



Review of the Scottish Enterprise and Royal Society of Edinburgh Enterprise Fellowship Programme

Independent Review of Business Performance and Economic Impact: Executive Summary

March 2007

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This report contains information obtained or derived from two main sources, namely the electronic questionnaire issued to Enterprise Fellows (developed by Ernst & Young LLP and Oxford Economics) and published company reports and accounts. We have not sought to establish and undertake an independent review of the reliability of the information provided within these sources or sought to validate the projections of future performance. The historical performance of Enterprise Fellowship Programme is not a guaranteed indication of future performance.

Executive summary

Introduction

Ernst & Young LLP and Oxford Economics have been commissioned by Scottish Enterprise to conduct an independent review ("The Review") of the Scottish Enterprise and Royal Society of Edinburgh Enterprise Fellowship Programme ("The Programme"). The purpose of this Review is to evaluate the performance of businesses which have resulted from Enterprise Fellows' participation in the Programme and to assess the resulting economic impact of those businesses.

In addition, the Review included a structured consultation process which is designed to assist the delivery partners (Scottish Enterprise and the Royal Society of Edinburgh) in assessing potential future developments for the programme. This consultation process sought input from the Enterprise Fellows and the wider stakeholder community. Critical issues in the development of the programme were debated in events held at the Royal Society of Edinburgh on 12 December 2006 and the Scottish Parliament on 17 January 2007. The results of the consultation process are contained within a separate advisory document produced by Ernst & Young LLP.

Programme Overview

'The Enterprise Fellowship programme is funded by Scottish Enterprise and delivered in partnership with the Royal Society of Edinburgh. It is one part of an overall aim to translate the excellence in Scottish research into new businesses and products'.

Source: www.scottish-enterprise.com

Strategic Rationale

It is widely recognised that Scotland has a strong academic research infrastructure, including many world-class research teams, but the transfer of this knowledge into businesses across Scotland is relatively weak. The strategic rationale for the Enterprise Fellowship Programme is to address, directly, this weakness by encouraging and supporting researchers as they take forward their science and technology ideas as new businesses. The Programme achieves this in two ways:

1. The Programme stimulates interest in entrepreneurship and new business formation within Scotland's research community. This leads to applications into the competition process.
2. The Programme provides direct support to researchers as they take forward their science and technology based business ideas. This Programme support takes the form of access to 12 months of salary funding, business training, professional mentoring and introductions to legal, financial and business networks.

Scope and Objectives

The Programme operates across Scotland with the aim of assisting individuals to develop their entrepreneurial skills as they take forward a new business venture. The primary target group for the Programme is academic researchers who wish to develop a spin-out business around a science or technology based idea.

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Key objectives of the Programme include:

- Facilitation of the transfer of knowledge from the academic research base into industry through the development of new businesses, in Scotland, which become successful in attracting investment/revenue and which generate high value jobs.
- Increasing the number of innovation led technology companies emergent from the research base in Scotland.
- Increasing the sustainability of innovation led technology companies emergent from the research base in Scotland.

Applications for Enterprise Fellowships are encouraged from individuals within academia who meet three criteria:

- The applicant demonstrates entrepreneurial potential.
- The business idea, as proposed appears to have commercial potential.
- The support provided by the programme matches the needs of the individual in taking forward the proposed business idea.

Application rounds are held twice per year (April and October) and selection is based on a written application followed by a panel based interview. The panel, which consists of experienced entrepreneurs, technology experts, market analysts and Scottish Enterprise representatives, uses the above three criteria to make formal recommendations to SE and the Royal Society of Edinburgh on which applications should be taken forward to award.

Further information about the Programme can be accessed via Scottish Enterprise's website: www.scottish-enterprise.com or via Royal Society of Edinburgh's website: www.royalsoced.org.uk.

Delivery of the Programme

The Programme is funded by Scottish Enterprise ("SE") and delivered as a partnership between Scottish Enterprise and the Royal Society of Edinburgh ("RSE"). The programme was launched in 1997 and since this date there have been 14 application rounds and a total of 76 awards granted.

The first phase of the Programme (phase I) supported 24 awards over a 5 year period. The Programme was subject to an economic review¹ in June 2001 to assess its effectiveness and future potential. Based on the findings of this Review, the SE Board approved a phase II implementation which was launched in spring 2002. The phase II programme has supported a further 52 awards bringing the total awards to date to 76. Tables 1 and 2 show the numbers of awards granted, on an annual basis, for the phase I and phase II programmes respectively.

