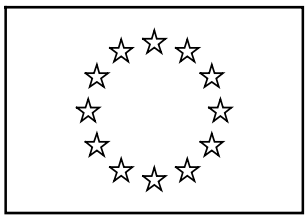

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Final Report

Benchmarking of Business Incubators

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There are a number of key factors that determine success in establishing and operating incubators. This section examines the role of stakeholders, locational and physical aspects of incubator operations, the definition of the incubator's 'mission', the type of companies they attract as clients, and issues relating to the financing of incubator start up and operating costs.

4.1 Business Incubator Stakeholders

The support of 'stakeholders' and quality of the management team (examined in Section 5) are critical factors in successfully establishing and operating incubators.

Business incubators are more likely to succeed if they are supported by a broadly-based partnership of public and private sector sponsors. In particular, the capacity to leverage private sector inputs, whether this is in the form of finance or other types of support (e.g. expertise, access to facilities, corporate venturing) is critical. However, it also widely recognised that in the early developmental phase, public funding is vital because it can often take a number of years before a business incubator can attract private sector funding and/or generate sufficient income from other sources (e.g. rent) to cover operating costs.

A remarkable albeit fleeting exception to this was observed during the later stages of the period now referred to as the Internet bubble: from 1999 to 2000, more than three hundred new economy incubators were set up in the USA and Europe, almost entirely funded with private capital (venture capital and/or corporate funds). With the subsequent market downturn and resulting collapse of dot-coms, funding dried up for most of these Internet incubators, forcing them to close or scale down their operations, or switch to revenue-generating activities such as consulting services.

An analysis of incubator 'stakeholders' is provided in Table 9. This confirms that public authorities are generally the major shareholders in most incubators established in EU countries but private sector organisations also play an important role. Table 8 then provides an analysis of the survey feedback on the legal status of business incubators. Most are incorporated as public companies limited by guarantee or shares.

Table 9: Key Partners Involved in Setting Up Business Incubators

Partners (Board Members and other Partners)	Number	Percentage
(1) EU and/or other international agencies	36	13.4
(2) National authorities and public agencies	68	25.3
(3) Companies, banks and other private sector organisations	56	20.8
(4) Universities and other R&D organisations	44	16.4
(5) Community and voluntary organisations	34	11.5
Total	269	100.0

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Source: CSES analysis of sample, multiple responses possible

The typical partnership structure of new-economy incubators is obviously more oriented toward the private sector, and largely dominated by the third category listed in Table 9 (companies, banks and other private sector organisations). However, the rapid rise and fall of Internet incubators since 1999 have spurred a convergence of for-profit and not-for-profit incubators toward public-private partnerships: initially the unrestrained media coverage and investor enthusiasm about Internet incubators put pressure on traditional incubators to adapt similar business models and practices in order to attract private capital; since then, the withdrawal of investors from Internet-related ventures and the general market decline have compelled many private incubators to seek out more secure and stable means of support from public authorities and institutions.

Table 10: Legal Status of Business Incubators

Legal Status of Incubator	Number	Percentage
Public Entity	30	24.0
Private Company	47	37.6
Semi-public or other	35	28.0
No answer/ don't know	13	10.4
Total	125	100.0

Source: CSES analysis of sample

The number and type of organisations making up business incubator partnerships varies from relatively small groups (e.g. UK) to partnerships consisting of up to twenty organisations (e.g. Portugal). Incubator managers stressed the leadership role of public authorities and the importance of a consensus amongst partners over business incubator objectives. Dublin BIC in Ireland is a very good example of a formal public private sector partnership (PPP) that has been used to raise funding for the initial capital investment costs of establishing the incubator.

4.2 Location and Premises

Business incubators can have very different types of location and can be housed in very different types of premises ranging from purpose-built new developments to converted buildings.

The location of a business incubator largely reflects the aims it pursues. Thus, a specialised incubator that focuses on promoting technology-based enterprises may well be located on 'greenfield' site, for example on a science park adjacent to a university, whilst a multi-purpose incubator could be in an inner-city area or on an industrial estate. Table 11 confirms that there are a large variety of locations.

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Table 11: Location of Business Incubators

Incubator location	Number	Percentage
Urban	68	54.4
Greenfield	30	24.0
Rural	8	6.4
Other	13	10.4
No answer/ don't know	6	4.8
Total	125	100.0

Source: CSES analysis of sample

New-economy incubators, in contrast, tend to be concentrated in metropolitan areas, particularly in cities and regions that combine strengths in technology, creative talent, entrepreneurship, professional services and finance - London, Amsterdam, Stockholm, Munich, Paris are attractive locations for new-economy entrepreneurs and investors to live, work, network and promote themselves.

As with location, there is no standard type of premises occupied by incubators. As Table 12 shows, whilst many have new purpose-built premises, a significant proportion are housed in converted buildings, often in inner city locations. Clearly, the choice of premises has implications for the cost of establishing incubators (considered in more detail below).

Table 12: Type of Incubator Premises

Type of Premises	Number	Percentage
New	47	60.3
Converted	17	21.8
Other	13	16.7
No answer/ don't know	1	1.3
Total	78	100.0

Source: CSES analysis of sample

Very few new-economy incubators are housed in newly built facilities, but for reasons largely unrelated to cost. At least in the beginning, when they were managing to raise large amounts of funding, it was more important to launch operations as soon as possible, often in cities where office space is scarce. For young entrepreneurs and information technology workers there is also a sort of "shabby chic" appeal in occupying converted lofts, former warehouses, or antiquated offices.

The research suggests that to operate successfully, incubators need to have sufficient capacity to accommodate a minimum of around 20 tenants at any one time (see

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Section 5) and hence to achieve economies of scale. According to the survey, a typical incubator has around 3,000 square meters of incubator space. Given that a limited number of responses at the higher end of the size range can easily distort the average figure, it is more appropriate in this instance to focus on the median figure rather than the average.

Table 13: Incubator Units

Physical space of Business Incubator	Square Meters
Minimum	90
Maximum	41,000
Average	5,860
Median	3,000

Source: CSES analysis of sample

These numbers do not apply to new-economy incubators whose profitability depends on the value of equity they own in incubated companies, rather then on rental leases and service fees. Some of them may host only two or three companies while others may operate as virtual incubators that do not provide office space at all.

Key performance indicators in relation to the physical aspects of incubator operations include the proportion of the total premises available that is devoted to accommodating client businesses and, second, the occupancy rates. These and other related factors are examined in more detail in Section 5.

4.3 Incubator Role and Objectives

As Table 14 shows, contributing to the competitiveness of local economies and job creation ranks as the principal objective of most incubators. Other objectives are ranked more or less equally.

Table 14: Business Incubator Objectives

Incubator Objectives	Ranking (1 = most important)						
	1	2	3	4	5	0	Average
(1) Contribute to competitiveness and job creation	56	14	4	0	1	3	1.3
(2) Help R&D centres commercialise know-how	10	18	19	18	3	9	2.8
(3) Help companies generate spin-off activities	3	23	27	12	5	7	2.9
(4) Help disadvantaged communities/individuals	1	12	12	22	15	16	2.8
(5) Other roles - please specify:	7	6	7	7	6	44	2.9

Source: CSES analysis of sample

Amongst technology incubators, a key factor is the extent to which an incubator plays

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an active role in the broader regional (technology) development strategy of the area where it is based. Obviously for new-economy incubators this table would look quite different, the primary objective being the wealth of their own shareholders. When this objective eventually turned out to be more difficult if not impossible to attain, some incubators resorted to selling consulting services to established companies, or to partnering with local universities and research institutes.

An analysis of best practice suggests that incubators should not be treated as stand-alone operations but rather integrated into a network of key stakeholders, agencies and schemes that work together to promote innovation, competitiveness, technology transfer and other key public policy objectives. Whilst there is no simple way of capturing the role of incubators in the broader regional context using indicators, the research points to several best practice examples:

Best Practice Example 1 – Role of Business Incubators in Regional (Technology) Development
The incubator operations in Austria, Germany and Finland provide good examples of where this is the case: in both countries, the incubators (along with other centres of excellence, e.g. R&D centres) are part of a strategy to develop clusters of new technology-based activities based on the industrial traditions and R&D strengths of the regions concerned – automotive technologies, biotechnology, electronics, software and ICT, etc. Networking between incubators, and between incubators and other key players is seen as a critical success factor in the overall strategies. Elsewhere, networking between incubators tends to take place within the context of national associations and for the purpose of lobbying and promoting good practice in incubator management.

New-economy incubators share these same best practices. Unquestionably, the ability of incubator managers to establish and leverage an extensive, well-organised network of strategic partners, advisers and contacts for the benefit of their incubatees is a strong competitive advantage in an increasingly tough market for start-ups.

According to a Harvard Business School study, the key distinguishing feature of a networked incubator is its ability to give start-ups preferential access to a network of potential partners. Such incubators institutionalise their networking — they have systems in place to encourage networking, helping start-ups, for example, to meet with potential business allies.

4.4 Business Incubator Clients

The successful performance of a business incubator depends ultimately on the number of clients they attract and the performance of these firms. From a purely operational perspective, tenant companies (as shown later) are the primary source of revenue to help cover operating costs but, more fundamentally, we would argue that the performance of an incubator should be judged ultimately in terms of the performance of tenant companies.

Table 15 provides an analysis of the number of tenants that are typically

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accommodated by incubators. It is clearly important to achieve a critical mass in order to maximise the economies of scale with regard to service provision and costs.

Table 15: How many tenant businesses is the incubator currently assisting?

Range	Tenants	Outreach
Minimum	1	1
Maximum	120	571
Average	32.2	36.6
Mean	18	10
Mean – tenants and outreach companies	28	

Source: CSES analysis of sample
Note: 68.8 is the average number of companies assisted by incubator management in the incubator managers' sample. This figure measures both tenant companies and outreach clients.

As Table 13 shows, a typical incubator will have around 18 tenants at any one time. But in addition to this, most incubators also provide services to an additional ten or so other companies in the area that are not physically located in the incubator (some of which may be 'graduates' and receiving 'after-care' support). We would strongly argue that the median figure is a more appropriate measure than the average, which can easily be distorted by a small number of surveys.

New-economy incubators tend to have considerably fewer tenants because of the significant investment they make in each incubatee (typically ranging from €500,000 to €1 million in the form of seed capital and support services). Smaller incubators may focus their efforts on only two or three companies, sometimes originated internally instead of by an outside entrepreneur; the largest ones such as CMGI or ICG are really more like publicly traded holding companies with a portfolio of dozens of businesses at various stages of growth. Their size and focus on the Internet sector should have enabled them to foster connections and synergies within their portfolio, but in practice these have not materialised and the share prices of such holding companies have fallen by as much as 99% over the past 18 months.

Business incubators typically focus on attracting a combination of pure start-up companies and firms at an early stage of development. Section 5 examines the type of admission criteria used by incubators but below we analyse the basic breakdown between different types of companies. Table 16 provides a basic classification.

Table 16: Where did the current tenant businesses originate from?

Type of Firm by Origin	Number	Percentage
(1) Start-up	1,544	69.3
(2) Branch of Existing Firm	265	11.9
(3) Spin-off from University or R&D Centre	250	11.2

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(4) Others	169	7.6
Total	2,228	100.0

Source: CSES analysis of sample – based on 78 responses

The distribution is not very different for new-economy incubators, which initially focused strictly on early-stage start-ups, but as mentioned earlier are now redirecting their efforts to assisting mature firms to start new businesses (so-called "carve-outs"). The shift of investor interest away from dot-com start-ups toward technology ventures has also led incubators to increase their collaboration with universities and research centres.

As noted earlier, a key factor influencing the successful performance of incubators is the number and quality of tenants. Table 17 provides an analysis of the activities of tenant businesses. As can be seen, a high proportion is engaged in activities relating to ICT. The relatively low proportion in the 'R&D' category is almost certainly misleading since feedback from the Phase 2 research suggests that whilst few tenants are involved in pure R&D, most incorporate a significant R&D element in their activities.

Table 17: What sort of business activities are the tenant companies undertaking?

Business Activities	**Number**	**Percentage**
(1) Sales, marketing and distribution	163	7.4
(2) Business and financial services	316	14.3
(3) Advanced/ High-tech manufacturing	188	8.5
(4) Information & Communication Technologies	746	33.8
(5) Research & Development	106	4.8
(6) Other Manufacturing Activities	150	6.8
(7) Other Service Activities	342	15.5
(8) A combination of some/ all of these activities	199	9.0
Total	2,210	100.0

Source: CSES analysis of sample

Here too, the narrow focus of new-economy incubators on the Internet is now broadening to include other sectors, particularly the high-technology areas favoured by venture capitalists such as optical networking and biotechnology.

It should be noted that the analysis shown above in Table 17 is based on the CSES survey. Earlier, in Section 2, we provided an analysis of business activities based on the Enterprise DG database which contains a far larger number of incubators than the sample used above (see Table 3 on page 14). A comparison between the two tables

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suggests a broadly similar range of activities with knowledge-intensive activities predominating. The main difference is that the CSES survey revealed a higher proportion of ICT-related activities.

4.5 Financing Start Up and Operating Costs

The way in which business incubators are financed and the extent to which they are able to generate sufficient revenue to help cover start-up and operating costs is another critical 'driver' of their success.

The survey feedback suggests that most business incubators operate on a not-for-profit basis although a significant proportion (just over one-fifth) is essentially commercial operations.

Table 18: Is the Incubator designed to be for profit or not for profit?

