academic institution has a role as a founder (as in Brazil) besides being a source of resources such as research, expertise, space and/or funds.</td>
</tr>
<tr>
<td>Smaller less developed economies</td>
<td>⇒ Primary objective is to facilitate the introduction of appropriate new technologies to their economies and building capacity to adapt and introduce technologies to their specific circumstances. This reflects the weak R&amp;D infrastructure in the country.</td>
</tr>
<tr>
<td></td>
<td>Technology transfer and ICT models developed:</td>
</tr>
<tr>
<td></td>
<td>• ICT support services incubation</td>
</tr>
<tr>
<td></td>
<td>• Agri-business incubators(^{14})</td>
</tr>
</tbody>
</table>

\(^{12}\) A distinctive feature of TU/e Innovation Lab (high-tech start-ups) in the Netherlands is the concept of an incubator representative in each university department. Their task is to screen new projects and identify potential even before the researchers themselves become aware of it. Furthermore, some of the benefits of the creation of a spin-off company are returned to the department itself, which is an important incentive for the department’s effort to scout new projects. This ensures a powerful screening and scouting instrument.
Although most business incubators share a commitment to supporting growth-oriented enterprises at the early stages of their development, there is a relevant diversity in incubator models developed. This diversity reflects the need for a customized approach to effecting change in distinct, complex environments with different local barriers to innovation and entrepreneurship.

In general, success incubator programs, promoting new business sectors with a focus on innovation and technology transfer need to be embedded in wider frameworks for technology transfer and innovation development, usually implying:

- The encouragement of applied R&D (i.e. grants for joint research between companies and academic bodies);
- development of industrial clusters (financing training programs, encouraging joint activities etc);
- improve education/human capital (e.g. initiatives to strengthen skills of the work-force to the new evolving technologies, e-learning and open education);
- creation of an adequate infrastructure like S&T parks or industrial parks providing high quality services where firms in the new sectors can co-locate.

13 Malaysia’s economic growth has been critically supported by the electronics industry where international companies have located since the 1960’s in free zones, producing primarily for export. These have mainly been “screwdriver industries” assembling parts produced elsewhere. Malaysia has struggled to maintain their place in the global system for this industry as availability of cheap labor has declined but skilled labor, enabling progress up the value chain has been scarce. Incubators, along with vocational education and training, R&D funding and other measures have formed part of the strategy to improve the country’s ability to support and facilitate growth of the international electronics cluster.

14 Timbali Technology Incubator is the agricultural sector success story of the of the incubator fraternity in South Africa, Timbali, formed in 2003 as a partnership between the South Africa Land Bank, Mbombela Flower Growers and the South African Agricultural Research Council, has created an enabling environment where fledgling apprentice farmers have the opportunity to develop independent, competitive Agri-businesses. Over the past three years, Timbali has been instrumental in incubating more than a 100 Agri-related SME’s, of which 97% are Black owned businesses, and 62% of which are owned by women. The Timbali Technology Incubator was the category winner in the Top Technology 100 Awards in South Africa for “Social Innovation” in 2005. In 2006, Timbali again qualified as a Top Technology 100 Company for 2006, and was a finalist for “Leader in Empowerment.”

15 This can be seen in several countries i.e. China, India, Brazil, South Africa, Israel, Sweden, Finland, where the governments have launched multi-annual national plans for Science & Technology development placing the establishment of technology/industry business oriented incubators within the creation of a comprehensive infrastructure based on science & technology parks linked to R&D centre’s and universities, a structured system of incentives in favor of innovation and technology transfer activities as well as human resources development initiatives.
4.1.1. Cultural Industry Incubation

The focus of this section is on technology transfer and innovation, illustrating how the economic growth objectives of government can be expressed in part through business incubation. Many developed and some developing countries (i.e. Brazil, Malaysia) have set themselves the objective of becoming knowledge based economies, as have many developed countries i.e. European Union Lisbon Agenda.

While this is the case the same concept of supporting innovation has been applied to the cultural area where specialist incubators have been established, often linked to centers of academic excellence in the performing and broadcasting arts, and designed to assist new artists establish successful commercial businesses. For example the Cultural Industry Quarter in Sheffield includes specialist music training courses at Red Tape Studio, recording studios, incubator and workspace services through creative exchange.

