

Strategic Review of Scottish Enterprise Incubation Support

Report to Scottish Enterprise

27th March 2009

1: Introduction

- 1.1 This report covers a strategic review of Scottish Enterprise incubation support. It has been prepared by SQW Consulting on behalf of Scottish Enterprise (SE) as part of a ‘call-off’ contract to provide SE with quick analyses of important subjects, primarily through desk research. In this instance, the desk research has been augmented by consultations, principally within the SE network (a list of consultees is provided in Annex A). This apart, there has been no collection of new primary information, for example through surveys of beneficiaries of incubation services.

The brief

- 1.2 The terms of reference noted that ‘incubation support’ goes beyond the creation of new physical business space and that ‘of greater importance is the range and quality of services offered to firms – and their impact on company growth and business performance’. The brief set out the purpose of the review as to ‘contextualise lessons learned using the evaluation evidence gathered to date by SE together with external evidence of good practice’. More specifically, the brief set out the following series of questions for the review to address, insofar as this was possible by reference to the evaluations available:

- how has investment in incubation units created the right conditions for growth
- how has the range of incubation services facilitated higher levels of investment in innovation
- to what extent are incubation services focussed on and responsive to the specific growth needs of businesses
- how far are incubation services linked to the SE Priority Industries and how far do they attract other industry support services?

- 1.3 It was not expected that this desk-research orientated exercise would answer all of these questions, but they formed the backdrop to a more general question to be addressed, namely, ‘how the activities provided under incubation support contribute to SE’s strategic objectives of Enterprise, Innovation and Investment’?

- 1.4 Some more specific questions were expected to be addressed relating to the appropriateness, economy, effectiveness and efficiency of incubators/incubation, namely how far:

- incubation support addresses market failure; how far such market failure persists and there is evidence of market adjustment
- interventions have been cost-effective; the balance of SE capital and revenue spend
- incubation interventions have met objectives and what the critical success factors have been

- incubation relates to SE work with priority industries and other forms of SE support (e.g. Direct Relationship Management - DRM)
- the key lessons for SE in this area of activity in future.

1.5 This report sets out our response to these questions. Clearly there are limits to what can be achieved in the absence of new primary research, customised to these particular terms of reference. The main sources that have been made available to be drawn on are in Table 1-1.

Table 1-1 Evaluations and other research drawn on

Evaluation / report	Consultant	Date of evaluation
Commercial Breakthrough Service	Mainstay	2008
Edinburgh Pre-Incubation Service (EPIS)	Sagentia	2008
Hillington Park Innovation Centre	O'Herlihy & Co Ltd	2005
Kelvin Institute	PWC	2008
SE and Royal Society of Edinburgh Enterprise Fellowship Programme	Ernst & Young	2007
Lanarkshire High Growth Start-up <u>Service</u>	Frontline	2005
Stirling University Innovation Park 1996 – 2005	EKOS	2006
Wireless Innovation Centre ¹	O'Herlihy & Co Ltd	2005
Lanarkshire Business Incubation Centre	O'Herlihy & Co Ltd	2000
High Growth Start Up <u>Unit</u>	GEN / ABEC	2008
Business Incubation in the Edinburgh Metropolitan Region	UK Business Incubation (UKBI)	2006
Benchmarking of Business Incubators	CSES for the European Commission	2002
Review of Business Incubation in Scotland	Scottish Enterprise	2001
Best Practice in Business Incubator Management	Austep Strategic Partnering (Australia)	

Source: SQW

1.6 It is difficult to tell how far the projects evaluated constitute a representative cross-section of SE incubation interventions, so a degree of qualification has to be attached to any conclusions. Also, the evaluations vary in breadth and depth of coverage. All that said, there are conclusions to be drawn and these are set out in later sections of this report.

What is meant by 'incubation'

1.7 The evaluations cover a range of facility and service types including those where incubation services are provided as part and parcel of a physical facility, and those where they are not.

¹ We understand that a new evaluation of the Wireless Innovation Centre has just been completed, with the results too late to be incorporated into this report. The results are available on <http://www.evaluationsonline.org.uk/>.

This is an important distinction that recurs throughout this report. UKBI have provided the following helpful definition of ‘business incubation’:²

...a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses, products and ideas by supporting them through the early stages of development and change.

1.8 The UKBI definition does not refer to physical premises as being a necessary part of ‘incubation’ though it does point out that their own research suggests that 85% of business incubation does take place ‘within walls’. They also make the following distinctions:

- “the (wider) business incubation environment in the wider context should be conducive to the sustainable nurturing of growth potential and the development of enterprises
- the business incubation process is a public and/or private, entrepreneurial, economic and social development process designed to nurture business ideas and start-up companies and, through a comprehensive business support programme, help them establish and accelerate their growth and success
- an incubator (a business incubation environment) is a physical space or facility that accommodates a business incubation process”³.

1.9 They list a series of services that might be provided as part of the incubation process:

- pre-incubation services
- business planning
- company formation
- training and development of entrepreneurs
- accounting, legal and other related services
- market research, sales and marketing
- help with exporting and/or partner search abroad
- help with e-business and other aspects of ICT
- advice on development of new products and services
- help with raising bank finance, grants, venture capital
- incubator venture capital fund, business angel network
- advice on recruitment of staff and personnel management

² Business Incubation in the Edinburgh Metropolitan Region - a preliminary review, UK Business Incubation, 2006

³ Ibid, p 8.

- networking, e.g. with other entrepreneurs, customers.
- 1.10 Recent work on the SE High Growth Start Unit suggests that what might be added to this list, in relation to some of the most significant business prospects, is support to develop, value, protect and exploit Intellectual Property (IP).
- 1.11 The above list constitutes a description of ‘incubation’. However, incubation is a means to an end. For the purposes of this current work it is important to go back to first principles, establish what the end actually is and the market failure that needs to be addressed.

Strategic background

Scottish Government Economic Strategy

- 1.12 The strategy places considerable emphasis on business support, innovation and research and development. While it is at pains to point out that innovation need not be confined to the application of technology, it is clear that more is expected through knowledge transfer between the research community and industry, particularly in science and technology related sectors, helping to boost productivity and sustainable growth. The enterprise networks are expected to be focused on supporting investment and innovation by companies and sectors which have growth potential and are of national or regional significance.

Scottish Enterprise

- 1.13 In line with the Government Economic Strategy, SE has three clear areas of focus, reflected in the Business Plan 2008-11, namely:
- **Enterprise:** responsive and focused enterprise support, helping growth companies and industries to reach their potential
 - **Innovation:** stimulate innovation to support business growth including exploiting new products, processes and technologies
 - **Investment:** helping to create the right conditions for growth companies and industries to have access to property, markets and finance to help them grow.
- 1.14 Within this wider context, SE has increasingly put the emphasis on the need for Scotland to derive greater benefit from some of the specific advantages that it possesses. These include the research base within the country both in the private sector and in Higher Education Institutions (HEIs) as well as the entrepreneurial attitudes among some members of the business and academic communities.
- 1.15 Out of this background have come recent proposals to enhance the support from the SE network for ‘company building’ within Scotland. In the first instance, this relates to the need for SE to derive more tangible results from its significant investments in IP-related activity (for example the Intermediate Technology Institutes and the Proof of Concept programme) and that the priority now is not to generate more IP but to derive more economic advantage from the IP already generated (or the mechanisms put in place by SE to support the

generation of developable IP). But there is a sense that efforts need to go beyond this base and that the broader task is to provide dedicated and specialist support for:

New start or early stage businesses, in technology-orientated sectors with significant growth potential.

- 1.16 The principle lying behind this is that businesses (or potential businesses) with these characteristics can possess growth potential beyond that apparent in more conventional start up or early stage businesses. Supporting the development of such businesses is seen as being *one way* of enhancing the ways in which the research base can contribute more to Scottish economic development. This is a key element in the objectives of both SE and the Scottish Government. However, it is commonly perceived that additional market failure barriers have to be overcome by businesses of this type. What then might these market failures be?

Market failures

- 1.17 Market failure refers to a situation where the market has not and cannot of itself be expected to deliver an efficient outcome (HM Treasury Green Book). A consequence of market failure is the inability of a system of private markets to provide certain goods either at all or at the most desirable or optimal level.
- 1.18 The UK Department for Business Enterprise & Regulatory Reform (BERR) recently published a report⁴ which discusses market failure within a business development context. The report indicates that government intervention can help maximise economic efficiency, provided interventions are targeted and have been carefully appraised.
- 1.19 Para 1.9 of this current report listed a range of services viewed as desirable components of the incubation process. The activities share a common purpose, to reduce information asymmetries. Sub-optimal levels of information and knowledge reduce the tendency for business owners to explore, in full, market development opportunities.
- 1.20 Market imperfection relates to the notion that each individual firm believes that the cost of closing information asymmetries exceeds the perceived benefit. Incubation support co-ordinates the exchange of information and knowledge. It therefore reduces transaction (search) costs, thereby addressing the cause of information asymmetry, namely that to many businesses the marginal cost of securing better information or advice appears to be greater than the marginal benefit. Although incubation support will not solve the problem in its entirety it can make a contribution to a solution.
- 1.21 Incubation support can also transform information into knowledge, with advisors explaining the detail and relevance of information to each business in a way that encourages it to apply it to its growth strategies.