¹ *Scottish Enterprise: Interim Review and Evaluation of the Enterprise Fellowships Programme – Summary Report. Review conducted by Segal Quince Wicksteed Ltd of Scottish Enterprise, June 2001*

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Table 1: Enterprise Fellowship awards for phase I

Phase I	No of Awards
1997	4
1998	4
1999	5
2000	5
2001	6

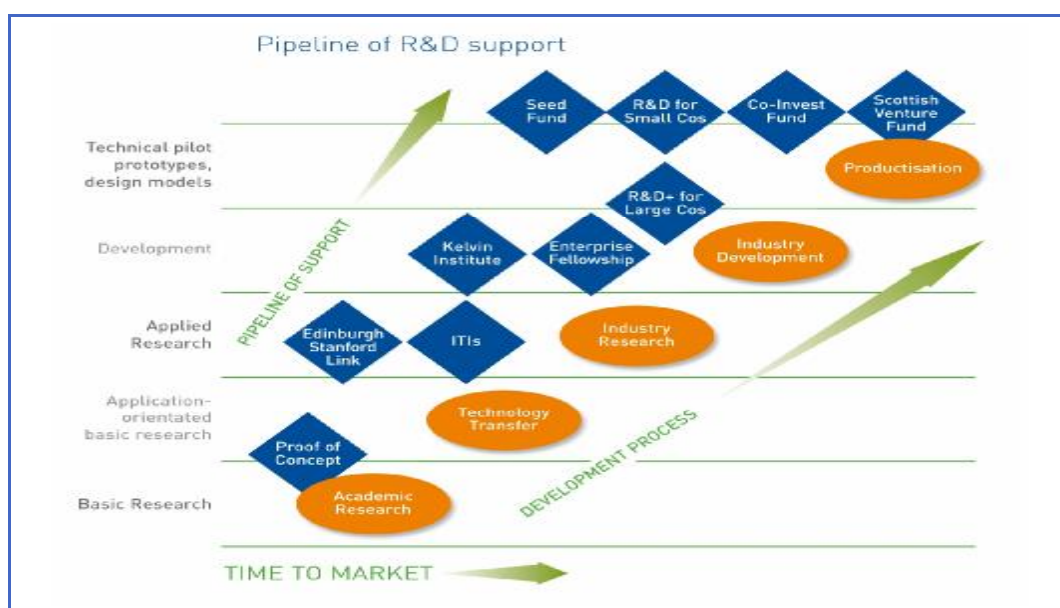
Table 2: Enterprise Fellowship awards for phase II

Phase II	No of Awards
2002	9
2003	15
2004	12
2005	10
2006	6

Position in relation to other public sector entrepreneurial support initiatives

The Programme is an important element with a range of support schemes which are designed to translate the excellence in Scottish research into new business opportunities for Scotland and as such is a key element in the 'pipeline of R&D support'. In particular this programme targets the creation of new businesses.

Figure 1: Pipeline of Support



Source: SE Operating Plan 2007-10

Scope and objectives of independent review

This report provides an independent assessment of the Programme following a review of the financial and economic performance of those businesses established by the Fellows of the Programme and an assessment of their contribution and impact within the Scottish economy. A detailed outline of the review approach and methodology applied is described in Section 1. Previous reviews of the Programme were commissioned by SE in 2001 and 2003².

Overview of approach

The Review was structured into two main areas with Ernst & Young focusing upon the financial performance of the businesses resulting from the Programme and Oxford Economics analysing the impact and effects these business have had upon the Scottish & UK economy. The data used by the Review was sourced from a questionnaire which Ernst & Young and Oxford Economics developed jointly. Questionnaires were issued to all the Fellows with the returned data being analysed by the Review team.

The observations presented in this report are based upon the analysis of the questionnaire responses received from the Enterprise Fellows. The Review team did not receive a 100% response and the number of responses to individual questions varied. A total of 51 questionnaire returns were received from the Fellows (73% response rate), with a varying degree of data contained within this sample (e.g., not all returned questionnaires contained a full data set). Where appropriate, we have indicated the responses received in our data analysis in both the business performance and economic impact analysis sections of the report.