Type of Incubator	Number	Percentage
For profit	17	21.8
Not for profit	60	76.9
No answer/ don't know	1	1.3
Total	78	100.0

Source: CSES analysis of sample

Most incubators depend heavily on support to help cover their start-up costs and often a high proportion of their operating costs, too. Long-term public support may be given if, for example, it can be demonstrated that investment in a business incubator's operations is a more cost-effective way of creating jobs than alternative policy instruments. However, even where this is the case, there is likely to be pressure on the incubator manager to maximise income generation so that public subsidies are minimised. We would argue, however, that an important measure of a business incubator's success and justification for continued public support is the employment and sales output of tenant companies (see Best Practice Example).

There are some interesting cross-country comparisons to be made. In the case of Italy, for example, there is a much higher percentage of incubators than average (38.5%) claiming to be operating on a for-profit basis. The reverse is true of France, where only 18% of incubator managers surveyed classified themselves as for-profit incubators. The great majority of new-economy incubators are intended for profit, but not necessarily all of them. The basic business model of equity for services can perfectly well be applied in a not-for-profit context, whereby the shares collected by the incubator are placed in a managed investment fund, the income of which helps to cover the incubator's operating expenses.

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4.5.1 Set Up and Operating Costs and Funding

According to the survey, the average cost of setting up a business incubator is just under € 4 million. Table 19 provides an analysis of the survey responses.

Table 19: What was the cost of setting up the incubator?

Set up Costs	**Responses**
No. Responses	65
No Response/ Blank	13
Total Set Up Costs	€240,873,206
Average Set Up Costs	€3,705,742
Mean Set Up Costs	€1,927,000

Source: CSES analysis of sample, NB: calculations based on 65 incubators who provided a response

In terms of the sources of finance typically used during the set-up phase, the survey data suggests that the overwhelming majority of the financing comes from public sources. Just over a fifth of the set-up costs are subsidised by the EU and other international agencies whilst approaching a half of the set-up costs (46%) are funded by national, regional and local authorities.

Table 20: How Business Incubator Set Up Costs are Funded

Source of Funding	**%**
(1) Subsidies - EU and other international agencies	22
(2) Subsidies - national authorities and public agencies	46
(3) Payments from banks and other private sector organisations	13
(4) Payments from universities and other R&D organisations	5
(8) Other sources	13
Total	100

Source: CSES analysis of sample

The high initial dependency of incubator start-ups on public financing is in line with expectations – given that one of the functions of business incubators is to address market failure and to facilitate accelerated SME growth to new businesses which, by their very nature, have little in the way of collateral or revenue until they have reached the mature stage of their development, this is perhaps not surprising. The challenge remains to move towards financial self-sustainability over the longer-term by building credibility in the marketplace and developing a comprehensive range of business support services.

Table 20 also highlights the potential role to be played by the local private sector in kick-starting the entrepreneurial process in the local area in partnership with business incubators and other local catalysts of enterprise development. 13% of set-up costs

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come directly from private sector sponsors.

Turning to operating costs, the survey suggests that the typical incubator has operating costs of approaching €500,000 per annum.

Table 21: What is the total annual cost of operating the incubator?

Operating Costs	**Responses**
No. Responses	70
No Response/ Blank	8
Total Operating Costs	€33,556,280
Average Operating Costs	€479,375
Mean Operating Costs	€300,000

Source: CSES analysis of sample, NB: calculations based on 70 incubators who provided a response

Perhaps not surprisingly, payroll and related benefits constitute the highest proportion of outlays. A key performance benchmark here is the extent to which overheads such as these can be minimised and resources devoted to incubator services that directly benefit client companies. As the analysis below shows, service provision would appear to account for around 25% of incubator operating costs although other items such as building maintenance of course also benefit client companies.

Table 22: Business Incubator Operating Costs

Operating Costs	**Percentage Breakdown**
Total payroll/benefits	41.0
Building costs, e.g. maintenance	22.1
Other costs - services to tenants	24.6
Other costs, e.g. utilities, equipment, supplies, telecoms	13.3
Total	100.0

Source: CSES analysis of sample

One way that new-economy incubators effectively control payroll expenses is by paying their staff a partial success fee (in the form of stock, options or warrants for example), an incentive that also helps to align the interests of the staff with those of the incubatees they serve. This approach can also be adopted by traditional not-for-profit incubators, especially those operating as a public-private partnership. Even though new-economy incubators usually occupy functional, unadorned offices, infrastructure costs (rent, utilities, telecommunications, computers) are relatively high for various reasons: the location (in cities with high property costs), the Internet access and network requirements, and very often round-the-clock tenant activity.

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Turning to the funding side, there are several noteworthy observations to be made from the survey data: first – and following on from the not-for-profit nature of most incubators – public subsidies constitute a very important source of revenue; but, secondly, a surprisingly high proportion of revenue (39.5%) is generated from rentals and other service charges (a further 11% comes from other services).

If it is argued that incubators should seek to maximise income generation, then the proportion of revenue coming from rentals and service charges should be treated as another key indicator of their performance. This has become true for new-economy incubators as well, who can no longer afford to provide hosting and support services in return for equity alone. In their fight for survival, many of them are switching to a hybrid fee structure, charging cash payments for rent and services as well as a reduced equity stake.

Table 23: How Business Incubator Operating Costs are Funded

Source of Funding	**%**
(1) Subsidies - EU and other international agencies	10.1
(2) Subsidies - national authorities and public agencies	27.3
(3) Payments from banks and other private sector organisations	2.6
(4) Payments from universities and other R&D organisations	3.0
(5) Rental income and other incubator charges	39.5
(6) Other revenue, e.g. from service contracts	11.1
(7) Investment income, e.g. royalties, equity returns	0.8
(8) Other sources	5.6
Total	100.0

Source: CSES analysis of sample

4.5.1 Achieving Break Even

The length of time a business incubator is likely to take to reach breakeven point (assuming this is an aim) will vary and depend on its strategic objectives and modus operandi. In some lagging regions it may be impossible for an incubator to generate sufficient revenue to cover costs and there is a continuing need for substantial public subsidies. The survey suggests that many incubators (40.8% of the sample) have the aim of eventually breaking even but that this is a relatively long-term objective.

An analysis of the data is shown below in Tables 24 and 25.

Table 24: Is it Part of the Business Incubators Business Plan to Break Even?

Part of Business Plan?	**Number**	**Percentage**

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Yes	51	40.8
No	62	49.6
No answer/ don't know	12	9.6
Total	125	100.0

Source: CSES analysis of sample

There are some notable differences between Member States. The UK, for example, has a high percentage of incubators where attaining breakeven is an integral part of the business plan (56%), perhaps reflective of wider trends towards achieving financial sustainability in the provision of business support services. In France, conversely, only 9.1% of 'pépinières d'entreprises' explicitly strive towards breakeven in their business plans, according to the CSES survey.

Needless to say, practically by definition all new-economy incubators were founded with a forecast of crossing the breakeven point at some stage of their development. In retrospect, this now seems naive considering their overhead and the burn rates of their incubatees; but one must remember that in 1999 a successful IPO by at least one incubated company was a realistic prospect, generating more than enough money to cover the losses and failures of the others.

Table 25: How Long Will it Take for the Business Incubator to Break Even?

Time Period	**Number**	**Percentage**
Less than 1 year	2	7.4
1- 2 years	4	14.8
2-3 years	8	29.6
3-4 years	1	3.7
4-5 years	1	3.7
Over 5 years	11	40.7
Total	27	100.0

Source: CSES analysis of sample

The research indicates that where business incubators have been able to break-even, this has been achieved in a variety of ways: rental income from tenants is generally the most important source of income, typically accounting for 40-60% of all revenue.

A high level of dependence on rental income can have negative consequences. During the start-up phase of a business incubator, the need to achieve a high level of occupancy as soon as possible in order to maximise income may lead to the incubator's admission criteria being relaxed to the point where tenants are accepted on a 'first-come-first-serve' basis. Similarly, over-dependence on rental income can lead

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to exit rules being waived, with successful tenants from whom rental payments can be guaranteed being encouraged to remain in the incubator, whereas it is precisely these enterprises that should be encouraged to 'graduate' and to make room for new admissions. More fundamentally, a key feature of the business incubator concept is the notion that the relationship between the management team and its clients should not be just that of a landlord and tenant. In this respect, being able to generate income from diverse sources, e.g. business support services, is a good indication of success in fulfilling a broader and more comprehensive role.

Over three-quarters (77%) of the sample of incubators we examined are not-for-profit organisations (see Table 18) and not pursuing the objective of reaching a commercial breakeven point. The analysis shown below suggests that in most cases, the withdrawal of public subsidies would lead to incubator operations being at best significantly reduced and, at worst, ceasing altogether.

Table 26: If the incubator receives cash operating subsidies and this funding was stopped, what would the effect be on its operations?

Importance of cash subsidies	**Number**	**Percentage**
(1) Incubator activities could be maintained at current levels	6	7.7
(2) Incubator activities would have to be reduced significantly	31	39.7
(3) Incubator activities would stop altogether	17	21.8
(4) Not relevant - incubator does not receive subsidies	9	11.5
(5) Don't Know/ No answer	15	19.2
Total	78	100.0

Source: CSES analysis of sample

However, whilst there is some anecdotal evidence to support the idea that a public sector incubator run along commercial lines performs better than one which acts as an extension of the public sector business support infrastructure, the extent to which achieving breakeven is viewed as desirable is largely dependent upon the perceptions and requirements of the founding stakeholders. Although the question of whether or not an incubator manages to achieve breakeven clearly has an impact on the future sustainability of the incubator, this needs to be weighed against the outputs achieved by tenant companies in terms of job and wealth creation, and the cost-effectiveness of incubator structures as opposed to other mechanisms for generating the economic benefits.

Proponents of the new-economy incubator model would argue that in order to perform effectively its mission of promoting entrepreneurship and ensuring the launch of successful ventures, the incubator itself should practice what it preaches, achieving profitability and sustainability by sharing in the success of its graduated incubatees.

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So far this has not proven feasible, but after two extremely volatile years since the emergence of the new-economy incubator it is too early to draw definitive conclusions about its validity.

Best Practice Example 2 – Financing Incubator Start Up and Operating Costs

The case studies illustrate a number of different ways (used in combination in many cases) of financing business incubator start-up costs:

- Leasing premises from local authorities (e.g. Germany)
- Relying mainly on EU and national grant aid (Austria, Belgium, Spain and Sweden)
- Borrowing funds to convert old buildings with a view to eventual capital gain (UK)
- Attracting private sector investment in land and buildings by discounting cost (Portugal)
- Attracting a broad-based public private partnership to cover initial capital investment (Ireland)

Most incubators cover a significant proportion of their operating costs from rental income (in the German case, this also covers the cost of leasing premises). In many cases, rental charges are graduated so that tenants begin by paying below-market rates which are then adjusted to commercial levels over a period of time or when firms move from one type of incubator unit to another (e.g. Germany, Denmark, Portugal and Sweden). There are very differing practices with regard to what is included in rental charges (e.g. cost of utilities).

Best Practice Example 3 – Demonstrating the Cost Effectiveness of Incubator Operations

In Finland, for example, a study by Otaniemi Science Park demonstrated the cost-effectiveness of a sectorally targeted incubator programme. A study of the performance of tenant companies showed that over the past 10 years, 450 new companies have been created of whom 200 have graduated. The total number of jobs created over ten year period was 5,000 direct jobs. The combined salaries of both employees in tenant and 'graduate' firms was an estimated 150 million euro (generating annual taxes of 50 million euro). When compared with an annual public subsidy of 0.5 – 0.7 million euro towards the incubator's operational costs, this represents a highly favourable return on investment.

KEY BUSINESS INCUBATOR FUNCTIONS

5

This section considers key business incubator functions. In addition to the provision of incubator units and business support services, the analysis focuses on key incubator performance drivers such as the operating framework (admission and exit criteria, client monitoring, etc) and role of the management team.

Business incubators seek to add value by offering clients a combination of facilities and services that cannot be so easily obtained from other sources. The nature of these services and the way in which they are delivered will usually have an important influence on the success of client companies and hence on the successful performance of the incubator.

A well-run incubator will have an operating framework setting out guidelines for its management that include a clear definition of its target market, admission and exit rules, quality standards for client care and other aspects of the incubator's operations, and performance indicators against which the activities of the incubator can be monitored.

5.1 Incubator Space

Whilst there is a reasonable degree of variation in the physical size of a business incubator, there are a number of commonalities in terms of other physical aspects. Most incubators aim to provide space for at least 20 tenants and seek to provide a mix of office and workshop space to ensure that units of different sizes are available to suit tenants at different stages of growth (i.e. ranging from desk space where entrepreneurs can work on their business plans to larger units for mature SMEs), and common facilities such as meeting rooms, canteens, etc.

A key performance indicator is the occupancy rate achieved by incubators. Here a balance needs to be struck by the incubator management between maximising occupancy, and hence rental income, and ensuring that there is sufficient flexibility to enable tenant firms to progress from one type of accommodation to another as they grow. For this reason, 100% occupancy rates are not necessarily ideal. As Table 27 shows, incubators will typically seek to achieve rates of between 80% and 90%.

Table 27: What percentage of total incubator units is currently occupied?

Range	**%**
Minimum occupancy level	30
Maximum occupancy level	100
Mean occupancy level	90
Average occupancy level	85.0

Source: CSES analysis of sample

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The analysis suggests that there are no significant patterns across EU Member States as far as occupancy levels are concerned (for example, the occupancy rate in France and Sweden are both within 0.5% of the EU average of 85%).

