



**Scottish Enterprise**

**GROWING SCOTLAND'S INTERNATIONAL  
COMPETITIVENESS AND DELIVERING  
SUSTAINABLE ECONOMIC GROWTH:**

**WHAT WORKS EVIDENCE REVIEW**

**NOVEMBER 2014**

## Summary

Evidence shows that companies that are internationally competitive achieve better performance and growth, and economies that have an internationally competitive offering are those that attract investment.

International competitiveness and sustainable economic growth is driven by productivity, which in turn is driven by international activity/exporting, by innovation, by investment and by talent and skills. Additionally, access to finance and the right infrastructure are key for some companies to implement growth plans. Overarching this is the need for all companies to have the right leadership, management skills, as well as the ambition, to grow.

Scotland's productivity is in the third quartile of OECD countries, business R&D expenditure is in the fourth quartile and business investment lags many OECD countries. A lower proportion of Scottish SMEs innovate and export compared to the UK and many European countries. However, inward investment, into Scotland outperforms most UK regions and many European countries and Scotland has a core of highly innovative, growth orientated and internationally focused companies and sectors and world class sectoral assets.

Scottish Enterprise works with or assists in the region of 10,000 companies each year, of which around 2,250 receive a portfolio of intensive and bespoke support through Account Management. Our evidence shows that it is the integrated nature of support, often drawing on the resources and expertise of partners, which delivers the greatest impacts for companies.

Specifically, our evidence highlights the that following are particularly effective in generating outcomes and impacts:

**Approaches to working with companies:** Intensive and bespoke support that recognises the connections/complementarity between the drivers of company growth; the integrated nature of this support; building strategic relationships with companies; drawing on the resources and expertise of Scottish Enterprise and partners.

**Increasing business efficiency:** raising the awareness of the benefits of efficiency investment; provision of specialist advice and skills that companies do not have in-house through programmes such as the Scottish Manufacturing Advisory Service.

**Increasing investment in, and impacts from, innovation/R&D:** financial and grant support that helps offset high R&D costs and reduces risk; support to build management teams to successfully exploit IP; linking innovation with internationalisation support.

**Internationalisation/exporting:** raising the ambition to internationalise; raising awareness of the benefits of entering new markets; provision of market information; provision of exporting advice; assisting export strategy development; in-market support through overseas field offices; capitalising on the knowledge and experience of GlobalScots.

**Attracting Inward Investment:** the in-market role of overseas field offices; provision of information and advice to investors on Scotland's assets; harnessing assets to

differentiate Scotland from competitors; facilitating access to universities, supply chains and property; financial grants and support.

**Growth finance:** Scottish Investment Bank co-investment model that attracts funders to Scotland; assisting companies to be better prepared to access funding; business growth advice and support from private sector co-investors; funding support alongside wider business development support.

**Business investment:** provision of financial support that bridges investment funding gaps, reduces risk and increases investment returns.

**Business environment/infrastructure:** infrastructure that fills gaps in private sector provision; investment in conjunction with other partners; stimulating physical and digital connectivity.

**Leadership, management and ambition:** increasing awareness of the benefits of leadership development; providing access to world leading leadership development resources; facilitating mentoring opportunities; learning journeys; promoting the benefits of employing young people and of workplace diversity; assisting Scottish companies to access talent globally; promoting Scotland as a place to live and work.

**Supporting growth sectors:** working closely with those sectors that offer significant opportunities for growth; using Scottish Enterprise industry knowledge, networks and contacts to facilitate greater co-ordination and co-operation.

**Partnerships:** the facilitation of industry and public sector engagement and alignment to create conditions for growth; understanding the unique role that partners can play, and leveraging their knowledge and expertise to achieve maximum impacts; leveraging European Union funding; exploiting the collaborative/networking opportunities of pan-European projects.

## Introduction

Scottish Enterprise ensures that robust and timely evidence drives decisions and priorities on the delivery of economic policy. This involves ensuring we have robust and up-to-date evidence on:

- Scotland's economic performance compared to the UK or other EU and OECD economies
- the challenges, features and market failures that prevent our companies and sectors from reaching their full potential (the rationale for intervention)
- the contribution that Scottish Enterprise activity makes to the Government Economic Strategy
- the economic and wider impacts that can be achieved, over and above what would have happened without our activity (our 'additionality').

Scottish Enterprise supports companies and sectors to increase their international competitiveness and growth. Our support is based on an extensive evidence base that draws on a range of sources including economic data analysis and benchmarking, research studies, independent evaluations and economic impact appraisals. This allows us to build a detailed understanding of 'what works' in helping Scotland's companies and sectors to grow and in attracting investment to Scotland. Our evidence feeds directly into policy development and to ensuring activities are delivered as efficiently as possible.

We are constantly updating and improving our evidence base and the methodologies we use, working with partners where appropriate. Our evaluations and research studies are publicly available through Evaluations Online<sup>1</sup>. Where we have identified evidence gaps, this informs our Economic Research and Evaluation Plan<sup>2</sup>.

In 2012 Scottish Enterprise published an Evidence Report to compliment our Business Plan<sup>3</sup> and this paper is an update to that, drawing on new and updated research and evaluation.

This paper summarises the available evidence for the main areas of spend and activity outlined in the SE Business Plan. It should be noted that the 'activity categories' should not be considered in isolation and in many cases are interlinked. For example, for a company to fully exploit innovation support, it may need support to access funding and to enter new international markets. Frequently it is a portfolio of support that generates the biggest impact for businesses. Also, support for growth sectors involves both sector specific projects and 'cross sector' assistance.

Any questions please contact [kenny.richmond@scotent.co.uk](mailto:kenny.richmond@scotent.co.uk) or [keith.hayton@scotent.co.uk](mailto:keith.hayton@scotent.co.uk)

---

<sup>1</sup> <http://www.evaluationsonline.org.uk/evaluations/Index.do>

<sup>2</sup> [http://intranet.scotent.co.uk/A-z/T-evaluation/Pages/Seer\\_group\\_and\\_seer\\_plan.aspx](http://intranet.scotent.co.uk/A-z/T-evaluation/Pages/Seer_group_and_seer_plan.aspx)

<sup>3</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=496>

## COMPANY GROWTH AND ENTERPRISE

### 1. Why is Company Growth & Enterprise important?

Research shows that economic growth tends to be driven by a small number of businesses. At the UK level, over the 2010-2013 period, High Growth Firms' (HGFs) (defined as firms with 10 or more employees that experience at least 20% employment growth year on year) accounted for 1% of all job creating firms and 22% of all job creation<sup>4</sup>. Over the 2007-2010 period, HGFs in Scotland accounted for 2.2% of all firms creating jobs and 17% of jobs created. Other research shows that HGFs tend to be more innovative and have higher than average levels of productivity than other firms<sup>5 6</sup>.

Therefore increasing the number of companies that achieve significant or high growth can contribute to a number of Government Economic Strategy measures including increased GVA, employment, productivity and innovation.

### 2. Scotland's current performance

The majority of businesses in Scotland, as in the UK as a whole, are small and micro (98% have less than 50 employees). The Scottish business base has grown significantly over the last decade, driven by an increase in the number of self employed small (1-49 employee) enterprises<sup>7</sup>. Although self employed and micro businesses are an important generator of employment opportunities, they tend to be less productive than larger businesses, tend to invest less in innovation and tend to be less active in overseas markets<sup>8 9 10</sup>. Most self employed and micro businesses stay small<sup>11</sup> and just a small number of companies of scale (firms with over £100m turnover).

Scotland has a smaller business base, in relative terms, than in the UK as a whole and many other countries. When compared on a 'per head of population' basis, in 2013 Scotland had 364 businesses per 10,000 adults, compared to 419 per 10,000 adults for the UK as a whole. This is partly driven by Scotland's low business start-up rate compared to other countries and UK regions<sup>12</sup>. If Scotland had the same number of businesses per 10,000 people as the UK there would be 24,000 (+15%) more enterprises.

In 2013, there were around 5,300 growth companies in Scotland (defined as companies with 10+ employees and turnover increase of 10%+ over 3 years). Of these, 1,255 are high growth firms (HGFs), growing by 20% per annum over a three year period.

---

<sup>4</sup> [http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No\\_6-Firm-Dynamics-final.pdf](http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No_6-Firm-Dynamics-final.pdf)

<sup>5</sup> <http://www.nesta.org.uk/sites/default/files/vital-six-per-cent.pdf>

<sup>6</sup> <http://webarchive.nationalarchives.gov.uk/+http://www.bis.gov.uk/files/file49042.pdf>

<sup>7</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Corporate>

<sup>8</sup> Average turnover per employee rises with company size,  
<http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Corporate/Tables>

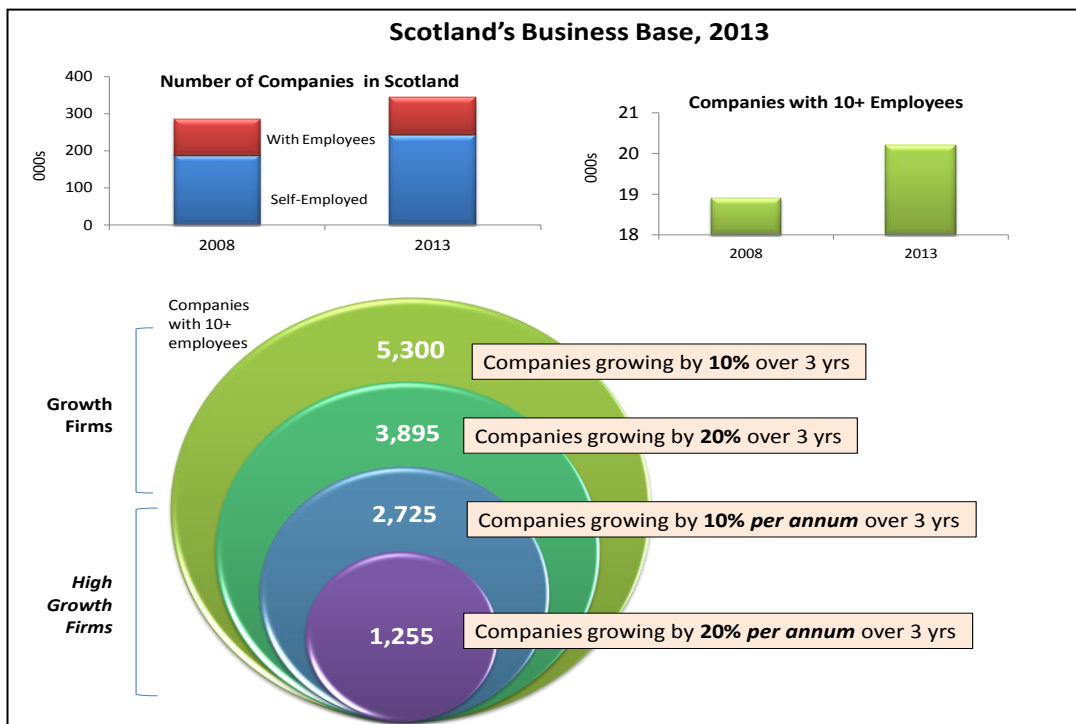
<sup>9</sup> <http://www.bis.gov.uk/policies/science/science-innovation-analysis/cis>

<sup>10</sup> <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/10-804-bis-economics-paper-05.pdf>

<sup>11</sup> <http://www.bis.gov.uk/assets/biscore/enterprise/docs/j/11-1326-job-creation-and-destruction-uk-1998-2010>

<sup>12</sup> <http://www.strath.ac.uk/huntercentre/research/gem/>

The challenge for Scotland is to continue to grow the size of our business base, and to increase the number and proportion of businesses that achieve higher growth and become companies of scale.



**Note:** Growth defined as turnover increase

**Source:** Scottish Government

### 3. Company Growth & Enterprise challenges and the rationale for intervention

There are a range of challenges currently faced by companies that can prevent them from realising their full growth potential<sup>13</sup>. Some of the main challenges include:

- **Access to finance** – potential lenders and investors can lack all the information needed to fully assess the risks and returns associated with providing funds to a business and this can lead to risk aversion;
- **Investing in innovation** - in a competitive environment, small businesses may encounter difficulties in securing sufficient internal return to make innovation worthwhile, in part because of the high costs involved in defending property rights. Also, not all the benefits from innovation may be captured by the innovating company – knowledge spillovers can also benefit other rival companies. This can act as a disincentive to investing in innovation. Finally, businesses may not appreciate the potential returns from successful innovation and this can be a further disincentive to investment;

<sup>13</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/266304/bis-13-1320-smes-key-enablers-of-business-success.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/266304/bis-13-1320-smes-key-enablers-of-business-success.pdf) and <http://webarchive.nationalarchives.gov.uk/http://www.berr.gov.uk/files/file39768.pdf> and <http://www.communities.gov.uk/documents/regeneration/pdf/1928819.pdf> and <http://webarchive.nationalarchives.gov.uk/http://www.bis.gov.uk/files/file38301.pdf>

- **Adopting business growth best practices (including leadership and management)** – businesses may not be aware of business growth ‘best practice’ or of alternative growth models, or be unaware of where to access or buy this type of information or where to access specialist support; and
- **Internationalisation** – businesses may overestimate the risks and/or underestimate the benefits of internationalisation, or lack the knowledge and skills to develop an internationalisation strategy.