Cultural incubators provide support for creativity based enterprises delivering services into growth areas often linked to electronic media including television, broadcasting, electronic design, video, music, etc. Located within wider initiatives for cultural industries the incubators nurture local talent and raise levels of creativity that influences the ability of all industries to innovate.

4.2. Part of major Industrial Restructuring

Geographical areas tend to specialize in particular sectors because of locational and other advantages, leading to employment and skill patterns that reinforce advantages and build the sector into the areas major employer. However, if the industry situation changes the area can suffer major problems of unemployment and economic decline. The area subject to such major industrial restructuring needs to develop new enterprises, often in new sectors, to try and replace failed major employers. This requires both incentives for businesses to re-locate to the area and the encouragement of new business creation in the area, which could be in modernizing the dominant sector or in application of local skills and talents to new activities. The wider public policy to address these restructuring issues usually includes financial incentives for relocation of existing businesses (tax credits, loans etc.) re-training programs for people facing redundancy and new different skill training for new entrants and support for new business start-ups including the encouragement of entrepreneurship often in areas where SMEs are under-represented in the economy (training, business advice, guarantee funds etc.)

Business incubators have been widely used as part of the policy mix tackling the restructuring of a local economy. Such incubators have typically targeted people facing redundancy, providing a mix of services emphasizing the development of business skills and entrepreneurship attitudes. The aim is to assist people to build new enterprises based on existing skill sets and/or to reapply their skills to new sectors, creating new growth businesses and role models for others.

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19 The Sheffield Cultural Industry Quarter is a specific example where the failure of the steel, clothing and mining industries led to rapid decline and rising unemployment. The focus on cultural industries enabled a new sector to be created, providing new hope for young people and helping to regenerate local communities.
This happened in the transition economies of Eastern European countries where the incubator tool has been widely adopted to support SME and entrepreneurial skills development in order to facilitate the process towards a market economy. Incubation programs helped also to absorb the excess on the labor supply side and high level of unemployment resulting from the privatization of state companies.

Currently, many developing countries facing the urgent need to restructure their economies and address high unemployment rates in the context of rapidly growing young populations and increasing globalization are using this incubation model. In order to focus on entrepreneurial skills development and job creation, in ways that complement wider initiatives to improve opportunities for small enterprise development and growth and create labor friendly policies.

Usually, incubator programs aimed at major industrial restructuring foresees a mixed portfolio business incubator targeting a range of sectors.

If there is a local development or competitiveness strategy, commonly sectors supported by the incubators are aligned to it. This happened successfully with the generation of incubators funded by the Structural Funds for the period 2002-2006 in Europe, which contributed to several local regeneration and development initiatives. This is not the case of most Asian countries where there is still the need to promote the design of local development and competitiveness plans where incubators are adequately integrated.

In this type of incubator there is less emphasis on technical skills and more on developing entrepreneurship and business management skills. Pre incubation services will emphasize business training and coaching to build ideas and confidence with selection criteria focused more on the sponsors’ ability to successfully make the transition to self employment in productive enterprises rather than innovation or new products. However, this model can also facilitate the germination of new areas of competitive capacity and provide a focus of innovation in this regard.

4.3. Introduction of Entrepreneurial Culture to Socially-excluded Groups

Particular groups suffer disadvantages in a country that can lead to them becoming isolated from main activities. Such groups, often an ethnic minority, become socially excluded, with poor school attendance and qualifications, relatively high levels of unemployment, poor housing, high incidence of poverty, higher crime levels, lower life expectancy etc. The outsider image and real problems of such groups often lead to growing discrimination in employment and treatment by service providers that reinforces their social exclusion.

Governments need to develop a range of policy measures to try and tackle these problems of social exclusion including special training programs, anti discrimination laws, local infrastructure investment etc. In some cases the policy mix has included efforts to raise the numbers of businesses created by the targeted group through special training programs, access to finance schemes, purchasing policies of government agencies etc. designed to assist businesses owned and managed by the target group to start and flourish.
Business incubation programs have been established to target such groups, providing them with strong mentoring services to help develop appropriate entrepreneurship behavior and management skills necessary for their business to succeed. They may focus on socially valuable products and services and require significant investment in human capital and “pre-incubation” activities.