Information Asymmetry

- 1.22 Incubator support attempts to reduce information asymmetry by co-ordinating the exchange of information; reducing search costs, time and the resources used to obtain the information

⁴ The Economic Drivers of Government Funded Business Support (October 2008).

and knowledge required. It is recognised that ideally the private sector is well (even best) placed to provide many of the activities outlined in para 1.9. Public sector intervention is therefore best understood as co-ordination – that is, to maximise the demand for information to the supply of specialist advice.

1.23 The provision of effective incubator support helps resolve the consequences of information asymmetries, impacting positively on:

- securing finance – it is recognised that seed funding from the private sector is difficult to secure, even in the best of times, because of the high level of risk involved in this type of enterprise and the transaction cost associated with relatively small amounts of funding
- the time taken to get a technological idea to the market; not only the need to stick with a project over the long term but also the need for income to keep the project alive before any sales revenue is raised
- the low commercial and market awareness among many technology-orientated entrepreneurs, especially those who have come from an academic background; even those entrepreneurs who have come from a commercial background often feel the absence of the support structures present in a large organisation
- in ‘higher order’ businesses there can often be difficulties with securing and maintaining IP rights
- business growth – taking early stage businesses to a level of business performance where they can feed into the pipeline of businesses that can move on to Direct Relationship Management (DRM) or some other more intensive form of support.

Business collaboration⁵

1.24 Information asymmetries can also inhibit collaborations between businesses. Firms may not collaborate with potential competitors because they are uncertain about the costs and benefits of sharing information. Yet collaboration can produce positive spillover effects from innovation and assimilation of skills or tacit knowledge. A DTI study⁶ showed that firms report a number of benefits from belonging to collaborative networks, including increased competitiveness, quality of goods/ services and efficient working practices. However, only 56 per cent of businesses (and a third of SMEs) reported being active members of networks. Those which did not network perceived it to be too costly and time consuming and were unsure of the benefit from doing so. Incubation support should be able to help encourage higher levels of collaboration, leading to improved economic efficiency. This does not mean simply providing shared physical space for informal networks to emerge. While this might have advantages (this is discussed later in this report) consideration should also be given to how non-physical based networks can be encouraged to form and be sustained.

⁵ Extract from BERR report, pg 37. The Economic Drivers of Government-Funded Business Support.

⁶ DTI (2006) “The impact of networks on the learning and skills development of businesses”.

Business premises⁷

- 1.25 Ideally, *incubator* facilities should be providing cost-effective, supportive shared premises. The exact range of specialist facilities available will depend on the purpose of the specialist shared environment and local business needs. Managed workspaces focus mainly on providing property solutions to selected businesses that have the potential to grow. They may also offer space to develop for businesses that have started in knowledge-based or more specialist shared support environments (e.g. incubators). The BERR report emphasises that businesses that might benefit from shared business support environments should meet some of the following criteria:
- demonstrate the need for access to such facilities in order to start or grow their business
 - be in a priority sector or area as set out in a relevant regional or local economic strategy
 - be willing and able to collaborate with related businesses
 - show that they will be able to benefit from collaboration in a shared business support environment.
- 1.26 The hypothesis is that physical premises encourage collaboration between businesses operating in key regional sectors and markets, so businesses should be able to come together to exploit opportunities that stimulate and accelerate economic growth. Where these circumstances applied, businesses might be able to participate in collaborations to exploit opportunities which they would be unable to do without support.

Summary

- 1.27 A common view among consultees for this report was that because of the technology component of many of new start or early stage businesses, SE is best placed to co-ordinate incubator support mechanisms. SE is increasingly coming round to the view that among certain new start businesses with high growth potential, there is the significant potential to be realised if sustained and co-ordinated intensive support can be provided over the medium to long term.
- 1.28 It is believed that the economic development return from supporting such businesses more than justifies the special and intensive support provided. Scotland needs to have more start up businesses growing at significant levels, feeding the pipeline of DRM companies and going on to achieve subsequent substantial growth. Increasing the impact and speed to market of high growth start up businesses now features as an objective for SE in the 2008-11 Business Plan⁸. The Business Plan refers specifically to the High Growth Start Up Unit (HGSU). However, the evaluations reviewed and analysed later suggest that HGSU is not the only approach and that others might be looked at alongside it.
- 1.29 The conclusions that can be reached so far are that:

⁷ Extract from BERR report, pg 41. The Economic Drivers of Government-Funded Business Support.

⁸ Scottish Enterprise Operating Plan 2008-2011, p.11

- the ultimate aim of Scottish Government and SE policies is to promote the development of robust, high performance companies delivering employment and significant GVA
- an important means of achieving this aim is to foster the creation and development of technology-orientated new start and early stage businesses with high growth potential
- SE wishes to see a significant flow of these becoming DRM companies in order that their growth can be further enhanced
- the potential that these businesses possess, allied to the distinctive market failures that they have to overcome, provide the rationale for certain forms of specialist and distinctive support.

1.30 The key questions for this strategic review of incubation services therefore relate to how far the evaluations and consultations can tell us the extent to which:

- the services currently provided contribute directly and effectively to the above aims
- there are clear differences in effectiveness between the different approaches evaluated, including, but not confined to, differences between property and non-property interventions.

1.31 The remainder of this report addresses these questions. The next section describes current incubation provision in Scotland.

2: Incubators in Scotland

- 2.1 This section briefly sets out the geographic spread of *physical incubator facilities* in Scotland. The most recent comprehensive list of incubation facilities is in the SE report, “Review of Business Incubation in Scotland”⁹, 2001. We supplemented it with an internet search to identify facilities which still appeared to be running and those which have ceased operations in the intervening eight years. The review identified a total of 57 incubation facilities. Of these, it was not possible to confirm the status of 18. This may mean that they have ceased operations or simply have very little online presence which makes confirming their status as operating facilities difficult. This search was supplemented by recent research by David Cross of SE. Table 2-1 shows the list of 36 facilities currently operating.

Table 2-1 Physical incubator facilities in Scotland (updated from 2001)

Tayside Software Centre	Alba Centre	Dundee Incubator Co Ltd
Ayrshire Software Centre	St Andrews New Technology Centre	West of Scotland Science Park
Hannah Research Institute	Albany Business Centre	Robertson Institute
Tweed Horizons	Forsyth Business Centre	StarTech Partners Ltd
Crichton Innovation Centre	Biosecure Building, Pentlands Science Park	Crombie Lodge
Centre for Innovative Healthcare Technology	Rosyth Business Innovation Centre	Davidson House
Campsie Softnet Centre	Stirling University Innovation Park	Hillington Park Innovation Centre
Elvingston Science Centre	Forth Valley Software Centre – Scion House	Aberdeen Biotechnology Centre
Edinburgh Technology Transfer Centre	Stirling Enterprise House	Balgownie Technology Centre
Scottish Microelectronics Centre	Strathclyde University Incubator Ltd	Roslin Biocentre
Inverness Business Technology Centre	Dundee Medipark	Paisley Biotechnology Transfer Centre
Ettrick Mill	Atrium Business Centre	EPIS