The challenges outlined above can lead to risk aversion among businesses and reduce the willingness to invest in company growth. Some of these have been exacerbated by the recent economic slowdown. They can be summarised in market failure terms as:

- Imperfect information - whereby companies do not have all the information needed to make the right decisions for their business. This is observed most clearly in relation to access to finance, innovation, internationalisation and adopting business growth best practice where a lack of information on the costs and benefits leads to under investment or activity by companies
- Externalities – where the companies cannot capture the full value of their investments and activities and therefore under invest in certain areas. This is observed most clearly in relation to innovation, where the development of a new product can lead to competitors poaching good ideas or developing rival products

#### **4. Scottish Enterprise Company Growth & Enterprise Support**

Along with partners such as the Business Gateway, SE offers support to companies at all stages of company growth. The core of SE's services to businesses is delivered through Account Management, which is targeted at three main groups:-

- Indigenous companies with clear growth potential;
- Major overseas-owned companies; and
- Companies that are important to growth sectors or to the wider economy.

The objective of Account Management is to generate additional significant economic impact by raising the growth performance of supported companies, by generating and safeguarding jobs, and by improving efficiency and productivity. The Account Management process is facilitated by an Account Manager, a single point of contact who provides and coordinates integrated and bespoke support, advice and guidance to companies. The Account Manager has access to a team of Specialists within Scottish Enterprise and through external partners and consultants. This is designed to provide hands on support in overcoming the challenges and barriers that companies face as they develop and grow.

SE also delivers support to companies beyond Account Management. This helps to increase the number of companies achieving more significant growth. For example, SE supports companies to improve their efficiency and productivity through the Scottish Manufacturing Advisory Service and supports co-operatives and employee owned businesses through Co-Operative Development Scotland. For younger people, Scottish Enterprise provides funding for Youth Business Scotland (formally PSYBT) which provides loans and advisory support to start-ups and businesses run by people aged 18-25.

## 5. Impacts of Company Growth & Enterprise support

The 2013 evaluation of the Account Management approach reported significant benefits and impacts for supported companies. The evaluation noted that where Scottish Enterprise has more of a strategic relationship with companies, the bigger the impact. Crucially, the evaluation also found that it is often the portfolio and integrated nature of support that companies receive that delivers greatest impacts (for example internationalisation support alongside innovation and funding support).

In terms of impacts, 80% of surveyed companies stated that Account Management support had increased their turnover, and a further 5% stated that support had allowed turnover to grow faster. 40% of companies stated that support had helped them increase international sales in existing markets, and 50% stated that support had helped them enter new markets. 75% of companies stated that their innovation spend had increased, and 70% reported that productivity had improved. 80% did not think they could find comparable support from other sources, highlighting that Account Management is a unique approach to delivering integrated company support. Overall, it is estimated that the support provided through Account Management generated £1.11bn of net additional GVA impact for the Scottish economy in the four year period between 2008/09 and 2011/12, with the net employment impact was estimated to be 15,000 jobs<sup>14</sup>.

The evaluation also found that:-

- The most significant types of product support were funding (such as R&D and RSA), internationalisation support, access to specialists' knowledge and staff training/skills – though it was found that it was the effective combination of support that drove impact rather than specific types of products or finance;
- The types of companies that reported higher levels of impact as a result of SE support were those that: had more strategic level relationships with their Account Manager; spent more on innovation as a result of SE support; received a higher number of SE products; operated in overseas markets; and were medium sized (those with between 50 and 249 employees); and
- Sectoral impacts varied across the Account Managed portfolio, with the largest impacts in terms of scale coming from companies in Chemical Sciences, Life Sciences, Construction and Energy. All sectors delivered a greater impact than cost but some sectors were more effective than others, including Food & Drink, Textiles and Construction.
- 10% of the companies accounted for over half of the net additional GVA and employment impacts, highlighting a high level of concentration of impacts in a small number of companies.

The impacts are significantly higher than those reported in an evaluation carried out in 2008. Deadweight is now lower (additionality being three times higher), GVA impact is almost 25% higher, employment impact is 15% higher) and cost effectiveness has improved (with a net additional GVA impact ratio that is 15% higher).

The 2011 evaluation of business efficiency support (including SMAS) found that, 90% of supported had implemented efficiency improvements and achieved productivity gains at a greater scale and/or earlier than they would have done without support. In addition, as a result of support, companies developed their own skills and knowledge to implement further change, and ensuring benefits are sustained. The evaluation

---

<sup>14</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=530>



estimated that the impact of support over the four years to 2011/12 was a net additional £80m GVA (and an impact to cost ratio of 6 to 1), supporting 3,300 jobs<sup>15</sup>.

An evaluation of PSYBT in 2007 found that £1 of SE expenditure generated £17 of net additional sales for supported businesses between 2004/05 to 2006/07 and that the programme represented very good value for money<sup>16</sup>.

Research into the benefits of consortia showed a range of economic (such as enhanced image/profile, knowledge sharing and connections), social (such as increased numbers of local people benefitting from services and increased quality of services) and environmental benefits (such as greater awareness of green issues). Further 53% and 57% of the businesses surveyed expected their employment and turnover to increase<sup>17</sup>.

## 6. Company Growth & Enterprise evidence and policy development

The Account Management evaluation resulted in an Action Plan to improve the performance of the approach thereby increasing impacts. This has resulted in the development of a more differentiated model by which SE will tailor support to customers ensuring they get the right support and expertise at the right stage in their growth. This is based on six company segments:-

- **Scaling Accounts:** companies that show considerable growth ambition along with very high levels of additionality and potential economic impact;
- **Global Accounts:** companies that have a significant global presence with the potential for this to grow further and that are important to the Scottish economy and/or key sectors;
- **Development Accounts:** companies at the early stage of their growth with potential to achieve £1million+ sales growth over five years;
- **Growth Accounts:** the 'core' of Account Management support, helping companies achieve £1million additional sales over three years;
- **Opportunity Accounts:** companies engaged with to exploit specific opportunities that will improve their performance and competitiveness; and
- **Watching Brief Accounts:** companies that SE is not actively working with but which have received account management support in the past. This enables the continuing impact of support to be monitored.

In addition, a number of actions have been developed to improve the operation and delivery of Account Management, including general account team working and the development of peer-to-peer networking.

The findings of the evaluation of business efficiency support (including SMAS) has resulted better integration between agencies that support to companies and an increased focus on more intense, longer term projects with companies that will deliver greater impact.

Further, the development of a stronger understanding of the benefits of consortium models is being used to continue to develop the offering and support of Co-operative Development Scotland as well as promoting the value of co-operative business models.

---

<sup>15</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=523>

<sup>16</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=89>

<sup>17</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=542>

## **7. Company Growth & Enterprise data and evidence gaps**

There is a strong evidence base for the Company Growth area, with the recent strategic evaluation of Account Management providing a comprehensive picture of the support, drivers of impact and impact. This is supported by evaluation of specific areas of support, such as the business improvement (including SMAS) evaluation which has been used to sharpen the delivery of the services and ensure its wider operation is effective. Other research and evidence will continue to be gathered on the impact of other enterprise services and support provided through Co-operative Development Scotland.

## **8. What Works**

There are a number of general elements of practice that are seen as key for successful delivery. These include:-

- The Account Management approach to working with companies that provides intensive and bespoke support that recognises the connections/complementarity between the drivers of company growth;
- Ensuring support leverages the full range of expertise in SE's and partners. This also ensures that support is fully linked to the needs of the companies and maximises the benefits from growth opportunities;
- Developing strong, strategic relationships with companies;
- Maintaining a strong focus on the companies with the greatest potential for significant long term growth;
- Ensuring staff engaging with businesses have the right skills and expertise. Companies ideally want staff to engage with them who are expert in their subject area, or skilled enough to be able to signpost them to the most appropriate support. Having a strong sectoral understanding is also key; and
- While the provision of funding can be an important element of success in company growth, the wider networks and soft skills of those providing support is also an important driver of impact.

## INTERNATIONALISATION (TRADE AND INVESTMENT)

### 1. Why is Trade and Investment important?

Scotland's International Trade and Investment Strategy 2011-2015 highlights the increasingly important role international trade and investment plays in accelerating Scotland's economic recovery<sup>18</sup>. As the world becomes more connected and trade more open, the international opportunities for Scottish businesses increase. At the same time increasing imports will lead to greater competition in domestic markets. Businesses that increase their competitiveness and diversify their customer base are likely to have greater long term security and sustained growth. The GES has set a target for Scottish businesses to deliver a 50% increase in the value of international exports by 2017.

There is a wide range of evidence highlighting the contribution that trade and investment makes to economic growth<sup>19 20 21</sup>.

Exports can be an important source of growth for companies and sectors, providing jobs and wealth. For Scotland, due to its small domestic market, accessing markets beyond Scotland is vital to economic growth. The importance of being international is much more than just improving Scotland's balance of trade: research has shown that companies that trade internationally are generally more productive, have higher productivity growth and are more innovative than their peers. Entering international markets drives innovation and productivity as businesses are exposed to new technologies, management practices, ideas and opportunities. There is evidence that decisions around technology (specifically R&D and innovation) and exporting decisions are interdependent and both in turn impact upon productivity<sup>22</sup>. In addition, R&D expenditure and the ability to undertake R&D can directly influence SMEs export performance. SMEs which have a track record of innovation are more likely to export, more likely to export successfully, and more likely to generate growth from exporting than non-innovating firms.<sup>23 24 25</sup>

Similarly, foreign investors can drive productivity growth as they tend to be more productive, engage in more R&D and invest more in staff development than indigenously owned companies. Inward investors can also have a positive impact on the productivity levels of domestic businesses through 'knowledge spillovers' which enable them to improve their products and processes. This can be as a result of staff moving between companies, supply chain contacts (inward investors may share knowledge with suppliers to increase quality), increased competition and by domestic companies imitating inward investor technology and work practices. However, the extent of the benefits to the host economy is influenced by the "absorptive capacity" of domestic firms: that is their ability to recognise the value of new information and

---

<sup>18</sup> <http://www.sdi.co.uk/resources/reports/international-trade-and-investment-strategy-2011-2015.aspx>

<sup>19</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=351>

<sup>20</sup> <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/i/11-805-international-trade-investment-rationale-for-support.pdf>

<sup>21</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=388>

<sup>22</sup> Harris, R. and Moffat, J., 2014, Scottish Productivity: Implications post-2016, July

<sup>23</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=526>

<sup>24</sup> [http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No\\_5-Innovation-final.pdf](http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No_5-Innovation-final.pdf)

<sup>25</sup> <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/i/11-805-international-trade-investment-rationale-for-support.pdf>

apply this knowledge for commercial gain as well as the ability of the foreign investor to contain leakages of knowledge (for example protection of IP and/or key staff)<sup>26</sup>.

A key finding of the available evidence is that the benefits of inward investment depend crucially on the characteristics of the investment project. Those that are high quality (for example R&D intensive, provide skilled employment and are 'technology exploiting') tend to result in the greatest direct and indirect benefits<sup>27</sup>.

## 2. Scotland's current performance

Scotland's overseas exports have grown over the last few years. In 2012, exports to the rest of the world (not including the UK) reached £26bn, a rise of 38.4% (or an average of 5.6% per year) since 2006<sup>28</sup>. Scotland's export growth has been higher than the UK and most OECD countries, with Scotland in the top quartile of OECD countries (6<sup>th</sup> out of 35 countries)<sup>29</sup>. On an annual basis, the volume of manufactured exports registered an increase of 1.9% in 2013, the fastest calendar year growth since 2008. Overall however, export volumes remain 12% below their pre-recession peak<sup>30</sup>. For the EU, around 25% of SMEs are exporters (although this is a pre-recession figure)<sup>31</sup>.

