Edinburgh Pre Incubation Scheme
Economic Impact Evaluation

Final Report for

Scottish Enterprise

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Frontline Consultants were commissioned to carry out an economic impact evaluation of the Edinburgh Pre Incubation Scheme (EPIS). The project was started in 2004 to provide a route for individuals with business ideas and clear line of sight to market to explore their idea and set up a fully incorporated business. The evaluation covers the period 2004-2009, but also looks at business projections and potential impact up to 2019.

Rationale, Inputs and Activities

The EPIS scheme was founded on a market failure rationale that early stage entrepreneurs could not access the academic expertise and equipment needed to develop a viable business concept. This market failure rationale appears to be valid with wider market imperfections also addressed by EPIS through the provision of access to appropriate business expertise and an interest free loan. This support therefore provides a unique offering aimed at addressing market failure and coordinating appropriate support in a holistic manner.

The scheme is funded to the value of £1.4 million by Scottish Enterprise (including ERDF), covering two funding approvals, and will commit in the region of £1.9 million by the end of the scheme in 2010. In addition, Edinburgh University and the Business Mentors provide in kind contributions in support of the project, leveraging in wider resources to deliver the project.

The scheme delivers a wide range of support to businesses with a core element that can be summarised as hosting and support from an appropriate academic, business mentoring support from an experienced chief executive and a £10,000 interest free loan.

Evaluation Evidence from Stakeholders

The core consultees interviewed as part of the study were positive about the EPIS scheme, both in terms of how it is operated and in terms of the value it generates. The consultees suggested that the scheme operates in accordance with best practice and has in place all the main critical success factors associated with the non physical element of incubation support.

In addition, the scheme is clearly generating wider value for both Scottish Enterprise and Edinburgh University around talent retention and attraction, culture change (in terms of the entrepreneurs and academic staff), reputational benefits and network benefits. It is this network that ultimately appears to build value in the companies.

Evaluation Evidence from Participants

Business feedback on EPIS was also very positive with clear support for the concept and the key areas of support on offer, especially the £10,000 loan. There is also a high level of additionality associated with the scheme with over half of the entrepreneurs saying that they would not have started up without EPIS support.

In addition, it is clear that EPIS has helped the companies to generate investment in their business (to the value of £4.5 million), develop R&D capacity and activity (to the value of £2.6 million), Intellectual Property (including 13 patents, 12 trademarks and 9 registered designs) and employ highly educated staff (degree level and above). This highlights the clear generation of core outputs from the EPIS investment to a level significantly greater than the initial SE investment.

Furthermore, six of the companies are already account managed by Scottish Enterprise, with further potential, in terms of turnover growth, for more companies to flow into this group. Not adjusting for optimism bias, acquisition and failure, the companies project average turnover to increase from £101,000 in 2008 to £13.1 million per company in 2019.

Impact Assessment

Total net additional turnover generated between 2004 and 2008 amounted to £1.5 million (£1.3 million NPV) – an SE cost benefit ratio of 1: 0.96. However, if potential future costs and be benefits are included (up to 2019) this could rise to £21.5 million (£15.7 million NPV) or a cost benefit ratio of 1: 8.73.

Total net additional GVA generated between 2004 and 2009 amounted to £656,000 (£580,000 NPV) – a SE cost benefit ratio of 1: 0.42. However, if potential future impacts are included this could rise to £13.9 million (£10 million NPV) or a cost benefit ratio of 1: 5.58.

In total, 47 net additional jobs have been created to date, as a result of the EPIS project, potentially rising to 140 in 2019, if the companies grow in line with expectations.

These figures are largely in line with wider benchmarks, including the Scottish Enterprise Commercialisation Programme and incubation support in Ireland and has the potential to exceed these over time).

This highlights strong initial progress made by EPIS, with over a year still to run (and therefore more potential value to generate). There is also an expectation that by the end of 2009 the project could break even, in effect generate more discounted GVA than Scottish Enterprise financial input and then go on to deliver benefits of scale in the future.

Conclusions

The key evaluation conclusions are that the EPIS project:

- had a clear rationale for activity and fit with the policy environment – including a potential fit going forward with the new SE policy on innovation
- has made strong progress in relation to targets – and is broadly in line with expectations, though there does need to be improvements around business academic collaboration
- appears to be working well and includes key critical success factors associated with excellence in the non physical elements of incubation support
- generates values amongst the company base – including investment of £4.5 million, R&D spend of £2.6 million with strong revenue growth in a short space of time (over £10 million of *gross* sales between 2004 and 2008)
- has generated net GVA impact of £580,000 NPV, a cost benefit ratio of 1: 0.42
- has generated net turnover impact of £1.3 million NPV, a cost benefit ratio of 1: 0.96

The only recommendation made is for the project manager to track and evidence progress, especially given the significant potential future impacts cited by companies.

1 Introduction

Commercialisation activity is important to the Scottish economy. It is the bridge between the research base and growing businesses. Yet it presents something of a paradox. On the one hand Scotland has a strong and thriving science base, yet on the other it has businesses that spend less on R&D, are less innovative and grow slower than their international peers.

The Scottish Government Economic Strategy is clear about the issues effecting Scotland in terms of productivity, and how the public sector will support businesses and individuals to overcome this. The 2008-2011 business plan produced by Scottish Enterprise identifies their approach to tackling this and focuses on strengthening Scotland's position in terms of enterprise, innovation and investment.

The Edinburgh Pre-Incubator Scheme (EPIS) is one strand of this activity which aims to encourage and support innovation by facilitating direct collaboration between universities and entrepreneurs. The project was started in 2004 and since then additional funding has been approved to increase the number of opportunities available.

1.1 Study requirements

The primary focus of this work was to measure the economic impact of the EPIS project since its inception, based on the findings from the EPIS participant survey which was undertaken recently by Scottish Enterprise. The study also included an assessment of:

- the strategic rationale and fit of the EPIS scheme
- performance to date
- the processes associated with the EPIS scheme
- net economic impact
- the value for money of the EPIS scheme

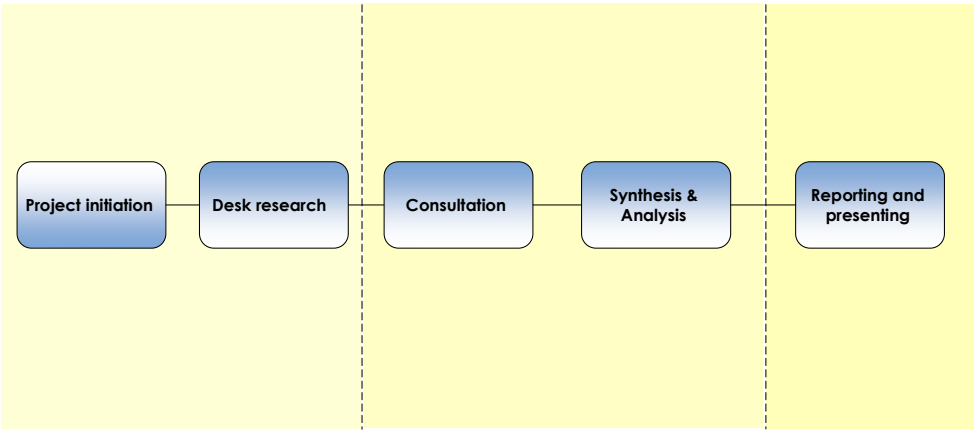
The EPIS participant survey results were supplemented by a small number of short strategic consultations and review of key background documentation on the scheme as well as wider research on early stage business support.

2 Evaluation Methodology

2.1 Our approach

Frontline's approach to this work has focused on developing a robust evaluation and impact assessment of the EPIS project that meets best practice guidance in the HM Treasury Green Book and SE Economic Impact Assessment Guidance.

Our method covered a five stage process outlined below.



A wider range of background documentation was reviewed including:

- the project approval papers
- key policy and strategy documents
- wider research and evaluations covering market failure
- the EPIS phase 1 and 2 evaluation reports
- the gate 2 review papers
- quarterly reports

In addition 4 short interviews were undertaken with key stakeholders. This included key staff within Scottish Enterprise and Edinburgh University. A full list of consultees is included in Appendix 2.

The main body of the work was based on the results from the online survey organised and delivered by Scottish Enterprise. This achieved responses from 38 EPIS entrepreneurs and covered a range of topics around EPIS support, the achievement of outputs as well as questions consistent with the standard question set now in use by SE for assessing net economic impact. There was also some crossover with the questions used in the recent Commercialiation Programme review, providing comparable results and wider data against which the project could be benchmarked. No further primary research was undertaken with entrepreneurs or incorporated businesses.

3 Rationale, Inputs and Activities

3.1 Rationale for the EPIS project

All Scottish Enterprise interventions need to be founded on a clear market failure rationale. Market failure refers to a situation where the market has not and cannot of itself be expected to deliver an effective outcome[1].

The Edinburgh Pre-Incubation Scheme (EPIS) is founded on the market failure rationale that access to the specialist kit and expertise the University provides would be cost prohibitive for an early stage inventor or business to access. Ultimately this represents scale and institutional failures.

However, this is an oversimplification of the problem the scheme is seeking to address. The scheme is actually about:

- access to business space and specialist equipment within that space
- access to academic knowledge that can be used to support the development of new or improved intellectual property
- access to business mentoring and a wider network of similar businesses from which they can learn and develop
- access to finance to grow and/or develop the business

There are therefore imperfections across all of these areas that suggest there is a need for intervention. There is also an overarching co-ordination failure suggestive of a need for a scheme such as EPIS. There is therefore a market failure but also wider evidence of the need for intervention.

We now outline some of the imperfections around each of these areas, across both the supply side and demand side, before summarising the elements of the market failure in table 3.1.

3.1.1 Business and lab space

In terms of supply, the purchase or lease of appropriate facilities is cost prohibitive, or simply not available, to an innovator or early start business. Yet, these facilities are a standard requirement for idea development and proof of concept in technology based commercial propositions. University facilities can range from wet-bench labs to state-of-the-art analytical equipment. Outside of the university environment, such specialist equipment and advanced facilities are difficult to access or are very costly. This suggests that while there may be provision is it likely to be beyond the reach of many early stage businesses (or entrepreneurs), such as those likely to be going through the EPIS scheme.

It is difficult to obtain information on the demand for such facilities. The existence of specialist incubation centres like the Alba Innovation Centre and Hillington Innovation Centre suggest a demand for facilities which aim to support the growth of knowledge based businesses. However in most cases these facilities do not offer the combination of specialised equipment, space and expertise provided through the EPIS scheme, instead their focus is on providing the office environment and specialist advisory services for technology based start-ups.

EPIS addresses this problem by providing participants with access to the University's specialist equipment and facilities at no cost for one year.