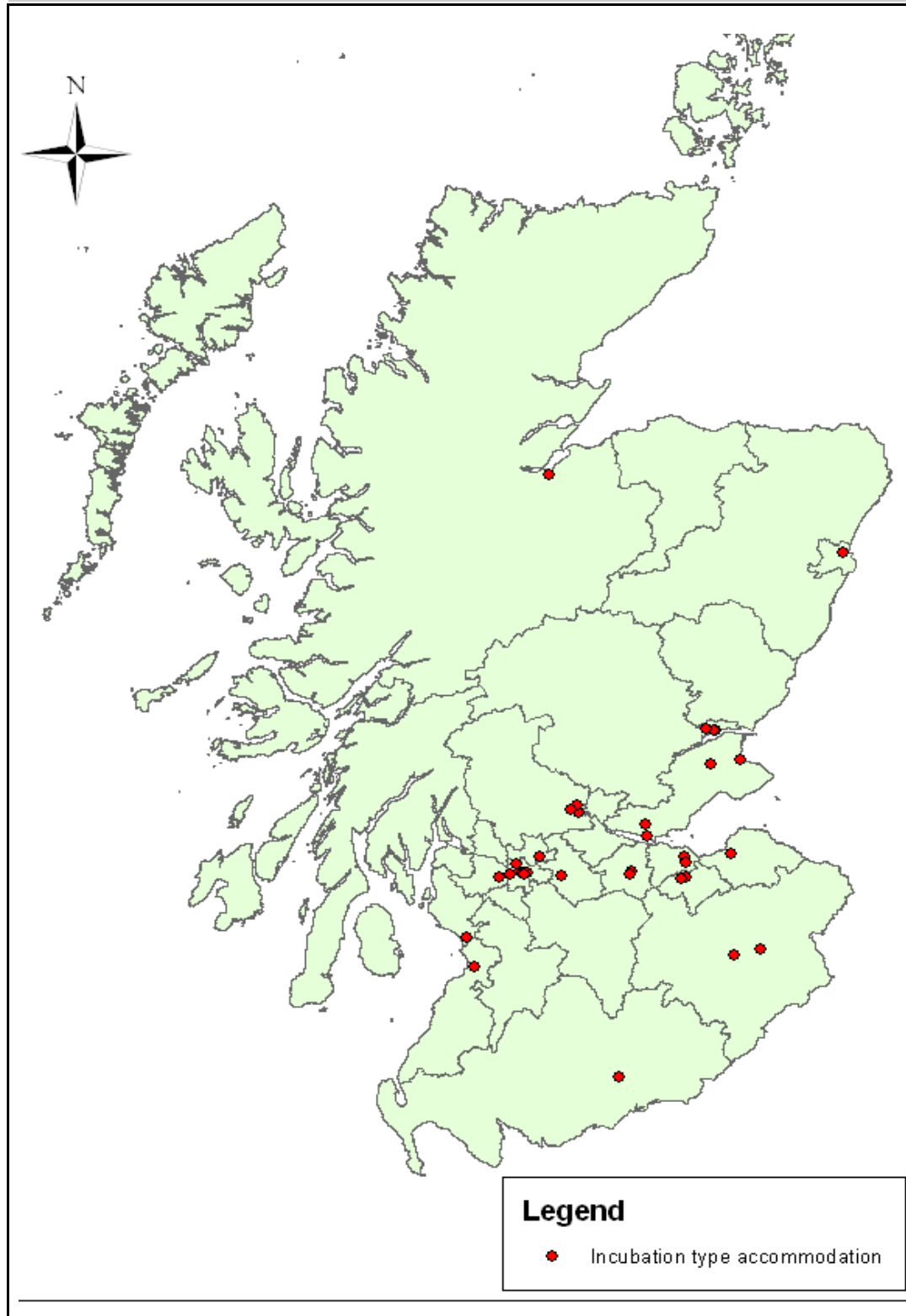
Source: Scottish Enterprise “Review of Business Incubation in Scotland” (2001)

- 2.2 The majority of the facilities are or were centred on Greater Glasgow, Edinburgh and the Lothians, Stirling, Fife and Dundee. Outwith these areas, there were incubators in Ayrshire, the Borders, Aberdeen and Inverness. Figure 2-1 shows the geographic spread of the incubator-type facilities (location details for ten of the facilities were unavailable). This survey did not cover non-physical incubation interventions. Also, many facilities will provide a low level of services, not comparable with the list of services set out in the previous section. Although this list of facilities is based on 2001 evidence, it nonetheless demonstrates the sheer scale of provision of physical business space in Scotland that has aspirations to support

⁹ Review of Business Incubation in Scotland, report carried out by SE, 2001.

technology-orientated businesses in some form or another. That said, although most of these facilities benefited from SE support at some time, we understand that SE now supports only a small minority of those in the Table.

Figure 2-1 Incubator-type facilities in Scotland, as at 2001



3: Incubation – empirical evidence

3.1 In this section, the evaluation evidence on incubator and incubation interventions in Scotland is reviewed, incorporating feedback from consultees to report on:

- main users of the interventions
- market failure and how far facilities/services address this
- business perspectives on effectiveness/value of support
- how far the interventions have met their objectives
- critical success factors and good practice
- how far the interventions relate to SE Priority Industries
- what is good practice
- outputs and cost-effectiveness.

3.2 The evaluation evidence covers only a proportion of the incubation type interventions in Scotland, though we suspect that many of the more important ones are covered. A degree of care should therefore be taken about generalising too much from this group to the position over Scotland as a whole.

Users – who benefits?

3.3 Brief descriptions relating to the services offered to users of the interventions evaluated are in Table 3-1. Throughout this report we have classified them as:

- physical interventions – there is an accommodation element
- non-physical interventions – services are provided but without any accommodation provision on dedicated premises.

Table 3-1 Incubator and Incubation interventions in Scotland – description of services to users

Intervention	Description of services
Physical interventions	
Alba Innovation Centre*	<ul style="list-style-type: none"> • Modern accommodation facilities • In-house advisory support: IP, legal, marketing, sales, funding • Access to network of successful entrepreneurs and specialist expert knowledge
Hillington Park Innovation Centre (HPIC)	<ul style="list-style-type: none"> • Provision of pool of expert resources drawn from Centre Director, SE Account Managers and specialist providers. • Support includes access to Advisory Board with high profile entrepreneurs, business development and specialists in finance, sales and marketing, IP

Intervention	Description of services
	<ul style="list-style-type: none"> Physical facilities incl. meeting rooms, cafe, boardroom
Kelvin Institute	<ul style="list-style-type: none"> Continuing professional development to improve the skills base Commercialisation of academic IP generated through the research projects, provision of consultancy services and technology Business forecasts and information dissemination
Lanarkshire Business Incubation Centre (LBIC)	<ul style="list-style-type: none"> Office accommodation, admin resource and access to meeting rooms Tailored mentoring support, in particular around developing a business plan and links to finance & legal expertise
Stirling University Innovation Park (SUIP)	<ul style="list-style-type: none"> Property management and development, administration and service support for tenants, provision of networking/exchange activity for tenants Business support including: technical information, design assistance, finance, innovation management support, technology development
Non-physical interventions	
Commercial Breakthrough Service (CBS)	<ul style="list-style-type: none"> Dedicated support from CBS project managers Analysis of commercial issues, action planning, specialist support, provision of additional Scottish Enterprise services where complementary to CBS action plan Helps high tech companies to market and sell their 'whole product' offerings. Aims to improve the management of commercial risk, success rate of early stage technology companies and provide a new source of companies for DRM. A remedial action service for companies in the growth pipeline or business base who currently do not meet DRM growth criteria.
Edinburgh Pre-Incubation Scheme (EPIS)	<ul style="list-style-type: none"> Hosting of an entrepreneur for 12 months in relevant Edinburgh University department Academic and business mentors assigned to develop technical and business model Access to a repayable loan and option of locating the resultant start-up business in the University's incubation facilities
Enterprise Fellowship Programme	<ul style="list-style-type: none"> Programme provides support to researchers as they develop their science/ technology business idea Offer of 12 months salary; business training; mentoring; and access to legal, financial and business networks
High Growth Start-Up <u>Service</u> (Lanarkshire)	<ul style="list-style-type: none"> Support with funding, strategy development, finance planning, HR support, IP, marketing, leadership development
High Growth Start-Up <u>Unit</u> (Scotland) (HGSU)	<ul style="list-style-type: none"> More intensive support with funding, strategy development, finance planning, HR support, IP, marketing, leadership development
Wireless Innovation Centre (WIC)	<ul style="list-style-type: none"> Access to a wireless infrastructure, wireless technology support, business development support, key market partnerships

Source: evaluation reports; *HGSU research

3.4 We have classified EPIS under the 'non-physical' category even though accommodation is provided for 12 months. This is because the accommodation is clearly temporary and is provided within an existing University Department. It is not like the other physical

interventions evaluated, such as Hillington or SUIP, which involve dedicated physical premises and capital cost.

- 3.5 The majority of users of the interventions evaluated are start-ups and newly established businesses (Table 3 -2) although some interventions provide support in the pre start-up phase. The users tend to have an innovation and/or technology focus, and if they are in the pre start-up phase many come from a higher education or research background and have an idea that can be potentially be commercialised. Facility users come from a wide range of sectors: digital markets and enabling technologies (DMET), ICT, life sciences, energy, electronics, business services and others. The sectoral breakdown of users is an important aspect of the review and is covered in more detail later on. The evaluation evidence suggests that the main sources of demand for incubation facilities are individual entrepreneurs, followed by universities.