Data suggests that in 2012 just 15% of Scottish SMEs (with employees) are overseas exporters, lower than the UK rate and the rate of many European countries<sup>32 33</sup>. Of non-exporting SMEs, only 3% plan to start over the next year. For the five broad industry sectors that underperform the UK average, if the proportion of Scottish SMEs that were exporters matched the UK's, we would have 2,900 more SMEs in overseas markets.

Although the vast majority of enterprises are Scottish owned, non-Scottish owned enterprises (that is inward investors that are 'Rest of the UK' and 'Overseas' owned) account for over a third of Scottish employment and over a half of turnover. Inward investment therefore makes a significant contribution to Scotland's economy.

Scotland was again the top performing region in the UK outside London for Foreign Direct Investment in 2013, with the number of projects secured hitting a 16 year high of 82 (8% increase on 2012) – over 10% of all projects into the UK. Scotland secured 33% of all R&D projects into the UK (last year it was 18.5%).<sup>34</sup> Many inward investment projects come from companies that already have operations in Scotland and see the benefits of further investment. This is most likely because Scotland, due to their past experiences of investing here, is considered a 'lower risk' option than other potential locations. The US dominates as a source of overseas inward investment projects (i.e. excluding investment from the rest of the UK) accounting for 40% of the total, with 8% from France, 6% from Germany and 5% from Japan.

---

<sup>26</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=511>

<sup>27</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/32106/11-805-international-trade-investment-rationale-for-support.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32106/11-805-international-trade-investment-rationale-for-support.pdf)

<sup>28</sup> <http://www.scotland.gov.uk/About/scotPerforms/indicator/exports>

<sup>29</sup> Scottish Enterprise analysis

<sup>30</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/Exports/IMEIntroduction>

<sup>31</sup> Source: BIS & [Scottish Government: Small Business Survey 2012](#)

<sup>32</sup> <https://www.gov.uk/government/publications/small-business-survey-2012-sme-employers>

<sup>33</sup> [http://ec.europa.eu/enterprise/policies/sme/market-access/files/internationalisation\\_of\\_european\\_smes\\_final\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/market-access/files/internationalisation_of_european_smes_final_en.pdf)

<sup>34</sup> <http://www.ey.com/UK/en/Issues/Business-environment/2014-Scotland-attractiveness-survey>

### 3. Trade & Investment challenges and market failures

Whilst Scotland has strengths in its “competitive core” of dynamic, growth oriented companies, Scotland compares poorly on measures such as international sales, and in the international mind-set and innovativeness of its businesses and sectors<sup>35</sup>. These weaknesses impair Scotland’s international competitiveness:-

- Scotland’s exports are disproportionately concentrated, among a narrow range of companies, sectors and markets; and
- Too many of Scotland’s companies, particularly SMEs, lack international aspirations, and are less engaged in activities that drive international competitiveness such as innovation.

There are a number of barriers to international trade. Generally companies overestimate the risks involved in exporting and entry into new markets. However, it is also the case that they can face irreversible sunk costs involved in both entering and exiting new markets, such as in market research, setting up distribution, licensing or joint ventures agreements, and other arrangements that require investment of both time and money. This can be a particular issue for smaller companies that can often lack specialised resources (e.g. international marketing skills). Also, some companies tend to focus solely upon domestic markets, see these as sufficient and do not consider exporting as an option.

The main market failure identified in the research relates to imperfect information. For non-exporting companies information on the benefits of exporting is required. This will help them build the aspiration and ambition needed to start proactively developing their exporting plans and acquiring the necessary skills to successfully internationalise. For companies taking the first steps into exporting, and for established exporters seeking to grow their international business through new markets, a range of information may be required. This can include information on potential customers and regulations and quality standards for goods and services in the targeted markets. Searching for information is costly, and when firms only have a partial knowledge about markets, they can underestimate the potential benefits of entering them<sup>36</sup>. It can be wasteful for individual firms to undertake high cost information gathering individually when the public sector can provide information as a ‘public good’. Other barriers that have been identified include a lack of internationalisation skills, particularly of management on how to identify opportunities (including through market research) and how to sell effectively to overseas markets, as well as the difficulty in accessing social and business networks in overseas markets<sup>37</sup>.

For inward investment, the main market failure is imperfect information. This can be related to information about a country’s attributes as an investment location such as potential customers and suppliers, skills availability, the price and quality of

---

<sup>35</sup> SE Internal Analysis

<sup>36</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=351>

<sup>37</sup> <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/i/11-805-international-trade-investment-rationale-for-support.pdf>

accommodation and the general business environment. Again, this provides a rationale for information provision<sup>38</sup>.

Another challenge in attracting inward investment is the internationally mobile nature of many projects and competition from other locations. For high value added FDI in particular (for example activities that are normally associated with innovation that may increase the value of a product or service such as R&D and high value added production focused on high quality rather than higher volumes) the principal factors influencing location decisions are skills; a concentration of companies in similar sectors - this is usually a strong indicator that the region has the prerequisite characteristics to support an inward investor and that the appropriate skills base exists as well as acting as a draw to bring in new employees the size of the local/regional market and the protection of intellectual property rights. These high value added activities have tended to take place in “developed” countries. This is despite substantially lower labour costs in “developing” countries as this cost advantage tends to be offset by a combination of lower quality skills and the relatively low importance of labour costs in these activities. The consequence is the retention of a high number of these projects in developed economies. However, a number of developing countries and locations are successfully reworking their economies and becoming more competitive to try to close the skills gap, in particular through investment in education and R&D infrastructure. If this is successful then the competitive advantages that developed economies currently have may be lost.

For inward investment projects in general, financial incentives (such as Regional Selective Assistance (RSA) or R&D Grants) can play a role helping to get Scotland onto the final short list of potential development locations<sup>39</sup>.

#### **4. Scottish Enterprise/Scottish Development International (SDI) Trade & Investment support**

SDI is the international arm of SE, Highlands and Islands Enterprise (HIE) and the Scottish Government and provides services to support international trade and inward investment for the whole of Scotland<sup>40</sup>.

SE and SDI's focus is on building Scotland's capacity to internationalise, both acting directly and through partnership working. Increasing international trade involves encouraging existing exporters to do more and encouraging more companies to develop international aspirations and the capacity to trade in international markets. The international capacity SE and SDI is seeking to build is broader than simply exporting support and underpins the need for integration of internationalisation support into the range of business growth support (such as innovation, entrepreneurship, investment) to build longer-term potential in companies as well as supporting exporting businesses.

Support for Scottish companies to internationalise addresses information barriers in particular. Internationalisation support is organised around the themes of “*building ambition and awareness of exporting*”, “*enhancing capability and capacity*” and “*expansion and exploitation*” providing support for companies at every stage of their “*international journey*”.

---

<sup>38</sup> <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/i/11-805-international-trade-investment-rationale-for-support.pdf> and <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=352>

<sup>39</sup> Factors Driving Location Decisions – Summary of findings, Oxford Intelligence, 2014

<sup>40</sup> <http://www.sdi.co.uk/>

The SDI <sup>41</sup> and SE <sup>42</sup> websites provides detailed guidance to Scottish companies on exporting and growing their international business, with support targetted at both non exporters and exporters. It aims to broaden the base of exporting companies in Scotland and help companies who have started exporting for it to become a more meaningful part of their business.

For non exporters, support may focus on the benefits of exporting and providing companies with the skills and expertise to identify overseas opportunities and acquire the capabilities to start exporting and to make their first export sale. For those already exporting, support will encourage companies to expand and extend their international business through exploring new opportunities or increasing sales to existing markets and by providing the specialist support required to do this effectively.

Examples of support include information on exporting opportunities (for example through market awareness events), 'preparing to export' workshops, one-to-one export adviser support, export action planning and support to hire exporting expertise.

More intensive exporting support includes market visits, trade missions, international strategy development, support to increase sales in specific markets and in high growth and high opportunity markets (i.e. China, India and the Middle East), exploring additional and potentially more challenging markets and developing more complex forms of internationalisation such as joint ventures. Other support includes the SDI overseas network and the knowledge and expertise this offers on the ground and the provision of information on market opportunities (specialist market research). Companies can also access a worldwide network of business professionals who have a strong Scottish connection (Globalscots<sup>43</sup>) who can provide local market knowledge, advice and connections to help Scottish companies to break into international markets.

Information on business opportunities, new products and technologies, R&D projects and EU proposals are also provided by a tailored alert service delivered by the Enterprise Europe Network Scotland project. The service works with Scottish SMEs that wish to conduct business in Europe to help them make the most of opportunities within the European Union and through facilitation of cross border partnerships.

SDI's approach to inward investment is based on promoting the competitive advantages that Scotland has to offer. Inward investment is also often a crucial component of the development of growth sectors in Scotland, for example when Scotland does not have the capability to fill a supply chain gap and there are no Scottish companies that could be developed to fill it. Therefore SDI's approach is twofold:-

- A greater focus on strategic inward investment by exploiting growth opportunities, in particular to develop the forward pipeline of projects and investment and build strong supply chains; and
- Embedding companies which already have operations in Scotland to promote and encourage further expansion and development of supplier links.

---

<sup>41</sup> <http://www.sdi.co.uk/export-from-scotland.aspx>

<sup>42</sup> <http://www.scottish-enterprise.com/services/do-business-outside-scotland>

<sup>43</sup> <http://www.globalscot.com/>

Many inward investment successes come from companies which already have operations in Scotland. This may include the provision of specialist market information and supporting local and national supply chains. SDI can also provide access to financial incentives such as RSA, R&D Plus and Training Plus and facilitate access to training support through partner agencies.

## 5. Impacts of Trade and Investment support

The most recent impact evidence relates to internationalisation support. A Strategic Review of Smart Exporter<sup>44 45</sup> found evidence of companies and individuals developing a better understanding of exporting, planning for exporting and actively developing export action plans. The review also highlighted the success of the programme in engaging with a significant number of companies and broadening the reach of exporting services. Evidence suggests that Smart Exporter has also built demand for higher value more intensive international support, such as the increased take up of the International Manager for Hire support.

Additional customer research into the benefits achieved by companies supported by Smart Exporter reported that of companies that were already exporting, almost two thirds believed that Smart Exporter support has helped – or will help – to increase their international activity. Over 80% of companies that were non exporters stated that support was helping them to progress towards exporting in the future (mostly within the next three years). These are high levels of additionality. Smart Exporter Activity has supported in the region of 4,000 companies, and it is estimated that support has or will help around 1,600 companies to become exporters over the next three years. Companies receiving more than one Smart Exporter product or service expressed more positive views / reported more positive outcomes with half of non-exporters expecting Smart Exporter support to help them to export in the future.

Evidence from the recent account management evaluation<sup>46</sup> highlighted the potential economic benefits from supporting exporting and international activities. The evaluation reported that “*market development related interventions are the most highly valued type of product support*” and reports “*export activity is one of the critical success factors*” in influencing impact.

In addition to positive economic impact, an evaluation of trade support to companies in the period 2005-2009<sup>47</sup> reported that companies showed significant improvements in perceptions of their internationalisation capabilities following support from SDI, particularly in relation to ‘knowing what needs to be done to establishing a local presence’, ‘ability to develop a strategic plan’ and ‘having a clear view of the advantages and disadvantages of international trade’. The profile of companies that reported the strongest impacts on internationalisation were those who had received strategic support and who were account managed.

---

<sup>44</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=541>

<sup>45</sup> From 1<sup>st</sup> October 2014, SE and SDI will no longer use the Smart Exporter brand. Instead, all existing and proposed international support services will come under the wider banner of ‘SE and SDI international support services’

<sup>46</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=530>

<sup>47</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=388>



The evaluation of Enterprise Europe Network Scotland<sup>48</sup> reported that the services offered through the project had already had a positive impact on turnover or were expected to in the future. Other benefits reported included greater awareness of overseas opportunities and more knowledge on where to access information on overseas markets in the future.

On inward investment, an evaluation of SDI's inward investment activities<sup>49</sup> from 2001 – 2008 reported the following:-

- SDI-assisted inward investors had higher employment (than comparable inward investors that were not assisted) of around 10%;
- SDI-assisted inward investors paid higher real wages (around 15%);
- 56% reported employment/activity safeguarded as a result of SDI support;
- 53% had increased their investment at an existing site, 44% had increased training and 25% had increased R+D; and
- Half had grown since arriving in Scotland, while only 7% had contracted.

Inward investment in Scotland created 18,000 net additional jobs within that period (with an estimated GVA generated by employment over the period of £300m), or a GVA impact ratio of 1:11.

Case studies of foreign investors in Scotland found that direct benefits varied considerably by case. All had directly supported employment and most would expect to see improvements in productivity as a result of new investment. Many had brought new products or processes to Scotland, resulting in activities that were under pressure from international competition being safeguarded. SDI support in all cases was judged to have played a major role in either increasing employment or retaining the business in Scotland.