[1] HM Treasury (2003) *The Green Book: Appraisal and Evaluation in Central Government*, HMSO

3.1.2 Access to academic knowledge

Scottish universities have a strong science base, and there is significant potential to transfer this knowledge to business in the form of Intellectual Property (IP). Knowledge transfer takes a range of different forms and has been growing rapidly in recent years. Most universities have developed technology transfer offices, backed up with resources focused on commercialisation.

There is clearly demand for commercialisation support and there are numerous avenues for entrepreneurs to explore such as the Proof of Concept programme, Prospekt and Edinburgh Stanford Link to name a few.

However barriers to commercialising academic knowledge still exist. There is often a lack of clarity over the ownership of IP in research collaborations. This makes negotiations longer and more expensive than otherwise would be the case, and it sometimes prevents deals from being completed[2].

As a result, the supply of knowledge provided by academics can often be reduced. Without access to academic staff, businesses may not have the specialist knowledge needed to build on their idea to develop the technology in an appropriate manner. These barriers can often lead to a sub-optimal level of collaboration between business and academia.

EPIS allows the participant to hold all Intellectual Property (IP). This reduces this barrier and allows the exchange of information between the knowledge base and business. Each individual involved with EPIS is located within the relevant University department, enabling the effective access to knowledge, technology and skills. This encourages technological diffusion of the individual's idea and fosters collaborative research.

3.1.3 Access to finance

Access to finance reflects issues across both the supply (lenders or equity investors) and demand (the individual or business) side.

The supply side relates to finance providers not being able to accurately assess the risk and returns associated with business proposals. For example, debt based providers mitigate risk by requiring collateral and a strong financial track record. Equity providers on the other hand, undertake due-diligence exercises, the transaction costs of which can be high, leading providers to concentrate on making larger investments in a smaller number of propositions[3].

The demand side focuses on the SMEs lack of information on the appropriate avenues of finance available to them and their ability to present a coherent case for investment. This view is reinforced by research[4] which found that 79% of business found it difficult to access capital in Scotland. In addition, recent research commissioned by Scottish Enterprise found access to finance to be the main barrier to business start up, development and growth[5].

EPIS overcomes this problem by providing individuals entering the programme with a £10,000 interest free loan that gives them time to prove the concept and develop their business.

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[2] Lambert Review of Business-University Collaboration (2003)

[3] BERR (2008), The Economic Drivers of Government-Funded Business Support

[4] Scottish Enterprise (2008), Evaluation of the Scottish Co-Investment Fund, Gen Consulting

[5] Frontline Consultants (2009) Commercialisation Programme Review, Working Paper 9: Company Journey, Scottish Enterprise

3.1.4 *Business mentoring*

Taking a concept from an idea with commercial potential to maximising market share is a major challenge and requires a multifaceted skill set ranging from technical understanding of the concept to business planning, marketing and sales.

The *Scottish Enterprise Company Building* discussion document reinforces this view suggesting that support is needed to develop the management team, prove the viability of the product, generate investment and wider funding and develop routes to market[6]. These supports are vital to develop fast growing technology based businesses. The implication is that if one or more of these factors is lacking then development will be stunted and at worst stopped.

In terms of supply, Scottish Enterprise operates around 30 different projects as part of its commercialisation programme that provides various forms of support to technology businesses. However, that is not to say they meet every businesses need. For example a review of the Investor Readiness programme found that 35% of the firms involved needed help developing a business plan[7]. This shows that despite support being available it is not always readily accessed by companies at the right time and for the right task leading to gaps in provision.

3.1.5 *A co-ordination failure*

These imperfections point towards a co-ordination failure. This failure essentially represents gaps across the core requirements of business start up and growth that individually could slow development, but cumulatively could stop development. Table 3.1 summaries the level of gaps associated with the supply and demand for each.

Market Gaps **Table 3.1**

	Level of Gap	
Imperfection Type	**Supply**	**Demand**
Business and lab space	High	-
Access to academic knowledge	Medium	Medium
Access to finance	Medium	Medium
Business mentoring	Low	Low

The EPIS scheme therefore provides support that allows participants to overcome the barriers that prevent them from developing their ideas into a business with growth potential. This idea is reinforced later in this review when over 50% of the companies surveyed said they would not have been able to establish their business without EPIS support. This suggests that holistic support provided by the EPIS scheme addresses a number of gaps on the supply and demand side.

It is unlikely a scheme such as EPIS can address market failure issues such as the institutional, scale and coordination issues evident. However, it does appear to be able to reduce these barriers for participants.

3.2 EPIS project inputs

Total SE input to the EPIS project to date amounts to more than £1.445m, an annual breakdown of the figures are provided in table 3.2 below. It should be noted that this includes ERDF funding, which as it is claimed after SE commits the spend, cannot be readily disentangled from the direct SE contribution.

[6] Scottish Enterprise (2008) Company Building, Supporting Fast Growth, technology based businesses

[7] PACEC (2007), Evaluation of the Investor Readiness Support (IRS) Scheme, Scottish Enterprise

Funding contribution **Table 3.2**

	2004/05	2005/06	2006/07	2007/08	2008/09	Total
SE Expenditure*	£46,560	£251,611	£311,620	£202,036	£314,043	1,447,368

*includes ERDF funding

This does not include the full expenditure as:

- the project does not conclude until October 2010
- it excludes wider contributions from the University of Edinburgh such as office and lab space, shared service costs and key senior staff time
- it also excludes the mentoring support from experienced Chief Executives, which is done for free, but also represents an in kind contribution

The cost of the Edinburgh University support has been estimated at over £460k[8] but has not been included in table 3.1 as they represent in kind contributions. This does highlight that EPIS has been successful in levering support from elsewhere in the public sector to reinforce the SE contribution.

3.3 EPIS activities

The EPIS project delivers a range of activities in support of its key aims. The project approval paper outlines the core element of the programme[9]:

- a placement of up to 1 year in a relevant host department in the university, where the participant can develop the idea both technically and in business terms
- a technical mentor with appropriate knowledge drawn from the host department, who will help get the 'technical' aspect into shape
- a business mentor who will help the participant develop their business plan and model as well as assist the participant in building a network of contacts for the business proposition
- a programme manager who organises the placement and co-ordinates a personalised development programme designed to ensure that the participant is aware of all of the key issues in starting and running a business
- access to a repayable grant facility of up to £10,000, repayable over a maximum period of 5 years commencing after the placement has finished
- following completion of the pre incubation phase, the option of locating the start up company to the incubation facilities based at the Technology Transfer Centre or the Scottish Microelectronic centre in the Kings Building. Thereafter the opportunity to access post incubation expansion facilities at Edinburgh Technopole

The project therefore offers a full range of activities in support of the development of an idea into a business and wider provision of appropriate space.

3.3.1 Progress towards targets

A number of targets have been set for the EPIS scheme. For simplicity these are separated into EPIS 1 (the previous funding allocation) and EPIS 2 (the current funding allocation). The results show actual achievements against EPIS 1 and normalised achievement to date for EPIS 2.

Strong progress was made on EPIS 1 with significant overachievement of assists, in

[8] Scientific Generics (2006) *EPIS: Evaluation and Options Appraisal Phase 1 Report*, Scottish Enterprise

[9] Scottish Enterprise (2002) *The Edinburgh Pre Incubation Programme, For Approval, September 2002*, Scottish Enterprise

effect over 2 hours of business support beyond EPIS covering both leavers and rejected applicants. The target for High Growth Potential Start Ups amounted to 96% achievement, though this covers missing the target of 23 by 1 company. Overall, this reflects strong performance.

Target Achievement **Table 3.3**

	Assists	High Growth Potential Start Ups
Target	100	23
Achievement	228	22
% Achievement	228%	96%

In relation to progress towards targets for EPIS 2 there is still over a year of the project to run. As such normalised targets are used to assess progress to date. The figures suggest:

- the project is ahead of target in relation to High Potential Start Ups
- the project is just behind target in relation to assists
- progress is below target in relation to business academic collaborations

This suggests that EPIS is broadly on track to meet two of the targets, but still has some way to go before achieving the business academic collaboration target.

Progress Towards Targets **Table 3.4**

	Assists	High Growth Potential Start Ups	Business Academic Collaborations
Target	55	13	13
Achievement	50	28	6
% Achievement	91%	135%	48%

3.4 Fit with strategy

The primary objectives for EPIS at approval was to promote commercialisation, innovation and the creation of high growth start-ups through the provision of a unique package of support for participants, allowing them to prove their concept and receive support to progress to business start-up.

The approval papers point towards a clear relationship with two of the four priorities under the Growing Business theme within the Scottish Executive's previous economic strategy, Smart Successful Scotland (SSS) covering:

- greater entrepreneurial dynamism and creativity
- increased commercialisation of research and innovation

The programme also supported the recommendations of SE's Business Birth Rate Strategy Review which concluded that resources should concentrate on technology based start-ups with high growth potential.

Below we look at how the EPIS project fits with the current priorities of both the Scottish Government and Scottish Enterprise.

3.4.1 Fit with the Government Economic Strategy

One of the strategic priorities set out in the Government's Economic Strategy is to create a **supportive business environment**. This places a key emphasis on business,

support, innovation and research and development:

> *"Enhancing the quality and focus of support for business and innovation will have a direct impact on business competitiveness and growth. Responsive, accessible business support services will allow all areas of Scotland to contribute to and benefit from a shared approach to economic growth. This support needs to stimulate demand for investment, innovation and skills in pursuit of higher productivity and increased competitiveness… Increasing the level of research & development (R&D) activity and knowledge transfer between the research community and industry are key drivers of innovative activity…"*[10]

EPIS fits in very well with this approach. It provides support to individuals with an idea, enables them to benefit from collaborations with academia and allows them to benefit from the knowledge of experienced individuals who can advise on the business start-up process, how to remain competitive and plan for rapid growth. The activities of EPIS therefore have a clear fit with the overarching goals of the Government Economic Strategy.

3.4.2 Fit with the SE business plan

The Scottish Enterprise business plan for 2009-12 aims to support the government in delivering its Economic Strategy by focusing on three key areas of activity:

- supporting **enterprise** in growth companies and key industry sectors
- promoting **innovation** to improve productivity and achieve competitive advantage
- stimulating **investment** in both physical infrastructure and companies

EPIS has very strong links with all three areas given its focus on providing entrepreneurial participants with access to University facilities and loan funding. In addition, two of the four main objectives of SE's new Innovation policy are:

- to increase Scotland's performance in terms of innovative high-growth start-ups from 55 to 75 per annum (including spin-outs from universities)
- to increase the value of technology commercialised from Scotland's research base by around £500m in the next 3-5 years.

