

European Commission
Enterprise Directorate-
General

Final Report

Benchmarking of Business Incubators

February 2002



Centre for
**Strategy & Evaluation
Services**

Preface

This study has been carried out by the Centre for Strategy & Evaluation Services (CSES) for the European Commission's Enterprise DG. We would like to thank the Commission, in particular Mr Christer Hammarlund, for the support provided throughout the project. We would also like to thank business incubator managers who were nominated by Member States to provide advice and assistance, and our two special advisers, for their input. A list of the experts and advisers is provided in Section 1 of the report.

The data and analysis presented in this report are the responsibility of CSES under a contract with the European Commission. Although the work has been conducted under the guidance of Commission officials and the Member State experts, the European Commission is not necessarily in agreement with the analysis presented and the views expressed do not necessarily represent the official position of the European Commission.

Centre for Strategy & Evaluation
Services (CSES)
P O Box 159
Sevenoaks
Kent TN14 5RJ
United Kingdom
Tel/fax: +44 1959 525-122
E-mail: jmalan@cses.co.uk

European Commission
Enterprise Directorate General
200 Rue de la Loi
B-1049 Brussels
Belgium
Tel: +32 2 295-0364
Fax: +32 2 295 9784
E-mail: Christer.Hammarlund@cec.eu.int

CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY	i
PART ONE - BENCHMARKING FRAMEWORK	
1. INTRODUCTION	1
1.1 Overview	1
1.2 Structure of the Report	2
2. BACKGROUND AND POLICY CONTEXT	3
2.1 Role of Business Incubators	3
2.2 Incubator Definitions and Typology	5
2.3 Geographical Scope and Scale of Incubator Activities	10
2.4 European Policy Context	17
2.5 Review of Previous Research on Incubators	18
3. BENCHMARKING FRAMEWORK	25
3.1 Overall Approach	25
3.2 Business Incubator Model (Step 1)	25
3.3 Best Practice Issues (Step 2)	27
3.4 Performance Drivers (Step 3)	29
3.5 Business Incubator Data (Step 4)	31
PART TWO – BENCHMARKING & BEST PRACTICE ANALYSIS	
4. SETTING UP AND OPERATING BUSINESS INCUBATORS	34
4.1 Business Incubator Stakeholders	34
4.2 Location and Premises	35
4.3 Incubator Role and Objectives	37
4.4 Business Incubator Clients	39
4.5 Financing of Start Up and Operating Costs	41
5. KEY BUSINESS INCUBATOR FUNCTIONS	49
5.1 Incubator Space	49
5.2 Business Support Services	50
5.3 Promotion and Defining Target Markets	57
5.4 Admission Criteria, Client Management and Exit Rules	58
5.5 Personnel and Business Incubator Management	63

CONTENTS

6.	EVALUATION OF INCUBATOR SERVICES AND IMPACTS	68
6.1	Overall Approach	68
6.2	Contribution of Incubators to Business Performance	71
6.3	Gross Job and Wealth Creation Effects	75
6.4	Net Job and Wealth Creation Effects	82
6.5	Other Incubator Impacts	84
6.6	Comparison Between EU and US Incubator Performance	
7.	CONCLUSIONS AND RECOMMENDATIONS	87
7.1	Key Conclusions – Benchmarking Analysis	87
7.2	Best Practice and Policy Recommendations	93
APPENDICES		
A.	INCUBATOR MANAGER QUESTIONNAIRE	102
B.	COMPANY QUESTIONNAIRE	112
C.	BUSINESS INCUBATOR DEFINITIONS	116
D.	CASE STUDY REPORTS (BOUND SEPARATELY)	118
1.	Overview	118
2.	Austria	119
3.	Belgium	123
4.	Denmark	128
5.	Finland	136
6.	France	150
7.	Germany	156
8.	Ireland	160
9.	Italy	167
10.	Portugal	173
11.	Spain	177
12.	Sweden	180
13.	United Kingdom	185

EXECUTIVE SUMMARY

1. Overview

The project ‘Benchmarking of Business Incubators’ was undertaken for the European Commission by the Centre for Strategy & Evaluation Services (CSES). The objectives of the project were, in summary, to:

- Define ‘headline’ benchmarks for business incubators relating to their performance with regard to management and promotion;
- Support this with ‘operational’ benchmarks’ that define the means of achieve the ‘headline’ benchmarking performance;
- Provide assistance to business incubators that participate in the exercise to implement operational improvements by, amongst other things, producing guidance on achieving benchmarked performance and examples of best practice.

The work carried out by CSES involved two main phases: Phase 1 focused on preparing an analytical framework and involved a review of previous research and other literature on business incubator activities. During Phase 2 the framework was tested and further developed through a series of interviews with incubator managers, stakeholders and client companies from the EU Member States.

In addition to the interview programme, we carried out a wider survey of business incubators in EU Member States (eliciting a response from 77 incubators), a survey of incubator companies (71 firms completed questionnaires) and obtained survey data from the USA on incubator operations there.

The CSES team was guided throughout the project by a ‘Managers Group’ consisting of Chief Executives of business incubators from EU Member States, and by two external experts.

2. Benchmarking Framework

Full details of the benchmarking framework are set out in the report. To summarise the key points:

- *Step 1 – Model:* A generic business incubator model was developed setting out basic functions and operating procedures. This model is based on the literature review, inputs by the Managers Group and CSES’s fieldwork.
- *Step 2 – Best Practice Issues:* The model defines a number of ‘key best practice issues’ that provide the framework required to define benchmarking indicators. These are subdivided into ‘headline’ and ‘operational’ indicators;
- *Step 3 – Performance Drivers:* In addition, the model highlights the ‘key performance drivers’ that influence the extent to which incubators achieve best practice benchmarks. These drivers fall under three headings -

EXECUTIVE SUMMARY

- *Step 4 – Business Incubator Data:* Two surveys were carried out by CSES: the first focused on incubators themselves while the second involved obtaining feedback from client companies. The survey data was used to determine where incubators stand in relation to the various benchmark indicators;
- *Step 5 – Best Practice Guidance:* Based on the earlier steps and analysis, the final section of this report then suggests key actions that should be taken in setting up and operating business incubators.

3. Key Conclusions

There are a number of key messages from this benchmarking study:

- *Outcomes* – business incubators in the EU – which now number around 900 – make a significant contribution to job and wealth creation. Some 40,000 new (net) jobs are generated each year by incubators;
- *Added Value* – the business incubation process adds value by accelerating the start-up of new businesses and helping to maximise their growth potential in a way that is more difficult for alternative SME support structures to achieve;
- *Best Practice* – this report identifies best practices in business incubation and suggests key actions to replicate them at an operational level. There are key lessons to be learnt from experience, from different types of incubator models, and from practices in different EU countries and the USA. Actions are needed at an EU level to put a framework in place to support the process of developing and sharing best practice.

Overall conclusions of the benchmarking project are summarised below under three headings – setting up and operating business incubators, incubator functions, and evaluating incubator services and impacts. Recommendations are set out in Section 4 and a summary of the key statistical benchmarks is provided at the end of the summary.

3.1 Setting Up and Operating Incubators

3.1.1. Business incubators should be designed to support and be part of a broader strategic framework – either territorially orientated or focused on particular policy priorities (e.g. development of clusters), or a combination of these factors. A key lesson from this project is that incubators should not be stand-alone entities but rather work along side other organisations and schemes to promote broader strategies. Examples of where this approach is being adopted are given in the report.

3.2.2. It follows that incubators should be promoted by an inclusive partnership of public and private sector stakeholders. Business incubator partnership structures will reflect overall regional, technology and business support strategies. The research suggests that incubators are typically promoted by a wide range of organisations from the public and private sectors including local authorities, universities, companies, and

EXECUTIVE SUMMARY

financial institutions. Public authorities have an important catalytic and leadership function, and can provide crucial pump-priming investment during the development phase of incubators.

3.2.3. During the development phase, it is important for the market to be tested and a business plan to be devised that can provide a framework for incubator operations. The incubator business plan should set out the rationale for the project and how it addresses market failure (if this is the rationale), the target market, expected levels of demand, a detailed operating framework (infrastructure and services), estimated capital investment and running costs/sources of funds, how the incubator will be managed, and other factors.

3.2.4. There are a number of different set up funding models but the evidence from this project is that public support for the establishment of incubators in Europe will remain critical for the foreseeable future. The analysis contained in this report suggests that public funding accounts for a high proportion of the set up costs of most incubators (which average around €4 million) and for around 37% of operating revenue.

3.2.5. Likewise, there are different ways in which incubators cover their operating costs and whilst many incubators rely on public subsidies, there is a strong argument in favour of dependence on this source of revenue funding being minimised. According to the research, incubator operating costs average around €500,00 per annum, the highest proportion of cost relating to staff (41%) followed by client services (24%), maintenance of buildings and equipment (22%), and other costs such as utilities (13%). Whilst many incubators are able to recoup a significant proportion of these costs (averaging around 40%) from tenants, the element of public subsidy remains high in most cases. At present, some three-quarters (77%) of European incubators operate on a not-for-profit basis.

3.3 Business Incubator Functions

3.3.1. The provision of physical space is central to the incubator model. Standard good practices now exist with regard to the most appropriate configuration of incubator space. The research suggests that European incubators typically have around 5,800 square meters of space for tenants, sufficient to accommodate some 18 firms at any one time in a variety of units. Smaller incubator space than this is likely to make it more difficult to generate economies of scale. Another key lesson from the research is the need to operate at no more than around 85% occupancy levels.

3.3.2. The value added of incubator operations lies increasingly in the type and quality of business support services provided to clients and developing this aspect of European incubator operations should be a key priority in the future. There is a widespread acceptance that although central to the incubator model, there is now a more or less standard model for the optimal configuration of physical space and that it is the quality and range of business support services that should be the focus of best practice development. This research suggests that there are four key areas in this

EXECUTIVE SUMMARY

respect: entrepreneur training (often part of ‘pre-incubation’), business advice, financial support (in some cases from incubator seed/venture capital funds but usually through links with external providers), and technology support.

3.3.3. *Business incubators should charge clients for the support services they provide but the level at which prices are pitched should be designed to minimise the risk of ‘crowding out’ private sector providers.* The research suggests that relatively few incubators (around 4%) provide business support services on an entirely free basis to clients. However, pricing levels tend to reflect an element of subsidy (35% of incubators stated that pricing was below market levels).

3.3.4. *With regard to incubator operating procedures, it is essential that there is a clearly defined target market and that this is reflected in the admission criteria.* Experience suggests that the more successful incubators are the ones that have a particular technology and business focus. A focus of this type enables incubator managers to develop specialised knowledge and skills, and facilitates the clustering of client companies (e.g. enabling business relationships to develop between incubator tenants). The report provides an analysis of the types of admission criteria adopted.

3.3.5. *Whilst achieving high occupancy rates is important to generate income, this consideration needs to be balanced against the importance of maintaining selective admission criteria.* As noted earlier, achieving high occupancy levels quickly is desirable from the point of view of income generation but can have disadvantages in terms of being able to react flexibly to the changing requirements of tenants. Similarly, there is a danger that the selective approach to admitting projects will be abandoned in favour of a ‘first-come-first-served’ approach.

3.3.6. *Likewise, adopting exit criteria that ensure a turnover of client companies is desirable even if the turnover of firms makes revenue levels from rental income and other services less certain.* Similar considerations apply to the question of exit rules. The research suggests that most incubators do, in fact, limit the length of time companies can remain as tenants (typically to around 3 to 5 years). Moreover, in many cases, companies move on to new locations because they need more space to grow. Graduated rentals rising to above market rates after a given period of time is another method that a number of incubators (24% of the sample) adopt to encourage firms to move on. At the same time, highly specialised incubators – e.g. biotechnology incubators – may have longer tenancy periods for their clients reflecting the nature of business activities.

3.3.7. *After care and networking with firms that have left an incubator should be regarded as just as important as providing services to incubator tenants.* The destination of incubator ‘graduates’ should be monitored with companies being encouraged to remain in the local area. Graduate retention is important in ensuring that incubator operations have long-term benefits to the areas where they are located. Moreover, experience suggests that many firms are at the most vulnerable stage in their development when they leave an incubator. The provision of after-care services to ‘graduates’ is therefore critical to ensuring sustainable incubator impacts.

EXECUTIVE SUMMARY

3.3.8. *The quality of the management team, and adoption of a business-like approach to running incubators and monitoring clients, is crucial to performance and best practices in this field are becoming standardised.* European incubators typically have around 5 to 6 staff (half of whom are managers) with senior personnel coming from a business background. A key efficiency indicator is the ratio between staff and companies. Based on this research, the ratio would appear to be 1: 3.2 (tenants) or 1:5.0 (tenants plus other clients). New economy incubators have an even higher ratio than this.