## **6. Trade & Investment evidence and policy development**

The evaluation evidence highlights the significant economic benefits to Scotland of trade and investment and this is fully reflected in the Trade and Investment Strategy which has a focus on increasing both the number of exporters and prioritising those with the biggest growth potential<sup>50</sup>.

Much work has been undertaken with partners to raise their strategic understanding of international trade and investment, and trade and investment is now given greater priority by SE and HIE as well as by business organisations and partners. In the future the focus is to be on how the evidence can be used to develop a more internationally competitive Scotland, particularly an integration of exporting and internationalisation support into wider business growth support. More comprehensive baselining of companies' exporting status is being developed which will allow better measurement of when and how companies start to export or increasing their export sales.

## **7. Trade & Investment data and evidence gaps**

---

<sup>48</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=533>

<sup>49</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=388>

<sup>50</sup> <http://www.sdi.co.uk/resources/reports/international-trade-and-investment-strategy-2011-2015.aspx>

Whilst a robust evidence base already exists across trade and investment activities, more learning will be gathered on “what works” from relevant comparator trade promotion agencies outside Scotland.

For inward investment and the attraction of higher value added activities, whilst the continuing trend of increased globalisation and internationalisation of companies in general will offer more FDI opportunities, there will be more competition from emerging economies to attract these projects. SDI will continue to focus on monitoring and analysis of global FDI trends to deepen its understanding of its key strengths and competitive advantage in FDI.

## **8. What Works**

SDI has proven to be successful in starting to broaden the awareness and reach of exporting services to the Scottish business base as evidenced, for example through the Smart Exporter programme which has worked with over 4,000 companies in the period 2010-2014. Evidence from a number of evaluations demonstrates that the provision of information on both the benefits of exporting and how to export has been effective with evidence suggesting new exporters have been created and international activity amongst supported companies has increased. Positive links to economic impact have been demonstrated by those companies who have received more “strategic” support (i.e. to develop and implement internationalisation strategies) and those who have received a package of international support. There are also positive linkages between market development/internationalisation support and wider SE support particularly innovation. Overall, support to help companies build awareness and ambition, build capacity and capability and exploit international opportunities has been successful with evidence that companies are satisfied with the various aspects.

SDI’s inward investment activities have been shown to be successful given Scotland’s ranking of 2<sup>nd</sup> of the UK regions for attracting investment (only beaten by London) and the continued success in attracting a high proportion of R&D projects. The implication is therefore that the current approaches are delivering what Scotland needs.

# INNOVATION

## 1. Why is Innovation important?

A range of research highlights the contribution of innovation to growth at both the micro and macro levels. For example, research by NESTA estimates that two-thirds of UK private sector productivity growth between 2000 and 2007 was a result of innovation, and that innovative companies grow twice as fast (in both turnover and employment terms) as firms that did not innovate<sup>51 52</sup>. OECD research suggests that around a quarter of labour productivity growth in a selection of member countries is due to investment in innovation through R&D, software, skills, organisational know-how and branding<sup>53</sup>.

The UK Government's Plan for Growth highlights the role that innovation can play in its ambition to make the UK '*One of the best places in Europe to start, finance and grow a business*'<sup>54</sup>. The European Union highlights the importance of innovation in its latest growth strategy and has set a target of 3% of the EU's GDP (public and private combined) to be invested in R&D and innovation by 202<sup>55</sup>. The Scottish Government Economic Strategy highlights innovation's role as a key driver of Scotland's transition to a low carbon economy, and has the target to reduce the gap in total R&D spending compared to the EU average<sup>56</sup>.

Furthermore, there is a recognised strong positive association between innovation, exporting and company productivity and turnover growth<sup>57</sup>.

## 2. Scotland's current performance

Scotland's overall R&D performance, measured as R&D expenditure relative to GDP, lags that of the UK and a number of overseas economies. Total or gross expenditure on R&D (GERD) in Scotland by businesses, higher education and government was £1.9bn in 2012, equivalent to 1.58% of GDP, lower than the UK rate (1.72% of GDP) and that of the top quartile of OECD countries (2.92% of GDP). To reach the top OECD quartile rate, Scottish GERD would need to be £1.6bn higher per year. Business enterprise R&D expenditure (BERD) was £707m or 0.59% of GDP in 2012, significantly below the UK rate (1.09%) and the top quartile of OECD economies (1.95%). To reach the top OECD quartile, BERD would have to be £1.7bn a year higher<sup>58</sup>.

R&D expenditure, however, can be a relatively narrow measure of innovation. A wider measure includes the introduction of new products/processes. Using this definition, 8,200 Scottish businesses with 10+ employees were 'innovation active' in

---

<sup>51</sup> [http://www.nesta.org.uk/sites/default/files/innovation\\_index\\_2009.pdf](http://www.nesta.org.uk/sites/default/files/innovation_index_2009.pdf)

<sup>52</sup> <http://www.nesta.org.uk/publications/vital-6>

<sup>53</sup> <http://www.oecd.org/dataoecd/51/28/45326349.pdf>

<sup>54</sup> [http://cdn.hm-treasury.gov.uk/2011budget\\_growth.pdf](http://cdn.hm-treasury.gov.uk/2011budget_growth.pdf)

<sup>55</sup> [Europe 2020](#)

<sup>56</sup> <http://www.scotland.gov.uk/About/Performance/scotPerforms/indicator/research>

<sup>57</sup> [http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No\\_5-Innovation-final.pdf](http://enterpriseresearch.ac.uk/wp-content/uploads/2013/12/ERC-White-Paper-No_5-Innovation-final.pdf)

<sup>58</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/RD>

2010-12, 43% of all Scottish businesses in the sectors covered<sup>59</sup>. This is a slightly lower rate than the UK as a whole (44%), with Scotland requiring an additional 200 innovation active businesses to close the gap with the UK.

### **3. R&D and Innovation challenges and rationale for intervention**

Investing in innovation can be hindered by a range of market failures and challenges. These include:

- A lack of information on the costs and benefits of R&D and Innovation (imperfect information market failure);
- Difficulties in accessing finance for innovation as lenders may not understand the technical nature of the proposed innovation and/or its potential in the marketplace and route to market (asymmetric information market failure);
- Lack of in-house skills to undertake R&D; and
- Positive externalities, where other companies could benefit from the R&D delivered by one company, so creating a disincentive for that company to invest<sup>60</sup>.

Individually or in combination, these are powerful factors that often lead to reduction in desire among SMEs to invest in innovation.

SE evaluation evidence confirms that these barriers and failures are relevant in the Scottish context. The evaluation of the R&D grant found that a quarter of companies cited limited information on potential markets for new products and returns on investment as barriers to R&D. However, the single biggest barrier to R&D activity cited by Scottish companies was the cost of R&D<sup>61</sup>. As R&D can be risky with often unknown future returns this further highlights the effects of imperfect information (at the company level) and asymmetric information (at the lender level) on R&D investment decisions.

### **4. Scottish Enterprise R&D and Innovation support**

SE's principal support to companies (available to all sectors) has traditionally included innovation advice and funding support through grant award programmes (such as SMART:SCOTLAND, which provides grants to SMEs to undertake technical feasibility studies and research and development projects that have a commercial endpoint, and R&D grants, that aim to improve company competitiveness by supporting development of new products, processes or services). Specific sector R&D support is available through projects such as WATERS (for wave and tidal energy R&D)<sup>62</sup>.

Providing grant support can also help to reduce the perceived risk to companies of investing in R&D by reducing the effective cost to the company relative to future returns, thus reducing any 'investment hurdle rate'. Grant support is often complemented by wider support to assist companies fully exploit innovation activity,

---

<sup>59</sup> <https://www.gov.uk/government/statistics/uk-innovation-survey-2013-statistical-annex>

<sup>60</sup> See for example [http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/06/innovation\\_market\\_failures\\_and\\_state\\_aid.pdf](http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/06/innovation_market_failures_and_state_aid.pdf)

<sup>61</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=348>

<sup>62</sup> <http://www.scottish-enterprise.com/services/develop-new-products-and-services/waters/overview>

for example assistance to enter new export markets. In addition, for some multinational companies where R&D activity may be mobile, grant support can help attract investment and/or retain activity locally.

As a complement, the Innovation Support Service provides advice to companies focusing on the commercial aspects of innovation. The Innovation Service extends across the spectrum of the innovation process, including advising on important elements such as organisational models businesses use (e.g. how businesses create, deliver, and captures value from innovation) and is supported by a team of Innovation Specialists.

A further programme is Enterprise Europe Scotland (ESS) which part of the Enterprise Europe Network, Europe's largest technology and business network bringing together 600 business support organisations from 50 countries. EES is co-financed through the EU and brings together the former Innovation Relay Centre (IRC) and Euro Info Centre (EIC). The project offers a range of support services including, innovation, commercialisation of technologies, knowledge/technology transfer and internationalisation targeting Scottish SMEs looking to conduct business in Europe.

## **5. Impacts of R&D and Innovation support**

Current evidence confirms a range of fit-for-purpose intervention products that both help address structural (market) failures and support generation of economic impact.

The 2009 evaluation of Scottish Enterprise's Large R&D Grant scheme concluded that:-

- Direct benefits were wide ranging;
- The potential economic impact could be substantial;
- Value for money was excellent; and
- There strong strategic case for the Grant to continue support<sup>63</sup>.

The evaluation found that without SE grant support, 60% of R&D projects would not have happened in Scotland and a further 30% would have been at a smaller scale or completed at a later date. In terms of economic impact, £1 of grant support could deliver a cumulative net GVA increase of £8-£11 over a ten-year period. The evidence suggests that significant impact is delivered in later years, once the R&D activity is complete and exploited.

The 2010 evaluation of the small R&D Grant (which focusses on development of new products/processes/services via 'industrial research' and 'experimental development' to a value of £100k) and the Innovation Support Grant (which seeks to facilitate a change in attitude and culture and help build the innovation skills and capacities of participating firms) yielded similar findings, that:-

- The strategic rationale was still valid;
- The grants attracted significant leverage from supported companies;
- Support delivered a wide range of company benefits;
- There was a positive impact on company R&D/innovation competency; and
- Clear value for money was demonstrated<sup>64</sup>.

---

<sup>63</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=348>

Of the companies surveyed, 41% stated that without the grant support the R&D/innovation would not have gone ahead in Scotland, while 60% stated it would have been delayed and/or of a smaller scale. It seems likely these findings reflect the positive action taken and support given to mitigate the additional risk(s) in undertaking R&D/innovation activity. The evaluation evidence shows that £1 of grant support could deliver a cumulative net GVA increase of £8-£12 over a ten-year period.

This evaluation evidence suggests that grant support is highly effective in offsetting high R&D costs and reducing risk aversion and increasing innovation activity (more recent analysis at the UK level also reports the impacts of grant support on company innovation activity<sup>65</sup>).

An evaluation of SMART grants, covering the 1999 to 2008 period, found that a majority of grant recipients said their R&D project had improved company growth and performance and that the grant had enhanced their capability to innovate in the future. Economic benefits were estimated to be around £10 net GVA for £1 SMART grant expenditure<sup>66</sup>.

A recent evaluation of the Enterprise Europe Network Scotland (2013) highlighted the importance of the service in assisting businesses seeking international innovation partnership opportunities by using the Network's databases to identify potential partners, company missions or contacts with other Network partners. However, the evaluation noted that it was too early to be able to fully assess economic impact<sup>67</sup>.

Evaluation evidence also highlights the links between innovation and internationalisation support, with companies receiving both tending to achieve higher impacts<sup>68</sup>.

## **6. R&D and Innovation evidence and policy development**

With the strength of SE's evaluation findings, recommendations focused on process improvement and optimisation of economic impact for programme beneficiaries. For example, improvements made to the project application process in order to minimise administrative burden. With regard to the large R&D Grant, the evidence has contributed to prioritisation of collaborative projects (between businesses) and specific thematic calls for proposals (for example, in wave and tidal energy).

The innovation policy landscape continues to evolve, as can be seen across a number of more recent initiatives, including:-

- The European Commission's Smart Specialisation policy (aimed at promoting the efficient and effective use of public investment in research by supporting smart growth and enabling regions to focus on their strengths);
- The Scottish Funding Council's Innovation Centres (aimed at supporting transformational collaboration between the business and university community);
- and

---

<sup>64</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=451>

<sup>65</sup> <https://www.gov.uk/government/publications/innovation-effect-of-public-support>

<sup>66</sup> <http://www.scotland.gov.uk/Publications/2009/09/28103010/0>

<sup>67</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=533>

<sup>68</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=530>

- The commitment by the Scottish Government to contribute additional funding to support the ambition of having a world-leading innovation and entrepreneurial nation, as set out in the policy framework '*Scotland Can Do: becoming a world-leading entrepreneurial and innovative nation*'.