Table 3 -2 Users of incubator and incubation interventions in Scotland

Intervention	Users	Development stage	Sector
Physical interventions			
Alba Innovation Centre*	Innovative companies	Start-ups, some established businesses	Digital markets and enabling technologies; ICT; energy
Hillington Park Innovation Centre (HPIC)	Innovative companies not necessarily technology related	Start-ups, established business	Digital markets and enabling technologies
Kelvin Institute	Academics who have research that can potentially be commercialised		Digital markets and enabling technologies
Lanarkshire Business Incubation Centre (LBIC)	High-growth companies who have some form of HGSI	Pre start-ups; Start-ups	Not covered in the evaluation
Stirling University Innovation Park (SUIP)	Technology companies with R&D activity	Start-ups, established business	Digital markets and enabling technologies; chemical sciences
Non-physical interventions			
Commercial Breakthrough Service (CBS)	Start-ups trading for more than one year that have developed a new product/service but do not have skills for route to market	Start-ups, some established businesses	Digital markets and enabling technologies; life sciences
Edinburgh Pre-Incubation Scheme (EPIS)	Entrepreneurs wanting to create a technology related high-growth start-up company	Pre start-ups	Life science; energy; Digital markets and enabling technologies; chemical science
Wireless Innovation Centre (WIC)	Primarily ICT companies with their product/service developed in Scotland	Start-ups, established business	ICT
High Growth Start-Up <u>Service</u>	Any business that is believed to meet SE previous high-growth criteria	Start-ups, established business	ICT; manufacturing; electronics; business services; engineering
High Growth Start-Up <u>Unit</u> (HGSU)	Start ups characterised by innovation and potentially disruptive technology	Pre start-ups; start-ups	ICT/software, telecoms, engineering, energy

Enterprise Fellowship Programme	Academic researchers who wish to develop a spin-out company in science or technology	Trading; not yet trading; academic researchers
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Source: Evaluation reports; *SQW research

Evidence of market failure and how far facilities/services address it

3.6 In section one, the main areas of potential market failure were listed. The evaluations provided more evidence. Based on the evaluations and our consultations with stakeholders, the main factors contributing towards market failure appear to relate to:

- perceptions of risk associated with:
 - new technologies and new businesses
 - R&D and innovation
- insufficient business knowledge and acumen, rather than technological expertise, within potential high growth start-up businesses
- inadequate routes for commercialisation of higher education research
- limited linkages and weak knowledge transfer mechanisms between the research and business base.

3.7 These factors result in market failure, in the form of insufficient private sector provision of:

- premises
- finance
- market information
- general business development support.

3.8 According to the consultees, the facilities and services provided by SE (and others) have to some degree addressed these market failures, though many remain, including the effectiveness of the processes which aim to derive economic impact from SE's support for the development of intellectual property. There was recognition that market failure can perhaps never be fully addressed because technology is ever evolving, continuously refreshing the risk associated with investment in R&D, innovation and new businesses. In this area of the market, there will probably always be a need for some form of intervention if economic development objectives are to be realised.

3.9 Some facilities were highlighted as providing services which address the lack of support structures for business development (e.g. Innovation Advisors at HPIC, CBS, WIC, LBIC) while others clearly *also* aim to address the lack of linkages/ knowledge transfer mechanisms between the research and business base (e.g. EPIS, Enterprise Fellowships and HGSU).

3.10 There is, however, limited evidence of **market adjustment** within the private sector in filling the gaps in provision of services for potential high growth businesses that are currently filled

by SE. For example, the HGSU evaluation found very little evidence of market adjustment and therefore continuing validation of the public sector intervention. We comment later, however (para 3.42), on an intervention in the North East of Scotland which shows the private sector possibly beginning to take an interest in this area.

- 3.11 In the view of more than one consultee, SE has in the past tended to design solutions around the ‘property model’, as is evident from the list of facilities presented in the previous section. The danger with this is that there can be an imperative to maintain rental income and as a result, the quality of tenancy can ‘degrade’ to include businesses which derive no particular advantage from being in specialised accommodation. This model may have driven the provision of public sector intervention in Scotland at the expense of more business development orientated solutions. The solution increasingly has been to look to interventions that are not driven by rent because they are not based on physical accommodation. We should point out, however, that the evidence suggests that HPIC has managed to maintain its integrity in this respect. The evaluation suggests that it continues to be dominated by businesses with reasonably high levels of R&D expenditure, for example.

Business views on the value of support – qualitative feedback

- 3.12 The degree to which any intervention is effective and valued can most effectively be gauged by listening to the views of the beneficiaries. Set out below is a summary of strengths, weaknesses and suggestions for improvements from businesses based on the available evaluation evidence.
- 3.13 The main **strengths** of each intervention evaluated are set out in Table 3-3. Evaluations which contained no qualitative feedback are omitted.

Table 3-3 Qualitative feedback from businesses - strengths

Physical interventions	Strengths
Hillington Park Innovation Centre	<ul style="list-style-type: none"> • Location (e.g. close to airport) and professional image of property • Advice from staff ("we wouldn't be where we are now", "quite possibly we would not be trading or would be in a much worse position without HPIC support") • Commercialisation advice • Access to networks both inside and outside the centre
Lanarkshire Business Incubation Centre	<ul style="list-style-type: none"> • Commercial perspective and experience of advisers • Prestigious address, quality of accommodation & admin support • Intensity of advisers' input
Stirling University Innovation Park	<ul style="list-style-type: none"> • Transport/communications, prestige/image of the site, access to communal space/meeting rooms, cost of premises • Infrastructure - good IT connections and support • Independence - for companies with close University links, provides less bureaucracy than working inside the University but still allows for nearby University support

Non-physical interventions	
Commercial Breakthrough Service	<ul style="list-style-type: none"> • Straightforward market orientated approach - getting the product to the market • Challenging environment • Expertise of specialists and tailored approach to support
Edinburgh Pre-Incubation Scheme	<ul style="list-style-type: none"> • Programme manager - good leadership, motivation, networking and pragmatic advice • Good links with academic host • Wide network of business experts and professional advisors
High Growth Start-Up Service	<ul style="list-style-type: none"> • Commercial focus • Financial advice
High Growth Start Up Unit	<ul style="list-style-type: none"> • 'Entrepreneurial' approach • Addresses main market failures • No commercial axe to grind • Excellent business support model • Support in raising finance • Grafting on private sector support
Wireless Innovation Centre	<ul style="list-style-type: none"> • Market and technology research services • IP and product commercialisation support • Help in assisting firms access markets and providing improved knowledge of the market and likely competitors

Source: Evaluation reports

3.14 It is important not to generalise from the experience of individual interventions, but there are a few common threads running through the responses, namely:

- in relation to physical aspects:
 - the importance of the location and the prestige of the address
 - opportunity to network
 - intensity of adviser inputs.
- in relation to non-physical aspects:
 - effective central management of the intervention
 - the quality of advisers
 - bringing in expertise from the private sector
 - support in raising finance
 - support in marketing and getting products to the market.

3.15 The main **weaknesses** of the interventions apparent from the evaluations are in Table 3-4. Again, evaluations which contained no qualitative feedback have been omitted.

Table 3-4 Qualitative feedback from businesses - weaknesses	
Physical interventions	Weaknesses
Hillington Park Innovation Centre	<ul style="list-style-type: none"> IP advice either not used or not adequate Absence of support from other firms (including moral support)
Lanarkshire Business Incubation Centre	<ul style="list-style-type: none"> Mentoring support poorly structured - some firms were denied access to support services which were apparently then given to other firms Hard to make contact with advisors
Stirling University Innovation Park	<ul style="list-style-type: none"> Limited awareness of business support services available Low level of contact with the University or with other tenant companies Limited contact with SUIP team, and feeling of isolation, particularly between the different properties
Non -physical interventions	Weaknesses
Commercial Breakthrough Service	<ul style="list-style-type: none"> Clarify support available from specialists Need clearer view of what SE as a whole can offer these companies and how to engage with wider SE support
High Growth Start-Up <u>Service</u>	<ul style="list-style-type: none"> Access to information on funding is ad-hoc Business advisors sometimes lacked real world experience A lack of networking opportunities between companies supported
High Growth Start Up <u>Unit</u>	<ul style="list-style-type: none"> Support often ended too quickly Need to focus effort more on HEI spinouts where deadweight is lower Develop offering to provide support over the longer term

Source: evaluation reports

3.16 It should be recognised that some of the evaluations took place some time ago and weaknesses apparent, e.g. in relation to IP at Hillington, may well have been addressed in the interim. However, two points do emerge, as follows:

- the quality of advisers is paramount; again, those with private sector experience are valued most and the absence of people with such experience is a weakness
- the absence of networking and contact between beneficiaries; this appears to be true of both physical and non-physical interventions, but is especially telling in relation to the physical forms of support since networking is expected to be one of the major advantages of the physical presence and which justifies the capital cost.

3.17 It is understandable that for many entrepreneurs, especially in high risk technology-orientated businesses, starting up a new business is a highly stressful and lonely experience. The support of others, whether business advisers, mentors, business supporters or other businesses can be crucial.