This further reinforces EPIS' fit within the SE Business Plan, as the main objective is to facilitate the commercialisation of new technology and create high growth start-ups, aims very much in line with the key objectives of the EPIS scheme.

There is also a degree of wider fit with the *New Operational Policy on Innovation*. This policy is focused on:

- business innovation – both widening and deepening innovation
- commercialisation – including clear line of sight to market and improved company building
- improving the innovation environment – including direct support and investment

The EPIS scheme appears to fit through clear line of sight to market and a strong focus on company building – through the holistic approach to academic, business and financial support.

[10] *The Government Economic Strategy*, The Scottish Government, 2007 pg 26

3.4.3 *Fit with Industry Demand Statements*

The Industry Demand Statements (IDS) produced by SE, identify their principal contributions to the delivery of the strategic goals for each priority industry. Upon review of these, connections exist between the plans and the activities of EPIS in the following areas:

- Digital Markets and Enabling Technologies (DMET)
- Life Sciences
- Food & Drink

DMET has a focus on helping companies provide linkages to early or existing markets, as well as developing linkages with partners who can help to create the conditions that can develop and drive early markets which can pull through economic impact. This has clear parallels with the linkages the EPIS scheme looks to develop between its entrepreneurs, mentors, participants, alumni and academics.

Life Sciences aims to stimulate the attraction and creation of new SMEs and support the growth of existing SMEs as well as capitalising on Scotland's strength in innovation to support company creation and growth in all areas of Life Sciences. One of its key objectives is to build on the strengths of current networks, organisations and groups and encourage them to work together. Again this fits with the linkages the EPIS project looks to build.

One of the key challenges for the Food & Drink sector is to increase collaboration, both within the company base and between companies, research and education and stakeholder organisations. The wide focus of the EPIS scheme on market driven, rather than technology focused businesses suggests there could be some fit with the IDS, if the right entrepreneurs were to participate in the project.

There is a clear strategic fit between EPIS and these key industry demand statements. It should be noted however there is not an obvious fit with the tourism, financial services or energy industry demand statements.

3.4.4 *Contribution to other SE activities*

EPIS clearly fits in with the wider commercialisation activities that SE supports. Table 3.2 below highlights the other projects EPIS companies have been involved with based on the recent review of SE's commercialisation activities and the company mapping exercise undertaken as part of that work.

Wider Commercialisation Support Accessed by EPIS Entrepreneurs **Table 3.2**

Wider SE Support	EPIS Companies
Edinburgh Stanford Link	8
SMART	5
Scottish Co-Investment Fund	3
Prospekt	3
Enterprise Fellowships	2
SCIS	1
Seed Funding	1
High Growth Start Up Unit	1

The Edinburgh Stanford Link (ESL) project is the type of support most commonly used by

EPIS companies. This is likely to be a result of the close regional proximity of the two projects, as well as ESL having similar objectives to EPIS, such as its focus on technology transfer and collaborative research. The same applies to Prospekt and SMART which aim to boost activities in knowledge transfer, entrepreneurship as well as the R&D activities of SMEs. EPIS support also results in some of the companies gaining access to finance through support such as the Scottish Co-Investment Fund and SEED Funding.

The companies have also accessed wider Scottish Enterprise commercialisation projects including SCIS (now rolled up with the R&D Grant scheme), Enterprise Fellowships and the High Growth Start Up Unit.

There are also wider links with DRM support with 6 Companies already account managed, including:

- Burdica Biomed
- NIPHT
- Pufferfish
- Advanced Microwave Solutions
- Cythera
- H2Ology

This shows that the project is well linked in with wider Scottish Enterprise activity and potentially being used to enhance the offering to companies.

4 Evaluation Evidence from Stakeholders

This section of the report provides some feedback from a small number of short consultations with key staff within Scottish Enterprise and Edinburgh University who are involved with the EPIS project. The discussions centred on:

- the key processes associated with delivery
- the strengths and weaknesses of EPIS
- key differentiators from other similar schemes
- the critical success factors associated with the project
- any wider value generated by EPIS

4.1 Delivery processes

The EPIS scheme has been running since 2004 and is now in its second phase. The first phase evaluation suggested that the project was working well, with strong buy in to the project by Scottish Enterprise and the University.

The consultations with strategic staff involved in EPIS suggest that this has not changed. In fact there is buy in from Scottish Enterprise exemplified by a new round of funding (described as EPIS 2) as well as continuing support from the university in the management and delivery of the scheme. The project was also perceived to be working well and generating a range of benefits for companies, Scottish Enterprise and Edinburgh University.

The consultees suggested that there had been a lack of consistency around the main SE contact, with 5 different key contacts in the last 5 years. This had brought some tensions around the style and contribution made by the different SE contacts and a lack of a consistent approach. There does not seem to be a problem now, with a good SE project manager in place, who has a strong commitment to EPIS and has made a major contribution to the ongoing development of the scheme.

The consultees also praised the current Edinburgh University project manager. All consultees suggested his presence and drive was a key element in the successful delivery of the scheme. While this is a great strength, it also presents a potential risk if that individual were to leave.

4.2 Strengths and weaknesses

Consultees were asked about the strengths and weaknesses of the scheme. A number of strengths were cited while just two weaknesses were outlined.

The key strengths cited about the scheme included:

- **a strong network of support** – though host academics, other EPIS participants, EPIS alumni and business mentors
- **a high conversion rate of entrepreneurs to businesses** – with many participants going on to incorporate their idea as a business on completion of the scheme and in some cases become serial entrepreneurs
- **consistent generation of propositions** – with high interest in the scheme and applications from across Scotland and beyond
- **good progress with the companies for relatively small sums of money** – the set up and operation of a range of companies from a relatively small initial investment

The weaknesses cited included:

- **the challenge of identifying when to step back from supporting businesses** – this was focused on avoiding a dependency culture and picking the right time to step back from engagement. While cited as a weakness this actually represents a wider issue around how Scottish Enterprise engages with technology businesses more generally and one in which EPIS may not hold the answer
- **the change in key Scottish Enterprise contact** – as cited earlier the change in this key SE contact was seen to have caused tensions in the management of the scheme. This was now seen to have been resolved with the current contact seen as doing a good job and brining a great deal of drive and commitment to the project

These weaknesses were generally seen as being peripheral to the operation of the scheme and centred more on the wider engagement with technology base businesses than specific problems or challenges associated directly with EPIS.

4.3 Key differentiators of the scheme

While the EPIS project is based on the TOP (Tijdelijke Ondernemers Plaastseen) model the consultees suggested that there were a number of key elements in the operation, management and delivery of the project that were different from the original scheme. These included:

- weekly meetings with the entrepreneurs
- an exhibition at which the participants can market and promote their businesses
- mutual matching of mentors – with the mentors and participants agreeing on who they would work with rather than just being assigned
- a handbook given to participants to structure their engagement with the scheme

The Phase 1 evaluation[11] of the scheme also suggested a number of differences between EPIS and TOP including:

- a more rigorous selection process associated with EPIS with more focus on high growth and line of sight to market
- a focus on more experienced potential entrepreneurs

This suggests that the TOP model has been taken forward and developed in EPIS to give its own identity, approach, feel and values. This is important as it highlights a model from elsewhere has not just been transplanted to Scotland but refined to make it fit with wider policy objectives and the demands of Scottish businesses.

4.4 Critical success factors

As all consultees suggested that EPIS was working well and delivering a range of value for companies, Scottish Enterprise and Edinburgh University they were asked why it was delivering this success

The key critical success factors cited included:

- **the quality of the EPIS team** – the staff involved in the operation, management and delivery of EPIS were seen to be committed to the project,

[11] Scientific Generics (2006) Edinburgh Pre Incubation Scheme: Evaluation and Options Appraisal Phase 1 Report, Scottish Enterprise Edinburgh and Lothian

knowledgeable on the businesses and added significant value to the project
- **the control and freedom the team have in the operation of the scheme** – the team were given the freedom to make decisions and innovate where they saw fit
- **the selection process** – which was seen as very rigorous and ensured the best applicants were going forward to participate
- **the process of providing regular "pushes" to the participant** – this was seen as keeping the participant on track and ensuring that they moved forward at every opportunity
- **access to appropriate support, counselling and advice throughout the year (and beyond) –** ensuring that participants do not waste time stuck with a particular problem but can address any number of barriers from grant support, technical problems or business issues

A recent strategic review of incubation support in Scotland[12] considered the key critical success factors in the relation to the non physical elements of incubation support. This outlined all of the factors cited by stakeholders as well as a number of other areas under which EPIS clearly has a strong offering. These include:

- **very close links with the investment community –** the EPIS project manager has a strong network in this area and recently held a dinner with EPIS entrepreneurs and investors with a portfolio management value of £8 billion
- **appropriate and experienced business mentors –** the entrepreneurs have access to business mentors, other EPIS participants and EPIS alumni in the development of their idea providing significant expertise and experience they could use to develop their business
- **strong advisory business development support and specialist support from the private sector –** the linkages with other commercialisation projects across Scotland shows that EPIS companies are accessing a range of other supports – many facilitated by the project manager and SE contact giving wider support beyond the EPIS project

The implication is that EPIS has an offering that clearly meets the key drivers of success in incubation support (at least in the non physical elements). This coupled with the views of stakeholders and businesses suggests that the scheme is working well and highly regarded.

4.5 EPIS value generation

The consultees were also asked about the wider value of EPIS. This was looking at the benefits it brings to the university and Scottish Enterprise that would not be captured in a traditional assessment of economic impact (GVA, turnover and employment).

