

**Scottish Enterprise
Commercialisation
Programme Review**

**Working Paper 5:
Economic Impact Analysis**

Scottish Enterprise

1 Economic Impact Analysis

This working paper breaks down the net discounted economic impacts achieved (between 2004-07) and projected to occur (over 2008-2018) from the Scottish Enterprise Commercialisation Programme by the following variables:

- **technology focus** – which looks at the particular sector the company is focused on
- **age** – covering how long the company has been trading for (if started trading)
- **branscomb stage** – the stage of the company at the time of interview
- **business size** – the number of employees in the business
- **project origin** – focuses on whether support was received from a university project or not (defined in Appendix 1)
- **business type** – whether the company is a spin-out or not (as defined by SE)
- **number of interventions** - how many commercialisation projects the company has received support from through the commercialisation programme

The net discounted GVA benefit attributable to the commercialisation programme for the years 2004-07 is based on the information provided by the companies interviewed. These companies also projected the net discounted GVA benefit of the programme over the period 2008-18.

These figures have been used as the basis for the following analysis, however it is worth noting that more weight should be given to the period 2004-07 as these have already been achieved. The figures for 2008-18 are based on the future projections provided by the company and therefore may not be achieved.

The figures in tables below have been calculated as percentages for ease of analysis.

1.1 Technology focus

On the face of it, those companies who described themselves as working within the enabling technologies sector had the highest economic impact. Table 1.1 presents the average net discounted GVA benefit for the years 2004-07 and 2008-18. In both cases, enabling technologies contributes the most towards the total economic impact of the commercialisation programme.

Economic impact by technology focus

Table 1.1

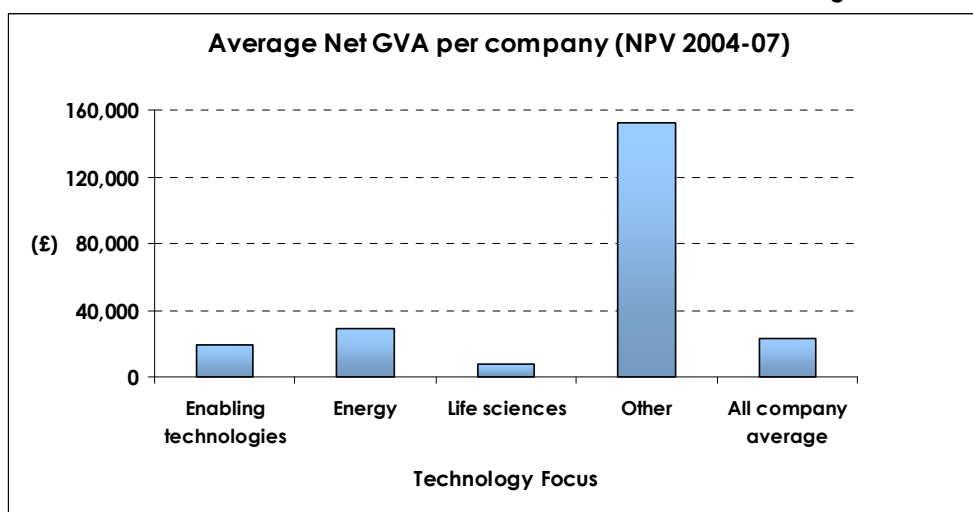
Technology Focus	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Enabling technologies	52%	66%	63 (63%)
Energy	7%	8%	6 (6%)
Life sciences	9%	21%	26 (26%)
Other ¹	32%	6%	5 (5%)
Grand Total	100%	100%	100 (100%)

However table 1.1 also shows that the majority of companies interviewed (63) were categorised as working within enabling technologies and therefore partly explains why this area contributes so much to GVA.

As a result we have analysed the GVA figures per company (which leads to the results in figure 1.1). These highlight that between 2004-07 those companies categorised as enabling technologies generated less per company than those categorised as other and energy.

¹ "Other" refers to those companies with SIC codes that cannot be categorised within enabling technologies, energy or life sciences

Figure 1.1



1.2 Age

The results are more straightforward when reviewed by age, with GVA over both time periods concentrated highly on those companies that have been trading for more than 3 years (see table 1.2) at the time of survey.

Economic impact by business age

Table 1.2

Business age	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Pre-trading	0%	0%	2 (2%)
Less than 1 year	0.1%	0.3%	6 (6%)
Up to 1 year	0%	0%	1 (1%)
Up to 2 years	0.2%	2%	11 (11%)
Up to 3 years	10%	28%	16 (16%)
3 year +	89%	69%	64 (64%)
Grand Total	100%	100%	100 (100%)

This is to be expected as those companies less than 3 years old are unlikely to be generating high levels of GVA at such an early stage. Although it is striking that the 20 companies aged 2 years or below may only contribute towards 2% of GVA over the period 2008-18.