3.3.9. *The type of activities client companies are pursuing, in particular the technology/knowledge intensity of these activities, is the key factor (rather than physical features or operating modality) that should be used to differentiate one type of incubator from another.* In the past, incubator models have tended to be classified according to the nature of inputs (public, private, etc) and processes (type of incubator space, range of services, etc). An arguably better method of classification is to differentiate between the specialisms of incubators as reflected in the activities of their tenant companies. An approach of this sort makes sense given the fact that different types of incubators are increasingly offering very similar ‘core’ services.

3.4 Evaluating Business Incubator Services and Impacts

3.4.1. *The performance of business incubators should be judged primarily in terms of the results achieved, i.e. the impact they have on businesses, wider economic development and other priorities.* A key message from this project is the need to judge incubator performance in terms of the long-term impacts achieved rather than short-term measures such as occupancy rates or failure rates. The report contains an assessment of incubator impacts suggesting that in terms of employment effects (a key indicator for public authorities and a proxy measure for a range of other impacts), European incubators are generating around 30,000 gross new jobs per annum. If indirect effects are taken into account – the higher spending in local economies brought about by additional direct employment and new jobs created in local supply chains – then this figure increases to around 40,000 net jobs per annum. Moreover, these results are being achieved at an average gross cost per job to public authorities of around €4,500 (€4000 net).

3.4.2. *In assessing the impact of incubators, there is a need to obtain feedback directly from client companies and greater priority should be given to this than has hitherto been the case.* An important lesson to be learnt from this project is that incubator impacts can only be properly assessed by obtaining information from companies. Previous research has tended to rely on survey data from incubator managers alone. Whilst this provides good insights to the ‘input’ and ‘process’ aspects of their operations, it does not provide the basis for an in-depth understanding of ‘outputs’ and impacts. Feedback from companies is also important from a more practical point of view, i.e. client management and networking with ‘graduates’.

3.4.3. *Likewise, a distinction should be made between gross and net impacts achieved by business incubators.* As Point 3.4.1 makes clear, business incubator

EXECUTIVE SUMMARY

impacts are likely to be considerably under-estimated if only direct (gross) effects are taken into account. However, there are other essentially practical reasons for undertaking a more probing assessment of incubator impacts: investigating the extent of displacement is important in helping to ensure that an incubator's target market is appropriately defined - if support is being given to projects that compete directly with existing local businesses, then the net value added of the incubator's operations is questionable. Likewise, an understanding of additionality involves obtaining client feedback on the role played by an incubator in the development of their business and this information should help to ensure that the right services are being provided.

3.4.4. *Although 'new economy' incubators are currently out of favour, there are many lessons to be learnt that are relevant to the more 'traditional' model (and visa-versa).* This research suggests that there are three main lessons to be learnt from the experience of 'new economy' incubators: firstly, although market conditions are currently unfavourable, 'new economy' incubators have demonstrated a potentially profitability model that is attractive to the private sector; secondly, 'new economy' incubators have shown that the business incubation process can operate successfully on a virtual basis; and, linked to this, they have demonstrated that the real value added of the business incubation approach lies in the sharing of know-how rather than physical aspects. By the same token, the 'traditional' model has enduring strengths and these are examined in the report.

3.4.5. *Across Europe, there are a variety of different business incubator models and precise modalities should reflect local, regional and national circumstances and priorities.* As Section 2 of this report highlighted, there are a large number of different incubator definitions and models across Europe. Although they share basic features in common, there are also significant differences relating to stakeholder objectives, target markets, and the precise configuration of incubator facilities and services. These differences are partly a reflection of location-specific factors of a cultural, institutional, and policy nature, and it is important that these local factors are taken into account in defining best practice.

3.4.6. *Similarly, although only limited comparisons are possible, the research confirms significant differences between the way in which European and US incubators operate and therefore scope for a sharing of experience and know-how.* Section 6 of this report highlighted differences between the way in which business incubators operate in Europe and the USA. Although the evidence is far from conclusive one way or another, this analysis suggests that whilst US incubators, for example, demonstrate particular strengths with regard to company financing and some management functions, their European counterparts have probably developed more expertise in fields such as entrepreneur training, virtual networking, and integrating incubator functions into broader strategies.

3.4.7. *Overall, this report suggests that business incubators are a very cost-effective instrument for the promotion of public policy objectives.* The relatively low cost per job (see Point 3.4.1) and other less easily quantifiable benefits demonstrated by business incubators covered by this research suggest that they are a very effective

EXECUTIVE SUMMARY

method of promoting knowledge intensive, new technology-based activities. Direct comparisons with other types of schemes are difficult to make, one reason being that incubators usually combine many features of other schemes (e.g. the provision of advisory services) and/or are closely linked to them.

A summary of ‘headline’ and ‘operational’ indicators that have been used in this project, together with benchmark values, is provided at the end of the report.

4. Best Practice and Policy Recommendations

In this section we outline key recommendations, starting with promoting best practice at an operational level. We then consider wider policy initiatives that might be taken at a European level to promote best practice in business incubation.

4.1 Promoting Best Practice in Business Incubation at an Operational Level

4.1.1 Business incubators should be encouraged to benchmark themselves against best practice standards and to take the steps required to achieve them. The report contains a range of benchmarks relating to setting up and operating business incubators. In some cases, these can be quantified and a summary of the key benchmarks is provided at the end of this summary. In the report itself, we have also provided best practice examples covering aspects of business incubator operations where quantified benchmarks are not appropriate. Also, it is important to stress that the benchmarks will not apply to every type of incubator.

We recommend that in seeking to achieve best practice at an operational level, particular attention should be given to:

- Ensuring that incubator operations are integrated into wider *regional (technology) development strategies* and supported by broadly based partnerships;
- Clearly defining the *target market* and adopting *admission criteria* that focus on projects where an incubator can genuinely add value;
- Placing particular emphasis on developing *high quality business support services* (entrepreneur training, business advice, technology support, financing, etc);
- Ensuring that incubators are managed in a business-like manner with the aim of maximising *value for money*;
- Developing *‘virtual’ incubation services* so that more businesses can benefit and through after-care/graduate networking, ensuring that job and wealth creation effects are retained in local economies.

These points and others are elaborated on below.

EXECUTIVE SUMMARY

4.1.2. Benchmarking and best practice sharing should focus on the four key incubator service areas identified in this report – entrepreneur training, business support, financing, and technology support. As argued earlier, practices are now more or less standardised with regard to the provision of incubator space and the challenge facing incubators is more to focus on developing first-class business support services, including a virtual dimension for firms not located in incubators. This report has identified four key incubator service areas and, in each case, we have highlighted a number of examples of best practice. Two areas – entrepreneur training and financing -might be prioritised since these appear to be where there is the least know-how.

4.1.3. Business incubators should be encouraged to periodically undertake impact assessments. There are a number of reasons why incubators should undertake impact assessments, not least of all to demonstrate the benefits of public support. However, there are considerable methodological and practical data collection complications. We recommend that incubators themselves, and the national associations (if possible, supported by the Commission) should (a) identify best practice in this field; (b) develop a common methodology based on best practice; and (c) agree on one or more pilot exercises to determine the best way of proceeding.

4.1.4. A further priority should be for business incubators reduce their dependence on public subsidies. In this report we have argued that public subsidies for business incubators have an important role and that in many cases such support is accepted as a cost-effective way of helping to achieve policy objectives. However, even where this is so, there is a strong argument for encouraging individual incubators to reduce their dependence on public funding so that available resources can be spread more widely and used to promote new initiatives. The report has identified a number of ways in which incubators can improve income generation and hence their overall financial sustainability.

4.1.5. There is a need to ‘professionalise’ the occupation of business incubator management. As the report has made clear, the quality of the management team is a key to successful incubator activities. At present there is no recognised professional qualification or standard in this field although specific incubator management functions (e.g. personnel management, providing financial advice to companies) are of course areas where such standards exist. Consideration might be given, however, to developing EU- level professional standard relating to overall incubator management.

4.2 EU Level Actions to Promote Best Practice in Business Incubation

4.2.1. As a starting point to any EU-level initiative, priority should be given to developing a set of common definitions and quality standards for European business incubators. A starting point for any initiative to set up a European business incubator association should, we recommend, be to agree on an EU-level definition of a business incubator and, based on this, to devise EU-level quality standards. This report provides a starting point in defining key best practice benchmarks. There is also a lot of work that has been undertaken by national associations. It will clearly be

EXECUTIVE SUMMARY

important to take this material into account. One way of encouraging incubators across Europe to develop best practice would be to establish a financial instrument that invests via incubators that demonstrate effective operations in their client firms. This could be linked to existing venture capital funds or possibly opened up to wider markets.

4.2.2. We recommend that the survey of European business incubators undertaken as part of this project should be repeated periodically, preferably on an annual basis. Rather than relying on a ‘snap-shot’ as in this project, a longitudinal approach would make it possible to benchmark dynamically and to identify trends in incubator management and performance. The starting point might be to encourage national business incubator associations to adopt a common methodology based on a proforma that contains a number of common questions. Any initiative of this sort should also be linked to the further development of the Commission’s database of European incubators.

4.2.3. Consideration should be given to establishing a European Business Incubator Association as an overall framework for taking actions forwards. At present, there are a number of national associations in Europe which have occasional ad hoc contacts with one another but an absence of an over-arching structure at an EU level. Such a structure is almost certainly needed to secure the engagement of Europe’s incubator community as a whole in any initiatives to take this project forwards. An organisation that already has a pan-European role is the European Business Network (EBN) representing BICs and consideration might be given to developing a wider business incubator association based on EBN. Which ever approach is adopted it will be important to involve national associations closely in the discussions.

4.2.4. In addition, we recommend that the Managers Group that has been established as part of this project should continue to meet on an occasional basis to help implement the recommendations made in this report. The Managers Group has played a very positive role in this project and, assuming that there is a follow-up to implement the report’s recommendations, we suggest that the Commission should continue to convene periodic meetings of the group to review progress. In particular, the Managers Group might help to decide which aspects of business incubator operations should be examined in more detail by working groups (e.g. entrepreneur training, company financing). Consideration might also be given to expanding the Managers Group to include representatives from Central and Eastern European candidate countries and to giving it a role with regard to establishing a European association.

4.2.5. The European Commission should review the role of different Directorate-Generals and schemes to ensure that a co-ordinated approach is being adopted to the promotion of business incubators. A number of different Commission DGs have an interest – either explicit or implicit – in the operation of business incubators (apart from Enterprise DG, this includes DGs Employment, ECFIN, Research, and Regional Policy). To ensure that the various types of support the Commission can provide to

EXECUTIVE SUMMARY

incubators is co-ordinated, and that incubators themselves promote broader EU policy objectives, we recommend that there should be discussions between DGs to develop a Commission-wide strategy and action plan for the promotion business incubators in Europe.

4.2.6. In addition to the purely EU dimension, steps should be taken to improve the sharing of best practice between European and North American business incubators. This report has not been able to make detailed comparisons between business incubator operations in Europe and the USA but it is nevertheless clear that there is much to be potentially learnt from sharing experience and know-how. Through this project, good contacts have been established with the NBIA and it is a question of now further developing the relationship.

5. Summary of Key Benchmarks

The table on the next page provides a summary of key averages, ranges and benchmarks that can be quantified. The values are based on an analysis of the CSES survey data and discussions with incubator managers on best practice standards. It should be stressed that given the diversity of incubator operations and objectives, the benchmarks will not apply universally. Similarly, it is not possible to quantify benchmarks for many aspects of incubator operations.