The consultees suggested a number of broad areas of value being generated through EPIS including:

- **culture change –** the links generated between entrepreneurs and academic engenders culture change by showing each party the value of engagement
- **reputational benefits –** both Scottish Enterprise and Edinburgh University gain from an enhanced reputation as businesses develop, successes are generated and word of mouth on the scheme spreads
- **talent retention and attraction** – the scheme not only attracts Scottish based entrepreneurs but global entrepreneurs as well – retaining talent within Scotland and attracting fresh talent from abroad
- **network benefits –** the scheme links together a range of key actors associated

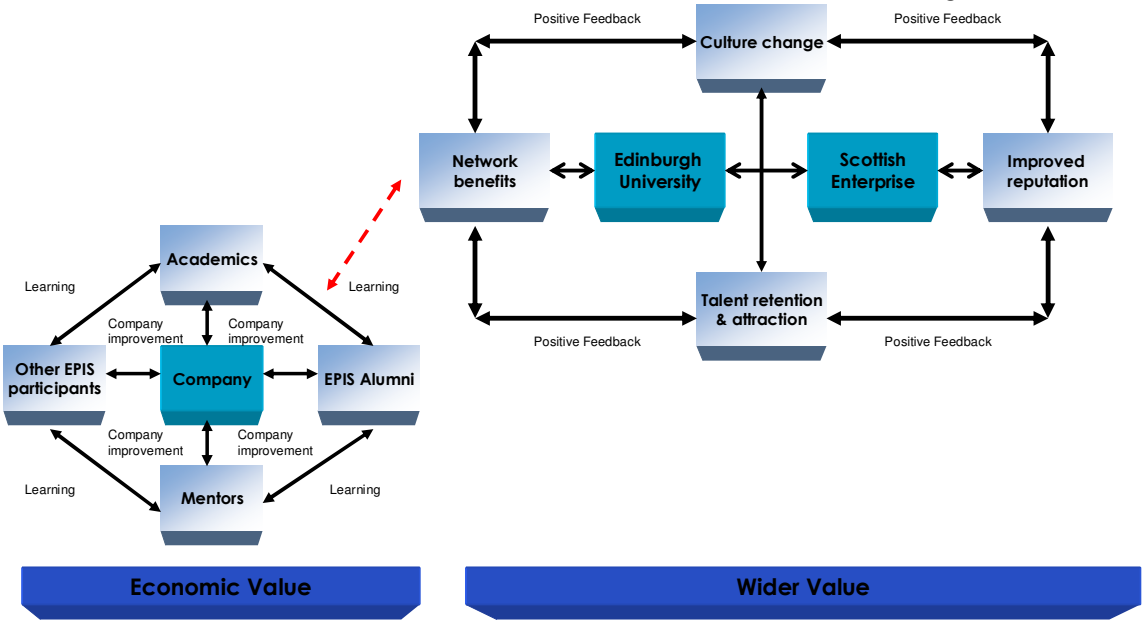
[12] SQW Consulting (2009) *Strategic Review of Scottish Enterprise Incubation Support*, Scottish Enterprise

with company formation and growth including the entrepreneur, other EPIS participants, EPIS alumni and business mentors. It is here where economic value is created, in effect the conditions for companies to grow, generate revenue and by definition GVA

Our view is that this represents a series of benefits that are potentially linked and feedback positively. This means improvements in one area could lead to wider benefits across each of the areas. In effect a virtuous cycle.

We outline in the Diagram below how the EPIS model generates economic value (ultimately GVA) as well as the wider value for Scottish Enterprise and Edinburgh University that cannot be readily quantified.

EPIS Value Generation **Diagram 4.1**



The strong implication is that EPIS can improve the company formation process and generate direct economic value, but also leads to wider improvements and benefits for both Scottish Enterprise and Edinburgh University making it not only worthwhile but beneficial to run.

5 Evaluation Evidence from Participants

An online survey sent out to 53 of the individuals who participated in EPIS, resulted in 38 providing a response. The survey covered a variety of topics, including company characteristics, benefits they received from the project and how the project impacted on their business. The responses were received from a range of businesses including some still on the scheme as well as companies who had 'graduated' from EPIS and were now no longer based in the University.

5.1 Company characteristics

Ten companies (25%) have been incorporated for 3-5 years, while the same amount are aged slightly younger at 1-2 years (see table 5.1). Five (13%) are less than one year old and another five are yet to be incorporated. Only one company incorporated more than five years ago.

This broadly fits with the timeline of individuals entering and completing the programme since its inception in 2004.

Age of the company **Table 5.1**

Age	Number of responses	%
Not yet incorporated	5	13%
Less than 1 year old	5	13%
1-2 years old	10	25%
2-3 years old	4	10%
3-5 years old	10	25%
5 years +	1	3%
No information given	3	8%
Total	**38**	**100%**

The majority of the companies said they had between 1-5 employees (76%), see table 5.2 below. Since the project involves working with companies at a very early stage in their formation, this number of employees is to be expected. Seven companies (18%) have however, progressed beyond this stage and currently employ between 6-9 people, while 1 company employs more than 9 staff (3%). Only 2 companies never provided any information.

Size of the company **Table 5.2**

Number of employees	Number of responses	%
1-5	29	76%
6-9	7	18%
10+	1	3%
No information given	2	5%
Total	**38**	**100%**

The majority of the companies (71%) have staff all educated to al least degree level. Three companies have more than 50% of their staff educated to this level. Only one company has less than half of their staff educated to degree level. In total 7 did not provide any information on the qualification levels of staff.

As the participants are based within a department at the UoE to begin with, the high proportion of staff educated to degree level should come as no surprise. The companies will have worked with academics, PhD students and graduates and

therefore more likely to employ people they know have the knowledge and skills required to help develop their business proposition.

Staff educated to degree level **Table 5.3**

% of staff educated to degree level	Number of responses	%
All staff	27	71%
51%-99%	3	8%
0- 50%	1	3%
No information given	7	18%
Total	**38**	**100%**

5.2 Activities

Over half of the companies (53%) said they would not have established their business without EPIS support. Around one fifth (21%) said they still would have started their business, but would have done so at a later stage and 13% would have set up a different type of business. Another 13% said they would have set up their business elsewhere, although no further detail on where they would have located was provided (see table 5.4).

This suggests a high degree of additionality, including over half who could be described as 100% additional and a fifth where it would have been later, indicating time additionality.

Impact EPIS had on businesses* **Table 5.4**

	Number of responses
Without EPIS I would not have established my business	20 (53%)
If EPIS had not been there I would have set up my business at a later stage	7 (21%)
Without EPIS I would have set up a different type of business	5 (18%)
Without EPIS I would have set up my business somewhere else	8 (13%)

* companies can select more than one option, so total does not add up to 38, percentage however relate to the 38 respondents

The form of support companies said had most impact on their business was access to the £10,000 interest free loan (32%). Table 5.5 below summarises the areas of EPIS support found to have most impact on businesses including, rent free premises (18%), academic mentoring and expertise (13%) and access to specialist equipment (13%).

This highlights that EPIS provides a wide coverage of support and is not just reliant on the interest free loan in order to provide effective support to companies. This fits with the wider rationale for the scheme outlined earlier which highlights the range of gaps that EPIS helps to plug.

Area of EPIS support that had most impact on businesses* **Table 5.5**

	Number of responses	%
Access to the £10,000 interest free loan	12	32%
Access to rent free premises	7	18%
Access to academic mentoring and expertise	5	13%
Access to specialist equipment	5	13%
Access to an experienced business mentor	3	8%
Opportunity to collaborate with other entrepreneurs on the programme	2	5%
Access to other forms of public sector support	1	3%
Ability to access debt/equity finance more easily	-	-
No information given	3	8%
Total	**38**	100%

Almost eight out of ten companies (79%) said the interest free loan was important to them (see table 5.6), with 50% saying that it was very important. Only 2 companies said that the loan was not important to them. The project manager suggested getting capital into the business at this stage was a key element in developing successful business start up and growth.

Importance of interest free loan **Table 5.6**

	Number of responses	%
Very important	19	50%
Important	11	29%
Little Importance	4	11%
Ambivalent	2	5%
Not Important	2	5%
Total	**38**	**100%**

5.3 Finance

Results from the companies surveyed suggests that to date, they have received total debt funding of approximately £425,000 (excluding the interest free loan provided by EPIS) and equity investments totalling more than £2.8m. Total private sector investment in EPIS companies therefore comes to £3.275m.

EPIS companies were asked how much grant support they have received from other public sector sources (e.g. SMART, R&D Grant, Investor Readiness etc). To date they have received just under £1.25m from these sources. Adding this together with the cost of funding EPIS (£1.448m) results in total public sector funding of more than £2.69m (table 5.7).

Funding Support **Table 5.7**

	Funding
Debt funding (excluding EPIS loan)	£426,334
Equity funding	£2,848,500
Total private sector funding	**£3,274,834**
SE funding (including ERDF)	£1,447,368
Wider public sector support	£1,245,800
Total public sector funding	**£2,693,168**

Excluding the direct SE (and ERDF) input to EPIS this is total funding of £4.5 million raised by EPIS companies from wider public and private sector sources.

5.4 R&D and IP

Based on the information provided by the companies surveyed, R&D expenditure[13] by EPIS companies has increased significantly between 2005 and 2008 (see table 5.7). In 2005, it was just over £100,000 however by 2008 it had increased by more than fifteen times this amount to just under £1.6m. Given the early stage nature of the companies and the need for finance to develop the business model and prepare for start up it is likely that this money will have been used in R&D and wider company building.

Expenditure on R&D **Table 5.8**

Year	
2005	£104,750
2006	£81,110
2007	£829,750
2008	£1,575,800
Total	**£2,591,410**

The amount of money spent on training has increased also, albeit on a significantly smaller scale than in comparison to R&D (see table 5.9). In total around £59,000 has been spent on training. Given that the EPIS scheme provides access to business mentors and academics it is perhaps unsurprising that little money is spent on training, as much of what the companies will need can be provided at no cost.

This finding also fits with the wider commercialisation review, in which very few companies suggested they used finance raised to train their staff – even when skills gaps appear as companies try to market and sell their products.

Expenditure on training **Table 5.9**

Year	
2005	£4,000
2006	£6,450
2007	£11,900
2008	£36,650
Total	**£59,000**

A significant amount of intellectual property has been developed by companies as part of their involvement with EPIS. Most notably, 13 patents have been secured as well as a number of trademarks and registered designs (table 5.10).

A large proportion of high growth firms use a range of intellectual property, with intangible assets such as trademarks, in particular, being associated with high growth firms[14]. Again these findings highlight the high knowledge component of the EPIS firms.

Intellectual Property taken out by businesses **Table 5.10**

Type	Number of responses
Patents	13
Trademarks	12
Registered Designs	9

[13] Companies were not given a common definition for R&D expenditure so there may be a lack of consistency with the figures reported

[14] BERR (2008) *High Growth Firms in the UK: Lessons from an analysis of comparative UK performance,* BERR Economics Paper No. 3

5.5 Benefits

Based on the companies who provided turnover information, the average (non-adjusted) turnover figures have also increased significantly between 2005 (see table 5.11). Average turnover in 2005 was just over £13,500, this figure rose to more than £100,000 in 2008.

Average turnover 2005-2008 **Table 5.11**

Year	Average Value	Number of companies
2005	£13,571	3
2006	£24,476	9
2007	£42,833	12
2008	£100,810	18

This trend is projected to continue in regard to turnover in future years. In 2009 it is estimated to be more than £250,000 and is expected to increase significantly beyond that as highlighted in table 5.12 below (though these figures have not been adjusted for optimism, acquisition, failure or relocation outside of Scotland).