SE's response, aimed at improving the overall performance, will come through an expected increase in impact from support and a widening of the reach of support services, specifically via development of a customer-led programme, deeper company engagement, wider innovation, a re-focus on growth sectors and an enhanced efficiency of service delivery.

While evaluation activity (of product interventions) highlights strong economic returns, the challenge remains one of achieving scalability through the stimulation of demand for innovation within the business base, for example through encouraging and assisting a higher number of businesses to adopt innovation as an integral part of their growth aspirations and plans.

In line with our evolving understanding of the innovation journey, and its respective challenges, it is likely that the approach taken going forward will require to be more radical in nature leading to interactions that are less transactional (i.e. receipt of support from SE in order to take a project forward) and more strategic to the business base (i.e. integral to business planning).

## **7. R&D and Innovation data and evidence gaps**

The current evaluation evidence considered projects that were at relatively early stages of development and implementation, therefore impact assessments are largely based on company views of future turnover. Ongoing monitoring and evaluation of the progress of the R&D and innovation projects as well as future targeted evaluation activity will help build a better understanding of 'actual' economic benefits.

In addition, recent work with the sector teams has helped articulate specific sectoral innovation eco-systems, which will aid consideration of potential tailored response(s) where required.

## **8. What Works**

The evidence highlights the importance of financial and grant support that helps offset high R&D costs and reduces risk, leading to increased R&D investment by companies. In addition:-

- Specialist innovation advice and support is important in terms of helping companies to consider innovation as part of growth plans, and to successfully undertake and exploit innovation activities where businesses lack in-house skills and knowledge;
- Linking innovation support to internationalisation support drives impacts, so that companies develop the right products for the right overseas markets; and
- Using international networks to find innovation collaboration partners.

## COMMERCIALISATION

### 1. Why is Commercialisation important?

Commercialisation is the 'conversion' of a science or technology-based idea and research into a marketable product or service. Research can be commercialised through new company formation and/or licensing of intellectual property to an existing company. NESTA research shows that successful economies are '*shaped by an ability to commercialise, and profit from, investment in new knowledge and services*'<sup>69</sup>. Further, the Scottish Government Economic Strategy highlights that Scotland needs to make better use of its research asset base, including university research, by strengthening the translation of research outputs into commercial opportunities and economic growth through the creation of new products and services, with the aim of improving knowledge exchange from universities<sup>70</sup>.

### 2. Scotland's current performance

Scotland has competitive advantages in key areas of science and technology research. Published Higher Education research undertaken in Scotland receives 1.8% of the world's citations against 0.1% of the population, and Scotland is ranked first amongst 27 comparator nations for published research impact in relation to GDP<sup>71</sup>. Scotland's Higher Education R&D spend is higher (relative to GDP) than most other OECD countries. The challenge is to exploit this competitive advantage through successful commercialisation.

Although Scotland has niche areas of research excellence, performance is moderate at best in terms of commercialisation<sup>72</sup>. While the rate of university spin-out in Scotland is high relative to elsewhere across the UK, subsequent levels of company growth and survival rates remain low<sup>73</sup>. Scotland also has a low proportion of high technology businesses across its business base, suggesting that knowledge assets are not being fully exploited in Scotland<sup>74</sup>.

### 3. Commercialisation challenges and rationale for intervention

The market failures and challenges are similar to those outlined in the R&D and Innovation section. Due to the technical nature of most commercialisation activity, market failures are caused by imperfect information, associated with a lack of information on the costs and benefits of technical and business development, and positive externalities, where it is recognised that competitors could benefit from the

---

<sup>69</sup> [http://www.nesta.org.uk/sites/default/files/innovation\\_index\\_2009.pdf](http://www.nesta.org.uk/sites/default/files/innovation_index_2009.pdf)

<sup>70</sup> <http://www.scotland.gov.uk/About/Performance/scotPerforms/indicator/knowledge>

<sup>71</sup> <http://www.scotland.gov.uk/Publications/2011/09/15103949/6>

<sup>72</sup> <http://www.strath.ac.uk/huntercentre/research/gem/>

<sup>73</sup> <http://www.universities-scotland.ac.uk/uploads/Grow%20Export%20Attract%20Support%20Universities%20Scotland.pdf> and <http://www.targetinginnovation.com/tlx/assets/documents/uploaded/general/COMMERCIALISATION%20PAPER.pdf>

<sup>74</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=497>



technical knowledge developed by a company<sup>75</sup>. Further, the risk associated with R&D activity, where the successful exploitation of research and future financial returns are either uncertain or undefined, can negatively affect technology investment decisions (albeit that this is more a market feature than an intrinsic market failure). The Technology Strategy Board (TSB) highlights the barriers to commercialisation related to the difficulty in finding both finance and commercialisation partners, and to the risks and uncertainties around investing in early-stage technologies (including timing and return on investment, particularly from new and emerging markets)<sup>76</sup>.

As a result of these market failures, features and challenges, there can be strong barriers preventing companies, entrepreneurs and funders investing in technological development and establishing new businesses. It can be difficult to build a business case around longer-term commercialisation opportunities, which in turn affects access to finance and ability to attract partners. This is particularly acute for small companies, who, although being major contributors to growth within the economy, can struggle to find funding of scale beyond early-stage project requirements to develop new/improved product(s) and take them to market. In addition, from a human capital perspective, small companies commonly lack the experienced management skills required to match the exploitation potential of technology ideas, particularly within the areas of sales, marketing and general business development.

The journey from concept to market is uneven and often indirect, with many obstacles along the way, and, importantly, any number of entry and exit points. As far back as 1996, the Commercialisation Review<sup>77</sup> recorded barriers relating to risk, business skills and access to finance, key themes that are drawn out in other literature and from SE's Commercialisation Longitudinal Study<sup>78</sup>. These highlight the number of challenges faced as commercialisation moves from idea/concept formation through to the full commercialisation of a product or service.

#### **4. Scottish Enterprise Commercialisation support**

The focus of SE's activity since 2008/9 has recognised the need for businesses to understand the market opportunities of their IP/knowledge at the earliest stage and to attract finance. This is achieved by helping companies:-

- Focus on end-customer needs throughout the technology development process;
- Develop a clear understanding of the 'path to market' and key investment channels; and
- Develop flexibility in both understanding and responding to changing market conditions.

These factors are all driven by the need to build experienced management teams in order to commercialise IP and knowledge from the outset. This approach is ensuring greater success in helping create more companies of scale and supporting existing high growth technology companies within Scotland.

SE's commercialisation model has traditionally been made up of three distinct strands:-

---

<sup>75</sup> See for example [http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/06/innovation\\_market\\_failures\\_and\\_state\\_aid.pdf](http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/06/innovation_market_failures_and_state_aid.pdf)

<sup>76</sup> [Concept to Commercialisation: A strategy for business innovation, 2011-2015](#)

<sup>77</sup> The Royal Society of Edinburgh

<sup>78</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=479>

- Capacity building (including Informatics Ventures, Edinburgh BioQuarter and academic spin outs);
- Commercialisation development funding support (incorporating Proof of Concept; and
- Early-stage technology company support (including the High Growth Start-Up Unit, Enterprise Fellowships and the Scottish Institute for Enterprise).

Recent policy developments aimed at developing these areas of support include:

- Young Innovative Enterprises (now called 'Aid for Start-Ups'), which supports young technology companies to engage experienced management teams; and
- Support for high impact entrepreneurship, which, as set out in the Scotland Can Do strategy, is recognised as essential within a global marketplace (where more people with an entrepreneurial mindset, ambition and appetite for risk are required to create and grow companies of international scale) <sup>79</sup>.

The policy environment has helped renew commitment to Proof of Concept and Enterprise Fellows programmes. Scottish Enterprise is also a close partner with the Scottish Funding Council in the development and roll out of the sector focussed Innovation Centres, which seek to establish closer bonds between Scotland's universities and SMEs.

## 5. Impacts of Commercialisation support

A recent strategic review of SE commercialisation support concluded that there continued to be a strong strategic case for commercialisation support and that potential impact attributable to SE support represented a good value-for-money return. Wider benefits that cannot readily be monetised were also recognised, such as improved skills and expanded networks.

Although commercialisation support has delivered only moderate economic returns to 2012 (the time horizon of the review), the overall estimate was that net additional attributable impacts (GVA return to spend) could be between 6 and 8 to 1 over a ten year timeframe. This would be in line with the time elapsed between developing concepts through to establishing a business and gaining traction in the marketplace. Impacts are estimated to be higher for companies supported since 2008, reflecting the re-focused nature of SE's approach. The review also shows a faster projected company growth profile following the re-focus, suggesting a quicker 'economic return' on investment<sup>80</sup>.

Enterprise Fellowships<sup>81</sup>, (which provides a year's salary to researchers to help them grow their business in addition to training, access to advice and support and development funding) aims to increase the number of spin-outs from higher education. The evaluation found that it had been successful in doing this, having created a large number of spin-outs and resulting in those behind these companies either going on to set up others or taking senior positions in existing companies. It was therefore playing a key role in stimulating entrepreneurship

---

<sup>79</sup> <http://www.scotland.gov.uk/Resource/0043/00438045.pdf>

<sup>80</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=479>

<sup>81</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=528>

Recent evidence base development highlights the early successes of the ProspeKT<sup>82</sup> programme in influencing interaction between academics, industry, entrepreneurs and investors in the area of informatics (based at the University of Edinburgh's School of Informatics).

## **6. Commercialisation evidence and policy development**

An evaluation completed in 2009 influenced a re-focus of the approach to commercialisation towards<sup>83</sup>. -

- Building strong business management teams from the outset;
- Understanding the line of sight to market entry from the outset;
- Taking a single coordinated approach to advisory and funding support;
- Selecting fewer projects to support and providing greater acceleration of the strongest propositions;
- De-selecting underachieving projects, where appropriate, and focusing resources on the strongest propositions; and
- Where possible, seeking to ensure new businesses are anchored in Scotland.

The findings of the 2012 review suggested that the changes made to the programme are working and potentially delivering greater impact. The single coordinated approach to advisory and funding support is appreciated by companies and is contributing to their future success.

The evidence highlights that early market engagement and building skills and experience into the entrepreneurial team are key to delivering successful impacts from commercialisation<sup>84</sup>. Scottish Enterprise has used this evidence to support companies to understand the importance of sales and to focus on end-customer needs throughout the technology development process; to develop a clear understanding of the 'path to scale' and the different forms of finance available to support this; and, the importance of being able to pitch their business to an international audience.

## **7. Commercialisation data and evidence gaps**

The ongoing monitoring of the current cohort of supported businesses, specifically in terms of success in commercial exploitation, will provide a better understanding of actual economic benefits over time.

Two significant barriers to growth that the 2012 research highlighted were:-

- Increased difficulty in securing external investment, especially at the later stages of getting products ready for the market; and
- Weaknesses in marketing capability within companies.

Scottish Enterprise is continuing to develop its evidence base and understanding in these areas in order to inform policy development.

## **8. What Works**

---

<sup>82</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=355>

<sup>83</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=349>

<sup>84</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=479>

Early market engagement and building skills and experience of the management team are keys to delivering successful impacts from commercialisation. In particular:-

- Ensuring management teams understand the importance of sales and focus on end-customer needs throughout the technology development process;
- Developing a clear understanding of the 'path to scale' and the different forms of finance available to support this; and
- The importance of being able to pitch business ideas to an international audience.

In addition the Enterprise Fellowship evaluation highlighted the importance of providing time limited support to those developing a business: sufficient time and money to enable the business to be established (and different options explored) but time limited so that there was pressure to "focus the mind" and deliver outcomes within the one year time frame. The quality of support was also emphasised as underpinning the programmes success.

## REGIONAL SELECTIVE ASSISTANCE (RSA)

### 1. Why is RSA important?

RSA provides grant support to indigenous, UK and overseas owned companies that are making investments that will create or safeguard jobs<sup>85</sup>. It is available to companies that are making investments in specific defined geographical areas that are economically disadvantaged ('Assisted Areas'). The main criterion on which the Areas are defined is unemployment, with generally localities with above average unemployment rates being eligible to receive support. RSA can therefore help reduce regional inequalities, contributing to the Government Economic Strategy Cohesion target to "*narrow the gap in participation between Scotland's best and worst performing regions by 2017*"<sup>86</sup>. RSA also has a key role in helping Scottish businesses to grow and in attracting new investment to Scotland by supporting capital investments in plant and machinery. RSA is therefore contributing to a number of GES targets including increasing employment and narrowing the gap in participation between Scotland's regions. Given that it is also stimulating capital investment it should also be driving productivity improvements although the evidence seems to show that this is not the case.