3.18 The main **suggestions** made for improvement are in Table 3-5.

Table 3-5 Qualitative feedback from businesses – suggestions for improvement	
Physical interventions	Suggestions for improvement
Hillington Park Innovation Centre	<ul style="list-style-type: none"> SE advice needs to be strengthened ('It's superficial, then the clock starts. Can we have it the same way we get finance and sales support?') More support in legal aspects Better collaboration between HPIC advisory team and the companies Bring in entrepreneurs who had done it before
Lanarkshire Business Incubation Centre	<ul style="list-style-type: none"> Develop core elements of structured support around SE, tax, insurance requirements, company registration Ensure firms know what is included and what services are charged as additional
Stirling University Innovation Park	<ul style="list-style-type: none"> Upgrading of physical business units, fostering a sense of community Tenants forum to consider issues of communal interest Provide a wider range of networking opportunities with other tenants, particularly improving awareness of other tenants
Non-physical interventions	
Commercial Breakthrough Service	<ul style="list-style-type: none"> Ensure clarity on scope of support from CBS and from other SE products/services Ensure support is as flexible as possible
Edinburgh Pre-Incubation Scheme	<ul style="list-style-type: none"> Marketing of the service a single business mentor doesn't have range of skills needed by entrepreneurs ensure strong fit between academic mentor's research interests and the entrepreneur's opportunity
High Growth Start-Up Service	<ul style="list-style-type: none"> Follow-up support More promotion/awareness of the facilities Forum for business advisors/banks/decision makers Spend more time with the company Advisors must have real experience
High Growth Start Up Unit	<ul style="list-style-type: none"> Extend time period of support More effort to work with HEIs Better promotion of the Unit
Wireless Innovation Centre	<ul style="list-style-type: none"> Few suggested improvements, firms may have been dissatisfied with the content of information provided by the team but were not dissatisfied with process/ability of the team to provide it.

Source: evaluation reports

3.19 The suggestions for improvement reflect the weaknesses and again may well have already been addressed. However, some common strands again appear, relating to:

- the need for more networking and supporting client businesses to benefit from a wider range of contacts
- advisers with appropriate experience
- better marketing of the facilities and programmes.

How far interventions have met objectives

- 3.20 Across all the interventions under review, and others which were not part of this review but were highlighted by stakeholder consultees, more or less the same objectives were mentioned. These can be articulated into one **common overall objective**, which reflects the definition set out in Section One:

To support innovative and/or technology companies, help them to grow and improve the flow of such businesses into the pipeline of companies that can be eligible for Direct Relationship Management.

- 3.21 There was consensus among the *consultees* that most of the facilities were contributing to the achievement of this objective. Some consultees, however, singled out certain facilities that were not meeting their objective (including a few which were not in the list of evaluated interventions). These were SUIP, St. Andrews New Technology Centre, Ettrick Riverside and Tweed Horizons. The view was that these were managed workspace initiatives rather than providers of incubation support (as it has been defined in this report) susceptible to the problem of securing tenants of wider nature and characteristics in order to maintain rental income.
- 3.22 The evaluation evidence provided some indications of how far the objectives of each individual intervention had been met. This is presented in Table 3-6. Nearly all the interventions have made good progress towards meeting their own individual objectives. The exceptions, where there is a degree of doubt, are SUIP and Enterprise Fellowships (in the latter case relating to the uncertain prospects for growth of the client businesses).

Table 3-6 Overview of how far interventions might be meeting their objectives

Meeting objectives?	Comment
Physical interventions	
Hillington Park Innovation Centre	<ul style="list-style-type: none"> “The project has made good progress against each of the objectives that were set for it by the Enterprise network”
Kelvin Institute	<ul style="list-style-type: none"> “Institute has generated sufficient economic benefit to the Scottish economy in value for money terms” “Types of activities currently piloted by the Institute provide a platform from which to consider taking forward new initiatives in the field of commercialisation”
Lanarkshire Business Incubation Centre	<ul style="list-style-type: none"> “This business incubator model is very different to that available elsewhere in Scotland and through the support it has offered over the past two years, a number of firms with the potential for particularly high-growth have been created”
Stirling University Innovation Park	<ul style="list-style-type: none"> “Performing well below its potential...it is still producing economic impacts and other benefits to tenant businesses but its current performance is well below that reported in 1995”

Non-physical interventions	
Commercial Breakthrough Service	<ul style="list-style-type: none"> • “The four elements of the CBS have been well received by companies in the pilot, and are demonstrably achieving the stated objectives of the programme”. • CBS is making progress towards its net additional sales target, with a number of the assisted firms being assessed for DRM status.
Edinburgh Pre-Incubation Scheme	<ul style="list-style-type: none"> • “EPIS and its team are making a positive contribution to the health of local business start-ups, are playing an important role in improving academic-business cultural relationships, and are building a basis for high-value business”.
High Growth Start-Up Service	<ul style="list-style-type: none"> • “Delivering good results with reasonable cost-effectiveness and there is strong evidence to suggest that it is high growth companies that are being created and supported”.
High Growth Start Up Unit	<ul style="list-style-type: none"> • “Has addressed market failure; is about to achieve its main targets; has contributed to the development of high growth start up businesses in Scotland; takes the relationship between development agencies and businesses several steps forward”.
Enterprise Fellowship Programme	<ul style="list-style-type: none"> • “The programme is making a positive contribution to stimulating the development of new businesses with evidence of employment and turnover growth among businesses involved • Longer term, it is not clear how many firms will go on to achieve sustained growth”.
Wireless Innovation Centre	<ul style="list-style-type: none"> • “The Wireless Project has made good progress against its targets”.

Source: evaluation reports and consultants’ views.

Critical success factors and good practice

3.23 Some of the critical success factors from the evaluations were as follows:

Physical elements

- flexibility of modern accommodation and lease terms
- strict entry criteria for tenants and the mix of companies within the incubator

Non-physical elements

- effective management at the centre
- intensity of the support provided
- quality of the entrepreneurs supported
- very close links with the investment community – private and public
- appropriate and experienced business mentors
- an entrepreneurial approach among the business advisers
- strong advisory business development specialist support from the private sector
- systemic regular review for supported businesses

- where appropriate, a seamless progression from incubator/ incubation support into SE DRM.

3.24 Consultees pointed towards some examples of good practice as follows:

- the variety of support
- HIPC is an example of good practice – it won UK Incubator of the Year award in 2005/06
- The High Growth Start Up Unit is considered to be an excellent model; however it may only be appropriate for a relatively small group of businesses
- the possibility of high quality mentors and relationships (e.g. at Hillington and HGSU - Tom Hunter, Ian Ritchie; Hillington relationships with Nokia and potentially Google)
- EPIS model of allowing the business to hold IP rights works well. Also, entrepreneurs can test their ideas at pre start-up phase using the facilities and in conjunction with the expertise from *any* department at Edinburgh University
- North East (England) Business Innovation Centre¹⁰ - clearly this is outside Scotland and not therefore the subject of this review, but it was identified by consultees as a good example of a business incubator. This is due to the range of services offered from business start-up to product prototyping and manufacturing. Strong links are maintained once tenants graduate to another building on-site.

3.25 We reviewed some of the literature on best practice relating to incubator/incubation type facilities. Some helpful findings are from the report “Best Practice on Business Incubator Management”¹¹. The report found that the incubation programmes which add the greatest value in the most effective way are those that have a ‘pro-active business development stance’ based on the needs of their clients. It identifies certain characteristics; in addition to some of the points already made, these are as follows:

- selective entry criteria for the programme, with focus on firms with greatest potential for high-growth
- decision-making on a comprehensive business plan with intensive review as part of the support package
- active participation in deal-making with clients
- clear quantifiable milestones for clients.

¹⁰ www.ne-bic.co.uk

¹¹ AUSTEP Strategic Partnering, “Best Practice in Business Incubator Management”

How far interventions relate to SE Priority Industries

- 3.26 The degree to which the interventions are orientated towards SE Priority Industries¹² varies. In making an assessment of this, it is important to recognise the difference between national and regional Priority Industries. This has been done in Table 3-7 and Table 3-8. The Table headings show the national and regional Priority Industries. The shaded areas in the Tables show where businesses in the Priority Industries benefit from the evaluated interventions.
- 3.27 The national picture suggests that Digital Media and Emerging Technologies (DMET) is the dominant Priority Industry that benefits, while at the regional level there is some representation of chemicals-orientated businesses. Some initiatives, such as Enterprise Fellowships, appear to have no priority industry orientation. For comparative purposes, we also included the industries mentioned in the “Benchmarking of Business Incubators” Report. This shows that the Scottish focus on DMET reflects experience in the rest of Europe.