A distinct feature of certain new-economy incubators (such as idealab! or Gorilla Park) is the open plan workspace, intended to promote communication and interaction between the tenant companies. This has its advantages and drawbacks, and is clearly more appropriate for incubatees that are to an extent sister companies, all of which are partly owned by the incubator.

5.2 Business Support Services

The nature and range of support services provided by a business incubator will vary depending on the model and the objectives of investors financing the incubator. However, business incubators generally seek to provide their clients with a comprehensive range of facilities and services with a 'full-service' incubator offering a combination of incubator space, business support services and other assistance. Table 28 provides an analysis of the types of business support services provided by incubators.

Table 28: Incubator Business Support Services

Types of Business Support Services	In house		External	
	No.	%	No.	%
(1) Pre-incubation services	66	11.7	15	3.3
(2) Business planning and forming a company	62	11.0	25	5.5
(3) Training to develop business skills	36	6.4	47	10.3
(4) Accounting, legal and other related services	16	2.8	57	12.5
(5) Market research, sales and marketing	31	5.5	52	11.4
(6) Help with exporting and/or partner search abroad	28	5.0	42	9.2
(7) Help with e-business and other aspects of ICT	39	6.9	35	7.7
(8) Advice on development of new products and services	43	7.7	35	7.7
(9) Help with raising bank finance, grants, venture capital	68	12.1	28	6.1
(10) Incubator venture capital fund, business angel network	31	5.5	32	7.0
(11) Advice on recruitment of staff and personnel management	32	5.7	35	7.7
(12) Networking, e.g. with other entrepreneurs, customers	64	11.4	24	5.3
(13) Mentors, board members and other senior advisers	38	6.8	27	5.9
(14) Other services	8	1.4	3	0.7
Total/Percentage	562	100.0	457	100.0

Source: CSES Analysis of Survey Data: Based on 76 responses, multiple responses possible

The analysis suggests that the 'core' (in-house) services provided by incubators are pre-incubation, business planning, help in raising finance, and networking. A high proportion of incubators also provide training, accounting and marketing support but

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these more specialised services tend to be delivered using external providers. Far fewer incubators provide services such as access to in-house seed and venture capital funds, partner searches, help with human resources issues and recruitment, advice on ICT, and mentoring support.

All the business incubator managers we interviewed agreed that the quality of business support services, and not physical aspects, is the most critical aspect of the incubation operations. However, from a tenant perspective, there is clearly evidence from the case study work that physical proximity to other tenants can play a beneficial role, both by catalysing the entrepreneurial process and by facilitating networking, alliances and collaboration between firms. The physical 'incubator' environment is clearly conducive to the cross-fertilisation of ideas and networking. This finding applies equally to new-economy incubators, as confirmed by the Harvard Business School study which recommends "strategically investing in portfolio companies" to maximise the scope for collaboration and synergy.

The research suggests that the incubator business support services can be subdivided into the following main categories - entrepreneurship training, business support services, technology and innovation support, and financing start-ups and expansions.

5.2.1 Pre-incubation and Entrepreneur Training

Pre-incubation is the term used to describe support services to would-be entrepreneurs before they launch their business. These services can include proactive identification of would-be entrepreneurs, helping them to develop a business plan, training and advice on forming a company. The emphasis on pre-incubation varies considerably with some incubators operating programmes but most not doing so.

Where pre-incubation services are provided, entrepreneurs will typically be offered desk space and other basic support (e.g. computer and telephone) for a period of time during which they will be expected to prepare a business plan. In some cases, this process forms part of courses operated by business schools/universities with incubator selection procedures being effectively being an integral part of course assessment arrangements. Elsewhere, pre-incubation activities are carried out 'on-site' in specially designated areas of the incubator itself (for example, in one case we reviewed, a hotel building had been converted with bedrooms becoming offices for entrepreneurs).

Best Practice Example 4 – Entrepreneur Training
The case study work identified a number of best practice examples with regard to entrepreneur training. This includes the Entrepreneurship Development Programme (EDP) run by the Centre for Innovation and Entrepreneurship (CEI), part of Linköping University, in conjunction with the Mjärdevi Science Park (Sweden). CEEI Valencia in Spain is helping to develop entrepreneurship skills more widely in the region as well as just providing services to the incubator tenants. This includes monthly courses on setting up and developing new businesses and workshops for existing entrepreneurs on various business topics. BIC Liguria in Italy has launched a similar initiative specifically for young people involving promotional seminars at the University of Genova in conjunction with a major regional bank. Similarly,

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in Finland, the Employment and Economic Development Centre, a nationwide business support organisation, works closely with a regional network of business incubators to provide early-stage pre-incubation services to prospective incubator tenants and help ground potential entrepreneurs in the rudiments of operating their own businesses.

In France, Bordeaux Productic has made special provision to permanently set aside incubator space for prospective tenants to elaborate on their business plan. Incubator management provides specialist pre-incubation business counselling and advice to help entrepreneurs go through the conceptualisation process and set up in business. In Spain, the BIC in Valencia runs a comprehensive training programme, both inside and outside the BIC.

Most incubators also provide entrepreneurs with advice and assistance with company registration procedures. As another Enterprise DG benchmarking study has shown[1], the length of time required to complete these procedures, and their complexity, varies enormously across the EU. Whereas in some countries the legal formalities and other procedures are straightforward and a company can be formed in a few days or weeks, in other countries this can take months.

5.2.2 Business Support Services

The types of business support services typically provided in-house by incubator management include business planning, advice on accessing capital, marketing, the identification of suitable business partners and general strategic advice. Other types of business support services, such as specialist legal services, accounting and market research tend to be provided by specialist external providers with whom incubator management have established relationships. Clearly, business incubator management, many as experienced former businesspeople in their own right, have a critical role to play in supporting and nurturing early-stage businesses through the provision of high-quality business support services. Evidence from the case study and survey work suggests that business support services provided by incubator management can help bridge the traditional market failure in the provision of business support services to the small business market. Many of the larger private sector business support organisations and management consultancies do not get involved in the SME market.

Best Practice Example 5 – Business Support Services

In the business support field, an interesting practice in many incubators is networking between tenants as service providers and users. At Taguspark in Portugal this is facilitated by a searchable on-line database which can be accessed by tenants as well as potential users elsewhere in the region (the 'Centre of Competence'). As good example of networking with external business support providers is the 'GrowLink' scheme run by the Mjärdevi Science Park and as similar scheme (the 'Partner Programme') operated by the Technologie Centrum Chemnitz in Germany. In Spain, the 21 BICs have co-operated to prepare a business planning software package. In most cases, business planning and counselling for early stage start-ups is provided free of charge but services provided to established firms appear to be mostly offered on a purely commercial basis. In Belgium at Héraclès there is a network of suppliers which is managed by the incubator, and the incubator (a BIC) provides marketing support for its tenants

[1] Enterprise DG 'Benchmarking the Administration of Business Start Ups' (2001).

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5.2.3 Technology and Innovation

The objectives of incubators will vary, and some, in particular, science park based incubators, will concentrate on selecting and assisting entrepreneurs who have particular technological or innovative schemes. These incubators will provide a basis for technology transfer. The objectives of these incubators are different from those which seek to increase employment through the promotion of more 'traditional' business activities with a low technology content.

The role of incubators in this field is quite diverse: some, for example, provide access to centres of excellence (e.g. a university laboratory) whilst others have their own specialist resources. On a larger scale, there are examples of incubators that are involved in a wider regional strategy involving the development of a cluster or group of companies supporting a technologically based core organisation. In relation to university-based incubator operations, a key issue highlighted by the research is the extent to which entrepreneurial activity is encouraged by academic administrations. Incubators can of course help to bring this about.

Best Practice Example 6 – Technology and Innovation
Good examples of incubator activities in the field of technology transfer include the CAT-Symbion Innovation Centre Joint Venture in Denmark, a joint venture to assist in the creation, development and commercialisation of new technology-oriented spin-off companies emerging from research undertaken by the diverse research institutes of the region. Bordeaux Productic in France, the Technologie Centrum in Chemnitz in Germany, and Mjärdevi Science Park in Sweden all also provide excellent examples of the role of incubators as instruments for commercialising R&D. A key issue here highlighted by the fieldwork is the extent to which universities and other R&D centres encourage the commercialisation of ideas, specifically by allowing their staff to engage in business activities.

5.2.4 Financing Start ups Expansions

Incubators can have an important role in bridging the financing gap between the SME market and the financial community. Venture capitalists have historically tended to shy away from the early-stage venture market. Therefore, incubators often play a positive role in redressing market failure by demonstrating that through a managed approach to enterprise creation risks can be minimised and returns maximised, thereby helping to change attitudes amongst venture capitalists.

One of the rationales for the equity-based, new-economy incubator model is diversification. By investing simultaneously in a portfolio of early start-ups, the incubator lowers the overall investment risk compared to the unique risk associated with each individual company. However, because new-economy incubators invested almost exclusively in one economic sector, the Internet, they bore the full uncertainty and risk of the market in which their portfolio companies operated, and they suffered the consequences once the Internet bubble burst.

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In terms of the first financing round for start-up companies with a viable business concept, many incubators have set up their own small-scale seed capital funds which are administered on a discretionary basis by incubator management. This provides financing to get the start-up company off the ground and typically covers the first six-twelve months of operations. With regard to the second round of financing, incubators typically build up a network of contacts and partners in the financial sector who are willing to lend money to early stage ventures and provide tenants with advice on how to prepare their business plan prior to seeking additional venture capital financing to fund expansion.

Best Practice Example 7 – Financing Start Ups and Expansions
The best example of a seed capital scheme we found was at the CAT (Centre for Advanced Technology) in Denmark. When CAT provides seed capital funding to a tenant company, the money is provided subject to a number of conditions. On being granted seed financing, tenant companies must relinquish a certain percentage of their equity (usually 10-25%, with a median of around 15%) and agree to the formation of a board of directors with responsibility for overseeing company activities in the same way as any other Public Limited Company (PLC). The presence at a very early stage of the company's development of a board of directors provides companies with access to professional support and enables them to tap into a diverse skills set and broad range of competencies. The only other incubator we visited operating its own scheme is Dublin BIC in Ireland although Taguspark in Portugal is about to introduce one. Elsewhere the emphasis is generally on facilitating access to external, commercial sources of finance. In Spain, the BICs have worked together to create a business planning modelling system for new companies, which includes financing modules.

The notion of providing entrepreneurs with a 'one-stop' system of enterprise support is central to the business incubator concept. But this does not necessarily mean that all the business incubator's facilities and services need to be provided on an in-house basis: many incubators ensure access for their clients to a complete range of enterprise support through a combination of using staff to provide services, encouraging tenant companies to network amongst themselves, and using external providers. Dependence on external providers may be particularly advantageous during the initial stages in a business incubator's development when cash flow considerations place severe constraints on the level of staffing. Contracting out services may well be in any case justified given the specialist nature of some tenants' needs, for example with regard to training, finance and R&D.

5.2.5 After Care, Outreach, Networking and Virtual Incubation Services

A business incubator will seek to provide continuing assistance to its tenants after they 'graduate' ('after-care'), and may also offer advisory services to small businesses generally in the region ('outreach' or 'virtual' services).

Whilst the majority of incubators focus on assisting businesses that are physically located in one place, there are some interesting examples of 'outreach' services and 'virtual' incubation.

Best Practice Example 8 –Outreach and Virtual Incubation Services

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There are several good examples of incubator services to 'outreach' clients. This includes the Centre d'Entreprises Héraclès in Belgium which offers companies the choice of working inside the incubator or receiving advice and services externally. Taguspark in Portugal and science parks from three other countries (Germany, Finland and Greece) are developing a more ambitious, 'virtual' incubation scheme. Under this scheme, start-up companies will be offered a range of on-line business support packages. In Spain, at Valencia, the BIC provides entrepreneurial support for the Valencia region – it runs training courses for entrepreneurs both inside and outside the incubator, and provides a comprehensive web site for business support.

A further characteristic of the business incubator model is the encouragement of networking between tenants themselves. The research suggests that it is quite common for business relationships to develop between tenants (e.g. in several incubators covered by the research, tenant companies were acting as Internet Service Providers, managing support services such as restaurants, or providing specialist inputs to other businesses). The research suggests that a further aspect of the internal networking encouraged by business incubators is the informal cross-fertilisation of ideas and advice between tenants. The development of these types of synergies presupposes a degree of homogeneity, which in turn, is a function of the business incubator's admission criteria. Apart from business relationships, networking can also serve the important purpose of helping entrepreneurs to overcome a sense of isolation that is often associated with their activities and our interviews suggests that this, rather than the more tangible benefits, is in many respect the real advantage of an incubator location.

5.2.6 Pricing of Incubator Services

An important management issue is the extent to which clients are charged for the business support services they use in order to help recoup the cost of provision. There are arguments for and against subsidies. It could, for example, be argues that below market rates tend to displace private sector providers and risk undermining the development of business support infrastructures generally in an area. But against this, subsidised rental and other service charges may well be justified by the lack of affordable premises/services in the area concerned.

As Table 29 shows, evidence from the survey work suggests that incubators generally seek to strike a balance in their charging policy – whilst approaching a third of incubators provide services completely or mainly free-of-charge, incorporating the cost of service provision into the general rental package, a higher proportion (66.7%) require clients to pay a contribution towards or to pay the entire cost of a particular service.