RSA has been delivered as a regional policy tool in the UK since 1972 with the aim of addressing regional labour market inequalities<sup>87</sup>. The main benefit of RSA is that it is a very flexible source of funding that can be used to support large and small inward investors and indigenous companies. It is also of sufficient scale (£52.2 million worth of grant offers made in 2013/14, relating to projects with planned capital expenditure of £267m creating or safeguarding 6,160 jobs) to be able to have a considerable impact upon companies' investment decisions.

For many inward investment projects, the parent company may be considering a variety of off- or near-shore locations. Accordingly, a financial case has to be developed to justify making the investment in Scotland rather than other locations. In these cases RSA support can make Scotland cost competitive with other locations. Often, but not always, the cost differential is driven by wage levels which may be higher in Scotland than other locations. In these instances RSA is important in filling the funding "gap".

RSA is also important in some instances in providing visible evidence that Scotland's public sector (in its widest sense) is willing to provide support to a company, with some companies looking for evidence of "civic support" in recognition of the benefits that they will bring to the Scottish economy through their investment. RSA is thus often very important, not only in improving the efficiency of a company *per se*, but in securing net additional investment (and jobs) for Scotland that would otherwise go to a non-Scottish location.

It is also the case that RSA support can be influential in persuading indigenous companies to make capital investments. It is often used to fill a "funding gap" between the amount of investment needed for a project and the amount that the

---

<sup>85</sup> <http://www.scottish-enterprise.com/services/attract-investment/regional-selective-assistance/overview>

<sup>86</sup> <http://www.scotland.gov.uk/About/Performance/scotPerforms/purpose/cohesion>

<sup>87</sup> In Northern Ireland the equivalent support is Selective Financial Assistance whilst in England the current scheme is Grant for Business Investment (GBI) which replaced Selective Finance for Investment in England.

company can raise from the banks and its own resources. RSA support is also a way of reducing risk thereby making the investment more attractive to company management and external funders.

## 2. Scotland's Current Performance

One indicator of regional inequality is the employment rate<sup>88</sup> across local authorities (LAs). The latest data relating to the GES Purpose Target shows that the gap in the employment rate between the top and the bottom performing LAs decreased by 1.7% between 2012 and 2013. This was driven by the increase in the rate of the worst performing authorities: an increase of 1.7%.<sup>89</sup>

It is also the case that Scotland's business investment performance, although above the UK's, is below that of a number of OECD countries. Indeed for Scotland's performance to match that of the top quartile of OECD countries it would need to increase by 19% (equivalent to £1bn additional investment)<sup>90</sup>. This is likely to be one of the reasons why Scotland productivity is lower than a number of OECD countries<sup>91</sup>

## 3. RSA challenges and market failures

Spatial economic inequality is the main economic challenge that RSA can help address and is the main rationale for intervention. The areas that are eligible for support are characterised by higher than average levels of unemployment and other forms of structural weakness. Thus the fundamental rationale reflects the characteristics of the targeted areas rather than the characteristics of the beneficiaries. Inequality is not a market failure as such, but is a valid rationale for public policy intervention mainly as the social and economic consequences are felt to be societally and politically undesirable<sup>92</sup>.

Within the overall regional equity rationale, there are undoubtedly instances where RSA support is given to overcome conventional market failures, especially for indigenous companies. For example, imperfect and asymmetric information that can make it difficult for companies to access private sector funding for projects, especially ones considered to be "high risk". Companies may also not know of the sources of, and mechanisms to, access the necessary amounts of external finance.

It has also been argued that RSA support is useful in generating positive externalities, that is benefits that are not explicitly priced but which the beneficiaries value<sup>93</sup>. These can be such things as business collaboration and networking, technological spill-overs and information transfer. These are all the type of opportunities that arise when similar companies are located in proximity to one another. Indeed, as noted in the Internationalisation section, evidence highlights the importance that companies involved in similar activities can have in attracting high value inward investments. Arguably RSA can influence the development of such

---

<sup>88</sup> This is defined as the proportion of working aged adults who are employed.

<sup>89</sup> <http://www.nomisweb.co.uk/>

<sup>90</sup> 2011 figure, Scottish Enterprise estimates

<sup>91</sup> <http://www.scotland.gov.uk/About/Performance/scotPerforms/purpose/productivity>

<sup>92</sup> [http://www.hm-treasury.gov.uk/d/green\\_book\\_complete.pdf](http://www.hm-treasury.gov.uk/d/green_book_complete.pdf)

<sup>93</sup> <http://www.scotland.gov.uk/Publications/2008/03/20102609/0>

externalities, especially if it results in the development of clusters of businesses operating in similar markets. One example of this might be the support that has been given through RSA to a number of business services (Business Processing Outsourcing (BPO)) companies in recent years. Without the investment incentive provided by RSA, companies may not choose to locate or invest in particular locations and thus benefit from these externalities.

#### 4. Scottish Enterprise RSA Support

RSA is a discretionary grant, with the amount of aid dependent upon criteria such as the size of business, its location, evidence that without support the project would not proceed (that is additionality) and a judgment as to the amount of support needed for the project to proceed<sup>94</sup>.

Over the 4 years 2010/11 to 2013/14, 397 offers of support totalling £184 million were accepted. These were in support of planned capital expenditure of £932 million (a leverage ratio of 1:5) with the aim of creating or safeguarding 21,605 jobs (a gross cost of £8,500 per job). Although 276 of the offers (70%) went to Scottish companies, these accounted for only 29% of the offers by value. This reflects the fact that over this period Scottish companies on average accepted smaller offers (£196,000) that created or safeguarded smaller numbers of jobs (32 on average). In contrast foreign owned companies received average offers of £823,000 with the average number of jobs created or safeguarded being <sup>94</sup>95.

#### 5. Impacts of RSA Support

There have been a number of evaluations of RSA<sup>96</sup>. One of the largest in scale that related solely to Scotland was that published in 2008 by the Scottish Government<sup>97</sup>. Its findings demonstrate some of the difficulties in trying to make sense of the “evidence”. For example:-

- The evaluation reported that, based on an econometric analysis (that is an analysis using government company statistics) there was no evidence of a link between RSA support and productivity as measured by sales per employee or sales growth. There was, however, a positive link with employment growth; and
- When companies were surveyed, 29% reported that there was full additionality as a consequence of RSA support, that is without RSA none of the reported benefits would have been achieved. Of the respondents 78% reported increased productivity and 84% sales growth.

Generally these findings have been confirmed by other evaluations. Although they differ (in terms of the approaches used (econometrics or beneficiary surveys), the detailed methodologies, the geographies considered and the time periods over which impacts were assessed) they have arrived at the same broad conclusions, that:-

---

<sup>94</sup> <http://www.scottish-enterprise.com/services/attract-investment/regional-selective-assistance/overview>

<sup>95</sup> <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/PQR/RSA%20Reports/2012-2013-Annual-Summary.pdf>

<http://www.scottish-enterprise.com/knowledge-hub/articles/publication/rsa-reports>

<sup>96</sup> For a summary see:-

Hayton, K, forthcoming, *Evaluating the Evidence – Econometric Analysis and Beneficiary Surveys – A case study of Regional Selective Assistance in Scotland*, Evaluation

<sup>97</sup> <http://www.scotland.gov.uk/Resource/Doc/216893/0058124.pdf> )

- RSA support has a positive impact on employment and turnover and therefore on the wider economic measures such as GVA; and
- There is no relationship between RSA support and productivity growth.

There therefore seems to be a contradiction: the “value free evidence” from econometric analysis fails to find a link with RSA support and productivity, whereas some of the survey based approaches report RSA recipients as identifying such a link. One explanation for this may be that RSA is going to companies that will grow regardless. The Scottish Government evaluation found evidence of this when it reported that “*young, dynamic Scottish firms with international links are more likely to receive RSA support*” p.10<sup>98</sup>. There is therefore a self selection bias. When econometric data matching work is then undertaken this matches these dynamic companies with similar dynamic companies that have not received support. As both groups have performed at similar levels no RSA additionality is identified. This is not therefore to say that RSA recipients have not increased productivity but that they have not increased productivity to a greater or lesser extent than have similar non-supported companies.

More recent work on the impact of RSA in Scotland confirms these broad findings. Thus Aston University concluded that “*without RSA the Scottish economy would be in a worse position than it is presently.....employment would have been lower without the investments undertaken with the help of RSA*” (p.32)<sup>99</sup>. However, again there is no relationship with RSA support and productivity.

## 6. RSA data and evidence gaps

There is a range of evaluation evidence on the impact of RSA support to companies. Although the reported impact metrics vary (depending upon the assumptions made and the time period the work covered) there is agreement that RSA has no impact upon company productivity growth at the aggregate level.

This is an area that needs to be explored in greater detail. It is also clear that RSA support is rarely offered in isolation from other SE products. The relationship and timings of this complementary support, and its effect on net economic impacts, is another area that requires further analysis.

## 7. What Works

There is clear evidence that RSA support creates jobs, increases capital investment by companies, increases company turnover and increases Net GVA. The evidence would suggest that this comes about in a number of ways:-

- The RSA assessment process, from initial enquiry through to the grant being awarded. This process ensures that RSA is focused on projects where there is likely to be additionality (that is there is a high probability that the project would not go ahead without RSA support);
- Being Account Managed seems to be associated with positive impacts<sup>100</sup>

<sup>98</sup> <http://www.scotland.gov.uk/Resource/Doc/216893/0058124.pdf>

<sup>99</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=showPromoted&id=552>

<sup>100</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=showPromoted&id=552> p. 27



- The wider support that SE and SDI are able to give to companies (for example Training Plus and support from sustainability specialists) so that they can benefit from a broad package of support to help with their development needs; and
- The wider links that SE can broker between RSA recipients and other companies and organisations (for example potential suppliers and universities and colleges).

## PHYSICAL BUSINESS INFRASTRUCTURE

### 1. Why is Business Infrastructure important?

Physical infrastructure (sites and premises) is important to creating the globally competitive business environment which facilitates company and sector growth and attracts talent and inward investment. The Global Competitiveness Index 2014-2015<sup>101</sup> lists infrastructure as a key pillar of competitiveness for the following reasons: *“Extensive and efficient infrastructure is critical for ensuring the effective functioning of the economy, as it is an important factor in determining the location of economic activity and the kinds of activities or sectors that can develop within a country.”*

The scale and location of business investment is influenced by firm-specific factors, such as market opportunities, and business environment factors, such as the cost of doing business, the tax system and the availability of skilled labour. The availability and quality of physical infrastructure is another important influencer of business investment. There is evidence that failure to invest in the maintenance of infrastructure has a significant negative impact on economic growth while investment in infrastructure creates short-term economic impacts through additional demand for materials and construction activities and longer-term impacts by enabling the economy to function more effectively<sup>102</sup>.

Investment in infrastructure, such as industrial, office and R&D space, can be an important factor in attracting inward investment as well as helping existing businesses achieve high growth. Infrastructure investment can also drive “agglomeration” benefits<sup>103</sup>. These are knowledge spillovers, labour market pooling or input sharing economies which arise from the “clustering” of competitors, workers, researchers and customers and raise the competitiveness of the location. SE focuses much of its infrastructure investment on key growth sector projects where these agglomeration benefits accrue, typically in cities, which underpins SE’s support and contribution to the Cities agenda<sup>104</sup>.

### 2. Scotland’s current performance

The UK performs poorly on general business investment relative to its major competitors<sup>105</sup>. In 2012 business investment relative to GDP was 8.4%, ranking the UK 18<sup>th</sup> out of 20 OECD countries. Seven of these countries had business investment levels at least 50% higher than the UK, including two, South Korea and Australia, which had levels double the UK rate. Business investment in Scotland is likely to be in line with that of the UK, and so below most OECD economies<sup>106</sup>.

---

<sup>101</sup>The Global Competitiveness Index 2014-2015 (OECD, 2014) - [http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2014-15.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf)

<sup>102</sup> National Infrastructure Plan (HM Treasury, December 2013) - [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/263159/national\\_infrastructure\\_plan\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263159/national_infrastructure_plan_2013.pdf)

<sup>103</sup>The 2008 Productivity and Competitiveness Indicators (BERR, 2009) - <http://webarchive.nationalarchives.gov.uk/20110202220252/http://www.bis.gov.uk/files/file49953.pdf>

<sup>104</sup> Scotland’s Cities: Delivering for Scotland (Scottish Government, 2011) - <http://www.scotland.gov.uk/Resource/Doc/365367/0124252.pdf>

<sup>105</sup> OECD Economic Outlook Database 2010

<sup>106</sup> Scottish business investment data is not available

Relatively low business investment in the UK is an established trend. In 2000, the business investment to GDP ratio was 12.1% ranking the UK 16<sup>th</sup> out of 20.