It is also interesting to note that over the period 2008-18 those companies currently aged 2-3 years expect to contribute 28% to average Net GVA even though only 16% of the companies were in this age group. This suggests that over time they could make a disproportionate impact.

1.3 Branscomb stage

The companies who describe themselves as being in the growing business phase provide more than three-quarters (76%) of the average GVA figure between 2004-07 (table 1.3), with 21% coming from those in the production/marketing phase. This is to be expected as these companies are essentially passed the initial development stage.

Economic impact by Branscomb stage

Table 1.3

Branscomb stage	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Proving the Concept Phase	0%	0%	7 (7%)
Technology Development	0%	7%	15 (15%)
Product Development	3%	14%	18 (18%)
Production/Marketing Phase	21%	37%	25 (25%)
Growing Business Phase	76%	42%	34 (34%)
Grand Total	100%	100%	100 (100%)

Looking forward to the period 2008-18, the contribution made by those companies in the growing business stage could be smaller (42%). This is because those companies currently at the earlier Branscomb stages expect to grow, develop and begin to generate returns. Evidence of this is provided through the increase in contribution by those in the technology development, product development and the production/marketing phases.

There is still no contribution from those currently at the proving concept phase. GVA benefits may take time to realise, but you would expect these companies to have some impact within 10 years time. However this may simply reflect a lack of knowledge. These companies may not be fully developed and therefore unable to project accurately in comparison to older, more mature businesses.

1.4 Size of the business

The main driver of economic impact in terms of business size, come from small businesses (those with 10-49 employees). They contribute 58% of GVA between 2004-07 and could contribute 64% between 2008-18 (see table 1.4) even though only 38% of the companies were this size at the point of interview.

Economic impact by size of the business

Table 1.4

Number of employees	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Micro (1-9)	8%	25%	56 (56%)
Small (10-49)	58%	64%	38 (38%)
Medium (50-249)	34%	11%	5 (5%)
Large (250+)	0%	0%	1 (1%)
Grand Total	100%	100%	100 (100%)

Over half (56%) of the companies are micro businesses. The small size suggests that they are still growing and may partly explain why their contribution to GVA is expected to increase from 8% in over 2004-07 to 25% in 2008-18. There are only 5 companies who are medium-sized, their impact is expected to decline from 34% to 11% over the same period.

There was only one company classified as large, this company does not contribute towards net GVA in either period.

1.5 Origin of the project

Those companies categorised as non-university (i.e. where the project involved working with a university – a project breakdown is provided in table A1.1 in the appendix) generated a greater proportion of GVA over both time periods (see table 1.5). During 2004-07 companies categorised as non-university contributed 88% towards average net GVA in comparison to only 12% for those companies who accessed a university project. A similar scenario is expected for 2008-18, however the gap does close to some extent.

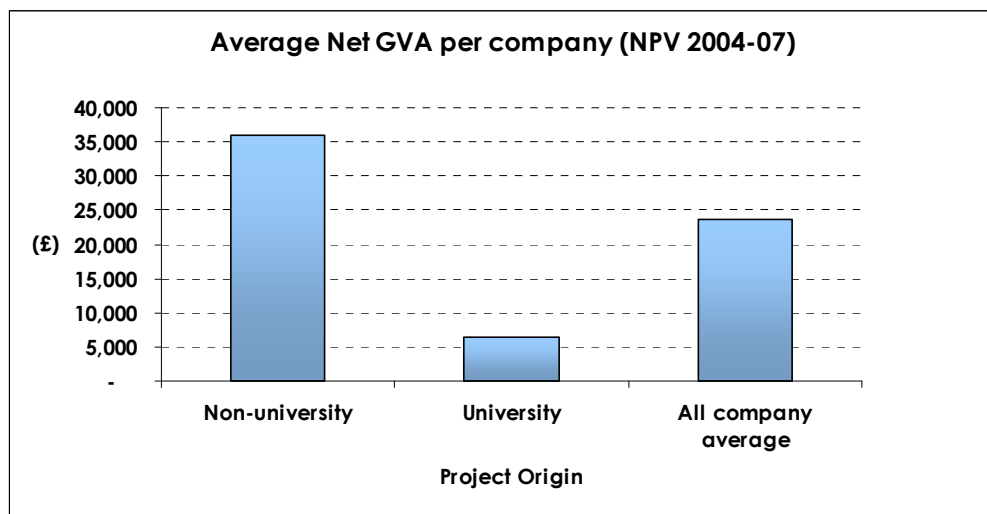
Economic impact by origin of the project

Table 1.5

Project origin	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Non-university	88%	68%	58 (58%)
University	12%	32%	42 (42%)
All company average	100%	100%	100 (100%)

Although those companies categorised as non-university are in the majority (58%) these results suggest they contribute disproportionately more to GVA. This point is emphasised when focusing on the contribution to GVA per company over the period 2004-07, non-university companies generated almost £30,000 more than those where the project involved working with a university (see figure 1.2).