Table 29: What approach is adopted to the pricing of incubator services?

Pricing Policy	**In House Services**		**Externally Sourced**	
	Number	%	Number	%
(1) Services are mostly free to clients	24	30.8	3	3.8
(2) Clients charges partly cover the cost of services	36	46.2	23	29.5

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(3) Client charges cover the entire cost of services	16	20.5	23	29.5
No response/ Don't Know	2	2.6	29	37.2
Total	78	100.0	78	100.0

Source: CSES analysis of sample

In terms of some of the differences between EU Member States, there is a marked variation between those countries where the cost of business support services provision is largely absorbed by the incubator directly and those where clients tend to cover the majority of the charges. There is also a difference between countries in which incubators offer a comprehensive range of services in-house as well as a range of specialist services which are procured externally and other countries where support services are mainly provided in-house. In Italy, for example, there appears to be particular emphasis on external networking with clients having access to a range of external support services. Here, the majority of incubator tenants surveyed made at least some contribution towards the cost of business support services provided (particularly those services provided externally). Conversely, in France, incubator services are mainly provided in-house with very few respondents indicating that tenants are asked to cover the full cost of support services.

Table 30 indicates that, in general, incubator charges are generally pitched at either below market rates or around the same level – reinforcing the point made above concerning pricing policies.

Table 30: How do the charges for incubator services generally compare with the cost of similar types of services provided by other business support organisations in the area?

Comparison	**Number**	**Percentage**
Lower	28	35.9
About the same	29	37.2
Higher	3	3.8
No response/ don't know	18	23.1
Total	78	100.0

Source: CSES analysis of sample

In carrying out the interviews, we found very differing views on whether incubators should, or should not, seek to recoup the entire cost of service provision from their clients. On the one hand, some argued that services and resources (which can be offered in-kind/pro bono by outside consultants and vendors) are at the core of business incubation and to charge for these defeats the purpose of incubation. Others, however, argued that to the extent possible, all service charges should be recouped through fees or some other method (e.g. royalties, equity stakes).

Before the Internet crash in the second half of 2000, most new-economy incubators did not charge cash fees and took only equity in return for providing infrastructure

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and services. According to a Harvard Business School survey of 169 Internet incubators conducted in 2000 by Hansen et al, 55% of the incubators had an equity-only business model, 4% charged fees alone, and 41% had a mixture. As of today the proportion of equity only has undoubtedly fallen drastically. The more significant distinction now is between incubators that take equity plus fees and those (such as Techspace for example) that charge fees plus an option to invest in the next round of financing, which they may choose to exercise or not.

5.3 Promotion and Defining Target Markets

Whereas some business incubators have clearly-defined target markets, others do not. Incubators without strict pre-determined admission criteria tend to accept clients on a 'first-come-first-served' basis. Where admission criteria exist, they include the commercial/technical viability of the project, the entrepreneurial and managerial potential of the prospective tenant, projected growth potential, ability to pay rentals for space, and compatibility of the project's aims with the incubator's objectives. Some incubators may require potential clients to have prepared a full business plan before they are admitted whilst others help entrepreneurs to do this as part of the service offering. Similarly, some incubators focus on helping pure start-ups whilst others tend to concentrate on a combination of these and businesses that are already trading but that are still at a relatively early stage in their development.

'New economy' incubators, technology centres and other specialised incubators fall very much into the first category, their target market being generally limited to knowledge-intensive business activities. 'Traditional' incubators usually target a wider range of projects although there is usually still a focus on innovative projects with significant job and wealth creation potential.

Table 31: What criteria are used to define the incubator's target market?

Criteria	**Quite Important**		**Very Important**		**Not Important**		**Total**	
	No	%	No	%	No	%	No	%
(1) Must be start-ups	25	32.1	39	50.0	14	17.9	78	100.0
(2) Can be already trading	33	42.3	14	17.9	31	39.7	78	100.0
(3) Must be certain activities	23	29.5	36	46.2	19	24.3	78	100.0
(4) No particular criteria	5	6.4	2	2.6	71	91.0	78	100.0
(5) Other criteria	1	1.3	22	28.2	55	70.5	78	100.0

Source: CSES analysis of sample. Note: Multiple responses possible

The research suggests that business incubators typically adopt a variety of methods to market their services and to identify potential clients – direct approaches to prospective clients and referrals being the most common methods.

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Table 32: What type of methods is used to promote incubator target markets?

Marketing Methods	Quite Important		Very Important		Not Important		Total	
	No	%	No	%	No	%	No.	%
(1) Advertising and media	36	46.1	18	23.1	24	30.8	78	100
(2) Business events, conferences	26	33.3	34	43.6	18	23.1	78	100
(3) Referrals from other agencies	21	26.9	37	47.4	20	25.6	78	100
(4) Direct approach to clients	18	23.1	40	51.3	20	25.6	78	100
(5) Other methods	2	2.6	13	16.7	63	80.7	78	100

Source: CSES analysis of sample

5.4 Admission Criteria, Client Management and Ext Rules

In addition to their overall target markets, most business incubators adopt specific criteria to screen individual applicants. The 'quality' of the entrepreneurs selected for admission to an incubator – their commitment to making a success in business, their experience and skills, the nature of their project, etc – will of course have a very important bearing on how successful the incubator itself is in achieving its mission.

The research suggests that almost all incubators adopt a formal set of admission criteria. Table 33 provides an analysis of the sort of criteria most commonly used.

Table 33: What criteria are used to screen projects for admission to the incubator?

Screening Criteria	Quite Important		Very Important		Not Important		Total	
	No.	%	No.	%	No.	%	No.	%
(1) A business plan must be ready	20	25.6	49	62.8	9	11.5	78	100.0
(2) Financing must be in place	27	34.6	26	33.3	25	32.1	78	100.0
(3) Firm must have innovative project	23	29.5	37	47.4	18	23.1	78	100.0
(4) Firm must have high growth	31	39.7	26	33.3	20	25.6	78	100.0
(5) Other criteria	6	7.7	20	25.6	52	66.7	78	100.0

Source: CSES analysis of sample

The research suggests that the type of criteria used for this purpose include the commercial/technical viability of the project, projected growth potential, ability to pay rentals for space, compatibility of the project's aims with the incubator's objectives. However, by far the most important factor is that applicants should have prepared a business plan (in some cases, incubators provide office space for entrepreneurs to do this as part of pre-incubation arrangements and in these and other cases, as noted earlier, business planning may form an important component in training programmes).

Best Practice Example 9 – Business Incubator Admission Criteria
A good example of formal admission procedures is provided by TCC Chemnitz in Germany: to gain admission, applicants have to obtain two recommendations – one from the Chamber of Commerce

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(mainly related to financial standing) and another from the TCC (mainly relating to technological factors). The TCC's board takes the final decision.

To obtain premises at the 'Starthus' at the Mjärdevi Science Park in Sweden, individuals have to have either enrolled on or completed the University's Entrepreneurial Development Programme (EDP). At Taguspark in Portugal, responsibility for appraising applications has been contracted out to the BIC which has developed a very interesting methodology based on three years research into the characteristics of successful projects supported by IAPMEI (the government agency responsible for promoting entrepreneurship). Elsewhere, for example Project North East in the UK, far less emphasis appears to be placed on formal admission criteria and procedures.

The way in which incubators manage their clients once their businesses are up and running is important in maximising survival and growth rates. Here there is a very mixed picture: as Table 34 shows, many incubators have formal client monitoring arrangements but equally many do not (34.6%). This suggests that there is continued scope for improvement in monitoring and evaluation processes by incubator management of tenant companies. Generally speaking, those that did not carry out evaluations of the performance of their tenants were located in smaller incubators or had only commenced their operations relatively recently.

Table 34: What approach is adopted to client management?

	Number	**Percentage**
(1) Clients are monitored on a regular basis	41	52.6
(2) No particular client management arrangements	27	34.6
(3) Other arrangements	8	10.2
(4) No Response/ Don't Know	2	2.6
Total	78	100.0

Source: CSES analysis of sample

As Table 34 shows, most incubators have formal exit rules and impose strict limits on the length of time enterprises can remain tenants: the research suggests that in most cases the exit rules will require tenant to 'graduate' and leave the incubator after between 3 and 5 years. This is often written into tenancy contracts but may also be encouraged through a progressive increase in rental charges that leads to a firm paying above-market rates after a specified period (see Table 35 below).

Table 35: What criteria are used to decide when tenants should leave the incubator?

Exit Criteria	**Quite Important**	**Very Important**	**Not Important**	**Total**

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	No.	%	No.	%	No.	%	No.	%
(1) Firms only rent units for a fixed time	23	29.5	33	42.3	22	28.2	78	100.0
(2) Firms leave to get more space	23	29.5	37	47.4	18	23.1	78	100.0
(3) Firms leave when objectives achieved	17	21.8	8	10.3	53	67.9	78	100.0
(4) Firms leave when aims not achieved	10	12.8	14	17.9	54	69.2	78	100.0
(5) Firms leave to get other services	11	14.1	8	10.3	59	75.6	78	100.0
(6) No particular exit criteria	2	2.6	8	10.3	68	87.2	78	100.0
(7) Other criteria	3	3.8	2	2.6	73	93.6	78	100.0

Source: CSES analysis of sample. Note: Multiple responses possible

The prospect of failing to 'graduate' is sometimes also a feature of the exit rules operated by business incubators and, conversely, rapid expansion of tenant businesses may necessitate 'graduation' to larger premises outside the incubator. However, the research suggests that some business incubators do not enforce exit rules strictly, especially if occupancy rates are low, because of the need to maximise rental income.

Table 36 provides an analysis of the length of time companies tend to stay in business incubators. The average length of tenancies is 43 months.

Table 36: What is the maximum length of time tenants can occupy incubator units?

Time Period	**Number**	**Percentage**
No maximum tenancy	6	7.7
Less than 1 year	5	6.4
1- 2 years	10	12.8
2-3 years	22	28.2
3-4 years	13	16.7
4-5 years	9	11.5
Over 5 years	7	9.0
No response/don't know	17	21.8
Total	78	100.0

Source: CSES analysis of sample

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There are relatively few significant variations across Member States. In Finland, the average maximum length of tenancy is very close to the EU average of 35 months. In Spain and France, the average maximum tenancy is 6 months or so longer, whereas in Italy, a typical incubator tenant can remain in the incubator environment for as long as 53 months. The longer tenancy period in Italy may partly be a reflection of differences in business cycle times. It may equally reflect a more protective stance by incubator management vis-à-vis their incubator 'offspring', preferring to nurture firms until they have reached a later stage of maturity than is the case in other countries.

There are also important sectoral factors that influence exit rules. In the case of biotechnology incubators, for example, (and any technology incubator whose companies must secure regulatory approvals on processes, patents, trials, and the like) tenants will require lengthier incubator stays than 3-5 years. Pharmaceutical companies in incubation may require 10-12 years incubation. If economic development initiatives are looking at biotechnology, nanotechnology, and medical device development as profile areas, then they must also consider the financial implications of sustaining the incubation of companies over longer periods of time.

A further factor we investigated is the extent to which rental charges are adjusted to become more expensive the longer a company remains in an incubator. As Best Practice 10 shows, this practice – when rental charges increase to above market rates – is quite frequently used as an alternative to fixed-term tenancies to encourage firms to 'graduate'.

Table 37: Does the rental charge vary according to the length of tenancy?

Incremental rental charges?	Number	Percentage
Yes	31	24.8
No	73	58.4
No response/ don't know	21	16.8
Total	125	100.0

Source: CSES analysis of sample

The residency period in new-economy incubators is considerably shorter. In the early days, some of them boasted that they could turn an idea into a fully operational business in 6 months or less (and presumably aim for an IPO in the first year). Of course, in the case of a dot-com the actual business was usually nothing more than a website, earning almost no revenues and making substantial losses. However, the notions of business acceleration and speed to market remain at the core of the new-economy incubation model.

Despite the increased reliance on income from cash fees charged to the tenant companies, the equity stake still provides a strong incentive for rapid graduation. Just like any venture capitalist, the incubator must always consider its exit strategy – although the collapse of the IPO market is forcing it to hold its investments longer.

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Another reason to maintain a rapid turnover within the incubator is that each class of successfully launched start-ups further expands the incubator's strategic network that can be called upon to assist the next generation of incubatees.

Best Practice Example 10 – Business Incubator Exit Criteria
The use of incremental rental charges is one means the incubator manager has of encouraging tenants to move on after a pre-determined period which is less prescriptive and more flexible than an out-and-out enforced graduation policy. A staggered rental policy also provides new start-ups with a cushion during the early stages when there may well be considerable time lag between the entrepreneur's initial inputs and revenue generation. For example, at Otaniemi Science Park in Finland, whilst tenants benefit from reduced rental charges during the initial couple of years of the incubation period, the rent subsequently increases steadily by 10% each year over and above the standard rental charge. Imposing financial penalties on those firms which choose to remain beyond their 'due date' is one useful means of ensuring flexibility – tenants have the flexibility to stay if they so choose but are encouraged (by financial means) to 'graduate' and find alternative premises. Penalising firms financially if they overstay the anticipated three year period is one means of deterring low-growth firms from remaining at the incubator.

5.5 Personnel and Business Incubator Management

The quality of the management team is a key 'performance driver'. In this section we analyse feedback from the survey on the number and type of incubator staff, their role in advising client companies, and their approach to incubator management.