Projected average turnover **Table 5.12**

Year	Average Value	Number of companies
2009	£250,029	25
2010	£685,168	29
2012	£3,161,653	29
2014	£5,913,220	29
2019	£13,134,220	29

Based on the non-adjusted turnover projections provided by the companies who have received EPIS support, it is possible to assess the number of companies who could expect to progress towards Designated Relationship Management (DRM) support from Scottish Enterprise. The key findings suggest that:

- 11 (29%) of the companies are projecting turnover increases greater than £800,000 over the period 2009-2012, this would make them eligible for account managed support from SE (see table 5.13)
- 27 companies are projecting turnover growth below the £800,000 figure over the period suggesting they are outwith the DRM criteria

Companies Potentially Eligible for DRM Support **Table 5.13**

Type of support	Total
Account Managed	11 (29%)
No Support	27 (71%)
Grand Total	**38 (100%)**

Those companies that are not currently projecting the turnover growth required to receive DRM support may have done so for numerous reasons, these include:

- still trying to prove the concept
- still trying to develop a plan for their business
- undergoing market research to ascertain the potential size of the market

Eleven companies did not provide any turnover information. This does not mean they will be unable to achieve the turnover growth necessary for DRM support; it is more

likely indicative of the early stage nature of the businesses who receive EPIS support. For example, businesses still trying to prove the concept may be uncertain about the level of turnover they can expect to generate from it in the future and therefore unable to provide turnover projections.

Tables 5.14 - 5.18 presents the wide range of benefits achieved by EPIS. They include the following highlights:

- 34 (89%) companies said they achieved improved business skills as a result of their involvement with EPIS (see table 5.14)
- 27 (71%) companies said that EPIS support helped increase the overall value of the company
- 21 (55%) companies were able to secure intellectual property protection
- 19 (50%) companies said EPIS allowed them to make cost saving
- 11 (29%) companies said EPIS helped them achieve New UK sales and 7 (18%) said EPIS enabled them to enter into new export markets

Improved Skills **Table 5.14**

Type of benefit	Number of responses
Improved business skills	34 (89%)
Improved technological knowledge	12 (32%)
Improved ability to attract highly skilled staff	12 (32%)
Improved qualifications of staff	3 (8%)

Sales **Table 5.15**

Type of benefit	Number of responses
New UK sales	11 (29%)
Improved domestic sales	10 (26%)
Improved overseas markets	10 (26%)
New export markets	7 (18%)

Productivity **Table 5.16**

Type of benefit	Number of responses
Cost savings	19 (50%)
Improved delivery times	8 (21%)

Intellectual Property **Table 5.17**

Type of benefit	Number of responses
Protection of intellectual property (patents, copyrights, trade marks)	21 (55%)
Increased income from intellectual property (licensing, joint ventures)	3 (8%)

Increased Company Values **Table 5.18**

Type of benefit	Number of responses
Increase in the overall value of the company	27 (71%)
Increase in the value of assets	13 (34%)

6 Impact Assessment

This section considers the economic impact of the EPIS project to date (2004-2008) and projected over time (2009-2019).

The key measure in this assessment is GVA, or the difference between output (what is produced) and intermediate consumption (the costs of inputs to products/services/processes) in a given sector. Put simply, it is the value of sales less the cost of the inputs needed to make those sales.

While GVA is an important outcome measure of SE activity, the EPIS project pre dated the interest in GVA. It was therefore not a target area in the approval paper. We include the analysis here as it is now a standard element of evaluation practice, a key element within our terms of reference. The potential GVA return of the project would also be assessed in making any future funding decisions.

This section draws out the GVA impacts of the EPIS project along with wider turnover and employment impacts.

6.1 Approach to assessing economic impact

The economic impact calculations are based on best practice guidance in Economic Impact Assessment developed by Scottish Enterprise[15]. It uses the approach as well as the standard question set[16] for assessing economic impact. This includes:

- collecting key impact variables
- adjusting the impact variables for additionality
- adjusting for optimism bias
- adjusting for business failure and acquisition
- conducting a cost benefit analysis of the results

6.1.1 Collecting key impact variables

The key impact variables collected to understand the impact of Scottish Enterprise intervention covers turnover, employment and GVA.

Projected turnover was collected from the companies for key periods over the next 10 years, as was employment (2009, 2010, 2012, 2014, and 2019). GVA was developed by subtracting the cost of bought in goods and services (excluding employee costs) on an annual basis projected over the next 10 years from the annual turnover level in each of the key data collection years (or annual estimated cost of bought in goods and services where the company was pre revenue). In all cases the intervening years were assumed to be the same as for the last full year for which data was collected[17]. This approach is validated by the Centre for Technology Development paper on employment growth in new firms[18].

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[15] Scottish Enterprise (2008) *Additionality and Economic Impact Assessment Guidance Note, A Summary Guide to Assessing the Additional Benefit, or Additionality of and Economic Development Project or Programme*, Appraisal and Evaluation Team

[16] Scottish Enterprise (2008) *Additionality & Economic Impact Assessment Guidance Note: Appendix 2: Standard Questions and Standard Reporting Outputs*, Appraisal and Evaluation

[17] While the intervening years are held constant – they are adjusted for business failure and company acquisition, therefore the data in the tables vary slightly on a year to year basis

[18] Stam.E, Gibcus.P, Telussa.J and Garnsey.E (2008) *Employment Growth of New Firms*, Centre for Technology Management, University of Cambridge

This paper evaluated growth patterns of new firms over a 10 year period and grouped firms into four categories:

- early growth and plateau (73% of firms)
- continuous growth (0.3% of the firms)
- growth setback (17%)
- delayed growth (10%)

The implication is that most firms do not grow on a continuous basis. Our assessment works on spikes of growth rather than continual growth providing a more cautious estimate of impact and fitting the evidenced growth patterns of new firms.

6.1.2 Gross to net adjustments (additionality)

In order to understand the full impact of the EPIS project there was a need to assess the additionality of the intervention. In effect what has happened that would not have happened anyway.

The additional benefit of an intervention is the difference between the reference case (what has happened anyway) and the intervention case (the position when the intervention has been implemented).

In order to fully understand this there is a need to move all results from gross to net. This adjusts for

- deadweight – what would have happened anyway
- leakage – the extent to which the benefits are lost to Scotland
- displacement – the extent to which the benefits are coming at the expense of other Scottish based businesses
- substitution – the extent to which one activity is simply substituted for another
- multipliers – the positive downstream effects created through spending on supplies and the wider wages generated from these downstream effects

The adjustments made to each of these factors are based on information supplied by the individual companies and therefore vary on a company by company basis. However, to provide some context to these variables we have provided the average values for each for reference.

Deadweight was calculated by asking the company how different their turnover and employment would have been without the Scottish Enterprise support. This was asked for 2008[19] and key milestone years over the next 10 years (2009, 2010, 2012, 2014 and 2019) providing a full 10 year impact assessment. The average values in each year are summarised in the table below.

Average Deadweight Values for Milestone Years **Table 6.1**

	Employment	Turnover/GVA
2008	76%	81%
2009	81%	80%
2010	81%	89%
2012	87%	92%
2014	88%	94%
2019	87%	94%

Date for intervening years was assumed to be the same as for the last full year for which data was asked.

[19] Deadweight for 2004-2007 were sourced from the wider commercialisation review or assumed to be 100% if no impact was reported in 2008

Displacement was applied consistently to employment, turnover and GVA based on the location of the companies direct competitors (and adjusted based on the growth of the market they operate in) at the point of survey. For the EPIS project the average displacement amounted to 7% in 2008. This means that most companies are suggesting that they have virtually no competitors in Scotland and that they are operating in markets that have been either improving moderately or strongly over the last three years. This value was held constant over the 10 years of the economic appraisal.

Leakage was estimated at 0% for turnover and GVA. At present Scottish Enterprise practice is to assume that if turnover and GVA are generated within Scotland then they are retained within Scotland. This assumption has therefore been used in the impact assessment. This value was held constant over the 10 years of the economic appraisal.

In the case of employment the number of staff employed who were resident outside of Scotland was asked of the companies. This gave an employment leakage average of 11%.

Substitution was assessed by asking the companies about the extent to which they have replaced one activity with another (or employees for another) to benefit from public sector assistance. No company suggested they replaced any staff to benefit from support giving a value of 0% for employment. However, a small number of entrepreneur responses suggested that they had substituted some activity to take part in the scheme. This meant the average for turnover and GVA was 3%. These values were held constant over the five years of operation to date and the 10 year forward projections.

Multiplier values were sourced from the Scottish Input Output multiplier tables based on the full 4 digit Standard Industrial Classification code of the formed companies. These were matched with Type 2 input output multipliers for Output (in the case of turnover), GVA and employment. These were held constant over the 10 years of the economic appraisal.

6.1.3 Adjusting for optimism bias

As the study included a forward looking exercise which is reliant on company projections of growth – in terms of employment, turnover and cost of bought in goods and services it is appropriate to adjust the figure for over optimism.

There is a demonstrated, systematic, tendency for appraisers to be overly optimistic. This is not just a public sector phenomenon, but also applies to the private sector. As our future impact data is based on the views of the company owner, it is appropriate to adjust for over optimism. This avoids the potential for the projections to over count the potential generation of benefits.

There is no standard approach to assessing optimism bias. Scottish Enterprise have however, developed an approach to adjusting company projections for over optimism using the Department for Innovation, Universities and Schools (DIUS) Value Added Calculator[20].

In this appraisal we use an approach that calculates projected GVA per head (based on GVA and employment) for each of the individual companies. Where the GVA per head is above the DIUS Value Added Calculator sectoral average in any year, the figure is reduced by an appropriate amount to bring it in line with the average. Where

[20] http://www.innovation.gov.uk/value_added/default.asp?quicklink=calculator

the value lies below the average GVA per head for the sector, based on the BERR database, it is assumed to be within an acceptable standard and not adjusted down in any way. These downward adjustments are applied to turnover and GVA to develop more realistic estimates of impact.

This approach means that employment is not adjusted in any way – even where companies have show that their turnover values are over optimistic. Our assessment of employment projections is that they are actually conservative across the company base. In effect they are predicting substantial revenue and GVA growth, but not increasing employment in line with this. For example, the average size of an EPIS firm in 2019 (in terms of gross employment headcount) is projected to be 25, up from 4 in 2009. Therefore it is assumed that there is less over optimism in the employment estimates and as a result they are not adjusted down in any way.