Table 3-7 Alignment of interventions with **national** Priority Industries

	Energy	Life Sciences	DMET	Financial Services	Food & Drink	Tourism
Physical interventions						
Hillington Park Innovation Centre			•			
Kelvin Institute			•			
Lanarkshire Business Incubation Centre			•			
Stirling University Innovation Park			•			
Non-physical interventions						
Commercial Breakthrough Service			•			
Edinburgh Pre-Incubation Scheme	•	•	•			
Enterprise Fellowship Programme						
High Growth Start-Up <u>Service</u>			•			
High Growth Start Up <u>Unit</u>	•		•			
Wireless Innovation Centre			•			
Benchmarking of Business Incubators		•	•			

Source: evaluation reports

¹² National Priority Industries: energy, life sciences, DMET, financial services, food & drink, tourism.
Regional Priority Industries: textiles, aerospace, marine and defence, chemicals, construction, forest industries, manufacturing

Table 3-8 Alignment of interventions with regional Priority Industries						
	Textiles	Aerospace, defence and marine	Chemicals	Construction	Forest Industries	Manu - facturing
Physical interventions						
Hillington Park Innovation Centre						
Kelvin Institute						
Lanarkshire Business Incubation Centre			•			
Stirling University Innovation Park			•			
Non-physical interventions						
Commercial Breakthrough Service						
Edinburgh Pre-Incubation Scheme			•			
Enterprise Fellowship Programme						
High Growth Start-Up Service				•		•
High Growth Start-Up Unit						•
Wireless Innovation Centre						
Benchmarking of Business Incubators			•			•

Source: evaluation reports

3.28 Both at national and regional level, the interventions covered by the evaluations do not therefore appear to align particularly well with Priority Industries. There is a very heavy orientation towards DMET businesses. This interpretation can be mitigated in several ways:

- the evaluations only cover a part of what is going on; section two provided an indication of the full scale of activity
- some Priority Industries, such as tourism or financial services, probably do not lend themselves to incubator type solutions
- there may be a lack of demand from other Priority Industries such as energy and life sciences which do lend themselves to incubation support for these type of services
- high growth start ups in these industries may find support through other routes. For example:
 - the Intermediate Technology Institutes (now part of SE) may be well placed to fill some of the gaps in relation to energy and lifesciences

- we understand that dedicated support for life sciences high growth start ups is provided through the SE Priority Industry team.

- 3.29 All that said, the DMET orientation clearly dominates the demand for the evaluated provision and is likely to be present across all of the incubation interventions. It may well be that this is a reflection of market demand or it is possible that this reflects the comfort zone of the providers. This might be an area for SE to investigate further. It may be that further specialised support for life science high growth new starts or those, for example in Creative Media (mentioned by one consultee) would be worth investigating.
- 3.30 It is worth noting that the majority of consultees considered that interventions were in line with the Priority Industries and their “Industry Demand Statements”, particularly in:
- development and encouragement of innovation
 - enhancing the skills base – development of entrepreneurs/ management.

Outputs and cost effectiveness

- 3.31 The evaluations have been conducted differently, with varying degrees of quantification, and this makes comparisons between them difficult. The results depend on the nature of the survey method, when the evaluations took place, how costs were calculated and how far future expected outputs (as well as outputs so far) were taken into account. Such information as is available on costs and net outputs is set out in Table 3-9. The Table has been completed insofar as the data provided in the evaluations allows.
- 3.32 There is a limit as to how much can be drawn from the quantified side of these evaluations. Some have very little quantification, or the basis is not clear. In some cases, we have imputed values for cost-effectiveness (e.g. Enterprise Fellowships, Wireless Innovation Centre) because the reports did not themselves follow through the results. In other cases, there are gaps because the necessary information was not available from the evaluation. However, it is possible to draw some tentative conclusions.
- 3.33 Two evaluations that appear to have been carried out in more or less the same way and try to draw some conclusions relating to cost-effectiveness are the evaluations of:
- Hillington Park Innovation Centre (HPIC – implementation started 2000, evaluation, 2005)
 - The High Growth Start Up Unit (HGSU – implementation started 2002, evaluation 2008).
- 3.34 One is a physical facility and the other a ‘virtual’ facility. Both evaluations calculated net outputs in relation to turnover based on interviews with beneficiary businesses. Account was taken of deadweight and displacement in calculating net turnover outputs. The results suggest that the ratio of net turnover to public sector cost was higher for HGSU than for HPIC (Table 3-10).
- 3.35 We should be careful about drawing too much from two evaluations. HGSU operates in a highly selective market. Only businesses with the potential for exceptional growth prospects

are supported. HPIC is also selective in who is allowed to benefit from its services but possibly not to the same degree of rigour as HGSU. Also, an important component of the HPIC costs is the original capital cost. Over time, the cost per unit of outputs associated with this 'sunk' cost will fall. However, the comparison does suggest that very good cost-effectiveness ratios are possible *without* the presence of dedicated physical facilities. Incubation premises are not a necessary condition for effective 'incubation'.

- 3.36 That said, taking the two evaluations together, it could be concluded that overall cost-effectiveness ratios for incubation are reasonable. The net outputs are good, but the costs are high, especially in comparison, for example with what would be provided by the Business Gateway. Given the nature of the businesses supported and the net outputs generated it would appear to be worthwhile.

Deadweight and displacement

- 3.37 Deadweight and displacement are factors that are best established through survey and contact with beneficiary businesses. Both are important in establishing the net impact of interventions. Many of the evaluations calculated deadweight and displacement.
- 3.38 **Deadweight** is important because it provides an indication of the influence of an intervention and the extent to which it addresses market failure. The deadweight figures which are available from the evaluations vary but in the main look high. However, they are actually fairly typical of SE interventions in innovation-related company development activity¹³. HGSU appears, however, to have lower than average deadweight probably reflecting the very intensive hands on nature of the support and its elongated time span. Overall, however, it appears that in relation to deadweight, incubation is on a par with other forms of SE intervention¹⁴.
- 3.39 **Displacement**, on the other hand, is low, in some cases, very low. This reflects the nature of the businesses supported and the likelihood that companies supported through incubation are principally active in markets outside Scotland. This is a very positive finding. The exception appears to be the High Growth Start Up Service which has much higher displacement than the others. It is possible that this reflects the local focus of the operation, particularly given that assisted companies tend to come from construction.
- 3.40 Taking deadweight and displacement together, the gross to net ratios of incubation overall are good. However, limited recognition is given in the evaluations to **leakage**, that is, the extent to which the benefits of SE support to high growth companies might eventually be felt outside Scotland. This was a major issue in the HGSU evaluation. The takeover of a very successful graduate of the HGSU process by an overseas company suggests that leakage of benefits is an important factor which must be considered.
- 3.41 For the future, SE will need to keep careful watch on the extent to which the benefits of SE incubation support leak out of the Scottish economy. The Companies of Scale programme was established so as to consolidate the position in Scotland of our main growing companies.

¹³ See Malcolm Watson and ABEC, Review of SE Growing Business Evaluations, undertaken on behalf of SE, 2007.

¹⁴ The CSES report, Benchmarking of Business Incubators, CSES, 2002, Table 58 and text (report has no page numbers), is an outlier and presents a very limited analysis of deadweight; it is not therefore reliable in this respect

There will always be a danger that the best locally-nurtured high growth prospects will eventually be subject to takeover and flight of IP and higher order operations out of the country. While ultimately this will affect cost-effectiveness too, it is rather a policy matter for SE to generate support to keep in Scotland as much high growth activity as possible.

Table 3-9 Outputs, costs and cost-effectiveness conclusions for the evaluations reviewed

Intervention	Established	Gross outputs - jobs	Deadweight	Displacement (Scotland)	Leakage	Multipliers	Total net outputs - jobs	Costs	Cost per net job
Physical interventions									
Hillington Park Innovation Centre	2000	1,192 jobs	63%	20%			441	£3,200,000	£7,256
Kelvin Institute	2003	120 (job years)	50%	0	50%		200 (job years)	£5,800,000	
LBIC	1998		60%	19%		SE values	14	£425,000	£30,000
Stirling University innovation Park	1986	300 (sample)	40%-95%	0%		National Type II	195 (popln.)	No details	
Non-physical interventions									
Commercial Breakthrough Service	2008						13	£250,000	
Enterprise Fellowships	1997						227	£4,000,000	£17,600
EPIS	2003						208	£1,400,000	£6,725
High growth Start Up <u>Service</u>	2000	1,073	67%	42%		SE values	269	£1,398,000	£5,200
High Growth Start Up <u>Unit</u>	2002	490	37%	4%	22% (2010)	From survey	480	£8,300,000	£17,291
Wireless Innovation Centre - 2005 evaluation		73	70%	3%			18	£472,000	£26,000
Benchmarking of Business Incubators	2002		17%	27%					£5,500

Source: SQW from SE-provided evaluations

Table 3-10 Public sector costs and consequent turnover benefits for HGSU and HPIC

	Capital	Revenue	Total costs	Net turnover generated	Ratio net turnover / costs
HPIC*	£1,701,000	£1,503,000	£3,204,000	£8,800,000	2.75 : 1
HGSU	£0	£2,500,000	£2,500,000	£28,300,000	11.32 : 1

Source: SQW from the HPIC and HGSU evaluations

* HPIC figures include an ERDF component

Market adjustment?