Summary of Key Incubator Performance Statistics and Suggested Benchmarks

Setting Up and Operating	Average	Range	Benchmark
Average capital investment cost	€3.7 million	€1.5 to €22 m	NA
Average operating costs	€480,000 p.a.	€50,000 to €1.8 m	NA
% of revenue from public subsidies	37%	0% to 100%	25%
Incubator space	3,000 m ²	90m ² - 41,000m ²	2,000 – 4,000 m ²
Number of incubator tenants	27 firms	1-120 firms	20 – 30 *
Incubator Functions	Average	Range	Benchmark
Incubator occupancy rates	85%	9% –100%	85%
Length of tenancy	35 months	6 months - no max	3 years
Number of management staff	2.3 managers	1 – 9 managers	2 managers min
Ratio of incubator staff: tenants	1: 14	1:2 – 1:64	1:10- 1:20
% of managers' time advising clients	39%	5% – 80%	50%
Evaluating Services and Impacts	Average	Range	Benchmark
Survival rates of tenant firms	85%	65% – 100%	85%
Average growth in client turnover	20% p.a. (2001)	5% to 100% p.a.	25%
Average jobs per tenant company	6.2 jobs per firm	1 to 120	NA
New graduate jobs per incubator p.a.	41 jobs	7 to 197	NA
Cost per job (gross)	€4,400	€124 to €29,600	€4,000 to €3,000

* see note on setting up and operating incubators

EXECUTIVE SUMMARY

Notes:

Capital investment and operating costs: It is inappropriate to set benchmarks for incubator capital investment and operating costs because these will vary widely depending on the type of incubator. For example, a biotechnology incubator requires dedicated laboratory space as well as office space, whereas an incubator providing just office to new start-ups will require less capital investment.

Proportion of revenue dependent on public subsidies: Whilst the public funding requirements of incubators will inevitably vary depending on location-specific factors such as the dynamism of the regional economy and the extent of market failure, we have assumed that incubators should try and increase the proportion of operating costs derived from their own activities (rent, advisory services, etc).

Incubator space/number of tenants: The average incubator space in the survey was 3,000m². There is a good deal of evidence to suggest that a minimum of 2,000 m² space is needed (enough to accommodate 20-30 companies) to achieve economies of scale. We suggest a range of between 2,000 m² to 4,000 m² as a benchmark depending on the type of incubator.

Length of tenancy: A benchmark of 3 years is suggested. It should be noted that the benchmark applies to the average incubator and would not be appropriate for some specialist types of incubators, e.g. biotech incubators, high-tech R&D and high-tech manufacturing because of the longer product development lead times associated with those business sectors, amongst others.

Number of Managerial Staff/Ratio of Staff:Tenants: The benchmark of at least two managers assumes an average of 20-30 tenants and allows sufficient flexibility to cover absence (training and professional development, conferences, holidays, sickness etc.) while still ensuring that tenant firms have permanent access to managerial-level advisory support at all times. Given that the real added value of incubation lies not in real estate aspects but in the quality, relevance and utility of business advisory, the ratio of incubator managers to incubator tenants should ideally not exceed 1:20.

Proportion of Management Time Advising Clients: Currently, the proportion of management time spent advising clients, highlighted in the survey, stands at 39%. We have assumed that, ideally, it should be possible to 'free-up' management so that more time is spent advising tenants and less on administrative matters.

Survival rate of tenant firms: The survey revealed that the survival rate of firms reared in an incubator environment was significantly higher than the business success rate amongst the wider SME community, estimated at 30-50% (over a 5 year period). In the survey, there was a notable clustering of incubators reporting a survival rate amongst tenant firms of 80-90% and the benchmark is based on this. The survival rate of incubator tenant firms operating in more high-risk sectors such as high-tech industry may well be lower. We would emphasise that survival rates are one indicator of the performance of incubators, of more importance is the extent to which incubators can contribute to the accelerated development of innovative, high-growth firms and their capacity to create new jobs.

Job creation – average jobs per tenant company / new jobs per incubator: Whilst employment creation is one of the key objectives of business incubators, setting a benchmark for the number of jobs created per firm or per incubator would be inappropriate because the number of jobs created will vary greatly depending on the type of companies being incubated, the amount of tenants the incubator can accommodate and the amount of available space. The number of jobs generated by a typical tenant company will vary immensely depending on the type of industry the firm specialises in, the extent to which industry is technology-intensive as opposed to labour intensive. Similarly, the total number of graduate jobs created per incubator will vary because the total aggregate number of firms varies widely between incubators specialising in different types of industries.

EXECUTIVE SUMMARY

Cost per Job. The average gross cost per job according to the incubator survey was €4,400. When set-up costs and the amortisation of capital are taken into account, the figure rises to €6,700. Rather than setting a benchmark, we have set a range, which we feel is more appropriate given that incubators receive widely differing levels of support from the public sector/ EU depending on location-specific factors.

INTRODUCTION

1

1.1 Overview

This document contains the final report on the project ‘Benchmarking of Business Incubators’ which has been undertaken for the European Commission by the Centre for Strategy & Evaluation Services (CSES).

The objectives of the project were, in summary, to:

- Define ‘headline’ benchmarks for business incubators relating to their performance with regard to management and promotion;
- Support this with ‘operational’ benchmarks’ that define the means of achieve the ‘headline’ benchmarking performance;
- Provide assistance to business incubators that participate in the exercise to implement operational improvements by, amongst other things, producing guidance on achieving benchmarked performance and examples of best practice.

The programme of work carried out by CSES involved two main phases: Phase 1 focused on preparing an analytical framework and involved a review of previous research and other literature on business incubator activities. During Phase 2 the framework was tested and further developed through a series of interviews with incubator managers, stakeholders and client companies. We also carried out a wider survey of business incubators in EU Member States and obtained survey data from the USA.

The CSES team has been guided throughout the project by a ‘Managers Group’ consisting of Chief Executives of business incubators from EU Member States. Members of this group are listed below:

Table 1: Members of Managers Group

Country	Group Member	Incubator
Austria	Walter Ortner	FAZAT-Steyr
Belgium	Philippe Chèvremont	CEEI Héraclès, Charleroi
Denmark	Flemming Bahner	Center for Advanced Technology
Finland	Lauri Ylöstalo	Otaniemi Science Park
France	Françoise Boivert	Bordeaux Productic
Germany	Dieter Tischendorf	TechnologieCentrum Chemnitz
Greece	Professor Loukakis	Lavrion Technological Park
Ireland	Desmond Fahey	Dublin Business Innovation Centre
Italy	Renato Angelino	Sviluppo Italia
Netherlands	J G Van der Velde	Triade (Meditech Center)
Portugal	Vasco Varela	Taguspark
Spain	Jesús Casanova Payá	CEEI Valencia
Sweden	Sten Gunnar Johansson	Mjärdevi Science Park
UK	Richard Clark	Project North East, Newcastle

INTRODUCTION

1

During the course of the assignment, the ‘Managers Group’ met three times in Brussels to review outputs and make suggestions concerning the future direction of the work.

We have also been advised by two external experts: Rustam Lalkaka, President of the New York based firm Business & Technology Development Strategies, and Larry Moffit, Managing Partner of e-strategy sprl-bvba from Brussels. We would like to thank all those who have assisted with the project, and especially Mr Christer Hammarlund from the European Commission’s Enterprise DG, for their support and inputs.

1.2 Structure of the Report

The final report is structured as follows:

- *Section 2 – Background and Policy Context:* we begin by examining the origins of the business incubator model and developments in Europe, the USA and other countries. We then review the European policy context and previous research.
- *Section 3 – Benchmarking Framework:* this section sets out the methodology that has been developed for benchmarking incubators, including ‘headline’ and ‘operational’ indicators, key performance drivers and other aspects of the framework.
- *Section 4 – Setting Up and Operating Business Incubators:* in the first of three sections (Part 2) we examine issues relating to setting up and operating incubators including incubator strategies, the role of partnerships, and financial aspects;
- *Section 5 – Key Business Incubator Functions:* this section examines incubator target markets admission and exit rules, key incubator functions, promotion and other management issues;
- *Section 6 – Evaluation of Incubator Services and Impacts:* the penultimate section considers how incubator services should be monitored and draws on the survey data from incubators and their clients to illustrate how impacts can be evaluated;
- *Section 7 – Conclusions and Recommendations:* presents overall general conclusions, including a summary of ‘headline’ and ‘operational’ indicators, and a number of best practice and policy recommendations.

In terms of its readership, this report is aimed in the first instance at providing managers and others involved in either setting up or operating business incubators with guidance on best practice benchmarks against which they can judge the performance of their projects. The final section includes recommendations with regard to future priorities for the development of business incubators in Europe that are intended primarily for the European Commission and national authorities.

BACKGROUND AND POLICY CONTEXT

In this section we begin by examining the origins of the business incubator model, the various definitions, and developments in Europe, the USA and other countries. We then review the European policy context and previous research.

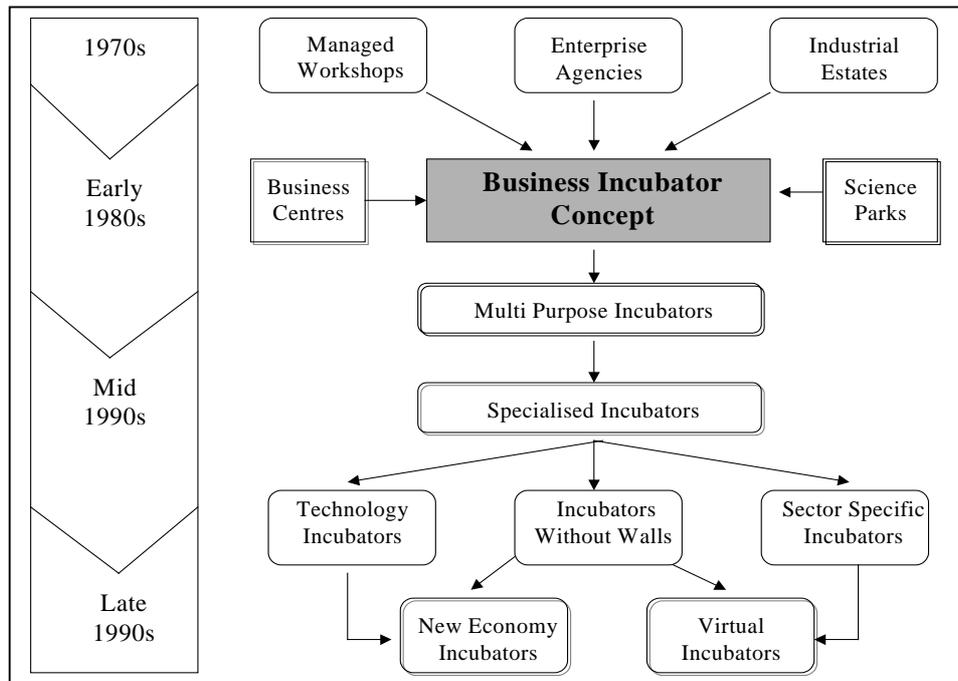
2.1 Role of Business Incubators

Business incubators provide entrepreneurs with a supportive environment to help establish and develop their projects. By providing services on a 'one-stop' basis, and enabling overhead costs to be reduced by sharing facilities, business incubators can significantly improve the survival and growth prospects of start-ups and small firms at an early stage of development.

In its generic sense, the term 'business incubator' is often used to describe a wide range of organisations that in one way or another help entrepreneurs develop their ideas from inception through to commercialisation and the launching of a new enterprise. A broad definition of the term embraces technology centres and science park incubators, business and innovation centres, organisations which have no single physical location and concentrate instead of managing a network of enterprise support services ('incubators without walls'), so-called 'new economy' incubators, and a variety of other models.

The evolution of the business incubator concept is summarised in Figure 1:

Figure 1: Evolution of the Business Incubator Model



BACKGROUND AND POLICY CONTEXT

2

The origins can be traced back to Western industrialised countries in the late 1970s and early 1980s. Faced with a rapid rise in unemployment resulting from the collapse of traditional industries, it was recognised in both the Europe and the USA that fresh strategies were needed to help regenerate crisis sectors, regions and communities. Strategies pursued in the 1980s were broadly characterised by a switch in emphasis from a 'top-down' approach relying on exogenous factors and involving public intervention to transfer surplus mobile capital and jobs from developed to underdeveloped or declining regions, to a 'bottom-up' approach focussing on maximising the indigenous potential for economic development. At the same time, business incubators began to be used as instruments to support innovation and technology transfer. Lalkaka¹ sums up the evolution of the incubator concept as follows:

The '*first generation*' incubators in the 1980s were essentially offering affordable space and shared facilities to carefully selected entrepreneurial groups. In the 1990s the need was recognized for supplementing the work space with counselling, skills enhancement and networking services to access professional support and seed capital, for tenants within the facility and affiliates outside. This has led to the '*second generation*' incubator, although many in the developing countries are still stuck in the original mode. Starting in 1998, a new incubation model emerged in parallel. This is intended to mobilize ICT and provide a convergence of support, towards creating growth-potential, tech-based ventures.

The 'new economy' model referred to be Lalkaka has of course not developed to the extent originally hoped (experience is reviewed in more detail in Section 2.3). There are now thought to be around 3,000 business incubators of various types world wide.