6.1.4 Adjusting for business failure and acquisition

Once the final net impact figures are adjusted for optimism there are two further adjustments that need to be made to the figures to avoid presenting overly optimistic estimates of impact. These adjustments are made to the expected GVA, turnover and employment and cover:

- adjustment for business failure
- adjustment for potential company acquisition

Each year is adjusted for business failure. This is based on the Department for Business, Enterprise and Regulatory Reform (BERR) 1 and 3 year survival rates[21] that suggests that each year 10% of businesses in existence at the beginning of the year will fail by the end of the year. We assume therefore that 1 business (from our 38) will fail every year over the next 10 years, with the average net value for either turnover, GVA or employment subtracted in each year to account for this.

The model also adjusts for potential company acquisition. In this case companies that are successful may make themselves a target for larger companies either interested in their technology or their market. A report on High Growth Firms in the UK produced by the Department for Business, Enterprise and Regulatory Reform[22] suggested that around 30% of the firms in their study population had been acquired. As such we assume that 1 company of the 38 companies will be acquired amounting to 1 company per annum over the 10 years of our appraisal. Further research evidence[23] was then used to look at the status of acquired Scottish companies, which suggested that for every 3 companies acquired, one will retain some degree of status and function that could contribute to economic growth. As such it is assumed that 1 company every two years do not make a further contribution to Scottish economic growth.

Subtracting the potential loss of value through acquisition and failure is done by simply taking the average GVA, turnover or employment in the specific year for the companies and multiplying this by the level of acquisition and failure in that year and subtracting it from the total GVA, turnover or employment.

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21 http://stats.berr.gov.uk/ed/survival/

22 BERR (2008) *High Growth Firms in the UK: Lessons from an Analysis of Comparative Performance*, Department for Business, Enterprise and Regulatory Reform

23 Training and Employment Research Unit (2005) *Corporate Headquarters in Scotland, their Nature and Contribution to Scotland's Economic Development*, Scottish Enterprise

6.1.5 *Cost benefit analysis*

Once the results were adjusted for additionality, optimism, business failure and acquisition the results were imported into the Scottish Enterprise cost benefit calculator.

Costs were collected on the project using data supplied by Scottish Enterprise. The data covers amount of money committed to the EPIS project between 2004 and 2008.

The results were discounted as per UK HM Treasury Best practice guidance at a rate of 3.5% per annum. This is based on the view that society prefers to generate benefits sooner rather than later. For the EPIS project the base year was 2004, representing year zero for the evaluation. All impact figures have been collected at 2007 prices.

6.2 Turnover impacts

It is appropriate to consider the generation of company benefits. This is measured as the net turnover accruing as a direct result of the project and represents a key measure of company growth.

The net turnover impact accruing as a direct result of EPIS over the period 2004-2008, amounts to £1.5 million (**NPV £1.3 million**). This represents a cost benefit ratio of 1: 0.96, or 96 pence back for every pound invested in EPIS.

This is just short of a position of breakeven, despite the early stage of some of the companies. The stage the businesses are at means that there are years where they have generated little or no revenue and this feeds into the figures outlined below. That said, the total **gross** turnover (in effect not adjusted for additionality as in the table) generated by EPIS firms between 2004 and 2008 amounts to over £10 million.

Turnover Impacts of the EPIS Project **Table 6.2**

Year	Costs	Net Present Value (Discounted Costs)	Turnover Impact	Net Present Value (Discounted Turnover)
2004	£312,062	£312,062	£0	£0
2005	£320,153	£309,326	£32,106	£31,020
2006	£207,663	£193,855	£52,732	£49,226
2007	£314,043	£283,249	£215,783	£194,624
2008	£338,531	£295,010	£1,216,106	£1,059,766
Total	**£1,492,451**	**£1,393,502**	**£1,516,727**	**£1,334,636**
Cost to Benefit Ratio				**1: 0.96**

It is important this finding is placed in the context of other similar initiatives, using the same approach and timeframes. Key benchmarks include the wider Scottish Enterprise Commercialisation programme and Enterprise Ireland Campus Incubation Programme.

The Scottish Enterprise commercialisation programme covers around 30 different projects that provide support to technology based businesses, ranging from the early stage Proof of Concept project, intensive High Growth Start Up Unit support, through to investment products such as the Seed, Venture and Co-investment fund.

The Enterprise Ireland Campus Incubation Programme was a €50 million investment in incubation centres at Universities and Institutes of Technology across Ireland. This covered support for physical development (the centres) and managers to run enterprise start up and support schemes. While a small number of centres have been operational for a number of years most centres were only occupied from around 2004 onwards.

In each case the main difference from the EPIS project is that EPIS started in 2004, while the other projects were more active before then and were therefore generating impacts in 2004. This means that while the timescales, companies and approach to impact has been the same the EPIS project has had to generate value from a 'standing start', rather than a more phased impact as in the other two.

The key findings in terms of cost benefit ratios are outline below, with:

- the Scottish Enterprise Commercialisation Programme generating a cost benefit ratio of 1: 4.38 between 2004 and 2008
- the Campus Incubation Programme generating a cost benefit ratio of 1: 1:56 between 2004 and 2008

The implication is that the project is just about at the breakeven stage behind the Campus Incubation Programme and some way behind the SE Commercialisation programme. Again, it is important to reiterate that each of these comparators have been running for longer, engage with significantly more companies (1,000+ in each case) and offer a broader range of services than the EPIS project.

6.3 GVA impacts

An estimate of 'impact' is the ultimate effect of the project on the economy, or in this case its contribution towards Scottish economic growth. This is measured as the net increase in gross value added (GVA or regional economic productivity) accruing as a direct result of the programme. As stated earlier GVA was not included in the target set for the EPIS project, as it predated Scottish Enterprises focus on this measure. However, as this is now a key outcome measure of SE activity we outline the impacts generated to date.

The GVA impact accruing over the period 2004-2008, amounts to £656,000 (**NPV £580,000**). This represents a cost benefit ratio of 1: 0.42, or 42 pence for every £1 invested in the project. This is a modest return from the initial investment but does reflect more closely than previous evaluation studies the position where start up companies do not generate revenue but use significant amounts of financial resource (known as 'cash burn') to get to a position where they can sell, then move to break even before arriving at profit. The real value comes in the long term, which is considered more fully in Section 6.5.

GVA Impacts of the EPIS Project **Table 6.3**

Year	Costs	Net Present Value (Discounted Costs)	GVA Impact	Net Present Value (Discounted GVA)
2004	£312,062	£312,062	£0	£0
2005	£309,326	£309,326	£26,616	£25,716
2006	£193,855	£193,855	£31,114	£29,045
2007	£283,249	£283,249	£134,050	£120,905
2008	£295,010	£295,010	£464,055	£404,397
Total	**£1,393,502**	**£1,393,502**	**£655,836**	**£580,064**
Cost to Benefit Ratio				**1: 0.42**

It is important this finding is placed in the context of other similar initiatives, using the same approach and timeframes. Key benchmarks include:

- the Scottish Enterprise Commercialisation Programme generating a cost benefit ratio of 1: 1.13 between 2004 and 2008
- the Enterprise Ireland Funded Campus Incubation Programme generating a cost benefit ratio of 1: 0.52 between 2004 and 2008

The implication is that the project has generated a modest return to date, but this is common for projects with a focus on commercialisation. Even the wider commercialisation programme, of which EPIS is a part, just breaks even over the period 2004-2008. This suggests that given the early stage nature of the EPIS companies, and the fact the project still has over a year to run, the project is starting to offer economic value.

6.4 Employment impacts

While turnover captures one element of business growth, it is also appropriate to consider the generation of employment effects within the businesses. This is also measured as the net increase or maintenance of employment (defined as headcount rather than Full Time Equivalent or Man Year Equivalent) as a direct result of the programme and represents another key measure of company performance.

The employment impacts need to be considered on an annual basis, as they cover both safeguarded and created jobs and cannot therefore simply be aggregated. In 2008 the total number of jobs either safeguarded or created by the EPIS project amounted to 47 net jobs in 2008.

This is a positive impact especially given the early stage nature of many of the companies. While the cost per job is relatively high, it also represents all the costs against a snapshot employment level in 2008. It takes no account of the duration or quality of the job.

6.5 The potential for future economic benefits

The economic impacts covered so far only cover the impacts achieved to date (in effect between 2004 and 2008). Data was collected from the companies on what they believe their turnover, GVA and employment will be over the next 10 years. This provides an assessment of the potential future economic benefit arising from the project.

Taking these estimates, and adjusting for over optimism in companies, as well as the potential for acquisition and failure, it is possible to outline the expected benefits over the next 10 years:

- £19.9m of potential net additional turnover by 2018 **(£14.4m NPV**)
- £13.2m of potential net additional GVA by 2018 (**£9.4m NPV**)
- 140 net additional jobs in 2018

Potential Future Impacts of the Business Connections Project **Table 6.4**

Year	Turnover Impact	Net Present Value (Discounted Turnover)	Employment	GVA Impact	Net Present Value (Discounted GVA)
2009	£2,479,887	£2,087,998	44	£1,472,058	£1,239,433
2010	£1,856,306	£1,510,106	59	£1,111,471	£904,182
2011	£1,761,111	£1,384,217	56	£1,054,472	£828,806
2012	£1,812,555	£1,376,475	62	£1,323,057	£1,004,745
2013	£1,712,281	£1,256,353	58	£1,250,824	£917,768
2014	£1,882,262	£1,334,371	81	£1,252,089	£887,629
2015	£1,770,699	£1,212,833	76	£1,177,938	£806,824
2016	£1,714,918	£1,134,904	74	£1,140,863	£755,004
2017	£1,603,356	£1,025,192	69	£1,066,712	£682,060
2018	£1,547,575	£956,063	67	£1,029,637	£636,091
2019	£1,824,981	£1,089,331	140	£1,328,989	£793,274
Total	**£19,965,931**	**£14,367,846**	**n/a**	**£13,208,109**	**£9,455,816**

Putting these findings in context this could represent a GVA cost benefit ratio over the period 2004-2019 of 1: 5.58, or £5.58 back for every £1 invested in the scheme[24]. It is important to recognise that while appropriate adjustments have been made these figures represent company projections and could therefore be achieved in full, exceeded or missed completely.

It is also possible to benchmark the GVA return in 2011 against the projects for which impacts to date are available. The EPIS return over this period amounts to 1: 1.97. This compares to:

- the Scottish Enterprise Commercialisation Programme generating a cost benefit ratio of 1: 1.82 between 2004 and 2011
- the Enterprise Ireland Funded Campus Incubation Programme generating a cost benefit ratio of 1: 1.14 between 2004 and 2011

The implication is that EPIS could lead the way in terms of generating a return for the initial investment, outperforming the wider commercialisation programme, in which it sits by 2011, as well as the Campus Incubation Programme.

The best comparison for the EPIS scheme is the wider commercialisation review. Looking at the impacts over time as associated cost benefit ratios, it is apparent that the EPIS scheme could actually outperform the wider programme of which it is part.