- 3.42 We noted earlier that there appears to be limited market adjustment within the private sector in the sense that incubation services provided by the public sector might be beginning to be provided by the private sector for commercial reasons. However, we have been pointed towards one mainly private sector operation in this field of activity – Enterprise Partnership Scotland (EPS). This was set-up in 2000 with the objective to help grow companies in Aberdeen City and Aberdeenshire. EPS is sponsored by the private and public sectors - £6,000 from each investor – with just under £50,000 as the total investment. The private sponsors include PricewaterhouseCoopers and Johnston Carmichael Accountants. Public sector sponsors are Aberdeen City Council, Aberdeenshire Council and Scottish Enterprise. The bulk of the sponsorship money is from the private sector.
- 3.43 The main eligibility criterion for entry into EPS is that companies show “high growth potential”, namely, expectation of an increase in turnover of £750,000 by year three. Applicants are recruited by advertisement but have to go through a selection process which includes scrutiny of their business plan and accounts as well as a presentation to a judging panel. There are 50 applicants per year; about 13 are accepted. The support provided is tailored to individual business needs and includes:
- strategic planning
 - marketing
 - financial guidance / tax and accountancy
 - an alumni club for networking – this meets once very quarter.
- 3.44 The participant businesses do not contribute financially to any of this. Support is provided once a month through a “set-piece course” on a particular topic, held at the offices of EPS sponsors. Sponsors provide time to businesses in addition to this and are brought in if the participants wish to spend more time on particular topic.
- 3.45 This description of EPS is based on an interview with the project director. EPS has not been subject to external evaluation (unlike the other facilities covered in this review) so any conclusions should be tentative. However, several points have been made by the Director that are broadly relevant to this review:
- EPS has had some exceptional successes among its client companies
 - it is a low cost model

- successes are at least partly down to the provision of support by the private sector
- the private sector is involved because of the prospect of securing good clients for the future
- premises are not an important feature of the service.

3.46 This provides some tentative evidence for the existence of market adjustment. Final conclusions would have to await a more rigorous analysis than we have been able to conduct, however.

4: Monitoring success

Existing data

4.1 We received monitoring data for three incubation facilities¹⁵, two of which were in the form of monthly reports and the third in the form of undated data. The data collected generally covered:

- number of clients
- number of suites occupied (only relevant to physical facilities)
- number of new clients
- number of leavers
- funding sources
- total turnover of clients
- total number of employees of clients
- deals made
- patents registered.

4.2 The main strength of these data is that they are collected regularly, allowing for the identification of trends and close monitoring of the users. For all three of the facilities, the key information items collected included the number of current tenant businesses on site and the turnover and employment of these companies for the latest period. These are clearly important when pointing towards the likely economic impact of the interventions.

4.3 However, some important areas of information collection do not appear to be covered at the moment:

- data collected does not clearly relate to the objectives of the intervention
- data are only collected from current tenants or users. It would be important to be able to track the performance of graduate firms in order to determine the total impact of the intervention
- there is limited monitoring of which services are being used or which clients find most useful
- data do not cover *net* economic impact, with no indications of deadweight, displacement, leakage and so on.

¹⁵ Edinburgh Pre-Incubator Scheme, Hillington Park Innovation Centre and Alba Innovation Centre

What data should be collected?

- 4.4 The reason for collecting monitoring data is two-fold; to determine:
- how well the intervention is performing both generally (e.g. customer satisfaction) and in relation to objectives
 - the economic impact that the intervention is delivering.
- 4.5 There are a number of important indicators which could help to monitor the performance of incubation interventions. One helpful source is the CSES report *Benchmarking of Business Incubators*¹⁶. This suggests seven headline indicators which can be broken down into more detailed questions that need to be answered in order to determine the performance of the intervention. This is heavily orientated towards physical interventions, so is only of partial value in the context of the present work, but forms a useful starting point. It covers:
- incubation occupancy rates and turnover
 - admission and exit criteria
 - number and type of incubator personnel
 - business support services
 - performance of tenants, in terms of jobs and wealth creation
 - number of graduates retained in local area
 - value added of incubation operations.
- 4.6 The CSES system forms the basis of what is set out below (Table 4-1). It is mainly physical in orientation but this is useful to SE since many of the current sets of interventions are physical in nature. However, data relating to the non-physical aspects and interventions are clearly also required, so we have augmented the CSES list with other suggested additional data items.
- 4.7 There are a few principles which should lie behind any monitoring system:
- data to be collected should be specified clearly and should relate to the objectives of the intervention
 - the requirements should be reasonable and not impose an undue burden on project managers or beneficiaries
 - there should be clear responsibilities allocated to individuals and organisations relating to:
 - who collects information
 - how often it is collected

¹⁶ Ibid. Section 7.

- who analyses it and reports, to whom and how often
 - the means of collection of information should be specified clearly.
- 4.8 Specifically relating to incubation, there should also be an aim to collect information from *graduate businesses* of the service as well as current users, since graduates may be a prime source of attributable economic impact¹⁷.
- 4.9 Table 4-1 gives a breakdown of the monitoring data that should ideally be collected, and also identifies the source of the data and the regularity of collection.

Table 4-1 Headline and operational indicators for incubation interventions				
Headline indicator	Operational indicators	Source	Regularity of collection	Reporting frequency
Incubation functions and management				
All interventions				
Incubation take up rates and turnover	<ul style="list-style-type: none"> • Number of new clients • Origins of users (e.g. entrepreneurial start-up, established business, HEI spin-out) • Sector • Number of client companies exiting the service • Failure rate amongst client firms. 	Management data	6-monthly	Annual
Business support services	<ul style="list-style-type: none"> • Range of business support services offered (both in-house and externally) • Number of businesses assisted by each type of business support • Annual operating costs and how funded. 	Management data	Annual	Annual
Admission and exit criteria	<ul style="list-style-type: none"> • Admission criteria • Exit criteria • Approach to client management 	Management data	Annual	Annual
Number and type of incubator personnel	<ul style="list-style-type: none"> • How many personnel does the service have? • Resources allocated to providing businesses with advice • External advice engaged (source and cost) 	Management data	Annual	Annual
Physical interventions only				
Incubator occupancy rates	<ul style="list-style-type: none"> • Percentage of units currently occupied 	Management data	6-monthly	Annual
Business support services	<ul style="list-style-type: none"> • Set up and one-off capital costs • Approach to pricing 	Management data	Annual	Annual
Admission and exit criteria	<ul style="list-style-type: none"> • Average length of stay for tenants and graduates 	Management data	Annual	Annual

¹⁷ For a time HPIC did collect information from graduates who had gone on to DRM support from SE.

Incubation outputs and impacts				
Performance of users	<ul style="list-style-type: none"> Percentage of turnover invested in R&D <p><i>Jobs</i></p> <ul style="list-style-type: none"> Employment in client businesses Percentage of staff with degrees Percentage of turnover invested in training <p><i>Turnover</i></p> <ul style="list-style-type: none"> Latest turnover of client businesses Turnover growth rates <p><i>Funding</i></p> <ul style="list-style-type: none"> Level of funding raised <ul style="list-style-type: none"> Equity Debt Grant <p><i>Intellectual Property generated</i></p> <ul style="list-style-type: none"> Patents Copyrights 	Survey of current clients	Annual	Annual
Value added of incubation	<ul style="list-style-type: none"> Why the service is taken up? What makes the incubator (physical interventions only) an attractive location? Which services have been most useful? Influence of incubator on business performance (deadweight) Location of competitors (displacement) Full location of beneficiaries (leakage) Volume and source of supplies (for GVA and multipliers). 	Evaluation survey with current clients <i>and</i> graduates (up to three years after leaving)	Survey and evaluation should be undertaken at appropriate time intervals	Survey and evaluation should be undertaken at appropriate time intervals

Source: CSES/SQW Consulting

4.10 This system will require two principal sources of data:

- monitoring data that management of the intervention would be expected to collect
- evaluations of users and graduates to establish more qualitative items of information, such as deadweight and leakage. These surveys should take place at suitable time interventions, for example on a two yearly basis.

4.11 SE will be better able to comment on who should do the analysis and reporting. There appears to be no system in place to guide this at present.

Evaluation practice

4.12 This review of evaluations has again demonstrated the considerable variety in evaluation methodology and practice, with considerable inconsistency in approach, method and form of reporting. It has made the process of drawing general conclusions challenging. In mitigation, it should be recognised that the evaluations were responses to particular briefs and that many took place some time ago when the imperative for standardisation was not perhaps as strong

as it is now. However, if conclusions are to be drawn which are wider than those which relate to the subject material of the individual evaluations, a degree of standardisation is essential.

- 4.13 We are aware that SE is taking steps to raise evaluation standards and to introduce consistency, for example through the development of common questionnaires. There is also an increasingly good awareness among SE staff about the need to construct logic chains, distinguishing cause and effect (principally inputs, outputs and outcomes) as well as to convert gross outputs to net outputs by taking full account of deadweight, displacement, multipliers and leakage. There is therefore no need to reiterate general principles here but simply to consider what aspects of the evaluation of *incubation* might be distinctive or especially important. Evaluations, of incubation should, in our view, give special consideration to the following.

Process

- Interviews with beneficiaries wherever possible
- Construction of logic chains for this particular form of intervention.

Specific questions for beneficiaries of incubation

Descriptive

- Origins of beneficiaries; how many are spinouts from HEIs or from larger companies; how many straightforward entrepreneurs
- Stage in development; pre start-up, start-up, early stage, established
- Business experience of the founders

Impressions/opinions

- Constraints on development and market failure; where have the most significant barriers been and how far are they down to 'market failure' or to some other reason
- Which elements of the service provided have been the most helpful to the business and have most directly contributed to addressing market failure?