Figure 1.2



1.6 Business type

Spin-outs from universities (as recorded by Scottish Enterprise) contributed a minimal amount to GVA during the period 2004-07 (4% - see table 1.6), although it is worth bearing in mind that only 9 of the companies were spin-outs, therefore the sample size is small.

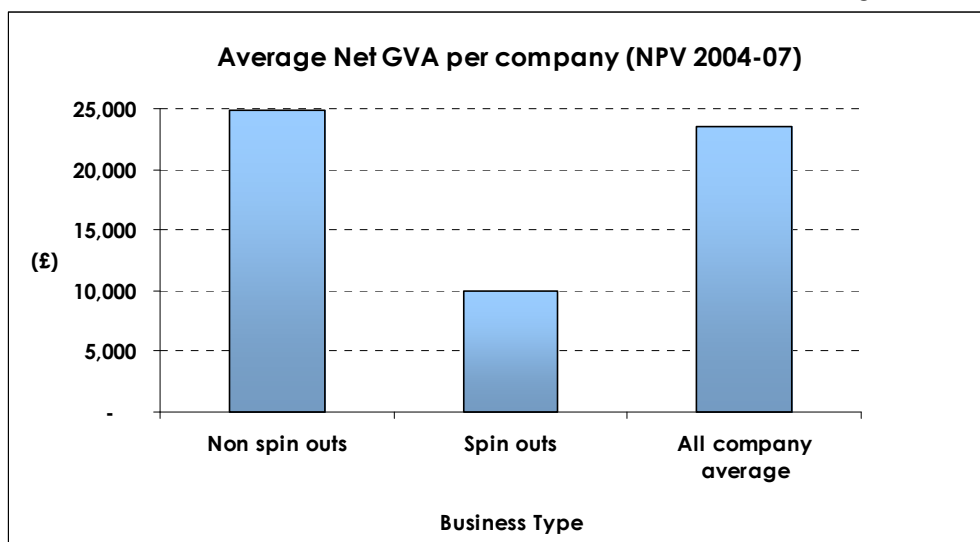
Economic impact by business type

Table 1.6

Business type	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
Non spin outs	96%	89%	91 (91%)
Spin outs	4%	11%	9 (9%)
Grand Total	100%	100%	100 (100%)

However when we look at the GVA figures on a per company basis (see figure 1.3) for the same period there is a gap of almost £15,000 between the two in favour on non spin-outs.

Figure 1.3



1.7 Number of interventions

Intuitively one would expect that the greater the number of interventions a company has had, the greater their contribution towards GVA. However table 1.7 below shows that this is not the case.

Economic impact by number of interventions

Table 1.7

Number of interventions	Average Net GVA (NPV 2004-07)	Average Net GVA (NPV 2008-18)	Number of Companies
1	24%	16%	33(33%)
2	25%	10%	14(14%)
3	19%	40%	28(28%)
4	24%	19%	12(12%)
5	6%	11%	6(6%)
6	0%	0%	3(3%)
7	2%	4%	4(4%)
Grand Total	100%	100%	100 (100%)

In total 13 companies have received 5 or more interventions through SE's commercialisation programme however they only contributed 8% to GVA in 2004-07. This figure is expected to increase to 15% over the period 2008-18 but only slightly higher than the percentage of companies.

The highest contribution to impact is achieved by those companies who have received either 3-5 interventions. They make up 46% of the companies but 49% of the GVA in 2004-07, with their contribution expected to increase to 70% during 2008-18.

Conclusions

The analysis in this paper suggests a number of conclusions:

- **technology focus** – shows most impact from those companies within enabling technologies, but their impact is lower on a per company basis
- **age** – shows most impact from those companies who have been trading for over 3 years
- **branscomb stage** – shows most impact from those companies in the growing business stage

- **size of the business** – showing most impact from those companies with 10-49 employees
- **origin of project** – showing most impact from those companies that did not access a university based project
- **business type** – showing most impact from companies classed as non spin-outs
- **number of interventions** – showing most impact from those companies with 3-5 intervention

Appendix 1

University and Non University Projects

University and Non-university projects

Table A1.1

	Projects
University	Spin-outs Kelvin Institute Proof of Concept Enterprise Fellowships Prospekt Centre for Genomics Technology and Informatics Edinburgh Pre Incubation Scheme Edinburgh Stanford Link
Non-university	Technology Gateway Commercialisation Toolkit SCIS SMART Commercialisation Breakthrough Service Scottish Co-investment Fund SEED Fund Venture Fund Business Growth Fund SPF Scottish Co-investment Fund Industry Fellowships High Growth Start-Up unit Seekit Spur Industry Fellowships