The Review has been commissioned in order to provide answers to the following key questions:

1. Has the Programme made a positive contribution to stimulating the development of new businesses in Scotland within the high technology sectors?
2. To what extent have the resulting businesses demonstrated levels of growth in employment, revenues and profitability?
3. To what extent have the resulting businesses contributed in terms of GVA to Scotland's economy?
4. Has the Programme, to date, demonstrated 'value for money' in terms of economic output, given the investment made?

The business performance and economic impact analysis aims to provide some quantifiable evidence to accurately answer whether the Programme has contributed to the development of new businesses within Scotland.

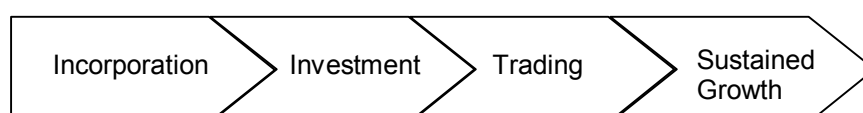
² Scottish Enterprise: Enterprise Fellowships Survey 2003 – Final Summary Report (Updated Feb 2004)

Key findings and observations

Business Performance Analysis

In order to analyse the development of the businesses formed by Enterprise Fellows, the business performance review has been structured around four distinct phases of development for technology based business. This development sequence is shown in Figure 2 and provides the structure for the reporting of the findings and observations within this review.

Figure 2: Stages of incorporation



Incorporation

Table 3 below shows that 44 businesses have been incorporated and a further 8 businesses are planned. These findings are based on the information contained within the 51 questionnaire returns and do not take account of any businesses formed by Enterprise Fellows who did not return their questionnaire. In addition, 8 Enterprise fellows report that they have no plans to form a business. Based upon the total number of awards to date (76) and the responses received, the conversion rate for award into business incorporation is currently at least 58%.

Table 3: Status of Businesses

Status of Businesses	Number
Total Incorporated (including trading)	44
Planned to incorporate	8
No plans to start a business	8
No longer trading	1

Investment

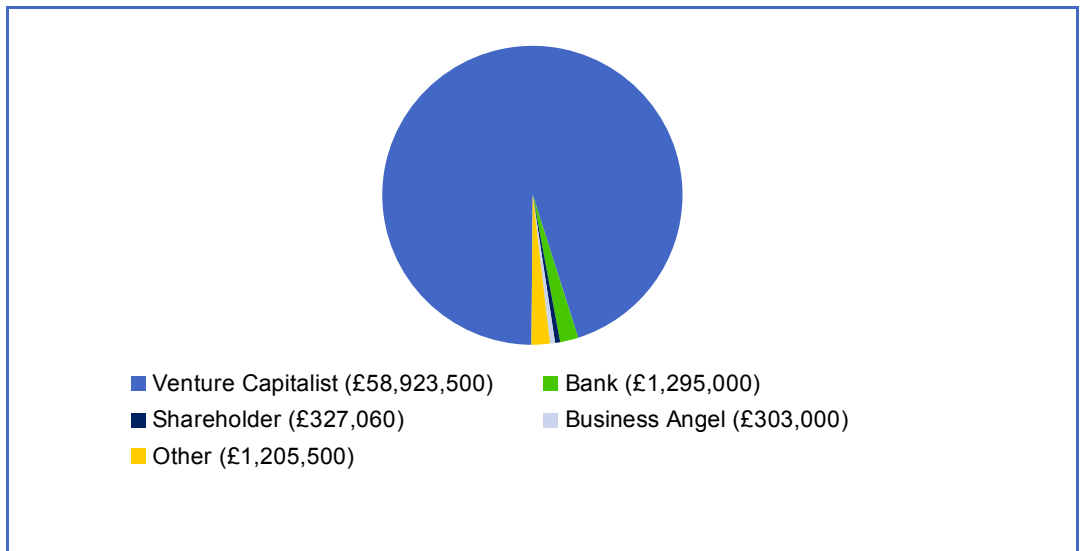
Based on the questionnaire responses, the total investment raised during the period 2001-2006 by the businesses of Enterprise Fellows amounts to approximately £70 million, as shown in Table 4. Of this figure, the follow-on public sector investment is approximately £7.9 million, while the private sector investment is over £62 million. These figures should be viewed as lower limits since some Enterprise Fellows did not return their questionnaire.