Analytical

- What is the extent of deadweight; what would the counterfactual have been if the business had never come across the intervention?
- What is the extent of likely leakage should the business succeed as it hopes it will?
- In considering outputs, what proportion would be down to the provision of dedicated premises and what proportion down to the services provided?

5: Summary, conclusions and recommendations

Markets and market failure

- 5.1 This report has looked at the evidence from evaluations of the contribution and effectiveness of various forms of incubation support to businesses throughout Scotland. This has been supplemented by interviews with key SE personnel and others. The background is the strategic need, agreed both by SE and the Scottish Government, for SE to support:

Innovative and/or technology companies; help them to grow; and improve the flow of such businesses into the pipeline of companies that can be eligible for Direct Relationship Management.

- 5.2 There was certainly a consensus among the consultees that this should be a priority for SE and indeed it very much aligns with the 2008-11 Business Plan. There was a very strong view that there is a group of technology-orientated new start and early stage businesses whose development needs and potential are such that they would not be served adequately by the Business Gateway¹⁸; they merit special provision and if this implies additional cost, this is justified by the additional net outputs that could be expected. Allied to this, is the need to take more economic advantage from the research base in Scotland and specifically to derive more start up businesses from SE's existing programmes (such as Intermediate Technology Institutes) which are orientated towards the research base. This, however, is not the only source of technology-orientated start up businesses with high growth potential, but it is an important one.
- 5.3 The evaluations and consultations suggest that there are specific market failures to do with technology-orientated new start businesses that help to determine what should be provided by way of support. Market failures include:
- the potential complexity of these businesses
 - the time taken to get products to market and before revenue starts to be raised
 - the lack of commercial experience among business founders, even where they may have come from large private sector organisations
 - significant risk averseness among private funding institutions (even more so in the current economic environment)
 - problems relating to IP.
- 5.4 There is very limited evidence of market adjustment, in the form of the private sector picking up services that SE is currently providing. The EPS example which we quoted in Section 3 appears to be very much the exception. Market failure is always likely to be present,

¹⁸ Until relatively recently, Business Gateway did run a high growth new start business programme. This was discontinued after an evaluation suggested that impacts were limited. It has effectively been superseded by the current set of programmes.

especially in this area where rapid technological change is likely to result in risk averseness among private finance providers.

Incubation

- 5.5 What form should specialised support take? The UKBI definition of ‘incubation’, referred to in Section 1 of this report, was a useful definition of what is required in general and is as follows:

...a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses, products and ideas by supporting them through the early stages of development and change.

- 5.6 Taken in the round, the evaluations and other research suggest that there are key elements in this ‘combination of business development processes’ that should be available if the new high growth businesses are to be supported to achieve their potential and if the market failures listed are to be addressed. These generally (though not specifically in every case) should include:

- care and selectivity about who should benefit
- direct and general business advice provided by advisers who have commercial experience but also have a basic knowledge of the issues that can face technology-orientated businesses
- good quality central management
- the capacity to bring in specialist expertise from the private sector
- support to help businesses understand markets, marketing and the route to market
- direct help to raise finance from the public and the private sectors, including direct involvement in deal making
- the capacity to network into a wider range of support, particularly within the SE network, and especially aiming to feed into DRM
- where appropriate, support to handle IP issues
- regular review of business performance.

- 5.7 In comparison with Business Gateway, for example, this support needs to be:

- more technologically informed and specialist
- available over a longer period of time
- more intensive, if required by the business.

- 5.8 What therefore are the lessons from the evaluations about how far SE's current set of interventions meets these criteria? They are all clearly different, with different services provided and different markets. Some, such as HGSU and EPIS, are aimed at the very high fliers. Others such as CBS and LBIC are, or have been, broadly aimed at businesses with more modest aspirations. It appears to us that this is an appropriate response to a market which is not homogeneous in nature.
- 5.9 The evaluations and consultations suggest that most of these interventions (except SUIP and Enterprise Fellowships) have achieved, or will achieve, their objectives and in their various ways are contributing through incubation to SE's overall aim of encouraging the development of high technology new start or early stage businesses. In the main:
- this has been done with reasonable cost-effectiveness (though the data on this is generally poor)
 - by targeting the right businesses, who display reasonable levels of deadweight and low levels of displacement.
- 5.10 However, these conclusions can only be very tentative since the analysis on which they are based is so varied in quality and depth. Data on these items - as established in the evaluations reviewed - is not consistent. There should be a requirement to generate better quality, consistent data in the future.
- 5.11 The main weaknesses in the current provision (these do not relate to every intervention evaluated) relate to limited:
- direct commercial experience among business advisers
 - networking and contact between beneficiaries
 - networking with mainstream SE interventions, and especially limited numbers of candidates emerging to feed the 'pipeline'
 - alignment with SE Priority Industries.
- 5.12 In the case of property related provisions, a specific weakness has been 'degrading' of tenancy characteristics to maintain rental levels.

Physical and non-physical forms of support

- 5.13 Limited networking appears to be true of both physical and non-physical interventions, but is especially telling in relation to the physical forms of support since networking is expected to be one of the major advantages of the physical presence and which justifies the capital cost. A key point for the evaluations is how far a physical component is a necessary feature of incubation. Much of SE's support for incubation to date has taken this form.
- 5.14 The evidence is limited, but it suggests that very effective forms of incubation can be delivered without dedicated premises. Qualitative feedback similarly shows limited evidence of networking among tenants of physical facilities, for example. Among the consultees, there was an even division between those who believed that specialised accommodation provided

additional and important benefits and those who believed that it did not. CBS and especially HGSU have demonstrated what can be achieved without the physical element and EPIS has shown what can be done with modest and inexpensive forms of accommodation. Given the limited evidence of the individual impacts of physical and non-physical elements of incubation services on businesses, it is important to consider whether the additional costs involved with creating new physical space provision can be justified for *future* incubation projects given the large supply of such facilities identified in Section 2.

- 5.15 All that said, HPIC is generally considered to be a flagship project which despite capital subsidy, delivers outputs at still reasonable cost-effectiveness. HPIC compared well with other incubators across Europe in the CSES Benchmarking Report referred to. It may bring benefits in terms of the profile of Scotland and of high technology businesses in Scotland that are not captured in a quantitative evaluation. However, a conclusion from this review might be that given the extensive range of property *already* provided in Scotland which is ‘incubator-orientated’, SE would be unwise to invest in property related provision additional to what is there already, and that the emphasis in future should be on making better use of existing physical provision and enhancing some of the non-physical interventions, as is envisaged in the current Company Building initiative.
- 5.16 In addition, future incubation/incubator provision should be considered carefully against SE’s emerging Innovation Policy and wider policy objectives.

Conclusions and recommendations

- 5.17 These can be summarised as follows:

- SE should continue to support initiatives which are aimed at encouraging the development of new start and early stage technology-orientated businesses with high growth potential
- Specialised forms of support are justified as the Business Gateway is not geared up to meet the distinctive needs of these businesses
- Business should be supported to the extent that many will eventually become part of the pipeline of businesses that will feed into DRM
- The existing range of interventions is broadly effective and should in the main continue to be supported because:
 - objectives are being met
 - the range of initiatives reflects the range of businesses in this market – there is not one single answer or model
 - in most cases, the right businesses are being supported
- There is no ‘one size fits all’ solution; supported interventions are not mutually exclusive and should be diverse enough to meet the needs of the varied businesses in the market which exists between Business Gateway and DRM

- Looking forward, any new interventions should as far as possible provide the services outlined in 5.6 and address the weaknesses set out in paragraph 5.11.
- One weakness which deserves special attention is the need by intervention managers to work actively to promote networking between:
 - supported businesses
 - supported business and service providers
- SE should seek to make more of the existing physical interventions and develop appropriate new non-physical interventions. Unless there are special and particular circumstances (e.g. geographical or Priority Industry) there is unlikely to be a need for investment in new physical incubator provision.
- The processes of monitoring and evaluation of incubation should be reviewed, with consistent and regular collection and analysis of information as spelled out in Section 4 of this report.

Annex A: List of consultees

Table A-1 List of consultees

Name	Organisation
Neil Francis	Director, Scottish Enterprise
Adrian Gillespie	Director, Digital Markets and Enabling Technologies, Scottish Enterprise
Brian McVey	Director of Enterprise Operations Management, Scottish Enterprise
Tom Ogilvie	Chief Executive Innovation Centres Scotland (Ltd) – responsibility for Hillington and Alba
Linda Gosden	Industries, Commercialisation and Innovation - East of Scotland, Scottish Enterprise
Catherine Lamont	Senior Operations Executive, Hillington Park Innovation Centre
Bryan Fraser	Industries, Commercialisation and Innovation – East of Scotland, Scottish Enterprise
David Cross	Project Executive, Industries, Commercialisation and Innovation – West of Scotland, Scottish Enterprise
John Murray	East of Scotland, Scottish Enterprise

Source: SQW Consulting