The rationale for publicly funded business incubators – as with other types of subsidised assistance to SMEs - lies ultimately in addressing market failures, i.e. gaps and deficiencies in the support structure available to smaller firms (lack of affordable, divisible work space, facilities, services, of access to finance, information and other resources, etc). These market failures stem from the relatively high costs and risks of providing services to SMEs compared with larger firms and the unwillingness of the private sector to assume these costs and risks given the often modest returns. Other incubator models do not, however, have market failure as their rationale. Incubation, not only in the US, but also in Europe, often serves also as an important catalyser for the commercialisation of research and technology and provides a 'laboratory' of sorts to promote entrepreneurship.

2.2 Incubator Definitions and Typology

At the 1998 Helsinki workshop, a business incubator was defined as:

'A place where newly created firms are concentrated in a limited space. Its aim is to improve the chance of growth and rate of survival of these firms by providing them with a modular building with common facilities (telefax, computing facilities, etc.) as well as with

¹ Rustam Lalkaka 'Best Practices in Business Incubation: Lessons (yet to be) Learnt', Paper presented to Belgian Presidency's international conference on business centers, Brussels, November 2001.

BACKGROUND AND POLICY CONTEXT

2

managerial support and back-up services. The main emphasis is on local development and job creation.’²

This definition dates back to 1990 and in light of developments since then arguably places too much emphasis on physical aspects of incubator operations. An alternative definition that highlights the other services offered by incubators is provided by the US National Business Incubation Association (NBIA):

‘Business incubation is a dynamic process of business enterprise development. Incubators nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable. Incubators provide hands-on management assistance, access to financing and orchestrated exposure to critical business or technical support services. They also offer entrepreneurial firms shared office services, access to equipment, flexible leases and expandable space — all under one roof.’³

The definitions adopted by the UKBI and German ADT are similar. Whilst the provision of physical space for start-ups is again seen as a defining characteristic of incubators, equal emphasis is placed on other aspects including, in the case of the UKBI, entrepreneur training, mentoring and visibility which are not mentioned in the NBIA definition:

‘Business Incubation is a dynamic business development process. It is a term which covers a wide variety of processes which help to reduce the failure rate of early stage companies and speed the growth of companies which have the potential to become substantial generators of employment and wealth. A business incubator is usually a property with small work units which provide an instructive and supportive environment to entrepreneurs at start-up and during the early stages of businesses. Incubators provide three main ingredients for growing successful businesses - an entrepreneurial and learning environment, ready access to mentors and investors, visibility in the marketplace.’

In contrast, the definition used by ELAN in France does not mention the physical attributes of an incubator at all and instead puts the objectives of promoting new start-ups and helping existing firms to expand at the centre of its definition. A somewhat similar approach – with an emphasis on the ‘output’ side of the business incubation process rather than ‘inputs’ - is adopted by EBN. This goes further than immediate outputs and stresses the wider, territorially orientated mission of business incubators:

‘The European Community Business and Innovation Centres (EC BICs) – as they are officially known – are support organisations for innovative small and medium-sized businesses (SMEs) and entrepreneurs ... operating in the public interest, they are set up by the principal economic operators in an area or region, in order to offer a range of integrated guidance and support services for projects carried out by innovative SMEs, thereby contributing to regional and local development.’⁴

² European Commission OJ C186 – 51/52 dd. 27, July 1990

³ NBIA, Best Practice in Action: Guidelines for Implementing First Class Business Incubation Programs’ (NBIA, 2001).

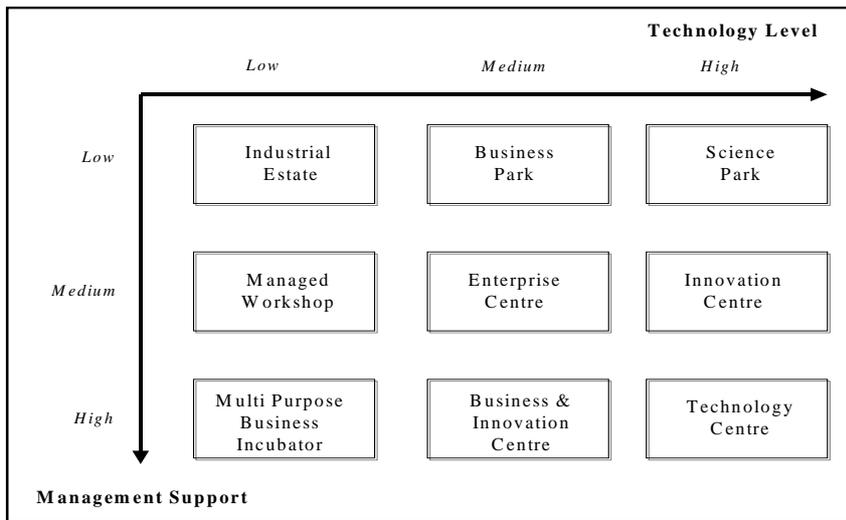
⁴ EBN, 1998.

BACKGROUND AND POLICY CONTEXT

There are two main conclusions to be drawn from this brief review of the various incubator definitions: firstly, there is a considerable degree of overlap with (in most cases) the focused approach to SME promotion, and combination of incubator units and business support services being seen as what makes the incubator concept unique; secondly, the differences, to the extent that they exist, lie in the varying emphasis placed on the importance of physical aspects as opposed to other business support services, and the business incubation process itself, as constituting the essence of the concept.

Figure 2 illustrates the relationship between different incubator modalities and between these and other SME promotion structures that include a physical space element.

Figure 2: Typology of Business Incubators



Business incubators are positioned towards the bottom right-hand corner of the matrix since they provide a high degree of management support to tenants and usually, although not always, cater for technology-based enterprises. There are of course alternative business incubator typologies but the approach outlined in Figure () provides a broad framework.⁵

Industrial estates in the top left-hand corner generally have a non-selective intake, provide little or no management support and have no special criteria with regard to business activities and technology content. At the opposite extreme, in the bottom right-hand corner, technology centres have highly selective admission criteria, provide 'hands-on' management support, and have a highly specialised technology focus.

⁵ For example, the US National Business Incubation Association (NBIA) makes a distinction between technology, empowerment and mixed use incubators.

BACKGROUND AND POLICY CONTEXT

2

'Traditional' and 'New Economy' Incubators

The focus of this project is on the types of business incubators located towards the bottom of Figure 2 but it is nevertheless helpful to make a further distinction between incubators that have a public policy-driven enterprise promotion and/or regional development function and 'new economy' incubators: these types illustrate the diversity of business incubator models particularly well. Between the 'traditional' regional development model and 'new economy' incubators, there is an array of other types such as Business & Innovation Centres (BICs), technology centres, and innovation centres that all share basic incubator characteristics.

The primary goal of the first category of business incubators (which we have called 'traditional') is to facilitate economic development by promoting entrepreneurship, innovation, employment opportunities and growth. For this reason, most of the incubators are operated directly by the national or local authorities. Specialised incubators have been established by universities or private sector organisations. In Europe, the role of incubators in the promotion of entrepreneurship, employment and economic growth is widely acknowledged with the 2000-06 Structural Fund guidelines highlighting business incubators as a key instrument of EU regional policy.

⁶ In the USA, the 'general service' type incubator is giving way to a more specialist approach and Technology Business Incubators (sometimes known as Technology Centres or Innovation Centres in Europe) have risen from accounting for under a quarter one-fourth to over one-third of total. In Europe, there has been a similar trend. There are also some interesting specialised incubators of a different, non-technology related sort: for example, a cross-border incubator has recently been established on the border between Germany and the Netherlands for companies seeking to trade in these two countries.

Over the past five years, there has also been a quite rapid growth in for-profit incubation systems, especially for accelerating the start and growth of ICT-enabled ventures. The Harvard Business School in its recent survey ⁷ identified 356 such incubators around the world. Of these 222 are in the US (that is, about 25 % of the total U.S. incubators). The others include Canada (14), UK (28), China-Hong Kong (11), and Brazil (10). The growth of 'new economy' incubators is reflected in the fact that whereas in 1994, only 1 out of every 25 technology incubator companies was IT related, by 1999, this figure had risen to 20. Sponsors include the quoted arms of established consultancies and technology solutions providers such as Bain & Co., Ernst & Young, HP and Dell and IBM; telecommunications companies such as Sprint PCS; and dot com start ups such as cocoon, Gorilla Park, Ant Factory, Cartezia, and Internet-Incubation.

⁶ The Structural Funds and their co-ordination with the Cohesion Fund (guidelines for SF programmes for the period 2000-06), 1999

⁷ Hansen, Nohria, Berger, 'The State of the Incubator Marketplace, June 2000

BACKGROUND AND POLICY CONTEXT

2

‘New economy’ type business incubators are often primarily virtual.⁸ New economy incubators are usually funded by venture capital companies or set up by large multidisciplinary consultancies that are able to offer a complete range of technological, advisory and other business support services to their clients. Large multinationals have also been keen to capitalise on their expertise in the e-economy, namely the rapid development of the B2B and B2C sectors, e-commerce, m-commerce (mobile phone commerce driven by WAP technology) and v-commerce (voice activated commerce) by offering advisory expertise to new high-tech start-ups within a virtual incubator model.

The strategic objectives and modus operandi of ‘new economy’ incubators differ fundamentally from their ‘traditional’ equivalents:

- ‘New economy’ incubators are private-sector, profit-driven with the pay-back coming from investment in companies rather than from rental income;
- Secondly, they tend to focus mainly on high-tech and internet-related activities and unlike ‘traditional’ incubators, do not have job creation as their principal aim;
- Thirdly, ‘new economy’ incubators often have an essentially virtual presence with financial and business services at the core of the offering unlike their ‘traditional’ counterparts that usually centre on the provision of physical workspace.

The sharp decline of dot-com companies since mid-2000 has resulted in of the Internet-focused model, especially in the USA. According to Lalkaka⁹:

In the 1999 – 2000 period, some 400 for-profit, Internet incubators were added in the U.S and elsewhere, due to the expanding opportunities that the Internet seemed to offer and due in part to unrealistic expectations. Typically, this model provides a smart workspace, focused consulting services to a small growth-potential group of firms, takes equity in the companies through an affiliated venture capital facility, and accelerates them to the market. The bulk of these incubators -- once considered the paradigm of best practice -- have closed down. Nevertheless, the equity-based, net-worked model has taught some lessons and continues to have relevance.

Lessons to be learnt are that the high market capitalisations given to ‘new economy’ firms meant that businesses could derive significant value by spinning off or ring-fencing non-core innovative ideas and concepts into separate businesses, nurtured

⁸ One example of a ‘new economy’ incubator is the recently renamed Accenture (previously Andersen Consulting) which has set up Business Launch Centres in the UK and the US which provide new start-ups with business advisory services and technological assistance ranging from help on building alliances and Business Development, technical infrastructure development through to Marketing and PR Assistance.

⁹ Rustam Lalkaka ‘Best Practices in Business Incubation: Lessons (yet to be) Learnt’, Paper presented to Belgian Presidency’s international conference on business centers, Brussels, November 2001.

BACKGROUND AND POLICY CONTEXT

2

them in an incubator-type environment. Likewise, ‘new economy’ incubators offered an ideal environment for the nurturing of ICT-based start-ups. The recent stock market corrections has made this particular business model far less attractive, in the foreseeable future at least.

Nevertheless, there have been some positive and more wide-ranging consequences. In the period between mid-1998 and mid-1999, the media came to understand the concept of incubation for the first time. Venture capitalists could capture the attention of the press in ways that few non-profit organisations could. This attention led to increased development of both for-profit and not-for-profit incubators and the subsequent creation of many new companies.

In many respects, the term ‘traditional’ and ‘new economy’ incubators are not appropriate categories to use given the brief success of the latter model and (as some would argue) its inherent flaws as a business model. Alternative classifications (technology centres, science park incubators, business and innovation centres, etc) are also far from perfect since, despite different names, their basic functions are often very similar. Perhaps a better way therefore of differentiating between organisations that all share basic incubator characteristics is to identify those that are for-profit from those that are not. In Part 2 of the report, we adopt a combined approach by drawing on the experience of ‘new economy’ incubators as a ‘for-profit’ model. The ultimate purpose of comparisons is to highlight the fact that the development of a benchmarking framework needs to be sensitive to the diversity of incubator models and operations, and the ‘traditional’/‘new economy’ models illustrate this diversity particularly well.

For the purposes of this project, we have used the term ‘business incubator’ to describe the family of organisations embraced by the various definitions – the French ‘Pépinières d’Entreprises’, German ‘Technologiezentren’ and ‘Gründerzentren’, Business & Innovation Centres, and so on. An overall definition might be as follows:

Figure 3: Definition of Business Incubator

A business incubator is an organisation that accelerates and systematises the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: Incubator space, business support services, and clustering and networking opportunities.