5.5.1 Number and Type of Incubator Personnel

The ratio of incubator staff to client companies is another key performance indicator. The staffing of a business incubator can vary enormously depending on its size and resourcing. However, the research suggests that a typical business incubator will have on average 2.3 management level staff (giving a ratio of management to tenant firms of about 1:9, based on the median of 18 tenant firms per incubator). An analysis of the number and type of staff is shown in the following Table.

Table 38: How many personnel does the incubator have?

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Personnel Category	Average Number
Managers and Professional	2.3
Secretarial	1.4
Other Personnel	1.9
Average Staff per Incubator	5.6

Source: CSES analysis of sample

The new-economy incubator has a significantly larger staff, typically ranging from 10 to 25 people. The reason for this is the particularly close involvement of the staff in the day-to-day operations and management of the incubated companies. Entrepreneurs-in-residence often work full time with the entrepreneurs, not only in a coaching role but taking on interim management positions until a permanent replacement is hired. Internet incubators may have a full-time web development team on staff to design and manage the companies' websites.

Table 39 provides an analysis of the type of qualifications incubator staff have: as can be seen, a financial qualification is the most common type, followed by qualifications in the human resources management and marketing fields.

Table 39: What sort of formal qualifications does the incubator manager have?

Type of Qualifications	Number	%
(1) Accounting, banking, finance, etc	45	25.6
(2) Real estate, property management, etc	12	6.8
(3) Personnel management, education/training	31	17.6
(4) Legal qualification	21	11.9
(5) Sales, trade, marketing, etc	34	19.3
(6) IT or Telecoms	9	5.1
(7) Other	24	13.6
Total	176	100.0

Source: CSES analysis of sample. NB: Multiple responses possible

Another performance indicator in the incubator management field is the proportion of time that staff spend providing services directly to their client companies as opposed to undertaking routine administrative tasks. Table 40 suggests that providing services directly to clients is seen as the most important function whilst Table 41 indicates that this generally accounts for almost 40% of management time.

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Table 40: What are the main functions of the incubator's management team?

Objectives of Incubator	**Ranking (1 = most important)**					
	1	2	3	4	0	Overall
(1) Routine management of incubator affairs	25	23	22	6	12	3.0
(2) Providing advice and assistance to companies	49	22	6	1	0	1.5
(3) Networking with other incubators/organisations	8	23	31	5	11	2.5
(4) Other roles	6	6	5	47	15	3.5

Source: CSES analysis of sample. Note: The lower the ranking average in the final column, the greater the importance of a given incubator objective

Table 41: Percentage of management time is devoted to providing companies with advice

Proportion of Management Time	**%**
Minimum	5.0
Maximum	80.0
Average	39.2

Source: CSES analysis of sample

5.5.2 Business Incubator Management and Quality Standards

In addition to monitoring the activities of clients it is clearly important that the incubator monitors its own performance.

The research suggests that there are a number of existing quality standards for business incubators setting out best practices. Examples of general quality standards that have been developed for business incubators at an international level include the Commission's EC-BIC certification and a similar initiative by the US NBIA, and a UNIDO best practice guide. Quality standards such as these tend to relate to service delivery rather than broader aspects of business incubator operations but they nonetheless provide an important framework for assessing and benchmarking best practice.

A separate question is how business incubators actually monitor their performance and what sort of more specific indicators are used for this purpose. At the very minimum, an incubator business plan should set out a set of targets supported by measurable performance indicators that enable progress to be periodically assessed. For example, the business plan should contain projections regarding occupancy rates, targets for the amount of rental and other income, and indication of the break-even point.

Table 42: What sort of criteria does management use to monitor incubator performance?

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Performance criteria	Very Important		Quite Important		Not Important	
	No	%	No	%	No	%
(1) Incubator occupancy rates	34	18.8	36	23.2	23	14.6
(2) Number of firms graduating from incubator	32	17.7	33	21.3	13	8.3
(3) Jobs created by tenant/ graduate companies	46	25.4	23	14.8	9	5.7
(4) Turnover of tenant / graduate companies	22	12.2	33	21.3	33	21.0
(5) Financial performance of incubator itself	28	15.5	26	16.8	24	15.3
(6) Other criteria	19	10.5	4	2.6	55	35.0
Total	181	100.0	155	100.0	157	100.0

Source: CSES analysis of sample. Note: Multiple responses possible. It should be noted that the performance criteria were pre-selected by CSES and not by incubators.

Table 42 suggests that incubators use a wide range of measures, job creation and occupancy rates generally being the most important of the (non-financial) indicators.

The research suggests that in addition to financial performance and the routine monitoring of service delivery against non-financial quality standards such as those listed above, some incubators periodically undertake surveys and other research to assess the impact they are having on client companies and the wider local economy. But the most common method of obtaining feedback is through more informal contact with firms.

Table 43: Methods of obtaining feedback from client companies

Sources of Feedback	Tenants	%	Stakeholders	%
(1) Feedback from informal contact	64	41.0	43	40.6
(2) Periodic meetings with clients/stakeholders	42	26.9	34	32.1
(3) Periodic surveys of clients and stakeholders	37	23.7	18	17.0
(4) Other Methods	11	7.1	7	6.6
(5) No particular methods	2	1.3	4	3.8
Total	156	100.0	106	100.0

Source: CSES analysis of sample. Note: Multiple Responses Possible

Viewed from a country perspective, in some countries (e.g. Italy, Spain and France) there appears to be a high percentage of incubators where there are no formal client monitoring arrangements. This may be due to several factors. For example, we were told in our interviews that SMEs in Italy and Spain are often reluctant to reveal their turnover and staffing details to incubation management, which may be due to traditional cultural factors whereby confidentiality in business is regarded as paramount. France also has quite a number of very small incubators devoted to local economic development and urban regeneration, where there may not be a perceived need for formalised procedures due to limited staffing resources.

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Best Practice Example 11 – Quality Standards
In several countries, a lot of emphasis is being placed on the development of quality standards. The best examples of this are in Austria, France, Germany and the UK. In France, ELAN has adopted the approach of defining the minimum criteria that need to be satisfied to qualify as a business incubator (‘norme française’). These criteria are fairly open and stipulate that an incubator should be an essentially a physical entity whose primary objective is to provide both physical workspace and high quality business support services in order to facilitate and accelerate new business creation. In contrast, the quality standards used by UKBI do not stress physical aspects. Probably the most developed approach, however, is in Germany where the ADT is currently piloting a set of quality standards consisting of 75 detailed criteria. These focus on categorising incubators according to the characteristics of tenant companies, in particular the extent of technology-based activities. In Belgium, the incubator at Héraclès has formal quality standards. In Upper Austria a project is seeking to develop higher quality in the management processes of incubators (12 incubators are participating in the programme).

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In this section we consider business incubator impacts and how these can be measured. A key conclusion is that feedback from tenants and the tracking of 'graduate' destinations should be treated as a key input to assessing the performance of incubators and benchmarking

6.1 Overall Approach

One of the key messages from this project is the need to judge the success of incubators according to the outcomes they achieve. A further important conclusion of this project is that incubators should obtain feedback from their tenants and other clients on a more systematic basis as a way of monitoring their performance.

The analysis of incubator impacts contained in this section relies on a combination of feedback from incubator managers and the results of a client company survey. As part of the project, we asked incubator managers to help us obtain feedback directly from their client companies. Three approaches were adopted:

- A questionnaire was made available to all incubators covered by the project to survey their clients (Appendix **X** contains a copy);
- Incubator managers were asked to either undertake a survey of client companies as part of the project, or at least to indicate whether they would be prepared to do so at a later date;
- As part of the fieldwork programme, CSES also interviewed a sample of some 40 companies at each of the incubator premises.

The analysis of company feedback is based on the sample of 71 companies located in 'Managers Group' incubators from four countries. Those who responded to the survey typically had seven staff and had been located at the incubator for approaching three years (on average, both personnel and turnover levels had doubled over the previous 12 months). We have used the qualitative feedback from interviews to illustrate the analysis.

6.2 Contribution of Incubators to Business Performance

To start with, we asked companies why they had decided to seek admission to a business incubator. A key issue that incubators should consider in assessing their performance is the value added of their activities to tenant companies or put another way, the extent to which clients could have achieved the same outcomes over the same timeframe without the support of an incubator.

Table 44 analysing the feedback suggests that a favourable location and image, together with the quality, price and flexibility of incubator space, are the key factors.

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Table 44: Why Companies Decided to Locate in Business Incubator

Reasons for Locating at Incubator	Ranking (1=Most Important/4=Least Important					
	1	2	3	4	Blanks	Average
Favourable location and image	32	24	5	2	8	2.6
Quality, price and flexible of incubator units	37	16	6	3	9	2.6
Availability of professional business services	7	8	25	11	20	2.8
Clustering and networking opportunities	2	9	12	21	27	4.2

Source: CSES analysis of client company sample

Table 45 provides feedback from incubator managers on the factors that they see as making incubators an attractive location for client businesses. As can be seen, there is a very similar ranking with favourable location, but more significantly, a prestige image, being rated more highly than purely material considerations such as the cost and flexibility of premises.

Table 45: What makes the incubator an attractive location for businesses?

Incubator Strengths/Ranking (1=most important)	1	2	3	4	Average
(1) Favourable location and image	27	14	15	17	2.3
(2) Quality, price, flexible terms for incubator units	21	21	14	15	2.3
(3) Availability of professional business services	28	17	23	6	2.0
(4) Clustering/networking with similar businesses	11	24	16	21	2.6

Source: CSES analysis of incubator survey sample

6.2.1 Company Success Rates

A key aim of business incubators (see Section 2) is to accelerate the process of starting up a business and to minimise failure rates. Previous research – reviewed in the Phase 1 report – suggests that in the past incubators have generally reduced failure rates to between 5% to 10% depending on the nature of tenant companies, the stage of the economic cycle, and other factors. Table 46 shows that the failure rate for the incubators covered by this research is around 15.8%.

Table 46: Failure rate amongst tenant firms

Category	Total	Average
Number tenants assisted by sample incubators since start up	7045	102.1
Number tenants in sample incubators that have ceased trading	1060	16.1
Failure Rate (Percentage)	15.8	

Source: CSES analysis of sample

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The slightly higher failure rate indicated above may be due to the predominance of new technology businesses in the incubators covered by the research, i.e. the high risks involved – and often accompanying high failure rates – may simply be a function of the innovative nature of activities.

There is a fundamental difference here with respect to new-economy incubators, for which minimising the failure rate is not a priority. Indeed, their business model takes it for granted that half or more of the incubated companies will fail, but expects that roughly one in ten will be successful enough to compensate for those failures and still provide an attractive return on investment overall.

Unlike a traditional incubator, an equity-based incubator can exercise several options in developing its incubated companies. Depending on how the business and market evolve, it can choose to shift money from one company to another; to ramp up the development of a company; to change the business plan to take advantage of new opportunities; to put the business on hold until conditions improve; or else shut it down permanently, transferring its assets to other ventures. That flexibility is particularly valuable in the face of market volatility, uncertainty and risk.

6.2.2 Destination of Graduate Companies

In addition to monitoring the performance of tenant firms, best practice suggests that incubators should track the destination of 'graduates' to establish the extent to which economic benefits are being retained in the local area in the longer-term. This is a key to the contribution incubators have to make to sustainable regional development. Moreover, many tenant companies move out of an incubator because of capacity constraints and it is only once they have 'graduated' that their full job and wealth creation potential becomes apparent.

From a more practical perspective, the research suggests that continuing contact is important to enable 'after-care' services to be provided and because 'graduate' firms can offer valuable assistance to incubator tenants (we found several cases, for example, where graduate firms were acting as 'mentors' to tenants).

According to the survey work, an average of 41 companies have successfully 'graduated' from each incubator. Table 47 suggests that most remain in the local area – 37 incubators from the sample stated that this was the case while only 3 from the sample indicated that most graduates tended to move outside the region. At this stage there is insufficient data to estimate the economic benefit to local economies.

Table 47: Where have graduate companies mainly moved to?

Destination of graduate firms	**Ranking (1 = most common)**					
	1	2	3	4	0	Average
Premises close by (e.g. science park)	37	9	3	2	27	1.4
Elsewhere in the local area	27	32	3	0	16	1.6

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Elsewhere in the region	3	14	28	2	31	2.6
Elsewhere in the country	3	2	9	26	38	3.5

Source: CSES analysis of sample

6.3 Gross Job and Wealth Creation Effects

This section examines incubator impacts. For many business incubators, creating new jobs is one of their main objectives (e.g. Project North East in the UK). In other cases, where low levels of unemployment exist (e.g. the Lisbon area) the emphasis tends to be more on wealth creation because joblessness is not seen as a problem. Irrespective of which situation applies, job outputs are often used as a proxy for a wide range of social and economic impacts. A distinction needs to be made between:

We start by assessing the direct (gross) effects and then estimate the wider (net) impacts. The methodology for calculating direct effects is summarised below:

Step 1 - Number of Jobs Per Company: CSES has cross-referenced the data provided by incubator managers with data provided directly by companies. The findings on firm size are broadly similar: the average size of a typical tenant firm based on an analysis of the CSES incubator survey was 6.2 employees. This compares with an average size of a typical firm in the company survey of 6.7 employees.

Of the 125 incubators covered by the analysis, most provided information on employment for their tenants. The average number of jobs per firm (7.1) was calculated by dividing the estimated total of jobs created by tenant firms across the sample (10,161) by the number of firms in the sample incubators (1,437). Table 44 shows the workings.

Table 48: How many people are currently employed by tenant companies?