Full details are included in Table 6.5 below.

Cumulative Impact Cost Benefit Ratios **Table 6.5**

Milestone Year	Cost Benefit Ratio	
	EPIS	Commercialisation Programme
Year 1 (2005)	0.04	1.14
Year 3 (2007)	0.16	1.82
Year 5 (2009)	1.14	1.61
Year 10 (2014)	3.54	2.07

6.6 Value for money

In order to understand value for money there is a need to understand three broad factors around the delivery of the project:

- economy
- efficiency
- effectiveness

The first cover the **economy** of the intervention. Economy is concerned with the overall cost of the inputs (in effect the project) and if this is reasonable. With the lack of good comparable data on the costs of business creation programmes we use the cost per company from the commercialisation review against the cost per entrepreneur for the EPIS project. This gives a cost per company of:

- £88,600 for the commercialisation review
- £33,200 per company for EPIS (this only includes incorporated companies)

While this is not a directly fair comparison, the commercialisation review included companies who access multiple projects, as well as substantial finance from investment products, it does suggest that the EPIS scheme fits within an acceptable benchmark in terms of cost per company engaged.

[24] This cost benefit ratio and the subsequent GVA ratio includes the remaining spend associated with the final period of the EPIS scheme amounting to a total investment of around £1.9 million between 2004 and 2010

The second covers the **efficiency** of the intervention. This covers the extent to which the inputs have led to the desired outputs. The best way to measure this is to compare the SE funding for the project with the generation of R&D spend, public sector income and private sector investment generated by the EPIS companies. These figures suggest:

- R&D spend by EPIS companies of £2.5 million, or a leverage ratio of 1: 1.86
- wider public sector investment of £1.24 million, or a leverage ratio of 1: 0.86
- private investment (both debt and equity) of £3.3 million, or a leverage ratio of 1: 2.26
- total public and private sector investment of £4.5 million, or a leverage ratio of 1: 3.03

The positive findings across all these measures suggest the conditions for growth are being met by the EPIS firms and therefore the inputs are leading to the required outputs. This suggests a high degree of efficiency to date with over a year of the project still to run.

The final measure covers the **effectiveness** of the intervention. This covers the extent to which the outputs have led to the desired outcomes, in this case the inputs leading to GVA. The cost benefit ratio for net additional GVA of 1: 0.42 suggests a relatively modest level of effectiveness to date.

When sales are considered as a key outcome of the intervention the cost benefit ratio amounts to 1: 0.98 suggesting a greater level of return. In addition if the companies generate revenue at a level around a fifth lower than expected the project could breakeven when measured by GVA by the end of 2009. In addition, if further benefits are generated in line with expectations, and adjusted for failure and acquisition, the return by 2019 could amount to 1: 5.58. The implication is that the project is well on track to deliver an economic return greater than the costs of the scheme (including the remaining 2 years of SE financial commitment).

These findings reflect the time lag between intervention and benefit generation associated with commercialisation projects. The wider commercialisation programme, commissioned by Scottish Enterprise, also shows that making a return in the early stage(years 1-4) of a project is a major challenge. The evidence outlined in this evaluation reaffirms that view and therefore the progress of the EPIS project to date represents a major achievement.

Overall, it can be argued it is too early to assess the full value for money of the intervention. The project does not finish until 2010 and the benefits reported to date reflect achievement to date of the scheme rather than the impact of the scheme. The findings to date suggest high levels of economy and efficiency but lower effectiveness, potentially leading to high effectiveness if companies grow broadly in line with expectations.

7 Conclusions

The EPIS scheme is an innovative and effective model for taking people with business ideas and supporting them to develop these into fully incorporated companies.

The scheme is founded on a number of market imperfections associated with access to specialist space and equipment, academic expertise, a small amount of start up finance and expert business support. Left to the market these supports and infrastructure would not be provided in an efficient manner suggesting that EPIS is really about co-ordinating appropriate support in a manner than overcomes barriers and provides holistic support for company formation and growth.

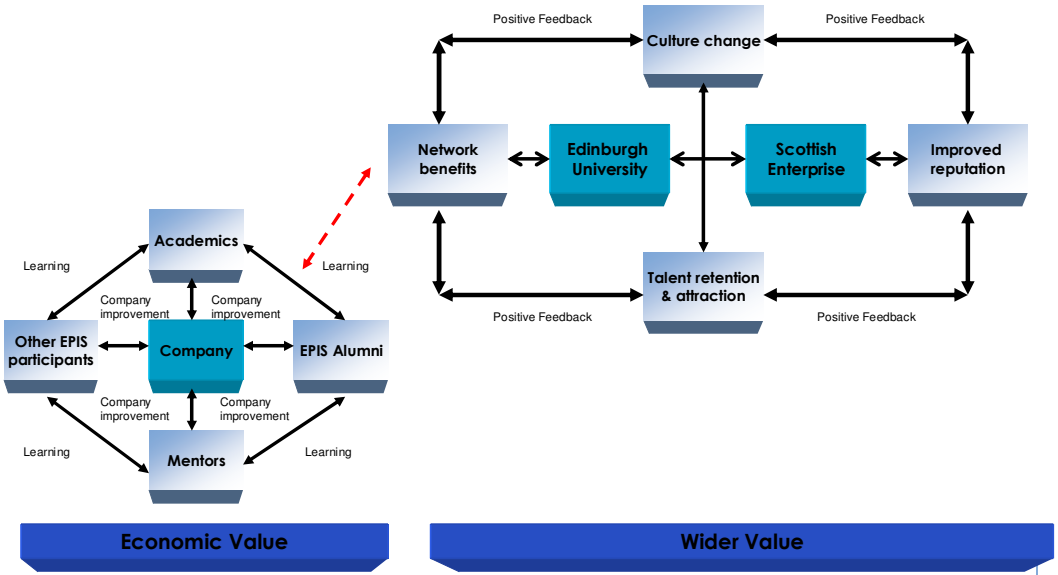
The scheme has a clear fit with the headline aims of the Government economic strategy and the policy outlined in the Scottish Enterprise business plan. There are also complementarities with the life sciences, digital media and food & drink industry demand statements and the wider activities of Scottish Enterprise. The project also has the potential to generate pipeline companies who with time could become eligible for DRM support in addition to the 6 companies already account managed.

Business and stakeholder feedback on the scheme is largely positive. Stakeholders suggested that the scheme operates effectively and covers many elements of best practice outlined in the recent review of incubation support.

Businesses rate the services on offer and have managed to access a range of public and private sector finance amounting to £4.5million. The companies have also invested £2.6 million in R&D. Wider benefits cited by the companies include:

- improved business skills
- increases in the value of the company
- improved use of IP

It is clear that the EPIS scheme is generating a wide range of value for Scottish Enterprise and the University of Edinburgh around culture change, both amongst the academics and entrepreneurs, retention and attraction of talent, reputational benefits and wider networking benefits. In particular, it is the networking benefits that lead to GVA – through the participant's access to academic expertise, business mentoring, other EPIS participants and EPIS alumni, all of whom appear to contribute to the development and progression of the new business starts. This is summarised in the Diagram below.



The economic impact of the scheme amounts to turnover to date of £1.5 million **(£1.3 million NPV**) against SE costs of £1.5 million **(£1.4 million NPV**). This amounts to an SE cost benefit ratio of 1: 0.96. If future impacts are considered the total net additional impact by 2019 could amount to £21.5 million of turnover **(£15.7 million NPV**). This would amount to a potential cost benefit ratio of 1: 8.73.

At the economy level the GVA impact of the EPIS project to date was £656,000 (**£580,000 NPV**). This amounts to a GVA cost benefit ratio of 1: 0.42, representing the very early stage nature of the companies. If future impacts are considered the total net additional GVA impact could amount to £13.9 million (**£10 million NPV**). This could amount to a cost benefit ratio of 1: 5.58.

Overall Progress with EPIS follows a pattern that is broadly similar to SE's portfolio of commercialisation activities[25], with some clear evidence that the initial impact generated to date could lead to longer term economic benefit that outweighs the cost of the scheme as well as generating wider benefits for Scottish Enterprise and the University of Edinburgh. This should be tracked to assess progress over time using the outline framework as outlined in Appendix 3.

Frontline Consultants

June 2009

[25] Evaluated by Frontline Consultants in late 2008

Appendix 1

Cost Benefit Workbooks

Annex A1: GVA Cost Benefit Workbook

NPV @ 3.5% p.a.

EVALUATION DATE:	May-09																
EVALUATION TITLE:	EPIS (FINAL GVA)																
YEAR :	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	TOTAL
CAPITAL COSTS (£s):	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
																	£0
A. Total Capital Costs (Annual)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0		£0
B. Total Capital Costs (Cumulative)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	
REVENUE COSTS (£s):																	
EPIS Costs	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275										£1,983,000
C. Total Revenue Costs (Annual)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	£1,983,000
D. Total Revenue Costs (Cumulative)	£312,062	£632,215	£839,877	£1,153,920	£1,492,451	£1,737,726	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	
E. Total Costs (Annual) (=A+C)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	£1,983,000
F. Total Costs (Cumulative) (=B+D)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	
BENEFITS (£s):																	
Total NET GVA Impact - Weighted	£0	£26,616	£31,114	£134,050	£464,055	£1,472,058	£1,111,471	£1,054,472	£1,323,057	£1,250,824	£1,252,089	£1,177,938	£1,140,863	£1,066,712	£1,029,637	£1,328,989	£13,863,945
G. Total Benefits (Annual)	£0	£26,616	£31,114	£134,050	£464,055	£1,472,058	£1,111,471	£1,054,472	£1,323,057	£1,250,824	£1,252,089	£1,177,938	£1,140,863	£1,066,712	£1,029,637	£1,328,989	£12,534,956
H. Total Benefits (Cumulative)	£0	£26,616	£57,731	£191,781	£655,836	£2,127,894	£3,239,364	£4,293,837	£5,616,894	£6,867,718	£8,119,807	£9,297,744	£10,438,607	£11,505,319	£12,534,956	£13,863,945	
NET UNDISCOUNTED COST* (=E-G)	£312,062	£293,536	£176,548	£179,993	-£125,524	-£1,226,784	-£866,196	-£1,054,472	-£1,323,057	-£1,250,824	-£1,252,089	-£1,177,938	-£1,140,863	-£1,066,712	-£1,029,637	-£1,328,989	-£11,880,945
DISCOUNT FACTOR @ 3.5% p.a.	1.0000	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089	0.6849	0.6618	0.6394	0.6178	0.5969	
NET PRESENT COST* (Annual)	£312,062	£283,610	£164,810	£162,343	-£109,387	-£1,032,919	-£704,651	-£828,806	-£1,004,745	-£917,768	-£887,629	-£806,824	-£755,004	-£682,060	-£636,091	-£793,274	-£8,236,332
NET PRESENT COST* (Cumulative)	£312,062	£595,672	£760,482	£922,825	£813,438	-£219,481	-£924,132	-£1,752,938	-£2,757,683	-£3,675,451	-£4,563,080	-£5,369,904	-£6,124,907	-£6,806,968	-£7,443,058	-£8,236,332	
TOTAL NET PRESENT COST* =	**-£6,806,968**																

* A minus sign in these rows denotes a Net Present Value rather than a Net Present Cost.