Based on the direct cost of the Programme (£4 million from 1997 onwards) and the figures shown in Table 4, the Programme has generated a ratio of 2:1 in follow-on public funding and a ratio of 15:1 in private funding. The Programme has also generated a ratio of 8:1 between private and public funding.

Table 4: Investment 2001-2006

	Follow-on Public	Private	Total Investment
Investment 2001-2006	£7.9 million	£62 million	£70 million

Figure 3: Private funding received



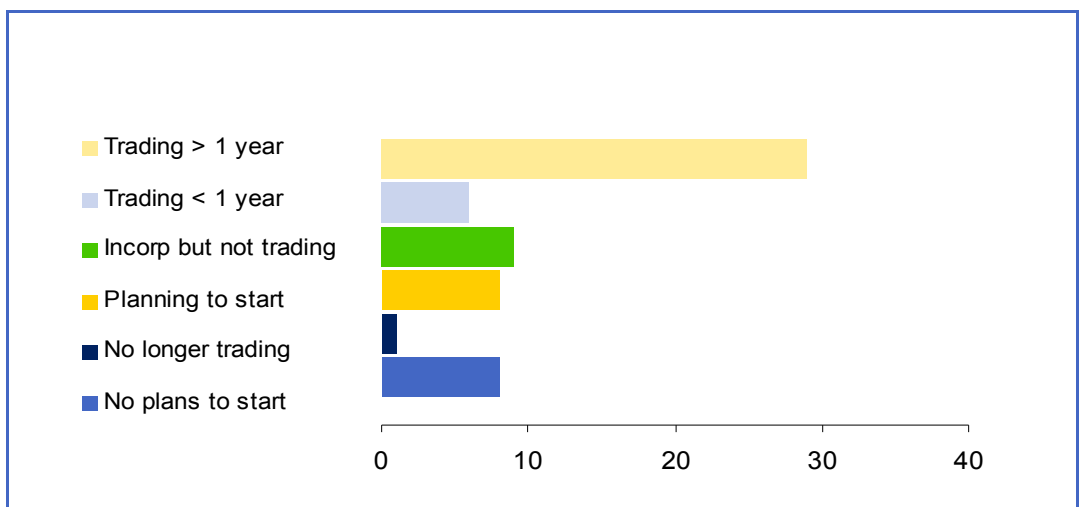
The private sector investment is presented in further detail in Figure 3, above, highlighting the contributions made by various investors. 95% of this private sector investment is from venture capital.

It should be noted that the investment income reported from this review is for the period 2001-2006 only and any investments made outside this range have not been incorporated into this analysis.

Trading

Based on the questionnaire returns, the Programme has established 35 trading businesses with over 80% trading for more than one year and from these businesses a projected turnover for the present financial year (2006) is in excess of £7 million. Additionally, (and from the questionnaire responses received) only one business is known to have ceased trading since being established as a result of the Programme.