To reach the top quartile of OECD countries, UK business investment would have had to have been £80bn or 69% higher in 2012 than the level estimated (£116.3bn)<sup>107</sup>.

Although information on investment in physical infrastructure is not available separately it seems likely that Scotland and the UK also lags behind its competitors.

### **3. Business Infrastructure challenges and market failures**

The main rationale for the public sector to invest in physical business infrastructure is a market failure resulting from imperfect information which can constrain private investment due to<sup>108</sup>:-

- Limited information on the potential scale and timing of returns from investment and lack of awareness of investment opportunities, especially in emerging sectors, with Life Sciences being one example;
- Perceptions that potential costs, benefits and timescales could be larger, smaller or longer respectively than might be realistic, for example due to fear of planning delays or complexity of public-private projects; and
- Uncertainty around costs and returns, including asset disposal, from specialist business infrastructure including R&D/lab and incubator space.

There can also be an equity rationale for public interventions. This is often influenced by geography. For example:-

- In rural areas the costs of development can exceed the rental yield so that businesses can find it difficult, if not impossible, to obtain the premises they need without the public sector support to bridge the funding gap; and
- In certain urban areas there can be limited developer interest but, because of deprivation indicators such as high levels of unemployment, a strong political desire to see businesses premises constructed.

Investment can also be justified on the grounds of positive externalities. For example:-

- Private sector investment can be limited in such things as utilities and transport infrastructure as the benefits can accrue to non-investors which provides a powerful incentive not to invest so that these types of good can be undersupplied without the intervention of the public sector;
- Public sector intervention in “flagship” properties, that are characterised by such things as design or technological advantages such as energy efficiency. These might be in locations where the private sector would be unwilling to invest but the positive externalities that public investment can bring can then successfully create a market; and

---

<sup>107</sup> 8.8% of UK GDP, 2009, OECD, [http://stats.oecd.org/Index.aspx?DatasetCode=SNA\\_TABLE1](http://stats.oecd.org/Index.aspx?DatasetCode=SNA_TABLE1)

<sup>108</sup> Rationale for Intervention Guidance October 2010 (Scottish Enterprise Appraisal & Evaluation Team) - <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=483>

- Investment in streetscape and other physical infrastructure can improve the perception of specific localities which can then act as an incentive for private sector investment.

There are also features of the market, rather than failures as such, that can mean that certain types of property are underprovided. A case in point is space on easy-in, easy-out terms for small companies. Until relatively recently the private sector did not see this as a worthwhile market due to the likely high void rate and the relatively high transactions costs (including such things as management overheads). This market was filled (or even created) by a mixture of public and third sector investors.

#### 4. Scottish Enterprise Business Infrastructure support

As at October 2013 SE had an investment property portfolio with an asset value of £141.8 million<sup>109</sup>. This was made up of:-

- £38 million (267%) from rent generating assets made up of 1.12 million sq ft of buildings:-
  - 250,000 sq ft Science Park accommodation;
  - 710,000 sq ft investment buildings; and
  - 160,000 sq ft Business Centres/ Multi Occupancy Buildings.
- £103.7 million (73%) from 2,298 acres of development land. This is largely not income generating and falls into the following categories:-
  - 75% Development Land;
  - 5% Science Park Development Land; and
  - 20% Non- economic land.

SE's infrastructure investments are mainly focused on Scotland's growth sectors and are designed to address the market failures and challenges outlined above, and to lever in private sector investment. They cover a range of projects designed to improve the business environment and to demonstrate the opportunities for investment in Scotland. Most properties are multi-occupancy buildings. However, there are some corporate lets to companies such as Amazon. Although these are numerically few they account of a substantial proportion of rental income with the five largest corporate tenants accounting for 26% of rental income in 2013.

Infrastructure Project	Growth Sector
BioQuarter	Life Sciences
International Technology and Renewable Energy Zone (ITREZ) including the recently completed Inovo building.	Energy/Renewables
Dundee Waterfront (Seabraes Yard and V&A)	Creative Industries
Advanced Forming Research Centre (AFRC)	Enabling Technologies
Energy Park Fife and Energetica (NE Scotland)	Energy
Clyde Waterfront: - Scottish Hydro Arena, SECC - Creative Clyde - International Financial Services District (IFSD)	Tourism Creative Industries Financial and Business Services

<sup>109</sup> Single Approval Group, 2013, Property Portfolio Overview, SAG (13) 67, 22 October.

Edinburgh International Conference Centre	Tourism
Aberdeen and West of Scotland Science Parks	Multi sector
Inovo Building Glasgow	Renewables

Many of SE's major infrastructure projects are delivered in partnership with other public and private sector organisations. While SE plays a leading development and delivery role on most of these projects, it plays a key supporting role on other ones critical to Scotland's economic development, notably transport, energy transmission and digital infrastructure projects.

## 5. Impacts of Business Infrastructure support

The projects highlighted above are major long-term projects which take years to develop and years more to return economic benefit, given that they may have a 25 year operational life. Some are in their infancy whilst others have been developing over the last ten or more years. They share the characteristic that much or all of their economic impact will accrue in the future, and so assessment of their impact is mainly based on appraisal rather than evaluation evidence, although some evidence is now becoming available as to impact to date. Examples include:-

- Edinburgh BioQuarter aims to position Edinburgh and Scotland as one of the leading global locations worldwide for biomedical research. To date some net 407 jobs are on site creating £79 million of net GVA. Apportioning this to SE, to take account of the fact that the project involves a number of other public sector funders gives an impact ratio of 1:0.6. By 2037 the estimated impacts are some 458 net jobs and net GVA of £560, giving an SE impact ratio of 1:4;
- ITREZ will be a global R&D hub where developers, suppliers, academics, researchers and support organisations will co-locate, driving research, collaboration, innovation and commercialisation in the offshore wind sector. ITREZ includes the R&D operations of major companies including SSE, Scottish Power Renewables and Gamesa as well as knowledge exchange and international marketing activities. It could create 700 high value jobs and £100m of net GVA over ten years;
- Scottish Hydro Arena at the SECC in Glasgow could host 140 events per year, creating 2,500 jobs and net cumulative GVA of £185m over the 2014-33 period, representing a GVA return of almost £10 to every £1 of SE investment; and
- Energy Park Fife is a 140 acre brownfield development which is being developed as a strategic industrial location for manufacturing and assembly operations related to the offshore wind sector. It already hosts companies heavily engaged in the sector including BiFab, who manufacture sub sea 'jacket' structures for use in both the offshore wind sector and also the traditional oil and gas sector. Over the 2010-29 period, almost £130 million of net GVA could be created, generating over £20 GVA per £1 that SE may invest there.

What the work to date tends to show is that short to medium term impacts are low with SE's investment often not showing a return until well into a project's life. As the Bioquarter example shows, this can be 25 years into the future.

What also seems to be clear is that the construction of buildings that are targeted at specific end users (Bioquarter) or specific activities, as with the many research centres that SE has part funded (for example AFRC and ITREZ), are often supported

because of the other benefits they may bring rather than solely the direct benefits arising from the facility:-

- They can stimulate research activity. If this results in research funds being won from outwith Scotland then this brings additional economic benefits;
- The research may result in the creation of spin-off companies and the development of new products and services;
- The research focus may be attractive to inward investors; and  
Space targeted at specific users may bring agglomeration benefits (the whole essentially being greater than the sum of the parts). This can include knowledge spill-overs, the attraction of similar companies, the sharing of specialised facilities and labour market pooling. However, the evidence for this is as yet rather limited.

## **6. Business Infrastructure evidence and policy development**

SE's approach to investment in infrastructure has evolved over time in line with its strategic objectives and its understanding of where it delivers most value. This has resulted in the current focus on infrastructure investment on unlocking the potential in Scotland's key growth sectors.

## **7. Business Infrastructure data and evidence gaps**

As projects develop, monitoring and evaluation data will be used not just to establish infrastructure project outcomes and impacts, but to validate projections made when projects were appraised. This will enable any over-optimism or pessimism to be assessed that can then be used to inform future appraisal work. It is also the case that appraisal evidence is often based on standard floorspace models. These can be highly susceptible to change driven by such factors as the actual building occupiers, vacancy rates and specification variations. As more evidence of actual impacts is gathered then these factors can be adjusted in future appraisals

## **8. What Works?**

Assessing what works is, as has been outline above, difficult given the timescales not just to deliver impacts but for a development to be completed. For example the Bioquarter started in 2002 and the first building was only completed in 2012. These length timescales also can mean that project scope can change as can the funding mix, partners and investment targets.

Accepting these challenges evidence to date would seem to show that:-

- Some developments may be seen as acting as anchor tenants (for example the V and A in Dundee) that will then attract other users who want to benefit from the prestigious nature of the development as well as being destinations in their own right so that they boost the tourism industry;
- Such developments can play a key role in place marketing as they give, not just the locality, but the wider region greater prestige and profile. In its turn this might boost its attractiveness to inward investors;

- SE's ability to provide space for inward investors, either through its existing portfolio of land or property or through the construction or facilitation of tailor-made space can be a key attractor to inward investors;
- SE's ability to undertake site and access works as with the Bioquarter, can then lever in other financial support as with the £12 million invested in Building Nine on the Bioquarter by the Department of Business Innovation and Skills Strategic Infrastructure Fund; and
- They may have the potential to stimulate clusters of related private sector developments, as with the hope that the V and A will stimulate the Creative Industries in Dundee and the wider Tayside region as may the Bioquarter in Edinburgh.

## SCOTTISH INVESTMENT BANK

### 1. Why is growth funding important?

Small and medium-sized enterprises (SMEs) potentially constitute the most dynamic firms in the economy. However, they often face economic and institutional barriers to growth including limited access: to working capital; funds to invest in innovation and growth; and long-term credit. A lack of adequate finance is a significant obstacle to the development of both viable early stage and established businesses with growth potential. Research has found that inability to attract sufficient funding was a constraint on growth and development for many spin-out companies<sup>110</sup>.

Although only a small proportion of companies seek risk capital investment (estimated to be 2% of SMEs) it is an important source of funding for early stage and new, young technology advanced ventures with significant potential for growth in international markets<sup>111</sup>. The importance of providing funds to support these companies was recognised in the Government Economic Strategy which stated that SIB had a role to “*support early stage innovative technology based businesses, and growth and exporting companies*”<sup>112</sup>.

As a result of a number of market features and failures, some SMEs are unable to raise the capital they want from the market, resulting in funding or equity gaps. At present, funding gaps are for amounts that are too large for Business Angels and too small for traditional private equity funds. A further equity gap emerges where some businesses that had previously received very early stage funding are not able to access further rounds. This has been exacerbated over the last decade or so as investors sought to minimise risk by supporting companies at a later stage in their development<sup>113</sup>. The consequences are that some early stage businesses cannot achieve their full potential and generate additional economic benefits.

### 2. Scotland's current performance

The supply of capital to Scottish companies is not static, influenced by the wider economy and the entry and exit of new funders into the market. As more players enter the market, and over time they change the way they operate, then the size and nature of the funding gap changes. The landscape is now increasingly dominated by angel syndicates (groups of angels who band together). The greater resources they bring mean that they have been able to fill a new gap caused by the decline in the number of venture funds. They also make follow-on investments. One potential consequence of this is that a new funding gap, below £50,000. In addition new funding sources are entering the market. These include start-up awards (EDGE) and pre-seed investments. There may therefore be an improvement in first round/seed investments, although this is only now beginning to return to the 2007 (pre-recession levels).

A challenge in the Scottish market is that there have been relatively few exits that would release funds for reinvestment. It is also claimed that the dynamics of the

---

<sup>110</sup> <http://clients.digipage.co.uk/?userpath=00000000/00007479/00025542/&page=6>

<sup>111</sup> <http://www.scottish-enterprise.com/knowledge-hub/articles/publication/risk-capital-market-in-scotland-2012>

<sup>112</sup> <http://www.scotland.gov.uk/Resource/Doc/357756/0120893.pdf>

<sup>113</sup> <http://www.bis.gov.uk/assets/biscore/enterprise/docs/b/11-1009-bis-equity-finance-qualitative-reviews-ukhtf-bridges>



supply side of the funding market now mean that it is increasingly difficult to raise growth capital above the £1 to £2 million band, although more recent data seems to show that there has been a significant increase in £2 million plus deals in Scotland.