Evaluation																	
Costs	£312,062	£320,153	£207,663	£314,043	£338,531	**£1,492,451**	3.03										
Costs (Discounted)	£312,062	£309,326	£193,855	£283,249	£295,010	**£1,393,502**											
Benefits	£0	£26,616	£31,114	£134,050	£464,055	**£655,836**											
Benefits (Discounted)	£0	£25,716	£29,045	£120,905	£404,397	**£580,064**											
Cost Benefit Ratio						**0.42**											
Appraisal																	
Costs						£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£490,549**
Costs (Discounted)						£206,515	£199,531	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£406,046**
Benefits						£1,472,058	£1,111,471	£1,054,472	£1,323,057	£1,250,824	£1,252,089	£1,177,938	£1,140,863	£1,066,712	£1,029,637	£1,328,989	**£13,208,109**
Benefits (Discounted)						£1,239,433	£904,182	£828,806	£1,004,745	£917,768	£887,629	£806,824	£755,004	£682,060	£636,091	£793,274	**£9,455,816**
Cost Benefit Ratio																	**23.29**
Combined																	
Costs	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£1,983,000**
Costs (Discounted)	£312,062	£309,326	£193,855	£283,249	£295,010	£206,515	£199,531	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£1,799,548**
Benefits	£0	£26,616	£31,114	£134,050	£464,055	£1,472,058	£1,111,471	£1,054,472	£1,323,057	£1,250,824	£1,252,089	£1,177,938	£1,140,863	£1,066,712	£1,029,637	£1,328,989	**£13,863,945**
Benefits (Discounted)	£0	£25,716	£29,045	£120,905	£404,397	£1,239,433	£904,182	£828,806	£1,004,745	£917,768	£887,629	£806,824	£755,004	£682,060	£636,091	£793,274	**£10,035,880**
Cost Benefit Ratio																	**5.58**

	Costs	Benefits	Cost Benefit Ratio
Year 1	£621,388	£25,716	0.04
Year 3	£1,098,492	£175,667	0.16
Year 5	£1,600,017	£1,819,498	1.14
Year 10	£1,799,548	£6,362,628	3.54

Annex A2: Turnover Cost Benefit Workbook

NPV @ 3.5% p.a.

EVALUATION DATE:	May-09																
EVALUATION TITLE:	EPIS (FINAL Turnover)																
YEAR :	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	TOTAL
CAPITAL COSTS (£s):	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
																	£0
A. Total Capital Costs (Annual)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0		£0
B. Total Capital Costs (Cumulative)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	
REVENUE COSTS (£s):																	
EPIS Costs	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275										£1,983,000
C. Total Revenue Costs (Annual)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	£1,983,000
D. Total Revenue Costs (Cumulative)	£312,062	£632,215	£839,877	£1,153,920	£1,492,451	£1,737,726	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	£1,983,000	
E. Total Costs (Annual) (=A+C)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	£1,983,000
F. Total Costs (Cumulative) (=B+D)	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	
BENEFITS (£s):																	
Total NET GVA Impact - Weighted	£0	£32,106	£52,732	£215,783	£1,216,106	£2,479,887	£1,856,306	£1,761,111	£1,812,555	£1,712,281	£1,882,262	£1,770,699	£1,714,918	£1,603,356	£1,547,575	£1,824,981	£21,482,658
G. Total Benefits (Annual)	£0	£32,106	£52,732	£215,783	£1,216,106	£2,479,887	£1,856,306	£1,761,111	£1,812,555	£1,712,281	£1,882,262	£1,770,699	£1,714,918	£1,603,356	£1,547,575	£1,824,981	£19,657,677
H. Total Benefits (Cumulative)	£0	£32,106	£84,838	£300,621	£1,516,727	£3,996,614	£5,852,920	£7,614,031	£9,426,586	£11,138,867	£13,021,129	£14,791,828	£16,506,746	£18,110,102	£19,657,677	£21,482,658	
NET UNDISCOUNTED COST* (=E-G)	£312,062	£288,047	£154,931	£98,260	-£877,575	-£2,234,613	-£1,611,032	-£1,761,111	-£1,812,555	-£1,712,281	-£1,882,262	-£1,770,699	-£1,714,918	-£1,603,356	-£1,547,575	-£1,824,981	-£19,499,658
DISCOUNT FACTOR @ 3.5% p.a.	1.0000	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089	0.6849	0.6618	0.6394	0.6178	0.5969	
NET PRESENT COST* (Annual)	£312,062	£278,306	£144,629	£88,625	-£764,756	-£1,881,484	-£1,310,575	-£1,384,217	-£1,376,475	-£1,256,353	-£1,334,371	-£1,212,833	-£1,134,904	-£1,025,192	-£956,063	-£1,089,331	-£13,902,934
NET PRESENT COST* (Cumulative)	£312,062	£590,368	£734,998	£823,623	£58,867	-£1,822,617	-£3,133,193	-£4,517,410	-£5,893,885	-£7,150,239	-£8,484,610	-£9,697,442	-£10,832,347	-£11,857,539	-£12,813,602	-£13,902,934	
TOTAL NET PRESENT COST* =	**-£11,857,539**																

* A minus sign in these rows denotes a Net Present Value rather than a Net Present Cost.

Evaluation																	
Costs	£312,062	£320,153	£207,663	£314,043	£338,531	**£1,492,451**											
Costs (Discounted)	£312,062	£309,326	£193,855	£283,249	£295,010	**£1,393,502**											
Benefits	£0	£32,106	£52,732	£215,783	£1,216,106	**£1,516,727**											
Benefits (Discounted)	£0	£31,020	£49,226	£194,624	£1,059,766	**£1,334,636**											
Cost Benefit Ratio						**0.96**											
Appraisal																	
Costs						£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£490,549**
Costs (Discounted)						£206,515	£199,531	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£406,046**
Benefits						£2,479,887	£1,856,306	£1,761,111	£1,812,555	£1,712,281	£1,882,262	£1,770,699	£1,714,918	£1,603,356	£1,547,575	£1,824,981	**£19,965,931**
Benefits (Discounted)						£2,087,998	£1,510,106	£1,384,217	£1,376,475	£1,256,353	£1,334,371	£1,212,833	£1,134,904	£1,025,192	£956,063	£1,089,331	**£14,367,846**
Cost Benefit Ratio																	**35.38**
Combined																	
Costs	£312,062	£320,153	£207,663	£314,043	£338,531	£245,275	£245,275	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£1,983,000**
Costs (Discounted)	£312,062	£309,326	£193,855	£283,249	£295,010	£206,515	£199,531	£0	£0	£0	£0	£0	£0	£0	£0	£0	**£1,799,548**
Benefits	£0	£32,106	£52,732	£215,783	£1,216,106	£2,479,887	£1,856,306	£1,761,111	£1,812,555	£1,712,281	£1,882,262	£1,770,699	£1,714,918	£1,603,356	£1,547,575	£1,824,981	**£21,482,658**
Benefits (Discounted)	£0	£31,020	£49,226	£194,624	£1,059,766	£2,087,998	£1,510,106	£1,384,217	£1,376,475	£1,256,353	£1,334,371	£1,212,833	£1,134,904	£1,025,192	£956,063	£1,089,331	**£15,702,482**
Cost Benefit Ratio																	**8.73**

	Costs	Benefits	Cost Benefit Ratio
Year 1	£621,388	£31,020	0.05
Year 3	£1,098,492	£274,870	0.25
Year 5	£1,600,017	£3,422,634	2.14
Year 10	£1,799,548	£10,284,157	5.71
2011	£1,799,548	£6,316,958	3.51

Appendix 2

Consultees

Stakeholder Name	Organisation
Derek Waddell	Edinburgh University
Adrian Smith	Edinburgh University
David Caughey	Scottish Enterprise
Susan Watson	Scottish Enterprise

Appendix 3

Outline Monitoring and Evaluation Framework

Monitoring of the Project

An outline monitoring structure is included in this section based on the key metrics outlined in the recent Strategic Review of Incubation.

A transparent monitoring and evaluation structure should be implemented to ensure that the benefits of the project are considered at critical project delivery stages. This should include continued monitoring and update reports produced by the project manager. This data should be fed into a more formal monitoring and evaluation framework, covering ongoing management information as well as an annual survey of users to collect key output data

The objectives will require to be monitored over the period of the project. Some basic project variables are included in the Table below.

Basic Project Monitoring Variables

Basic Project Variables
Inputs
SE contribution £s
University contribution £s
ERDF contribution £s
Activities
Business support services – assists
High Growth Potential Start Ups
Business University collaborations
Conversion rates – participants to incorporated businesses
Outputs
Turnover invested in R&D (or R&D spend when pre revenue)
Employee numbers (clearly defined e.g. headcount, FTE, MYE)
Percentage of staff with degrees
Percent of turnover invested in training (or training spend when pre revenue)
Gross turnover of client businesses
Level of funding raised – debt
Level of funding raised – equity
Level of funding raised – grant (public sector)
Level of funding – own money
Intellectual property – Patents
Intellectual property – Trademarks
Intellectual property – Registered Design
Outcomes
Gross GVA (turnover less cost of bought in goods and services) or employee costs, net profit, depreciation and amortisation in pre revenue)

The purpose of the ex-post evaluation should be directed towards a full consideration of the project, and detail the way in which support has delivered the intended outcomes, and identify lessons for future intervention. The issues covered should include:

- **Appropriateness –** was it the right thing to do?
- **Process efficiency** – was it well implemented?
- **Process improvement** – how could it have been done better?
- **Quality** – how good were the outputs?
- **Impact** – what has happened as a consequence?
- **Additionality** – what has happened which would not have happened otherwise?
- **Displacement** – have benefits come at the expense of other companies in Scotland?
- **Economy** – were the costs of acquiring the inputs to the programme reasonable?
- **Efficiency** – Did the project deliver the maximum outputs for the inputs?
- **Effectiveness** – did the project deliver the desired outcomes?
- **Efficacy** – how did the ROI compare with expectations?
- **Strategy –** what should be done next?