By providing their clients with services on a ‘one-stop-shop’ basis and enabling overheads to be reduced by sharing costs, business incubators significantly improve the survival and growth prospects of new start-ups.

A successful business incubator will generate a steady flow of new businesses with above average job and wealth creation potential. Differences in stakeholder objectives for incubators, admission and exit criteria, the knowledge intensity of projects, and the precise configuration of facilities and services, will distinguish one type of business incubator from another.

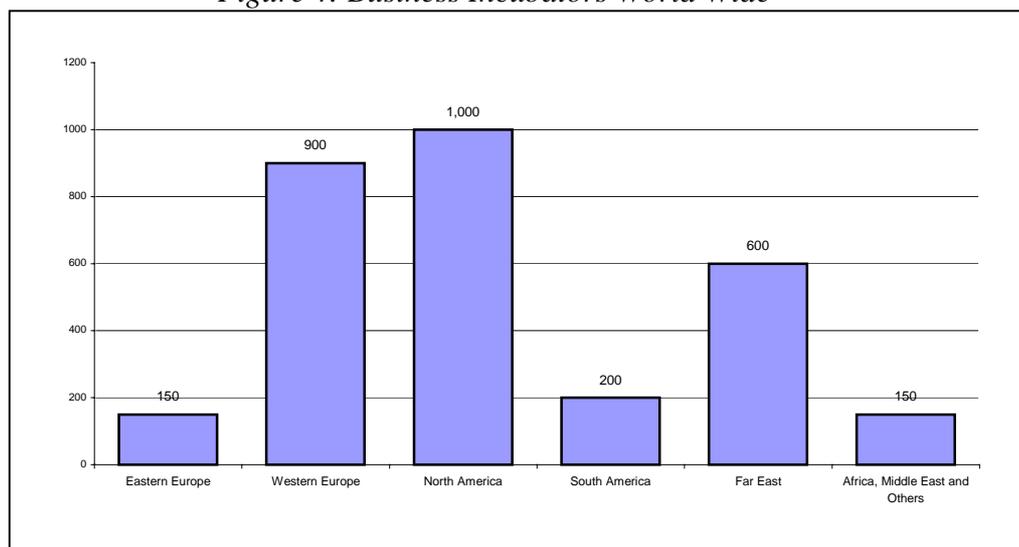
2.3 Geographical Scope and Scale of Incubator Activities

BACKGROUND AND POLICY CONTEXT

2

According to a recent estimate, there are now around 3,000 business incubators world-wide. A rough breakdown is shown in Figure 4:

Figure 4: Business Incubators World Wide



Source: Rustam Lalkaka 'Best Practices in Business Incubation: Lessons (yet to be) Learnt', Paper presented to Belgian Presidency's international conference on business centres, Brussels, November 2001. European Commission, Enterprise DG (data on Western Europe).

North America: Business incubators in the U.S. have grown rapidly in numbers, from less than 100 in 1980, to about 1,000 in year-2000 – the largest in the world. In many ways the U.S. has been a pioneer in the industry.

In addition to the incubators started by government authorities and agencies, around 20% of the US technology incubators are associated with universities and/or science parks. Due to the success of the Stanford Research Park starting in 1951 and the Research Triangle Park in North Carolina in 1959, state and local economic development programs have sought to create public-private partnerships to replicate these hubs of technological innovation. Apart from universities with affiliated incubators, some business schools are starting their own incubator, such as University of California/Berkeley, University of Wisconsin/Madison, and University of North Carolina/Chapel Hill and Babson College. The faculty and facilities together with access to a variety of contacts and VC enable the students to put their learning to concurrent practice. Other schools such as Stanford prefer that their B-school students spend their total energy on acquiring knowledge before venturing forth.

While there has been a decline in dot-coms, the for-profit corporate incubators continue. In the US, this model typically provides the considerable reputation and resources of the sponsoring corporation towards meeting its unique goal through supporting selected ventures. The Panasonic incubator at Cupertino, CA, seeks to create strategic partnerships for attracting innovations while the Reuters incubators

BACKGROUND AND POLICY CONTEXT

2

promote innovations by its own employees. Monsanto's Nidus Center has broader economic development goals of stimulating entrepreneurship in the region. Intelligent Systems has used its incubation facility to invest in early-stage tech ventures.

South America: Brazil now has about 160 business incubators, starting with ten a decade ago. It was announced at the World Business Incubator Conference (October 2001) that based on a national competition, 40 additional locations have been selected for support. Incubators are also operating or being planned in other South American countries although the programmes elsewhere are less advanced than in Brazil.

Far East: From its beginnings in 1987 with a catalytic UNDP input, the *China* incubation program has developed into the largest of its type in the developing world. Based on our research, there are now some 127 incubators in China, located in every province, autonomous region and major city except Tibet and Qinghai¹⁰. In addition there are many other organisations such as "software parks" that function much like incubators, giving a total of around 200 as of 2000. The programme's expansion has been the result of significant subsidies - usually up-front in land and buildings, low-cost or no-cost loans by local state agencies, and some on-going operating subsidies.

In *Japan*, 203 business incubators of different types are reported to be in operation, of which about one-third provide typical incubation services with dedicated management staff. Some of the others lack the distinguishing features of incubation. The Vision for year 2010 calls for developing 300 new incubators and training 500 professional managers, to create 150,000 new jobs. In *India* there are now 18 Software Technology Parks (STPs) and 15 Science & Technology Entrepreneurs Parks (STEPs) are similar in some respects to technology incubators while lacking a few of the distinguishing features. In addition, full-fledged incubators are now being established at the Indian Institute of Technology in New Delhi in Mumbai, a university in the south for biotechnology, an Advanced Materials Technology Incubator in Hyderabad, and other locations.

Although the first incubator in *Korea* was started in 1993, the major expansion has taken place in the last three years. There are about 200 in total, with 144 incubators in actual operation today. In *Malaysia*, the Technology Development Corporation has established Technology Development Centers to facilitate university-research-business collaboration in specific sectors: at Universiti Putra Malaysia (for multimedia work), Universiti Malaysia (electronics and manufacturing), and Universiti Kebangsaan Malaysia (biotechnology and pharmaceuticals). In *Indonesia*, with UNDP assistance in 1994, three pilot incubators were established in Java. This has now been extended into a major national program with many more incubators at universities in the out-lying islands. An Indonesian Business Incubator Association was also formed. In *Uzbekistan* with political support from the State Committee for

¹⁰ R. Lalkaka, Ma Feng-Ling and D. Lalkaka, Assessment of China Incubator Program, UNIDO, 1999.

BACKGROUND AND POLICY CONTEXT

2

State Property Management and Entrepreneurship Support (GKI) two pilot incubators were started at Tashkent and one at Samarkand in 1995. In 1996 the Republic Business Incubator Network was initiated, and has been expanded to about 20 facilities; of these about half are functioning as proper incubators, mostly in agri-businesses.

Africa, Middle East and Other Regions: In *Egypt*, starting as a UNDP initiative in 1992, the Social Fund for Development of the Government of Egypt has established a major network of incubators as a component of its extensive small business development and employment generation programs. The implementation of incubators is being undertaken by the Egyptian Incubator Association, an NGO set up in 1995 for this purpose. Today over a dozen incubators are in operation and many more are under planning or implementation.

South Africa has had for many years a network of facilities called “hives of industry”, established by the Small Business Development Corporation. State agencies – NTSIKA and KHULA - are establishing Local Industrial Parks comprising incubators and multi-tenant buildings. Incubator developments are also underway in Kimberley, Bloemfontein, Welcom, Natal and the Council for Scientific and Industrial Research as well as a UK government assisted program. Elsewhere in Africa, there also developments. This includes a growing network of incubators in *Nigeria* and quite well developed plans in *Ghana* for several incubators.

In other regions, there have been fewer incubator initiatives. *Turkey* started a technology incubator program in 1990 (still referred to as Technoparks). Today, KOSGEB, the state small enterprise support agency, provides the full financing for eight incubators linked to the technical universities. In several other countries there is good progress in establishing advanced technology-based facilities, such as the *Panama* Technology Business Accelerator, the *Dubai* Ideas Oasis, ConceptNursery in *Sri Lanka*, and the Technology Innovation Center University of Technology, *Jamaica*.

Eastern Europe: UNDP technical assistance in 1990 helped pioneer the concept in *Poland*, starting with the first incubator in Poznan. The creation in 1992 of the Association of Polish Business Incubators and Innovation Centers became the catalyst for growth. While earlier the incubators were focused on technology commercialisation, since 1993 programs have been aimed at creating employment and restructuring the Polish economy, with significant support from the World Bank and EU. Currently there are about 65 incubators in Poland. Similar incubator programmes are underway in other Central and Eastern European countries, particularly in the *Czech Republic*, albeit mostly on a smaller scale.

Western Europe: In Western Europe, there are currently thought to around 900 business incubators (using a broad definition). In a parallel exercise to this project, the European Commission’s Enterprise DG has undertaken a mapping exercises and

BACKGROUND AND POLICY CONTEXT

2

compiled a database of incubators in EU Member States. A summary of the Enterprise DG analysis and CSES estimates is shown below in Table 2(a).

Table 2(a): Business Incubators in EU Member States

Country	Number	Country	Number
Austria	63	Italy	45
Belgium	13	Luxembourg	2
Denmark	7	Netherlands	6
France	192	Portugal	23
Finland	26	Sweden	39
Germany	300	Spain	38
Greece	7	United Kingdom	144
Ireland	6	TOTAL	911

Source: Enterprise DG (2001) and CSES research

Table 2(b) on the next page calculates the ratio of incubators to SMEs in each country to give a more meaningful indication of the ‘density’ of business incubator developments across EU Member States.

The analysis points to a wide variation in the ‘density’ of business incubator developments: thus, whereas in Austria (with the highest ‘density’) there is one incubator per 3,000 companies, in Greece (with the lowest ‘density’) the corresponding figure is 1: 106,000 companies. Across the EU as a whole, the average ratio is 1:19,000. With the exception of Belgium and the Netherlands, the lowest densities of incubators are to be found in southern EU Member States.

An analysis of this sort has of course limited value because business incubators generally have very specific target markets. Nonetheless, it does provide a broad indication of where incubator developments have been on the largest scale.

Table 2(b): Ratio of Business Incubators to SMEs in EU Member States

Member State	A - No. Incubators	B - No. SMEs ('000s)	Ratio A:B
Austria	63	237	1:3
Belgium	131	594	1:45
Denmark	7	235	1: 33
France	192	2,116	1:11
Finland	26	180	1:7
Germany	300	3,334	1:11
Greece	7	747	1:106
Ireland	6	160	1:26
Italy	45	3,251	1:72
Luxembourg	2	18	1:9
Netherlands	6	550	1:91

BACKGROUND AND POLICY CONTEXT

Portugal	23	656	1:28
Sweden	39	243	1:6
Spain	38	2,349	1:61
UK	144	3,355	1:23
EU15	911	18,025	1:19

Source: Table 2(a) and Ernst & Young 'Evaluation of Impact of Structural Funds on SMEs' (1999)

Not surprisingly the largest number of business incubators (and some of the most favourable ratios) is to be found in the EU's larger Member States. *Germany*, where the first technology centres were set up in the Western part of the country during the early 1980s, has Europe's largest business incubator association. Towards the end of the decade, the first steps were taken to also develop incubators in the Eastern regions and this trend accelerated after reunification. A pronounced feature of German incubators is the close link most incubators have with universities and R&D institutes. In *France*, there are also a large number of incubators, but only around 50 meet the 'minimum standard' definition ('norme française') adopted by ELAN, the national association.

In *Italy*, where there has been a relatively late development of the incubation network, there are now 13 business incubators operated by Sviluppo Italia, the Italian national agency for economic development and entrepreneurship promotion. A further 17 additional incubators are currently in the process of being built or are going through the planning stages. Most of the incubators in Italy are part of BICs. There is a similar situation in *Spain* where a high proportion of the incubators are members of ANCES, the national BIC association. The *United Kingdom*, where the incubator concept is sometimes claimed to have originated in Europe, there is a considerable variety of entities ranging from science park incubators to BICs and managed workshops. Despite their early origins, a national association was established only comparatively recently.