Number of full time equivalent employees	Number of firms	%	Midrange	Number of jobs	%
1 – 3 persons	629	43.8	2	1258	12.4
3 – 10 persons	573	39.9	6	3438	33.8
10 – 20 persons	160	11.1	15	2400	23.6
20 – 50 persons	64	4.5	35	2240	22.0
50 –100 persons	11	0.8	75	825	8.1
Over 100 persons	0	0	NA	0	0
Total	1,437	100.0	NA	10,161	100.0
Average	10,161 jobs / 1437 tenant firms in sample = 7.1				

Source: CSES analysis of incubator sample. Note: The above employment figures represent the estimated number of full time equivalent employees per tenant firm. Whilst not all of these will be new jobs, given the typical growth patterns of a new incubator tenant (on average, tenant firms double in size every year for each of the three-four years they are located in the incubator environment), we have assumed that of these jobs, 40% are new jobs created that year.

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In the UKBI survey a different approach was adopted to measuring the number of jobs in an incubator over a fixed one-year period (giving an average of 5.2 people per firm). Taking the CSES survey data and UKBI survey results together therefore results in a slightly lower average of 6.1 employees per firm.

It should be noted that the above estimate does not take into account jobs in graduate companies. The estimated 246 new jobs per incubator is also a gross figure and has not been adjusted for additionality, displacement and indirect effects to provide a net equivalent (this is done later in this section).

Graduation Rate: our research suggests that the average incubator in Europe has been in operation for 8 years (i.e. dates from 1993). On average, 53 firms have successfully graduated from a typical incubator over this 8-year average period of operations. This means that during each year of an incubator's operations, an average of 6.6 firms graduate into the wider business community. Based on the average of 6.6 tenant firms graduating per year per incubator, and on an average firm size of 6.2 employees per tenant firm, a typical incubator therefore creates 40.9 new jobs per year.

Scaling up to EU Level: A incubator 'mapping exercise' conducted during the course of 2001 by Enterprise DG [2] suggests that there are approximately 840 business incubators in Europe. On this basis, European incubators create an average of 34,356 direct new jobs annually, before taking into account the failure rate amongst incubator tenants of 15.8%. [3]

Adjustment for Company Failure Rate: Once an allowance has been made for business failures, the number of gross direct jobs scaled up to European level is 28,928. Table 49 summarises the workings for the estimate of gross direct effects:

Table 49: Methodology for the Calculation of Direct/ Gross Employment Impacts

Direct Employment Effects	**European survey data**
Total no. of businesses in survey sample *	1828
Total no. of incubators in survey sample *	74
Average number of tenants per incubator	1828/74 = 24.7
Number of people employed in average incubator	24.7 (av. tenant firms) x 6.2 (av. jobs / firm) = 153.1
No. of graduate firms divided by the average age of the incubator = av. no of firms graduating/ pa	53 graduates per incubator / 8 years = 6.6 graduates/incubator pa
6.6 av. no of graduate businesses leaving incubator per year times by av. size of firm (6.2)	6.6 x 6.2 = 40.9
840 incubators in EU.multiplied by 40.9 graduate jobs created per incubator	840 x 40.9 = 34,356 direct new jobs created annually

[2] See http://europa.eu.int/comm/enterprise/entrepreneurship/support_measures/incubators/index.htm for more details on DG ENTR's European directory of business incubators

[3] I.e. 40.9 graduate jobs created per incubator per year multiplied by 840 incubators equals 34,356 direct jobs created annually.

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No. of direct jobs created (34,356) less the failure rate (15.8%)	34,356 x 0.842% survival rate = 28,928 direct new jobs created annually

** 74 incubators provided a response*

A key question with regard to direct job creation is the extent to which business incubators have a positive impact on the communities where they are located by generating employment opportunities for local people. The results of the company survey feedback are set out below.

Table 50: Recruitment of Client Company Personnel

Origin of Staff	Number	Percentage
Same area	54	76.1
Elsewhere in country	2	2.8
Other countries	0	0.0
Combination	10	14.1
No answer	5	7.0
Total	71	100.0

Source: CSES analysis of client company sample

The fact that over three-quarters of the personnel recruited by the companies came from the same areas as where the incubators are located points to a favourable impact on local labour markets. These results are not to be taken for granted: companies engaged in knowledge-intensive activities could be expected to have difficulty finding local people with the required specialist skills, for example where the incubator has a location in an inner city area that has suffered from economic decline and the skills base is still orientated towards older industries.

Table 51 provides an important set of indicators relating to job quality. Although there is no straightforward measure of job quality, the activities of the businesses concerned, and type and level of qualifications of staff are widely used as 'proxy' indicators.

Table 51: Client Company Quality Indicators

'Quality' Indicators	Firms Proving Data	Survey Results
Percentage of staff with degrees	50/71	51.9
Percentage of turnover invested in training	64/71	6.8
Percentage of turnover invested in R&D	64/71	17.6

Source: CSES analysis of client company sample

The previous section contained an analysis of incubator company activities showing that a very high proportion of firms are engaged in knowledge-intensive projects. Table 46 suggests that a high proportion of the workforce in incubator companies (compared with businesses generally) have at least a university degree. Another 'proxy' indicator of job quality is the proportion of company turnover invested training and here the figure if just under 7% is around average, possibly because many incubators provide access to

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skills development via local universities and some costs will not therefore be borne by the firms themselves. Last but not least, the analysis indicates that the average incubator company invests some 17% of its turnover in R&D, another pointer to job quality and 'innovation intensity'.

In addition to direct job creation effects, incubator clients will generate wealth creation effects. These are more difficult to measure but Table 52 provides an estimate of the growth rates in turnover amongst tenant businesses. As can be seen, a high proportion of companies are thought to be achieving growth rates in excess of 10% p.a. although the proportion of 'don't knows' is high.

Table 52: What turnover growth rates have tenants typically achieved in recent years?

Growth Rates	Number	Percentage
Below 10%	2	2.6
Between 10 and 20%	13	16.7
Between 20 and 50%	22	28.2
Over 50%	3	3.8
Not known/ impossible to say	38	48.7
Total	78	100.0

Source: CSES analysis of incubator sample

6.4 Net Job and Wealth Creation Effects

It will be recalled from the analysis in the previous section that the typical client company employs 6.2 people. These are the gross effects do not take into account:

- *Additionality* – the extent to which job and wealth creation effects only come about because of the services provided to firms by an incubator;
- *Displacement* – the jobs and wealth lost in a situation where firms assisted by an incubator compete directly with other non-assisted local firms;
- *Indirect Effects* – a combination of supplier related effects (additional jobs and wealth generated by local firms that provide goods and services to the incubator and its tenant companies) and income multipliers (the additional jobs and wealth generated more widely in a local economy as a result of employees of assisted firms spending their earnings on local goods and services).

The adjustments enable an estimate of the *gross* job and wealth creation effects attributable to incubator companies to be converted into *net* impacts. Previous studies, including research by CSES examining incubator impacts, suggests that there can be a considerable difference between gross and net impacts.

6.4.1 Additionality

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Whilst the calculation of gross employment impacts provides a very useful snapshot of the direct employment contribution to the local economy of ex-tenant firms at graduation point, the question of attribution, i.e. whether all the employment impacts and turnover of ex-tenant companies can be directly attributed to the incubator itself remains subject to debate. Similarly, the point at which the employment and wealth creation effects of ex-tenant firms should no longer be attributable to the incubator is equally contentious.

We assessed this factor (additionality) by asking companies the hypothetical question 'what would have happened if you had not been located at an incubator?'. An analysis of the responses is shown below:

Table 53: Additionality - Importance of Incubator to Company Performance

Degree of Additionality	Number	Percentage
Critical – without support, firm would not have been successful	16	22.5
Important – support has been helpful but not critical to success	43	60.6
Not important – firm would succeeded without incubator support	12	16.9
Total	71	100.0

Source: CSES analysis of client company sample

In around a fifth of cases (22%), those participating in the survey indicated that the role of the incubator had been critical to their success ('absolute additionality'). Examples where this situation applied included incubator companies in the North East of England, which relied on the ready availability of high-speed internet access and a range of business support services (notably marketing assistance) provided by the incubator as a means of competing for business with London-based firms in the same industry sector (new media and creative arts) which previously had geographical advantage. Similarly, advice on obtaining grants and expertise in accessing bank, seed and venture capital was regarded as absolutely pivotal to business success in a number of Italian companies surveyed, where the business angel and venture capital markets are less well developed.

In other cases, the role of incubators was either helpful but not critical ('partial additionality') or was judged not to have been particularly important at all ('dead-weight'). We have taken the figure of 16.9% from the above table as an indicator of dead-weight. Examples of companies that gave these types of responses included pre-existing companies at an incubator in Austria who were based at the incubator primarily because of the incubator's favourable location and rental charges considerably below the prevailing market rate.

The distribution of the responses shown in Table 49 between the various categories is fairly typical of SME support measures in our experience. It needs to be pointed out that the method adopted to assessing additionality in this survey – asking firms themselves to judge how important incubator support had been – runs a considerable risk of bias: companies that have recently started operating at an incubator will tend to overstate the

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benefits of their location whereas firms that are about to leave an incubator will often demonstrate the opposite tendency. Equally, incubator managers who participated in the in-depth case studies highlighted their experience and emphasised a tendency of incubator tenants to over-estimate the role of incubators at the beginning of the incubation process but to underestimate the benefits towards the end

However, there is no perfect method and alternative approach of using control groups also suffer from major drawbacks (these and other methodological issues relating to the measurement of additionality were discussed more fully in CSES's interim report).

In another question we asked firms to indicate precisely which incubator services had been most helpful to them on a 1 to 6 basis where 1 represented 'very useful' and 6 'not useful at all'. Table 54 presents the results.

Table 54: What Business Incubator Services Have Been Most Useful?

Professional Services	Ranking	Score
Access to grants, seed and venture capital funding	1	2.9
Business planning and forming a company	2	3.2
Pre-incubation services	3	3.3
Training to develop business skills	4	3.3
Help with raising bank finance	5	3.4
Advice on development of new products and services	6	4.2
Other professional services	7	5.5
Advice on recruitment of staff and personnel management	8	6.0

Source: CSES analysis of client company sample

The survey of incubator tenants revealed that amongst the most value added services provided by business incubators were help in gaining access to grants and the provision of advice on seed and venture capital funding. Incubator managers build substantial expertise over time through the development of local financial networks and personal contacts and are therefore well qualified to provide high quality financial advice. Many incubator managers also gain first hand experience of investment appraisal and selection criteria through direct involvement administrating and operating their own incubators' early stage seed capital funds.

Another explanation for the perceived high degree of importance of incubator-led financial advisory services is that new firms/ entrepreneurs often lack financial know-how. In order to succeed, an entrepreneur needs a range of technical, financial and business skills, as well as physical space from which to operate. Given that many newly turned entrepreneurs have the technical background but do not possess the requisite financial and/ or business acumen to drive forward business growth, advisory services provided by the incubator manager and associated networks of locally-based contacts in the financial sector are considered invaluable by tenant firms.

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In some EU regions where economic development is lagging and EU grants are available, incubator managers are perceived to play an important role in providing information on suitable grants for which a tenant company may be eligible. With limited time and financial resources, an SME is unlikely to invest the time to investigate all grant opportunities. However, with expert guidance from an incubator manager, the new start-up is better able to ascertain the viability of applying for different types of funding and can more quickly identify the appropriateness or otherwise of particular grant schemes.

6.4.2 Displacement and Multiplier Effects

Displacement, as noted earlier, is a situation where firms assisted by an incubator compete directly with other non-assisted local firms, leading to job losses in these firms and a reduced overall net impact attributable to incubator operations. To assess the extent of displacement, we asked incubator companies to indicate where their main competitors were located. As Table 55 shows, incubator firms tend to be competing in national if not international markets rather than directly with other local businesses.

Table 55: Location of Client Company Competitors

Location of Competitors	Number	Percentage
Same area	19	26.8
Elsewhere in country	16	22.5
Other countries	11	15.5
Combination of above	21	29.6
No answer/ blank	4	5.6
Total	71	100.0

Source: CSES analysis of client company sample

Whilst it is difficult to accurately measure displacement effects, (i.e. the number of local firms which have duplicated the existing activities of small businesses in the local area leading to displacement), a figure of 5% is the usual accepted level in evaluation studies undertaken by the European Commission (see displacement column).

Examples of incubators supporting the development of local supply chains include ex-tenants of an incubator in Finland acting as suppliers to Nokia of non-core goods and services. The incubator is regarded as an essential component of a wider technology clustering. Many if its tenants provide services to Finland's largest companies. Another example of sectoral clustering was in France, where a number of incubator tenants were assisting the CRE, one of France's leading public sector research institutions, with applied research into optical imaging. The SMEs provided the technical know-how whilst the CRE provided high-tech research facilities, other resources and access to expertise in commercialising new technological applications. The importance of local, innovative small firms in the supply chain was highlighted in Ireland, where large multinational conglomerates in the ICT and software industries such as Intel and AOL have worked in partnership with public sector business support organisations and

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incubator managers to encourage the development of business clusters and an indigenous high-tech SME community. We came across similar examples in Austria, Germany, Sweden and other countries.