In a similar way some incubators have been established to target potential businesses established by unemployed young people, who are likely to need more mentoring to develop appropriate behavior and assistance to network successfully in the wider business community. Young people not only lack life experience and resources, but for them getting equity and credit facilities can be a big challenge. Thus this type of incubation programs often include relevant services and assistance in covering the financing gap20.

More recently a number of incubators targeting women owned businesses have been created, helping women to overcome discrimination in the wider environment.

Through the EQUAL program in Europe, incubators have been set up to support single mothers, unskilled women or women from ethnic minorities, by providing longer and more flexible opening hours, space for part-time working, longer incubation periods, access to public transport, security, and childcare.

Women business incubators have also been established in many developing countries where women’s’ social status is seen as providing specific barriers to them establishing businesses, e.g. the Tianjin Women’s Business Incubator in China21, The Village Business Incubator in Syria22, Women Business Incubator project of Turkey23.

3.4. Objectives and Policy Mix

Incubation objectives have an impact on the policy mix, i.e. the actual mix of services and how they are delivered. Actually, the mix provided by the policy support must reflect the needs of the target group, which are different for different objectives and, within each objective, must also be tailored on the needs of the specific sector(s) and/or segment(s) targeted.

The table below presents incubation objectives and the related mix of services.

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20 Sharek Youth Forum – You Business Support Unit (www.sharek.ps) is recent initiative to support young Palestinians.
21 www.tjwbi.com
22 www.vbi-lattakia.org
23 www.kisgem.org

Global Practice in Incubation Policy Development and Implementation
<table>
<thead>
<tr>
<th>Objective</th>
<th>Pre-incubation phase</th>
<th>Incubation phase</th>
<th>After care phase</th>
</tr>
</thead>
</table>
| **Promote new business sector, especially innovation and ICT** | A strong pre-incubation program is used to identify:  
- potential new product ideas (creative resources: e.g., matching researchers with entrepreneurs programs, business plan competitions, etc.),  
- identify funding opportunities for the very early stage financing (financial resources),  
- help the incubatees acquire basic business understanding (human resources: e.g. seminars for researchers on entrepreneurship).  
The screening process for clients then focuses on the potential of the new product and the ability of the sponsors to develop their business acumen.  | Incubation services will include in addition to basic administrative services and networking both business and technical development support, providing guidance on financial management, marketing and design including access in some cases to shared specialist equipment that new businesses only use sporadically while they develop their operation.  
In order to avoid long term dependency and ensure the business is making sufficiently rapid progress to justify their place in the incubator; **regular reviews** are held to assess progress.  
If the business development falls significantly behind that forecast the business will be asked to make way for other clients who can make better use of the incubation services. | When the client firm leaves the incubation process, a **growth facility** for graduated companies has proven to be an added value for both the graduated firm and current incubator clients (see the case of China). Through a growth facility such as an industrial and technology park, the incubator can stay in close contact with its graduated firms thus maintaining a broader network, of which client firms might further benefit. Having a mixture of existing and newly established companies within one building or park creates a more dynamic environment of which all can benefit. |
| **Part of major industrial restructuring** | Pre incubation services will emphasize business training and coaching to build ideas and confidence with selection criteria focused more on the sponsors’ ability to successfully make the transition to self employment in productive enterprises rather than innovation or new products.  | Within the incubator there is likely to be little in the way of technical support apart from self employed specialists contracted to advise a specific business, and more emphasis on development of good business management and networking. | Post incubation support is likely to be required to manage the transition from the incubator supportive environment. |
| **Introduction of entrepreneurial culture to socially excluded groups** | The pre incubation program would emphasis training and coaching services with incubation services focused on mentoring and coaching clients. | Support for the new businesses to network into the wider business environment is important to establish trading links that go beyond the target group if most businesses are to become established and grow. | Post incubation support is likely to be required to manage the transition from the incubator supportive environment. |