Turning to the smaller EU countries, in *Austria*, following the establishment of the first centres in 1986 in Graz and Linz, there was a rapid expansion of business incubators in Austria during the 1990s. According to the Austrian association (VTO), there are now well over 60 business incubators in the country that are either already operating or in the process of being established. *Belgium* has a fairly even number of business & innovation centres (mainly located in Wallonia) and technology centres (mainly in Flanders). There is a similar situation in *Ireland* and the *Netherlands*. In contrast, in *Denmark*, all the incubators are attached to science parks and there is a similar situation in *Sweden* whereas in *Finland* in addition to the technology centres, TE-KESKUS, has set up 15 business incubation centres which provide a range of business advisory and development services to businesses and entrepreneurs. *Portugal* has 23 business incubators (8 EU-recognised BICs, 5 other incubators supported by the Ministry of Employment of which 3 have incubator space, 4 incubators operated by the National Association for Young Entrepreneurs, and 4 science park-based

BACKGROUND AND POLICY CONTEXT

2

incubators). Some are very small with only 5-6 rooms whereas others are much bigger with 25-30 units.

Overall, Western Europe has a wide range of incubator models with countries at very varying stages in the process of developing networks and an absence of an overall structure at a EU level.

Sectoral Breakdown of European Business Incubators

The source of data on sectoral specialisation used for our analysis is the Enterprise DG database of incubators across Europe.¹¹ The purpose of the database is to provide an overview of the activities of business incubators in the 15 EU Member States, the EEA countries (Norway, Iceland, Liechtenstein), Switzerland and the 13 candidate countries. It should be noted that the database is still being developed.

As in the US, a significant percentage of the business incubators in Europe do not have any particular sectoral orientation and are essentially mixed-use facilities. However, many other incubators have developed significant sectoral expertise. Table 3 provides a broad overview of the sectoral specialisations offered by incubators in Europe (multiple responses were possible). The analysis shows that high value-added activities such as Information & Communication Technologies, Research & Development, Biotechnology and Pharmaceuticals account for a large proportion of incubator tenant business activities. In addition, many specialise in knowledge-based, new economy industries such as e-commerce and B2B services.

Table 3: What sort of business activities does your business incubator specialise in?

Business Activities	Number	Percentage
(1) Sales, marketing and distribution	5	0.4
(2) Business and financial services	8	0.6
(3) Advanced/ High-tech manufacturing	263	18.6
(4) Information & Communication Technologies	258	18.2
(5) Research & Development	173	12.2
(6) Biotechnology/ Pharmaceuticals	201	14.2
(7) Knowledge-based industries/ New Economy companies	162	11.5
(8) Other Manufacturing Activities	86	6.1
(9) Other Service Activities	124	8.8
(10) A combination of some/ all of these activities	134	9.5
Total	1,414	100.0

Source: CSES analysis of Enterprise DG Incubators Database. Multiple responses possible

A note of caution should be added in interpreting the data shown in the above table. Whereas in some EU Member States, the numbers are based on the membership of

¹¹ See <http://www.cordis.lu/incubators/> for further details on Enterprise DG' website

BACKGROUND AND POLICY CONTEXT

2

national associations that have strict definitions, in some other countries associations do not exist, or there may be more than one organisation representing business incubators, and/or very broad definitions are used. Similarly, definitions vary and in some cases organisations have been included that are in the process of developing the full range of business incubator characteristics but do not demonstrate them yet.

2.4 European Policy Context

The Commission's 1997-2000 Integrated Programme for SMEs (and its successor) provides a framework for co-ordination of all activities in favour of SMEs. This covers:

- specific Community measures for SMEs as carried out under the multiannual programme for SMEs in the European Union;
- the contribution of other Community policies (such as the Structural Funds) to SME development;
- Concerted Actions which aim to promote the exchange of best practice amongst Member States and with the Commission on SME policies.

An earlier Integrated Programme envisaged actions relating to the three different stages of a business life cycle (start-up and early development, growth phase, transfer of a business) in three broad policy areas (improving the business environment, stimulating business support measures, increasing the profile of support services). The current version of the Integrated Programme proposes more focused action on business services. Its recommendations include, among the key actions to be undertaken, the promotion of lifelong assistance to SMEs by developing and/or improving business services and simplifying access to them. The BEST Action Plan on 'Promoting Entrepreneurship and Competitiveness' set up by the Commission foresees improving the quality of information and advice services among the actions to be undertaken at both European and Member States level.

Business support services also constitute one of the principal themes of the 'Concerted Actions', in which the Commission assists the Member States to identify and exchange best practices. Various fields are covered:

- *Concerted Action No. 1* – improving the SME environment by simplifying legal, accounting and administrative requirements;
- *Concerted Action No 2* – support measures for enterprises which is aimed at developing business services for start-ups and SMEs;
- *Concerted Action No 3* – aimed at stimulating SME demand for business support services and addressing underlying market

BACKGROUND AND POLICY CONTEXT

2

Within the Concerted Actions framework, a seminar was held in Helsinki in November 1998 to consider best practice in the business incubation field. It recommended that a benchmarking exercise should be undertaken with a view to preparing guidance starting up and operating business incubators.

More recently, the 2000 Lisbon European Council invited the Commission and the Member States to focus their action in favour of micro and small businesses. Shortly after the Lisbon Council, the Commission adopted the communication *Challenges for enterprise policy in the knowledge-driven economy* and a proposal for a Council Decision on a *Multiannual Programme for Enterprise and Entrepreneurship (2001-2005)*. This set out the challenges to be faced by enterprise policy over the next five years. The new Multiannual Programme provides a framework of actions in support of the objectives of the Communication. Business incubators, and the need to improve benchmarking techniques, have an important role to play in the context of both the above policies, as was emphasised by the recent Lisbon Council meeting.

To support these and other initiatives, a number of benchmarking exercises have been initiated covering the various aspects and stages of SME development.

2.5 Review of Previous Research on Incubators

There has already been a large amount of research on business incubators. In this section we highlight some of the key findings and explain how this project adds value to existing knowledge.

A detailed review of previous research into the operations of business incubators was contained in CSES's interim report (May 2001). To summarise, the review suggests that:

- Most existing studies are country-specific and there is relatively little research where the scope is pan-European. Likewise, there tends to be a focus on particular types of business incubators rather than covering the broad range;
- In many cases, where the research is based on surveys, little attention paid to developing and applying best practice benchmarks (where this is done, it tends to involve a more qualitative, case study-based approach);
- To the extent that previous studies have examined the impacts achieved by business incubators, the focus has tended to be on short-term measures such as failure rates rather than longer term job and wealth creation impacts;
- Last but not least, none of the existing research incorporates a trans-Atlantic dimension with comparisons between incubator activity in Europe and the USA.

BACKGROUND AND POLICY CONTEXT

2

Taking the first point, a shortcoming of existing research on business incubators is that it is mostly country-specific and limited in scope to a particular incubator modality (BICs, technology centres, etc). This is, for example, the case with most of the research undertaken by national associations such as the ADT, ELAN, UKBI and others. As a result, there is limited scope for comparative analysis, especially since the questions asked in surveys tend to vary from one country to another. An exception was a survey was undertaken by EBN in 1998 which was EU-wide in scope but this was limited to 69 Business & Innovation Centres from 10 countries rather than covering business incubators generally.¹²

Because the local environments in which business incubators operate vary from one location to another, there are of course limits on the extent to which comparisons can be made. For example, whilst it may be necessary in some areas for business incubator to provide some if not all services on an ‘in-house’ basis because there are few external providers, in other regions with relatively advanced public and private business support services and agencies, it may be more appropriate for an incubator to network with other organisations to ensure that client needs are met. However, best practice suggests that common to both situations will be a strategy to ensure that the operations of an incubator to not ‘crowd out’ private sector provision. Similarly, whereas some incubators will have job creation as a key objective, others may not if they are located in areas with low unemployment. To judge the performance of different incubators according to a common indicator such as job creation may therefore be difficult. These and other complications do not negate the justification for comparative assessments but do, as emphasised by a number of other studies, mean that the results need to be treated with caution and fully explained.¹³

With regard to the third of the above points, existing survey-based studies of business incubators provide detailed information on their features and operations. However, the point is that this information (e.g. number of incubator units, occupancy rates, types of tenant firms) does not in itself explain *why* some incubators appear to perform better than others. In contrast, this project uses survey data to highlight differences in incubator performance, and to establish best practice benchmarks, but then goes further by drawing on the results of an interview programme and other fieldwork (not typically a feature of survey-based studies) to explain why differences in performance exist.

The last of the points listed above is largely self-explanatory: whilst there has been a considerable amount of research on both sides of the Atlantic, to date no attempt has been made to compare the findings. Thus, there is a widely held view that US incubators tend to perform better than their European counterparts (with, for example, more emphasis in the USA than Europe on a for-profit approach, greater success in leveraging venture capital investment, etc). But there is little or no research to support

¹² EBN (1997) *BIC Observatory* report for the European Commission and BIC CEOs.

¹³ See, for example, UNIDO (1997) ‘Lessons from international experience for the promotion of business incubation systems in emerging economies’

BACKGROUND AND POLICY CONTEXT

2

assertions such as these. Again, the explanation for this is partly methodological since the surveys carried out by the NBIA are based on a questionnaire that differs from those previously used in Europe. The last survey undertaken by the NBIA was in 1997 and obtained a response from 50 incubators (a further survey is currently underway).¹⁴ Appendix () provides a summary analysis of the approach adopted by the NBIA and by EBN in Europe, highlighting the limited extent to which the findings can be compared (to overcome comparability problems, CSES ensured that key questions in the survey of EU incubators were 'harmonised' with those used by the NBIA in its current survey).

The literature review contained in CSES's interim report highlighted a number of more specific findings from previous research. Thus, in examining business incubator objectives and sponsorship, earlier studies have stressed the importance of broad public-private partnerships. The NBIA research in the USA and work by national associations and others in Europe provides a good description of the types of organisations that are typically involved.¹⁵ Lalkaka, amongst others, highlights the fact that the motivation of different types of sponsors – and hence the objectives set for incubators – varies. For a research institute, the priority will be to help commercialise R&D; for a real estate developer, the aim will be to maximise the return on an investment through the sale or lease of the incubator's premises; for a public agency, the role of an incubator will be to promote SMEs, competitiveness, job creation and other policy objectives.¹⁶ But whilst existing studies consider partnership structures in some detail, far less attention has been paid to the question of how incubators fit into broader regional structures and strategies, for example their role in supporting the development of industrial clusters combining R&D centres of excellence, large companies and their local supply chains. This shortcoming, attributable to the essentially survey-based approach of much of the previous research, has been addressed in the current project through the interview programme with incubator managers and their partners.

Another aspect of incubator operations given quite extensive attention in previous research is the way in which they are financed. Existing studies stress that regeneration is a long term process and because of this, many if not most 'traditional' business incubators rely heavily on public funding to help meet set up and operating costs. As a recent UNIDO study has observed 'generally, the private sector will participate in the incubation process, only after the state has financed the

¹⁴ NBIA (1997) *Impact of Incubator Investments*, study carried out for the US Department of Commerce, Economic Development Administration

¹⁵ See, for example, the 1998 NBIA survey which found that 51% of incubator sponsors were not-for-profit organisations, 27% were supported by academic organisations, 16% by public agencies, and the remainder by developers or investment groups. EBN's 1998 survey contains a similar analysis for EU BICs and the ADT, UKBI and other national associations have also examined sponsorship structures.

¹⁶ Rustam Lalkaka 'Approaches to Benchmarking of Business Incubators', based on presentations made at Conferences in Trieste/Italy in December 2000 and in Bangalore /India in January 2001.

BACKGROUND AND POLICY CONTEXT

2

establishment and initial operations.’¹⁷ This was also emphasised by the 1998 Helsinki conference. In this respect there are thought to be some differences between the EU and USA with generally higher private sector investment in business incubators the latter than the former.¹⁸

The research indicates that where business incubators have been able to break-even, this has been achieved in a variety of ways with rental income from tenants being generally the most important source of income, typically accounting for 40-60% of all revenue. A study by the UK Enterprise Panel argues that incubators with the capacity to accommodate a relatively large number of clients are far better placed to generate the rental and other income needed to cover overheads. However, existing research suggests that these methods often fail to generate sufficient revenue and that the need for a ‘not for profit’ element remains.¹⁹ Other research suggests that subsidies are often not only needed to cover the cost of providing incubator space but also to enable a full range of business support services to be provided.²⁰

Turning to operational issues, a recent OECD report suggests that business incubators in Europe typically provide 5-10,000 m² of space for rent to tenants (with an average of 6,500 m²), sufficient to accommodate between 20 and 30 enterprises.²¹ A key feature of the incubator model is the existence of admission criteria that limit assistance to a particular target market (particular types of business, projects with a particular type of technological orientation, or with high job creation potential, etc). Likewise, exit rules help to ensure that there is a continuous turnover of tenants.