Turning to multipliers and indirect job creation, as part of the survey we asked incubator companies to indicate how much they spent on local suppliers. Perhaps not surprisingly, only some firms were able to provide the required information (49 of the 71 companies making up the sample (69%) did so). The average expenditure of €220,000 per company in the last financial year on local goods and services can be used to estimate supplier-related employment effects if an assumption is made regarding the average cost per job in a local economy (i.e. salary, social security and other costs paid by employers). For this purpose we have taken the average EU wage and added an additional 40% for additional costs to give a total of around €50,000 per job. On this basis, for every one incubator company job, a further 0.4 jobs will have been created indirectly via local supply chains. Our research suggests that this supposition is not unreasonable given the high quality of jobs created through incubation programmes and the likelihood of higher than average wages to reflect the high skills base of employees of incubator graduates. The CSES company survey suggests that as many as 52% of employees of incubator tenants have a degree level qualification or above, an indicator of the high value added of incubator activities.

The other component of indirect job creation is new employment resulting from additional spending on local goods and services by people recruited by incubator companies (induced effects or consumption multipliers). We did not consider it feasible within the framework of a limited exercise such as this survey to ask for information on salary levels in incubator companies and the spending patterns of employees. However, other research by CSES suggests that a multiplier of around 1:1.5 can be used to estimate this aspect of indirect job creation by incubator companies. Assuming a ratio of 1:1.5, income multipliers, supplier multipliers and other indirect effects will have contributed an additional 14,464 indirect jobs to the net figure. The total net number of jobs created (both direct and indirect) is therefore 37,058.

Although not strictly relevant to the assessment of net impacts, we also asked companies to indicate where their main customers were located. The survey revealed some interesting findings:

Table 56: Location of Company Customers

Origin of Customers	Number	Percentage
Same area	25	35.2
Elsewhere in country	17	23.9
Other countries	3	4.2
Combination of above	22	31.0
No answer/ blank	4	5.6
Total	71	100.0

Source: CSES analysis of client company sample

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Thus, although a significant proportion of incubator companies (as shown in Table 56) face competition that is international, their markets tend to be mainly local or national with a relatively small proportion exporting their products or services. There are probably several explanations for this: first, small firms generally have a low level of export activity; and, second, many incubators form part of the structure supporting the development of clusters in which tenant companies are often integrated into the supply chains of larger companies located in the same areas that form a core of the clusters.

Below, we summarise the workings for the estimate of net effects attributable to incubators:

Table 57: Summary of Net Employment Impacts

Net Employment Impacts	**European survey data**
No. of direct new jobs created (34,356) less the failure rate (15.8%)	28,928
Additionality (16.9% classified assistance received as 'not additional')	(4,888)
Displacement (less 5%)	(1446)
Indirect effects – multiplier effects 1:1.5	14,464
Total Net Jobs	37,058

To summarise, an estimated 37,058 net jobs are created annually through the activities of business incubators. Essentially, the number of direct jobs minus the failure rate (i.e. the gross number of direct jobs) is taken as the starting point for calculating net employment impacts.

6.4.3 Cost per Gross and Net Job

A widely used measure of cost-effectiveness is the cost per job. Below, we estimate this on a gross and net basis.

Table 58: Gross Cost per Job

Key Performance Indicator	**European survey data**
Av. public spending of 37.4% (EU, international and national authorities) compared with an av. operating cost of €479,375/ year, av. public contribution to operating costs is €179,286	Av. operating costs/ incubator = €479,375 x 37.4% public contribution = €179,286
Annual Public Subsidy (€179,286) divided by the no. of graduate jobs created annually (40.9)	€179,286/40.9 = €4,383 per new job created

The gross cost per job in terms of public sector subsidy (based on an analysis of annual operating costs) of €4,383 compares highly favourably to other types of public intervention, particularly when other indirect effects such as supplier and income multipliers are taken into account. On a net basis, the cost per job is even lower at €4,065.

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Table 59: Cost per Job (net)

Key Performance Indicator	European survey data
Av. Public Spending of 37.4% (EU, international and national authorities) compared with an av. operating cost of €479,375/ year, av. public contribution to operating costs is €179,286	Av. operating costs/ incubator = €479,375 X 37.4% public contribution = €179,286
Annual Public Subsidy (€179,286) divided by the no. of *net* graduate jobs created annually (37,058/840 EU incubators = 44.1)	€179,286/44.1 = €4,065.4 per new job created

NB: The number of net jobs created takes into account company failure rates, additionality, displacement, indirect effects (multiplier and supplier effects).

The cost per job estimates shown in Tables 58 and 59 are before considering any taxation effects of new employment. From the public sector's point of view, new employment may create a reduction in social security contributions, and an increase in tax revenues, both of which would tend to decrease the net cost per job. It was beyond the scope of this study to estimate these factors. However, research has been undertaken, for example in Germany, to quantify the net cost per job on this basis.

Public Sector Cost per Job

To estimate the cost per job to the public sector, we have examined data solely for those incubators that have received public subsidies either from the EU, national authorities or other public sector bodies towards set-up and/ or operating costs. An analysis of these incubators produced the following (gross cost per job) results:

Table 60: Analysis of Public Sector Cost per Job

Cost per Job (gross)	Average	Median	Range
Operating costs - public sector	€3389	€1,836	€124 to 29,642
Operating costs + set-up costs (amortised at 8% cost of capital, diminution of capital) – public sector	€6,708	€2,647	€54 to 105,975
Operating costs public + private sector	€9,107	€4,334	€1,171 – 91,642
Operating costs + set up costs amortised (public + private sector)	€14,648	€6121	€1,308 – 219,501

If the public sector cost per job is calculated based only on operating costs, the gross cost per job is between €3,300 and €4,400. If initial set-up costs such as premises and equipment are taken into account and amortised on annual basis at a nominal rate of 8% to reflect depreciation, the cost of capital and capital diminution, the gross cost per job would be somewhat higher, rising to €6,708.

If financial support from the private sector (such as revenue through rent and the provision of business support and advisory services) is also included in addition to public funding support, the average gross cost per job would be €9,107 based on operating costs rising to €14,648 if set-up costs and depreciation are taken into account.

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6.5 Other Incubator Impacts

There are also a number of less easily quantifiable and wider impacts that can be attributed to incubator operations. Information on these impacts comes from tenant companies (see above) and also incubator managers. Table 61 provides an analysis of their perceptions. As can be seen, the benefits in terms of creating new, high quality businesses and with regard to job and wealth creation are ranked highest.

Table 61: How does the incubator contribute to local development?

Contribution to Local Development	**Ranking in order of importance (1-5)**							
	1	2	3	4	5	6	0	Average
(1) Creating new, high quality businesses	49	10	11	2	0	0	6	1.5
(2) Improving business competitiveness	3	17	16	16	15	0	11	3.3
(3) Contributing to job and wealth creation	22	16	11	17	3	0	9	2.3
(4) Developing new products and services	4	25	23	14	1	1	10	2.8
(5) Internationalisation of businesses	0	4	8	13	35	0	18	43

Source: CSES analysis of incubator survey sample

Best Practice Example 12 – Monitoring of Client Company Performance

BIC Liguria in Italy provides one of the best example of a hands-on approach to monitoring client companies: it undertakes a regular survey of its tenants both to ascertain their performance (restricted to total turnover and number of employees) and to gauge SME demand for specific services, e.g. high speed internet access, advice on marketing products, quality standards and legal advice on patents. At any one time, 3 or 4 tenants out of the total population of 55 tenants will be undergoing an evaluation by the incubator management. CAT in Denmark also undertakes client monitoring, formally and informally as part of the tenancy agreement – start-ups benefit from advice and guidance during these sessions with incubator managers. Bordeaux Productic in France and Taguspark in Portugal highlight good practices with regard to mentoring.

The Centre d'Entreprises Héraclès in Belgium is a good example of post-incubation monitoring: here a strong effort is made to keep in touch with companies after they have left with an annual follow up asking for basic information such as numbers of jobs. The incubators objective in doing this follow up is to ensure that the incubator has information on outputs. But it also provides information to continue networking activities. The ADT in Germany is also planning to undertake a national follow-up survey of technology centre graduates.

Best Practice Example 13 – Role of Business Incubators in (Urban) Regeneration

Business Incubation can also play an important part in the urban regeneration process. One good example of a successful regeneration initiative spearheaded by an incubator is the Guinness Enterprise Centre (GEC) in Dublin. The Centre is a Public Private Partnership (PPP) designed to revitalise and regenerate an area of Dublin with a high level of social and economic deprivation. The initiative has played an important part in revitalising the local area and in changing public perceptions by stimulating new enterprise development and business innovation. The Centre's activities tie in with and make an important

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contribution to a wider urban regeneration strategy.

Incubator management engaged the local community during the planning and consultation process both to encourage community participation in the incubator's activities and in order to meet the wider social objectives of its stakeholders. The Centre has actively encouraged community involvement by including members of the local community on various decision-making committees. GEC has played a central role in community development and in tackling of social exclusion issues, such as access to adult education. After an approach by local community representatives, the incubator set up evening classes focusing on basic IT literacy skills for local people. The incubator has also provided pro bono managerial advice and support to local businesses and has provided an outreach loan to a group of local residents.

BIC Liguria in Genova is another good example of an incubator playing a pivotal role in the regeneration process. The incubator was set up as a regional economic development catalyst in 1990 against a backdrop of industrial decline. Given the considerable economic and structural challenges faced by the Genova region resulting from the decline of traditional industry, the incubator's primary objectives were to contribute to improving the local and regional socio-economic base of Liguria by encouraging new business and job creation and facilitating sectoral diversification.

Another important contribution is the 'Centro Storico' (historic centre') project. Genova has one of the largest historic town centres in Europe. For a number of reasons, the 'historic centre' has become run down and dilapidated with a high level of social problems, delinquency, drug abuse, illegal immigration and squatting. BIC Liguria, working in partnership with the regional authorities, the comune and the mayor, has taken an active lead in the physical regeneration of the Centro Storico as part of a community 'outreach' project. With the help of a fund set up by the regional authorities and the Genovan town council, BIC LIGURIA is helping potential entrepreneurs meet the restoration and conversion costs of turning residential buildings in the old quarter into viable commercial outlets (bars, craft shops, delicatessen etc.) at ground floor level in order to rejuvenate the economy of the old quarter. The BIC provides business support and management expertise both at strategic level (to regional partners and the municipality) and directly to private entrepreneurs.

6.6 Comparisons Between EU and US Incubator Performance

In this section we provide a comparison between European and US incubators in respect of some key performance indicators.

The analysis in this section is based on CSES's survey results for EU Member States and NBIA data for the USA. It has been hoped that the NBIA's current survey would have been completed by the time this report was prepared but unfortunately this did not prove to be the case. As a result, we were only able to obtain data from the NBIA on a limited number of performance indicators.

As Table 62 shows, there is a greater variety of business incubators in the USA than in Europe.

Table 62: Location of Business Incubators: EU/US Comparison

Incubator location	Europe		USA	
	No.	%	No.	%
Urban	68	54.4	NA	45.0*
Greenfield	30	24.0	NA	NA

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Rural	8	6.4	NA	36.0
Other	13	10.4	NA	19.0
No answer/ don't know	6	4.8	NA	NA
Total	125	100.0	NA	100.0

*Source: CSES analysis of sample, * US data taken from the NBIA's State of the Incubation Industry*

'Greenfield' in the European context relates to incubators that are established on new sites, usually close to university campuses or elsewhere outside town centres. It is possible that the category 'rural' relates to this in the NBIA survey.

In Table 63, we bring together a number of indicators relating to the features of business incubators in Europe and the USA.

Table 63: Key Comparisons – European and US Incubators

Key Performance Indicators	**European survey data**	**US survey data**
For profit/ Not for profit	21.8 (FP)/ 76.9 (NFP)	11.5 (FP)/ 86.5(NFP)
Occupancy rate	85% (av.)	81% (av.)
Survival Rate	84.2%	87%
Equity Position [4]	Yes - 7.7%	Yes – 34.6%
Av. no. of tenants per incubator	24.7 (av), 18 (median)	14.5 (av), 11 (median)
Av. no. of FTE jobs / tenant company	6.2	7.7
Av. no of new jobs created per tenant firm per year [5]	1.5	2
Amount of incubator space	5,860 (av), 3,000 (median)	NA
Graduation Policy? [6]	Yes – 79.5%	Yes - 90.4%
Breakeven [7]	Yes – 40.8%	NA
No. of incubator staff	5.6	NA
No. of incubator managers	2.3	NA

Source: CSES analysis of survey data

There are some pronounced differences: thus, surprisingly, it would appear that the proportion of for-profit incubators is higher in Europe than the US (this of course

[4] Does your incubator take an equity stake in its clients?
[5] The number of new jobs created per tenant firm is based on CSES methodology to calculate direct employment creation effects, which takes into account failure rates and the presence of pre-existing firms. New employment creation is calculated over a one-year period and assumes that the average length of tenancy in a typical incubator is 3 years and that 12% of incubator tenants were pre-existing firms. The survival rate was 84.2%
[6] Does your incubator have an enforced graduation policy i.e. maximum length of tenancy?
[7] Is it part of your incubator's business plan to break even?

depends on how representative the samples are). Similarly, European incubators operate with higher occupancy rates. However, confirming other evidence, the success rate for start-ups in US incubators is higher than in their European counter-parts and US incubators invest directly in their client companies on a far more frequent scale. Interestingly, the number of tenants per incubator tends to be twice as high in European incubators (averaging 32 per incubator) than in the US (15) and yet the companies in the US employ marginally more people than in Europe.