Figure 4: Status of businesses



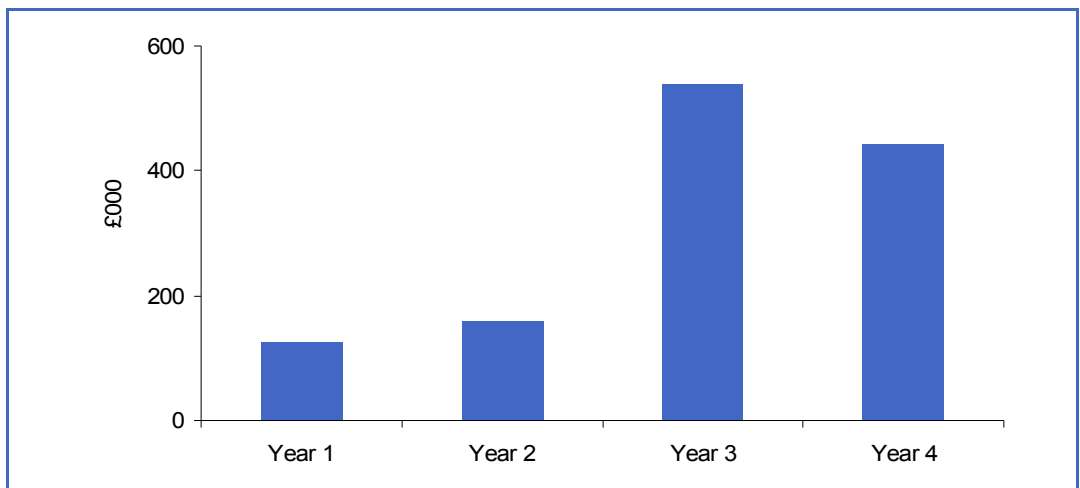
Sustained growth

Sustained growth is defined within this Review as being 'profitable growth and sustained turnover over the previous three years of trading'. Analysis is undertaken on the trends in turnover and profit of the Fellowship Businesses in order to identify if any businesses can be categorised as achieving sustained growth.

The businesses resulting from the programme have been set up over a period of 9 years and hence any given financial year will contain a mix of businesses at differing stages in their development. In order to provide clarity on the development of turnover and profit for the earliest years of these young businesses, we have plotted data for the trading businesses starting with year one being the first year in which sales were achieved.

Figure 5 below, shows the performance of established businesses over 4 years of trading - the calendar year in which those results were achieved varies depending on when the business was established.

Figure 5: Averaged turnover over first 4 years of trading



Turnover

Average turnover is seen to increase from £125,000 per business to £442,000 over the four years, representing an average increase in turnover of 53% year on year.

It can also be argued that a number of businesses are projecting sustained business growth over the next 3-5 years (as demonstrated by the forward projections provided by Enterprise Fellows). If the projections of the Enterprise Fellows prove accurate, the businesses may well display growth rates in excess of the 53% year on year turnover growth model identified from this analysis. However, the projections provided by the Enterprise Fellows have not been validated or challenged by the Review team.

Profitability

With regards to profitability, the Review has identified 3 distinct profiles which trading businesses can be classified as follows:

- Category 1: businesses experiencing high investment / high losses
- Category 2: businesses experiencing sustained and moderate profits

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- Category 3: businesses experiencing sustained and moderate losses

Businesses within category 1 are those making sustained losses but have received investment funding, which suggests that these businesses are spending the investment received in search of sustainable future sales. Businesses within category 2 are producing steady and increasing turnover and profit year on year, indicating that they are achieving moderate sustainable growth. Businesses within category 3 are making sustained operating losses but are also generating sustained high growth in turnover.

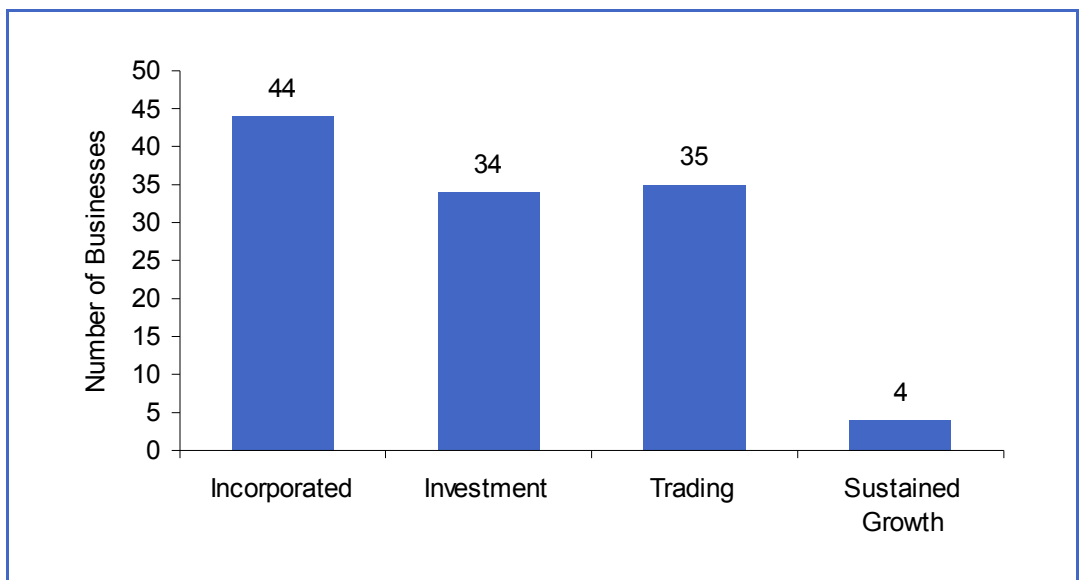
Summary

Based on the questionnaire returns, the Programme has assisted in the establishment of 44 businesses (35 trading and 9 which are preparing to commence trading). From the 34 businesses which have attracted investment from either follow-on public funds or private funds or both, this has resulted in a total of approximately £70 million being invested in businesses from 2001 to 2006.