¹⁷ UNIDO (1997) ‘Lessons from international experience for the promotion of business incubation systems in emerging economies’. This study highlights several exceptions, such as the Federation of Industry São Paulo (FIESP).

¹⁸ In Europe, a recent study (DG Regional Policy & Cohesion, Evaluation of Community Measures in support of European & Business & Innovation Centres, Summary Report) estimated that the majority of funding for business incubators comes from the public sector. An evaluation report carried out for DG REGIO in 1999 examined the effectiveness of community measures in support of EC BICs. The report found that the provision of business advisory support services to firms was an increasingly important source of income for BICs, with 47% of incubators deriving at least some revenue streams from them. However, very few could survive without public subsidies.

¹⁹ A 1996 report by TZN RW in Germany argues that whilst by European standards a relatively high percentage of incubators had reached breakeven by generating income from renting space and business advisory, they would not be able to survive without public assistance. The study found that 38% of incubators were managing to cover their running costs but 40% were subsidised by a variety of national and EU funded programmes and a further 23% received Structural Fund subsidies to make up the shortfall in revenue.

²⁰ European Commission (DGXVI) ‘Evaluation of Community Measures in Support of European Community Business and Innovation Centres’ (1999). This study showed that whereas on average 14% of rental charges paid by incubator clients were publicly subsidized, in the case of advisory services the subsidy element was 19% and 42% with project assessment.

²¹ OECD Report: Business Incubation: International Case Studies (1999). The report also found that supply for managed workspace exceeded demand.

BACKGROUND AND POLICY CONTEXT

2

However, earlier research suggests that business incubators often do not enforce these rules strictly if occupancy rates are low because of the need to maximise rental income.²²

Existing literature also stresses the role of incubator managers not only in ensuring that the organisation itself operates in an efficient manner but also in advising client companies. However, as a recent study points out, there can be difficulties in combining these roles (according to the research 70% of managers spend less than 50% of their time providing advice directly to clients). The background and training of incubator managers is also relevant in this respect.²³ More generally, although existing research examines physical aspects of incubator operations in some detail, there tends to be less emphasis on the question of what configuration of support services (advice, finance, technology support, etc) produces the best results and how the business incubation process itself can be most efficiently organised.

A further key issue addressed in some earlier studies is how business incubator performance should be judged. The research suggests that apart from financial indicators and the routine monitoring of service delivery against quality standards, most incubators (and independent studies) do not go beyond on the use of indicators such as start-up success/failure rates.²⁴ (However, as in many other aspects of incubator research, there is a lack of comparability with differing methods being used to calculate failure rates in different studies.) Thus, few studies contain an assessment of incubator company growth rates, the types of activities they are engaged in, or (apart from calculating the number of employees in tenant firms themselves) the wider socio-economic impacts.

Work to estimate direct employment effects attributable to incubators has been undertaken by EBN in Europe and the NBIA in the USA.²⁵ But in neither case, nor in

²² The same OECD report on international best practices (1999) confirms that in order to attract new tenants and meet annual financial targets, programme managers sometimes relax the selection criteria.

²³ With regard to the previous work experience of incubator managers, the study established that over two-thirds of the managers had previously been in business. The remainder came from a variety of backgrounds – some had held positions in economic development agencies (often the parent organisation of incubators) whilst others had worked in property management, universities, financial institutions, or other business incubators.

²⁴ Examples include EBN's 1998 survey EBN which estimated the success rate of new companies created by BICs at 93% (i.e. those businesses succeeding past the one year stage). Research in Australia (1996 OECD Report: Business Incubation: International Case Studies, Watson, J. and Everett, J.E.) indicated that only 6-9% of new businesses in incubators fail compared with reported first year failure rates for small businesses generally of up to 33%. Likewise, in Germany, research by the ADT in 1996 indicated that the failure rate of incubator companies was around 5%.

²⁵ EBN estimates that BICs across the EU created approximately 10,000 gross jobs between 1984 and 2000. The NBIA's 1998 study 'The State of the Business Incubation Industry' found that North American incubators created almost 19,000 companies and more than 245,000 jobs and that on

BACKGROUND AND POLICY CONTEXT

2

other studies, has an attempt been made to calculate net impacts by taking additionality, displacement and indirect effects into account²⁶ or to assess cost-effectiveness.²⁷ Likewise, there is very little research focusing on the views of client companies themselves with regard to the value added of being located in an incubator (essential to assessing additionality). The 'post incubation' dimension, too, is very much neglected with little or no evidence in most studies of 'tracking' of graduate company destinations and the performance of these firms and outreach clients. This is despite the fact that such research could shed valuable light on the wider and longer-term impact of incubators.²⁸ Quite apart from the question of appropriate performance indicators, there are of course many complications in assessing the impact of business incubators. Some of these are purely methodological (e.g. the use of control groups) whilst others are of a more practical nature and relate to data collection problems (e.g. obtaining information from companies that have left incubators)²⁹.

Benchmarking Initiatives

As the previous section has shown, there is now a large amount of research on business incubators. However, there has been relatively little emphasis – explicitly at least - on benchmarking best practice. Key steps in a benchmarking are summarised below:

average, the types of clients of business incubators were of higher value-added than ordinary new business start-ups.

²⁶ An exception in this respect is an impact assessment of Aston Science Park/incubator (Ernst & Young, 1999) that included a survey of tenants and graduates to obtain their views on how the science park and business incubator had helped them, and to calculate the local employment impact.

²⁷ The NBIA's research suggests that public sector supported incubators create jobs at an average cost of US\$1,100, whereas other job creation measures supported by public sector policies often cost upwards of US\$10,000 per job created. In Australia, the 1996 report *Business Incubation in Australia: Best Practice Standards and an Industry Profile* by the Australia and New Zealand Association of Business Incubators (ANZABI) found that on average, the cost per job created to the public sector through business incubators was approximately A\$4,000 which compares favourably with other governmental measures whose primary objectives is to create employment. The researchers also found that the average cost per job created fell over time, particularly as tenants moved towards 'graduation'.

²⁸ In the USA, the NBIA has carried out research that indicates that 84% of businesses graduating from an incubator relocated in the locality post incubation. This tallies with research conducted in Michigan which identified a similar percentage (84%) of 'graduate' companies remaining within the local business community. Another study in the USA has suggested that for every 50 jobs created directly by incubator clients, another 25 jobs will be created indirectly in the local community. Likewise the evaluation of Aston Science Park in the UK came to broadly similar conclusions regarding the ratio between direct and indirect jobs.

²⁹ For example, the OECD's 1999 report on business incubators emphasises the difficulty in setting up a representative control group of non-tenant firms as a way of assessing additionality. The difficulty of ensuring a representative sample (i.e. a comparable control group) and hence accurately comparing like-with-like was also highlighted by the US Department of Commerce study.

BACKGROUND AND POLICY CONTEXT

2

- The first step in a benchmarking exercise is to use performance indicators (preferably ones that are quantifiable) to highlight differences between incubator operations and to help define best practice;
- Whilst existing surveys provide detailed information on incubator features and operations, this information (e.g. number of incubator units, occupancy rates, types of tenant firms) does not in itself explain why some incubators appear to perform better than others;
- Additional, more in-depth research is therefore needed to explain differences and how incubators that are under-performing against benchmarks can develop their operations so that they can achieve best practice standards.

It can be seen therefore that benchmarking has an essentially practical purpose. The aim is not only to provide information on incubator activities but to also provide a 'route map' that can be used by managers to improve performance. Lalkaka³⁰ explains the nature of benchmarking as being to:

'Assist management to progressively up-grade its performance, attribute by attribute, and make the needed transition from the first generation mode (essentially subsidized space and shared facilities), towards a more relevant and dynamic operating model (intensive services and networking, with the prospective of achieving high-level of sustainability after the initial 3 or 4 years of operation).'

A key question is of course what sort of criteria should be used to assess incubator performance. There are a large number of possible approaches. In the next section we explain the approach developed for this project.

³⁰ Rustom Lalkaka 'Approaches to Benchmarking of Business Incubators', based on presentations made at Conferences in Trieste/Italy in December 2000 and in Bangalore /India in January 2001.

BENCHMARKING FRAMEWORK

3

This section summarises the methodological framework used to benchmark business incubators. We start by outlining the overall approach and then explain each methodological step.

3.1 Overall Approach

A detailed description of the methodology that has been adopted for this project, and more specifically the proposed business incubator benchmarking framework, was set out in the interim report. However, it is helpful to summarise the overall approach:

Figure 4: Key Steps in Development of Benchmarking Methodology

- *Step 1 – Model:* A generic business incubator model was developed setting out basic functions and operating procedures. This model is based on the literature review, inputs by the Managers Group and CSES’s fieldwork.
- *Step 2 – Best Practice Issues:* The model defines a number of ‘key best practice issues’ that provide the framework required to define benchmarking indicators. These are subdivided into ‘headline’ and ‘operational’ indicators;
- *Step 3 – Performance Drivers:* In addition, the model highlights the ‘key performance drivers’ that will influence the extent to which incubators achieve best practice benchmarks. These drivers fall under three headings -
- *Step 4 – Business Incubator Data:* Two surveys were carried out by CSES: the first focused on incubators themselves while the second involved obtaining feedback from client companies. The survey data was used to determine where incubators stand in relation to the various benchmark indicators;
- *Step 5 – Best Practice Guidance:* Based on the earlier steps and analysis, the final section of this report then suggests key actions that should be taken in setting up and operating business incubators.

The first three steps were undertaken during Phase 1 of the project although modifications were subsequently made to reflect feedback from discussions with incubator managers. Step 4 involved a number of separate strands (two surveys, face-to-face interviews with incubator managers, partner organisations, and companies, and contact with national associations to obtain data from other surveys undertaken by them) and is more fully described in Section 3.4.

During the course of the project, three workshops with the incubator ‘Managers Group’ have also been held to help guide the design of the benchmarking framework and CSES’s research. Last but not least, we also benefited from several expert’s inputs.

3.2 Business Incubator Model (Step 1)

The way in which business incubators operate can be depicted in terms of a simple input-output model:

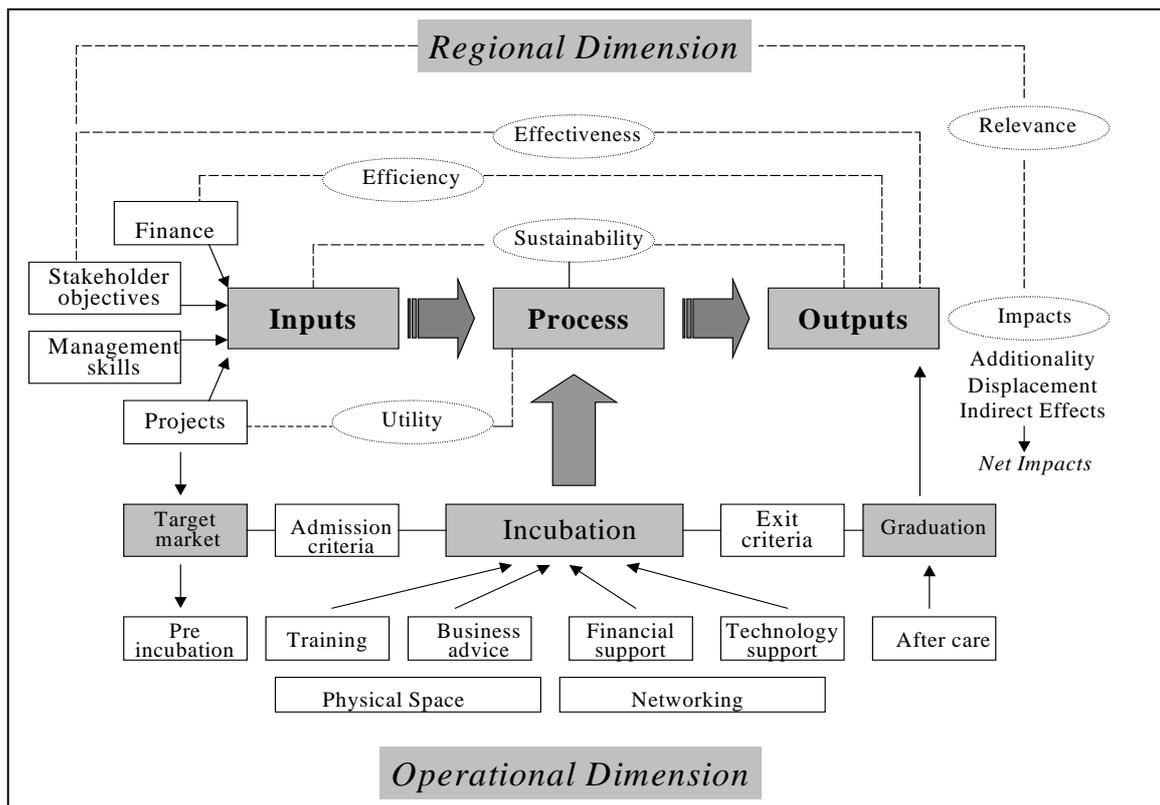
BENCHMARKING FRAMEWORK

3

- *Inputs* – these mainly consist of the inputs made by stakeholders (e.g. providing finance), management resources, and projects put forward by entrepreneurs;
- *Processes* – the various inputs are brought together in the business incubation process through the provision of incubator space and other services to companies;
- *Outputs* – successful companies graduate with positive job and wealth creation impacts on local economies.