Another significant finding from the comparison shown above is the fact that a higher proportion of US incubators have the objective of breaking even (this could contradict the earlier finding regarding for-profit/non-for-profit models). Table 64 explores this question in more detail, showing that if public subsidies were stopped, a far higher proportion of US incubators would be essentially unaffected.

Table 64: Financial Sustainability: If the incubator stopped receiving cash subsidies, what would be the effect on incubator operations?

Financial Sustainability	**Europe**		**USA**	
	No.	%	No.	%
1) Incubator activities could be maintained at current levels	6	7.7	9	17.3
(2) Incubator activities would have to be reduced significantly	31	39.7	12	23.1
(3) Incubator activities would stop altogether	17	21.8	7	13.5
(4) Not relevant - incubator does not receive subsidies	9	11.5	18	34.6
(5) No Response/ Blank	15	19.2	6	11.5
Total	78	100.0	52	100.0

Source: CSES analysis of sample

As noted earlier in this report, the current NBIA survey is still underway and we have not therefore been able to make all the comparisons that, in theory, can be made. However, it is hoped that more data will become available from the NBIA shortly so that it can be included in the final version of this report.

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In this final section we provide a summary of the key conclusions with regard to the business incubator benchmarking project and consider best practice and policy recommendations.

7.1 Key Conclusions – Benchmarking Analysis

Below, we set out the overall conclusions of the benchmarking project. This has been done under three headings – setting up and operating business incubators, incubator functions, and evaluating incubator services and impacts. A summary of key statistical benchmarks is set out at the end of the section.

Setting Up and Operating Business Incubators

7.1.1. 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. They typically involve incubators acting as a link between centres of R&D excellence and business, commercialising R&D, helping to develop the supply chains for industrial clusters, promoting SME competitiveness, and in some cases, a more specialised role, e.g. addressing social inclusion by helping disadvantaged communities to engage in entrepreneurial activity or promoting other territorially focused priorities.

7.1.2. 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 financial institutions. Public authorities have an important catalytic and leadership function, and can provide crucial pump-priming investment during the development phase of incubators. However, leveraging private sector support is important both from a financial perspective but also in terms of support in kind, e.g. management resources and expertise. Similarly, if the incubator's role is linked to the development of industrial clusters, then the involvement of large companies and universities will be important in promoting an incubator's role in the transfer and diffusion of technology and development of local supply chains.

7.1.3. 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. As with other business support measures that receive public assistance, many (but not all) incubators are designed to address market failure. This market failure may lie in weak linkages between R&D centres of excellence and business, inadequate support structures for high growth firms, an under-developed entrepreneurial culture, or these and other factors combined. During the planning phase, it is essential that the demand for an incubator's services is tested so that its

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role can be defined and an appropriate operating framework devised. Assuming positive conclusions, the outcome should be a business plan setting out the rationale for the project, 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.

7.1.4. 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. There are no examples from our research (except with 'new economy' incubators) of incubators being established without public support and feedback from incubator managers suggests that this situation is unlikely to change.

7.1.5. 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. Notwithstanding the fact that many incubators serve the public interest and can therefore justify subsidies, there is a strong argument for encouraging incubators to maximise income generation from services so that support can be spread across a larger range of schemes. At present, some three-quarters (77%) of European incubators operate on a not-for-profit basis.

Business Incubator Functions

7.1.6. 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. Feedback from incubator managers suggests that the physical clustering of companies remains important, notwithstanding the development of 'virtual' incubation models, to facilitate networking and to enable some services (e.g. access to broadband technology) to be provided on a cost-effective basis. Another key lesson from the research is the need to operate at no more than around 85% occupancy levels: although higher occupancy levels will generate more rental income, it reduces the flexibility needed to allow firms to move on from one type of incubator unit to another as they develop and grow.

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7.1.7. 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 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. The incubator management team may provide some of these services themselves (see Point 11 below) or, if specialised services are needed or there are insufficient in-house resources, they may rely on networking with other organisations. The report provides a number of best practice examples covering the four areas of business support services.

7.1.8. 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). Where incubators are operating in areas with poorly developed private sector business service provision, there is a danger that this practice will 'crowd out' actual or potential suppliers and undermine efforts to develop an alternative to public sector schemes.

7.1.9. 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.

7.1.10. Whilst achieving high occupancy rates is important to generate income, this consideration needs to be balanced against the importance of maintaining selective admission criteria. According to the research, European incubators typically have occupancy rates of around 85%. 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. Sufficient demand, based on selective admission criteria, for incubator space should exist if proper market research is undertaken as part of the incubator planning stage.

7.1.11. 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

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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. It is therefore difficult to argue the case for a single benchmark for all types of incubators as far as tenancy is concerned.

7.1.12. 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. In some cases, incubators are located in areas with business parks or other sites that are suitable for companies to move to. However, in other situations, e.g. city centre incubators, this option may not exist. 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. Similarly, the research suggests that continued networking between 'graduates' and incubators can be beneficial to tenants, e.g. through mentoring relationships.

7.1.13. 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. In theory, these ratios might be benchmarked against other business service organisations (e.g. chambers of commerce, banks, accountants). In practice, the different in the 'service offering' makes such comparisons difficult. The research highlights a number of best practice examples with regard to incubator management, in particular client handling. The fact that over a third of incubators (34%) do not have any particular arrangements to monitor client performance and needs suggests that there is considerable scope for these practices to be improved in a way that systematises best practices. A number of initiatives are underway to develop incubator quality standards and this is an area where the sharing of ideas and experience could be especially fruitful.

Evaluating Incubator Services and Impacts

7.1.14. 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

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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. This can be done either in terms of a standard definition of business activities (different types of manufacturing, services, etc) or, at a higher level, in terms of the technology-intensity of activities. An approach of this sort makes sense given the fact that different types of incubators are increasingly offering very similar 'core' services.

7.1.15. 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). This is a considerably lower cost than for most publicly-supported schemes. Comments have been made earlier regarding the ways in which incubators can maximise local impacts by encouraging 'graduates' to remain in the area. Equally important, however, is the need to ensure that local people have the education and training needed to take advantage of new employment opportunities in incubator companies.

7.1.16. 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'.

7.1.17. Likewise, a distinction should be made between gross and net impacts achieved by business incubators. As Point 15 makes clear, business incubator 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

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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.

7.1.18. 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 which for 'traditional' incubators with physical space constraints suggests making greater use of ICT to extend the client base; 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 including the need for a physical clustering of entrepreneurs to facilitate networking and access to advanced ICT, and the continuing importance of public support for incubator developments, at least during the early stages.

7.1.19. 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. Consequently, although we have developed an overall framework of benchmarks and best practice guidance in this report, specific modalities must necessarily be a question for local judgement.

7.1.20. 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. There is considerable scope for such comparisons to be developed and this report has only been able to make a modest start in this respect.

7.1.21. 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

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Point 15) and other less easily quantifiable benefits demonstrated by business incubators covered by this research suggest that they are a very effective 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. However, if infrastructure costs are not taken into account,

At the end of this section we present a summary of 'headline' and 'operational' indicators that have been used in this project, together with benchmark values.

7.2 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.

Promoting Best Practice in Business Incubation at an Operational Level

7.2.1. 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.

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7.2.2. 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 (Point 7), 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.

7.2.3. Business incubators should be encouraged to periodically undertake impacts assessments. As Point 17 has argued, 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) a develop a common methodology based on best practice; and (c) agree on one or more pilot exercises to determine the best way of proceeding. This project has tested one possible approach but further consideration is needed to identify the most practical option.

7.2.4. 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. Whilst the full, 'for-profit' incubator model has yet to be proven (especially after the failure of 'new economy' incubators) two options appear to have considerable income generation potential – charges for business support services (including services provided virtually) and income from investment in client companies. There may still be a pump-priming role for public subsidies but in the future this should, in our view, be at least in part performance-related (perhaps using some of the 'headline' indicators developed in this project to trigger payments). In addition to the best practices highlighted in the report, there are also lessons to be learnt from 'new economy' incubators in this respect and steps should be taken to ensure that this knowledge is analysed and shared.

7.2.5. 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

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standard relating to overall incubator management as a way of enhancing the status of the occupation (and thereby attracting more and better quality staff), improving incubator operations, and perhaps increasing the mobility of managers between incubators. There is clearly a strong case for professional standards to be developed at a EU level.

EU Level Actions to Promote Best Practice in Business Incubation

7.2.6. 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 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.

7.2.7. 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. Timing, data processing arrangements and other procedures would need to be harmonised as well and linked to the Commission's database of incubators. Consideration might also be given to developing a 'league table' on European incubators based on key headline indicators.

7.2.8. 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.

7.2.9. 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

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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.

7.2.10. 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 Employment, Economic and Financial Affairs, Research, and Regional Policy DGs). Through the Enterprise DG's Multiannual Programme for Enterprise and Entrepreneurship (2001-2005), the "ETF Start-up" Facility will concentrate on the financing of incubators and seed capital funds and therefore represent a very useful complement to the other venture capital resources managed by the EIF, the European Investment Fund. To ensure that the various types of support the Commission can provide to 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.

7.2.11. 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. At one level, there is a need to improve the sharing of information on incubator activities and performance (as pointed out in this report, CSES 'harmonised' the questionnaire used for the European research with the *pro forma* used by the NBIA for its surveys. We understand that there is a now possibility of a benchmarking projects being undertaken in the USA). At another level, much could be gained from encouraging direct contact between incubators, e.g. through exchanges of staff, to provide more detailed and practical know-how concerning incubator operations to be pooled.

The tables on the next page provide a summary of key headline and operational benchmark values. A summary of key benchmarks is contained at the end of the executive summary.

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Efficiency			
Inputs and Processes		**Outcomes**	
Start-up time – length of time required to establish incubator	12 – 24 months	Cost of incubator units – total investment/sq meter of space	Total investment **(**infrastructure/ set up costs) av. €3,705,742 Operating costs - €479,375 X 8 years av. length of time in incubator = €3,835,000 Total Investment per Incubator (operating + set-up) = €7,540,742/ 3,000m² = €2,513/m²
Incubator investment cost – total investment/ sq. m. of incubator space	Total Investment per Incubator (operating + set-up) = €7,540,742 / 3,000m² = €2,513/m²	Cost per start-up – total investment/number of start ups	Total Investment per Incubator (operating costs) = €3,705,742 / 3,000m² = €1235/ m² €3,835,000 / 102 [i] = €37,598 per start-up
Incubator operating cost – operating costs/number of personnel	€479,375 av. operating costs / 5.6 = €85,603	Cost per graduate[ii] total investment/number of graduates	€3,835,000 / 53 = €72,358
		Cost per start-up (operating costs + set-up / infrastructure costs) – total investment/number of start ups	€3,835,000 + €3,705,742 = €7,540,742 €7,540,742/ 102 = €73,929

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Efficiency (continued)			
NA	NA	Cost per graduate (operating costs + set-up/ infrastructure costs) – total investment/number of graduates	€3,835,000 + €3,705,742 = €7,540,742 €7,540,742/ 53 = €142,278
Financial leverage – ratio of public to private sector funding	1:2.67	Cost per (gross/net) job – total investment/ jobs in tenant and recent graduate firms	Cost per job €4,383 (gross), cost per job €4,065 (net) [iii]
Financial leverage – ratio of public to private sector funding	50.6% (39.5% from rental charges, a further 11.1% from other client service charges)	NA	NA

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Utility			
Inputs and Processes		**Outcomes**	
Occupancy rate – percentage of incubator space let to companies	85%	Incubator turnover – number of firms entering/leaving incubator, average time in incubator	35 months av. length of tenancy in an incubator
Incubator service utilisation rate – percentage of companies using incubator support services	NA	Client satisfaction – percentage of firms indicating that incubator services meet their needs, contribution of incubator to firms' development (additionality)	22.5% - fully additional, 60.6% partially additional
Response rate to client surveys – percentage of tenants responding to client satisfaction surveys	NA	NA	NA

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Effectiveness			
Inputs and Processes		**Outcomes**	
Start up rate – number/percentage of admissions leading to start-ups		Wealth creation – Average turnover of tenant firms and average annual growth rates, value added of business activities	Av. growth rate in turnover of client businesses 28.35%
Start up time – length of time required to start up new businesses		Job creation – number (and type) of jobs per tenant firm and annual growth rates, proportion of jobs filled by local people, job quality[iv]	76% jobs filled by local people, 10% by a combination of local people and people from the region 51.9% of employees of incubator tenants have a degree level qualification or higher
Survival rate – number/percentage of start ups still trading after 5 years	84.2% survival rate		
Sustainability			
Inputs and Processes		**Outcomes**	
Financial breakeven – income less operating costs	Achieving breakeven is an objective of 40.8% of business incubators. In terms of timescale, 40.7% anticipated it would take more than 5 years to reach breakeven point.	Graduation rate – percentage of tenants leaving incubator each year	On average, 1 graduate company leaves an incubator for every 1.92 tenants (ratio is 1:1.92

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Market rates – level of discount/premium for incubator space/services compared with local market rates	Space: 48.7% said that rental charges were lower than prevailing market rate, 35.9% the same and 9.0% said rates were higher than average. Services: 35.9% said that services charges were lower than prevailing market rate, 37.2% the same and 3.8% higher	Growth sectors – proportion of graduates in growth sectors	NA
		Growth sectors – proportion of graduates in growth sectors	47.1% of incubator tenants operate in the ICT, R&D and / or advanced/ high-tech manufacturing sectors
		Retention rate – percentage of graduate companies remaining in local area	Retention: 82% of graduate companies remain within the local area post-graduation

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

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