Of the 35 trading businesses over 80% trading for more than one year and from these businesses (based upon 22 questionnaire returns) a projected turnover for the present financial year (2006) is in excess of £7 million.

With regards to achieving sustainable growth, we have identified a number of businesses who are generating sustained and continued profits and increasing turnover on a year on year basis at an average rate of 53%. There are 4 businesses within category 2: sustained, moderate profit making businesses which can be identified as generating sustained profits and turnover over a three year period.

Figure 6: Stages of business development of the 44 incorporated businesses



Economic Impact Analysis

Economic Indicators: Direct Impacts

Most businesses are at an early stage of development and are still at a loss making stage and yet to contribute meaningfully to Scotland's Gross Value Add (GVA). As a result, contributions to GVA and employment are highly concentrated in a few businesses.

According to the questionnaire returns there were 227 people directly employed by the Fellowship businesses in 2006, as highlighted by Table 5. If the typical relationships between employment and GVA for small Scottish manufacturing firms, where GVA averages £41,900 per employee, held for the Fellowship businesses their direct GVA would be of the order of £10 million.

In 2005, 248 people were directly employed by Fellowship businesses. Nearly 60% (148 people) were educated at degree level or higher. Just over 21% (53 people) had a postgraduate qualification.

Table 5

	2005	2006
Direct employment	248	227
Postgraduates	53	69
Graduate	95	113
Others	100	45

On the basis of the questionnaire returns from 19 participants who were able to provide data, the direct impact of the Programme on Scotland's GVA in 2006 was £1.4 million, and just under £2 million when indirect and induced effects are included.

In 2005, GVA is estimated to be -£6.7 million, as detailed in Table 6. This figure reflects two firms making losses exceeding £5 million each. Given that the majority of firms are young, financial losses may not be unusual and both the firms making large losses in 2005 are quoted and have attracted private sector finance.

Table 6

	2005	2006
Direct GVA	(£6.68m)	£1.41m
Wages & salaries	£6.63m	£1.97m
Profits	(£13.32m)	(£0.56m)

Conclusions

Returning to the questions posed to this Review, as outlined within the overview of approach section, we provide the following responses to these questions:

1. The Programme has helped to establish 35 trading businesses with a further 9 which are planning to commence trading. Based upon the analysis of the performance of the businesses that responded to our survey there are indications that the Programme is making a positive contribution to stimulating the development of new businesses. For example, the low failure rate of businesses resulting from the Programme, the year on year increasing turnover growth rate of businesses and the level of investment attracted from external sources by the businesses indicates positive contributions to the development of new high technology start up businesses within Scotland.
2. With regards to Fellowship Businesses demonstrating levels of growth, there is evidence that employment growth has been achieved with over 220 new jobs created by 2006. There is also evidence that businesses have developed sustained levels of turnover growth which is evident from the 53% year on year turnover growth trend identified during this review. However, with regards to businesses achieving sustained profitability, there is limited evidence of this with only 9 businesses predicting profits in the current financial year and 4 businesses having achieved sustained profitability over the last 3 years.
3. In terms of the Fellowship Businesses providing a contribution to the GVA of Scotland's economy, it is still too early to make an assessment. Many of these businesses are still in their early stages of development and have yet to contribute, sustained and meaningfully to GVA / the Scottish economy.
4. A key question, and one which is difficult to answer definitively, is how many of the businesses will go on to achieve sustained growth in terms of profitability and employment. Given the relatively low investment in the programme (approximately £4 million over 10 years), it may only take one or two businesses to 'take off' to payback that investment. What is evident from the Review is that the Programme is achieving the effect that it set out to deliver.

The Review team also observed intangible benefits from the Programme and these are detailed in the Stakeholder Consultation report. Those benefits include the retention of entrepreneurs and intellectual property in Scotland which otherwise might be lost to other economies and the credibility which Enterprise Fellows hold within the commercial and investment community.