Figure 5 sets out the model in schematic format, combining the incubator input-output dimension (shown in the bottom half of the diagram) together with key best practice issues (shown in the top half of the diagram).

Figure 5: Business Incubator Model



BENCHMARKING FRAMEWORK

3

Taking the operational dimension, projects are identified that meet the criteria used to define the incubator's broad target market (e.g. projects with a particular technology focus). After a more detailed assessment, some entrepreneurs may be encouraged to go through a 'pre-incubation' process, typically involving a combination of training and business planning, before they gain admission to the incubator.

The incubation process itself typically brings together three categories of business support services – training, advice on business issues, financial support (either from an incubator's own sources or from external providers, i.e. financial institutions), and technology support. The provision of incubator units and networking (internally between tenants and externally with other organisations, e.g. universities, large companies) constitute the other basic features of the 'package'.

A key feature of incubators is the limited duration of assistance with exit criteria typically specifying that firms should 'graduate' after a fixed period of time (e.g. five years). Some firms will of course leave sooner if they grow rapidly and require more space than the incubator can provide. However, in many cases, contact will be retained with 'graduate' companies through the provision of after-care services and/or on-going networking.

The other dimension of the model shown in Figure 5 – key best practice issues – is examined below under Step 2 of the methodology.

3.3 Best Practice Issues (Step 2)

In Figure 5, the key best practice issues (shown in the top half of the diagram) are defined as follows:

- *Efficiency* – the relationship between financial inputs and outcomes and, linked to this, value for money;
- *Effectiveness* – the extent to which the outcomes demonstrate that specific objectives are being achieved;
- *Relevance* – the extent to which objectives/outcomes promote broader policy objectives;
- *Utility* – the extent to which services provided to client companies meets their needs;
- *Sustainability* – the sustainability of operations and durability of the outcomes being achieved.

BENCHMARKING FRAMEWORK

3

These are the standard criteria used by the European Commission to assess the performance of expenditure programmes and schemes.³¹ Tables 4 and 5 on the next page summarises how the various criteria might be interpreted in context of defining business incubator best practice issues.

Table 4: Definition of Best Practice Issues

Criteria	Inputs and Processes	Outcomes
Relevance	Incubator mission and strategy and relevance to enterprise and regional development priorities (qualitative)	Extent to which incubator tenant characteristics match definition of target market and admission criteria (qualitative).
Efficiency	Financial inputs, operating procedures and unit cost of providing incubator facilities and services to client companies.	Cost effectiveness of outputs (e.g. cost per successful business start up, cost per gross/net job created).
Effectiveness	Extent to which incubator achieves key operational targets set out in business plan (e.g. survival and graduation rates)	Extent to which incubator achieves targets with regard to enterprise and wider regional development impacts (e.g. job and wealth creation)
Utility	Occupancy rates and take up of incubator support services	Extent to which incubator services meet client needs and contribute to performance
Sustainability	Financial sustainability of incubator (e.g. extent to which operating costs are covered by income), level of demand for incubator space and services, incubator charges compared with market rates	Graduation rates, retention of graduates in local area, and extent to which incubator promotes new start-ups in sectors of local economy with long-term job and wealth creation potential.

³¹ The European Commission’s criteria are set out in a publication ‘Interim and Ex Post Evaluation of EU Expenditure Programmes’ (1997) which in turn draws on best practice in the assessment of public initiatives from Member States.

BENCHMARKING FRAMEWORK

3

Table 5: Definition of Best Practice Indicators

Criteria	Inputs and Processes	Outcomes
Efficiency	<ul style="list-style-type: none"> <u>Start-up time</u> – length of time required to establish incubator <u>Incubator investment cost</u> – total investment/ sq m of incubator space <u>Incubator operating cost</u> – operating costs/number of personnel <u>Financial leverage</u> – ratio of public to private sector funding <u>Income generation</u> – proportion of income from client charges 	<ul style="list-style-type: none"> <u>Cost of incubator units</u> – total investment/sq meter of space <u>Cost per start-up</u> – total investment/number of start ups <u>Cost per graduate</u> – total investment/number of graduates <u>Cost per (gross/net) job</u> – total investment/ jobs in tenant and recent graduate firms
Utility	<ul style="list-style-type: none"> <u>Occupancy rate</u> – percentage of incubator space let to companies <u>Incubator service utilisation rate</u> – percentage of companies using incubator support services <u>Response rate to client surveys</u> – percentage of tenants responding to client satisfaction surveys 	<ul style="list-style-type: none"> <u>Incubator turnover</u> – number of firms entering/leaving incubator, average time in incubator <u>Client satisfaction</u> – percentage of firms indicating that incubator services meet their needs, contribution of incubator to firms’ development (additionality)
Effectiveness	<ul style="list-style-type: none"> <u>Start up rate</u> – number/percentage of admissions leading to start-ups <u>Start up time</u> – length of time required to start up new businesses <u>Survival rate</u> – number/percentage of start ups still trading after 3 years 	<ul style="list-style-type: none"> <u>Wealth creation</u> – Average turnover of tenant firms and average annual growth rates, value added of business activities <u>Job creation</u> – number (and type) of jobs per tenant firm and annual growth rates, proportion of jobs filled by local people, job quality
Sustainability	<ul style="list-style-type: none"> <u>Financial breakeven</u> – income less operating costs <u>Market rates</u> – level of discount/premium for incubator space/services compared with local market rates 	<ul style="list-style-type: none"> <u>Graduation rate</u> – percentage of tenants leaving incubator each year <u>Growth sectors</u> – proportion of graduates in growth sectors <u>Retention rate</u> – percentage of graduate companies remaining in local area

Note: Total investment defined as incubator capital investment plus operating costs to date less income from incubator services and other non-grant revenue.

BENCHMARKING FRAMEWORK

3

3.4 Performance Drivers (Step 3)

There are a number of factors that will influence the extent to which incubators are able to achieve best practice. These factors relate to:

- Setting up and operating incubators;
- Key incubator functions, management, and promotion;
- Evaluation of incubator services and impacts.

These ‘high level’ themes were defined by the European Commission in its terms of reference for the project and, before that, were highlighted by participants of the 1998 Helsinki workshop as key issues. Table 4 on the next page breaks down these broad themes into a number more specific ‘headline’ and ‘operational’ indicators.

Table 6: Performance Drivers - Key Headline and Operational Indicators

Setting Up and Operating Incubators	
1.	Number and type of stakeholders – the role of stakeholders, in particular the backing of a broad public-private partnership, is critical to successful incubator operations and the wider role of incubators in contributing to regional strategies on competitiveness and technology transfer.
2.	Number and type of incubator units – this together with the location and type of incubator premises largely determines start-up costs and the capacity of an incubator to operate on a cost-effective basis and achieve economies of scale. There are a number of operational indicators (see below).
3.	Number and type of client companies – the number and type of tenants provides a basis for classifying incubators (e.g. a technology centre will typically have more than 75% of its clients engaged in knowledge-intensive activities) whilst information on the performance of tenants provides the basis for assessing incubator effectiveness.
4.	Start up and operating costs/source of funding – there are a large number of possible headline and operational indicators relating to incubator finance (e.g. extent to which breakeven is achieved) and, likewise, if linked to incubator outcomes, this enables efficiency and value for money issues to be assessed.
Key Incubator Functions, Management and Promotion	
5.	Incubator occupancy rates and turnover – occupancy rates provide an indication of how successfully incubators attract clients and is also for many incubators a key to financial viability. The turnover of tenants is a guide to operating efficiently.
6.	Range and pricing of business support services – the provision of a comprehensive range of business support services is a defining characteristics of the incubator model. These can be grouped into four categories – entrepreneurship training, business advice, technology and innovation support, and financing of companies. In each case, there are a large number of possible operational indicators.
7.	Admission and exist criteria – again, the existence of formal admission and exit criteria are a defining characteristic of the incubator model and important in ensuring a turnover of tenant companies. Operational indicators include the length of time tenants remain in the incubator.
8.	Number and type of incubator personnel – the ratio of incubator personnel to clients is another key indicator of efficiency. More fundamentally, the quality of the management team is clearly a major determinant of incubator performance.
9.	Criteria used to monitor incubator performance – in addition to a formal set of performance indicators and quality standards, a key factor here is the extent to which incubators obtain feedback from their clients on the services being provided to them.

BENCHMARKING FRAMEWORK

Evaluation of Incubator Services and Impacts	
10.	Performance of tenants, job and wealth creation – the failure/success rate of incubator tenants is widely used as a short-term measure of their performance whilst job and wealth creation indicators provide an insight to longer term impacts.
11	Number of graduates/retention in local area – monitoring the destination of graduates is a key to understanding the extent to which incubators achieve sustainable impacts that benefit the areas where they are located.
12.	Value added of incubator operations – benchmarking the performance of incubators needs to be based on an assessment of the value added they demonstrate, i.e. the extent to which the performance of client companies can be attributed to the support obtained from an incubator.

In the context of this project, ‘headline’ indicators have been defined as being a small number (12) of key indicators that relate primarily to the outcomes achieved by business incubators. ‘Operational’ indicators are the larger number (40) of specific indicators relating to business incubator operating context, structures and processes, i.e. the factors that help explain why some incubators achieve better outcomes than others. These are not listed in full here but considered in Section 4 containing an analysis of business incubator data.

3.5 Business Incubator Data (Step 4)

Data used to quantify the headline and operational benchmarks has been collected through three methods:

- *Incubator survey* – a questionnaire was sent by CSES to business incubators throughout the EU with a positive response from 78. In addition, data was contributed by a number of national associations;
- *Company survey* – a separate questionnaire was devised for tenant companies. This was distributed to a more limited number of incubators with information from 71 companies being returned to CSES;
- *Interview programme* – to support the survey work, CSES carried out interviews with incubators and in each case a small sample of their tenants.

Tables 7 and 8 provide a breakdown of the incubator sample – first by country and then by type of incubator. The main body of the analysis is based on a total sample of 78 completed questionnaires returned directly to CSES. Where appropriate, the analysis also incorporates data from the UKBI (46 questionnaires), and the NBIA (52) where comparisons are made between the performance of incubators in Europe and the USA.

Table 7: Breakdown of EU Sample (by Country)

Country	Managers Group	CSES Survey	Other Sources	Total
Austria	1	3	0	4
Belgium	1	1	0	2
Denmark	1	0	0	1
Finland	1	13	0	14
France	1	21	0	22

BENCHMARKING FRAMEWORK

3

Germany	1	0	0	1
Greece	1	0	0	1
Ireland	1	2	0	3
Italy	1	12	0	13
Netherlands	0	0	0	0
Portugal	1	1	0	2
Spain	1	5	0	6
Sweden	1	6	0	7
United Kingdom	1	0	46	47
TOTAL	13	64	46	123

Source: CSES analysis of sample. Note does not include UKBI data.

Table 8: Breakdown of EU Sample (by Incubator Type)

Typology of Incubators	Number	Percentage
Business & Innovation Centre	31	25.2
Science/Technology Park Incubator	41	33.3
Specialised Incubator (e.g rural etc.)	15	12.2
Other Type	36	29.3
Total	123	100.0

Source: CSES analysis of sample, UKBI data

Whilst the data allows for a robust analysis at an EU level, the varying response rates across Member States, the difficulties in obtaining data from certain countries, and the relatively small overall sample size involved, means that there is limited scope for cross-country comparisons. Arguably this type of analysis is in any case less relevant than comparing different types of incubators, and in the following section considerable emphasis is placed on this approach.