Thus, although angels in Scotland are said to have generally very effectively filled the gap up to up to £2m in the past (in part driven by the Scottish Co-investment Fund, which stimulated angel growth through risk sharing and the greater size of deals that were possible through co-investment) it may now be that their maturity, linked to changes in the wider fund market, means that:-

- A new gap may be emerging below the £50,000 level, albeit that new funds and measures seem to be emerging to fill this;
- Growth capital may be becoming harder to access;
- The emergence of new Angel Syndicates plays an important role in providing start up and first round investments; and
- The key challenge is market liquidity, with more established syndicates having to support existing investee companies with more funding over a longer period of time, exacerbated by a lack of exits.

### **Scottish Overview**

Equity finance is more suited to a relatively small cohort of growth potential companies, with a higher risk profile, that have yet to demonstrate a track record and ability to service a loan. Scotland's Business Angel investment activity is well established and organised and has played a key role improving the availability of seed and early stage investment up to £2m. In contrast there is not a strong presence of VC investors in Scotland and inward investment flows that can support later stage and larger investments. VC activity to date has been characterised by large one off deals.

In summary, the Scottish early stage risk capital market is showing encouraging signs of increasing activity, driven by a small number of very large deals in 2013-14. However, there remain long standing and persistent challenges for early stage and higher risk businesses to secure both seed and later stage funding.

In 2011 there were only 10 deals above £2 million. The report's authors argue that Scotland fares worse than other UK regions in securing these levels of investment from Venture Capital funders. This is said to reflect such factors as limited demand and propositions being poorly developed.

Investments under £100,000 were, in 2011, at their lowest for seven years, in both number of deals and amount of investment: 31 deals valued at £1.45 million. This reflects changes in the market. Although the Scottish Co-Investment Fund is seen as having played a catalytic role in stimulating the development of the Business Angels sector in Scotland<sup>114</sup>, there have been changes in recent year, in particular:-

- A greater proportion of Angel investment going into follow-on investments; and
- Fewer exits that enable money to be recycled, with the average time to exit in 2011 being 10 years as against 9 a year earlier.

---

<sup>114</sup> Ibid, p. 20 and 24

One potential consequence of this is that there is “a strong suggestion of an equity gap at this level”<sup>115</sup> (under £100,000) albeit the same source also makes the point that there may be a lack of demand, or effective demand, with funders seeing too few investable propositions.

This conclusion has recently been confirmed by more recent work. For example work published by The Royal Society of Edinburgh in June 2014 highlighted the tendency for Angel syndicates to support their existing portfolios of companies and the longer time needed to make exits, which was limiting the amount of investment available to be recycled<sup>116</sup>. However, given that the focus of the report was on emerging companies of high-potential (companies that were beyond the start-up and seed capital levels), these issues were not addressed in the recommendations. Instead the major recommendation was that consideration be given to establishing a “Super Co-Fund” based on the Scottish Co-Investment Fund model. This would draw in institutional investors such as the pension funds alongside Angels and the public sector, with investments being on a *pari passu*<sup>117</sup> basis and the public sector guaranteeing returns/underwriting losses.

### 3. Equity Funding challenges and market failures

The inability of a company to raise capital is not necessarily evidence of a market failure. Indeed the attention now given to Financial Readiness within Scottish Enterprise is evidence that in the past demand side issues, that is the inability of companies to present a convincing case to investors, were as significant as supply side constraints. The unwillingness of investors to provide finance to even an established company may likewise not be a market failure but a perfectly rational response to what is seen as a high level of risk. This may be seen as unacceptable to policy makers but is not a market failure as such.

Given the breadth of Funds that SIB operates (see Section 4) it is not surprising that the rationale for intervention varies. For example:-

- The main rationale for the Scottish Recycling Fund is a public good justification, with recycling bringing positive externalities through such things carbon savings. Market failures relating to this include information imperfections and asymmetries reflecting a lack of awareness of the potential economic opportunities in recycling; and
- The Renewable Energy Investment Fund has a similar justification: public good linked to information failures regarding the technology to be deployed and asymmetries around such things as the legislative and public sector funding regimes underpinning the renewables industry. This means that projects may find it difficult to raise the funding they need.

In both instances the involvement of SIB reduces some of the risks associated with the investment so making it more attractive to private funders.

For the other investment Funds the rationale tends to be slightly different. Underpinning them is geographical equity. This reflects the tendency for venture capitalists to be increasingly concentrated in core regions<sup>118</sup>, (the more so after the

---

<sup>115</sup> Ibid, p.28

<sup>116</sup> [http://www.royalsoced.org.uk/cms/files/advice-papers/2014/AP14\\_06.pdf](http://www.royalsoced.org.uk/cms/files/advice-papers/2014/AP14_06.pdf)

<sup>117</sup> All investors are treated on an equal basis.

<sup>118</sup> [http://www.research.ed.ac.uk/portal/files/12536283/Harrison\\_Transformations\\_paper.pdf](http://www.research.ed.ac.uk/portal/files/12536283/Harrison_Transformations_paper.pdf)

global financial crisis) and for Scottish based companies to secure less than their “fair share” of investments from venture firms<sup>119</sup>. Given this, it seems that companies based in Scotland are more likely than companies based in less peripheral regions to find it difficult to raise finance. This therefore provides a strong Equity rationale for intervention.

This is then underpinned by a number of more conventional market failures; that is the market operating in a way that means that viable businesses find it difficult to raise funding from private sources to enable them to grow.

On the supply side it may be that the evidence put forward of equity gaps at various levels (funding ranges within which SMEs find it difficult to raise finance) is less a market failure but more evidence of the market behaving rationally in the face of information and transaction costs that are disproportionately large for relatively small investments, something that the Rowland Review, amongst a number of sources, highlighted in 2009<sup>120</sup>. These costs include:-

The high costs of due diligence that tend to be fixed and so represent a larger proportion of an investment in early stage and smaller deals compared to larger ones. This acts as a disincentive to investors to invest in the smaller deals, even if these are with more developed businesses. This may then in turn reflect a more common market failure: without the information provided by due diligence investors are unable to distinguish sound investments from ones that may be more risky.

There may, however, also be more traditional market failures, in particular limited information on the returns from early stage growth companies. This can then make investors risk averse or overestimate the risks. Investors may then concentrate upon maintaining their existing portfolios rather than identifying new investment opportunities.

There is then what has been described as market features<sup>121</sup>: the market operating in a particular way that results in outcomes that may be economically undesirable, in particular the inability of SMEs to obtain the financial support they want. These features include:

- Fund manager remuneration with later stage and buyout deals providing greater returns and personal remuneration for fund managers so that there is less incentive for them to invest in earlier stage deals; and
- The desire to limit risk exposure on the part of the private equity/venture capital industry by focusing on buyout and secondary purchase investments, which tend to be larger and are perceived to be less risky.

On the demand side (amongst SMEs) the main market failure relates to information, in particular:-

- SMEs being uncertain about how to obtain external funding and the appropriate sources; and

---

<sup>119</sup> <http://www.scottish-enterprise.com/knowledge-hub/articles/publication/risk-capital-market-in-scotland-2012>

<sup>120</sup> <http://www.is4profit.com/pdf/rowlands-report.pdf> p. 3

<sup>121</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=512>

- An inability to present a convincing investment case reflecting lack of information as to what investees are looking for when making investment decisions.

The factors above, and the fact that investment capital has gone into higher performing, less risky and more liquid capital funds and alternative assets (especially when markets are volatile and there is significant investment switching) have all led to a lower than optimal supply of funding to viable SMEs.

#### **4. Scottish Enterprise growth funding support**

The Scottish Investment Bank (SIB) exists to help increase the supply of finance, and to help more Scottish SMEs with growth and export potential to be able to access this funding<sup>122</sup>.

SIB offers a suite of investment funds, essentially an escalator designed to support companies from a very early stage until they are of sufficient scale to access private sector sources such as the banks or the stock markets. Several of these involve investments being made in partnership with private sector investors on a *pari passu*<sup>123</sup> basis. The key funds are:-

- The Scottish Seed Fund (SSF) which provide co-investment loans and equity investment from £20,000 to £250,000 to early stage companies with growth ambitions;
- The Scottish Co-investment Fund (SCF) which can invest between £100,000 and £1m in company finance deals up to £2 million.
- The Scottish Venture Fund (SVF) investing between £500,000 and £2 million alongside private sector partners, in financial deals of between £2 million and £10 million;
- The Scottish Loan Fund (SLF) providing mezzanine loans ranging from £250,000 to £5 million to qualifying Scottish SMEs on a wholly commercial basis. Investment in the Fund totals around £100 million, roughly equally split between the public and private sectors;
- The Scottish Recycling Fund, set up in 2014 to provide loan finance of between £50,000 and £1.9 million over a maximum of 5 years to companies involved in recycling and remanufacturing activities, It is run in partnership with Zero Waste Scotland; and
- On behalf of the Scottish Government, SE manages the £103 million Renewable Energy Investment Fund (REIF). This makes investments in both private and community sector renewable energy projects, including wind and tidal.

In addition SIB provides financial readiness support to companies through its team of investment specialists. This is to ensure that companies are able to identify appropriate sources of funding and can then present a viable case to funders. This is therefore specifically targeted at a recognised information market failure.

#### **5. Impacts of growth funding support**

Most of the evaluations of the various SIB Funds have identified the benefits to companies of support. In terms of the outputs:

---

<sup>122</sup> <http://www.scottish-enterprise.com/about-us/what-we-do/sib>

<sup>123</sup> This means that the investing partners are all on an equal footing as regards the terms of the investment.

- Support has resulted in increased employment, R & D activity, registering of intellectual property and the development of new products and services; and
- The resultant outcomes have been turnover growth as a consequence of entry into new domestic and export markets and increased penetration in existing markets. This has often been associated with employment growth and increased labour productivity.

Evaluations of the SSF and the SVF highlighted high levels of investment additionality. 55% of SSF private co-investors stated that they would not have invested in companies without SIB co-investment (40% of SVF private co-investors also stated this) and 36% would only have made a smaller investment (33% of SVF private co-investors also stated this). No investors stated they would have made the same level of funding without SIB co-investment.

The evaluations also concluded that the SIB funds, through the co-investment model, had attracted a number of new and international private sector investors to the Scottish market. As well as funding, SIB supported companies often benefited from co-investors providing advice and support. Wider Scottish Enterprise business development support was also found to be important in helping companies achieve growth<sup>124</sup>.

The evaluations reported that the potential economic impacts of the SSF support delivered between 2006 and 2010 could be £110 million net additional GVA by 2021 and the creation of 365 net additional jobs. The potential impacts of SVF support delivered between 2006 and 2010 could be £150 million net additional GVA and the creation of 530 net additional jobs by 2021. A number of the companies supported by both funds are pre-revenue, and this reduces the cumulative GVA impacts. While these companies are pre-revenue, they are adding value to the economy in terms of high value jobs and investment in R&D activity.

Investments through the **Recycling Fund and REIF** have not been evaluated given that they are early stage. However appraisal evidence highlights the potential impacts. The REIF investments are individually appraised. They fall into 2 main categories:-

- Community based support which tends to be relatively modest. One consequence is that the impact ratio (over 10 years) is good: generally in the range 1:4 to 1:11. Job impacts are small and have not usually been separately calculated. They are generally indirect: arising from the employment of people on community benefit projects funded through the returns from the REIF investments; and
- Investments in private sector projects have tended to be larger and in projects where the technology is not as yet commercially proven, for example tidal power generation (many of the community projects have been in onshore wind turbines using proven technology). The forecast impacts have covered GVA and jobs as there has often been ongoing employment associated with Operations and Maintenance activity over the lifetime of the generating devices. Reported impact ratios have been quite wide: 1:2 to 1:12, in part a reflection of the scale of public sector investment, especially in the more experimental projects.

---

<sup>124</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513> and <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=512>

REIF is also effective in leveraging in additional private sector and other support into the renewables industry. For example, analysis of 12 REIF applications appraised in 2013/4 and 2014/15 found that the leverage ratios were:-

- Overall £1 of REIF support for every £2.60 from other sources, chiefly the private sector;
- £1 of REIF funding for every £3.24 for the community based projects; and
- £1 for every £2.72 for the private sector ones.

## **6. Growth funding evidence and policy development**

SIB pro-actively manages all investments to achieve commercial returns and to support growth. To maximise opportunities for growth, SIB has built strong relationships with investees, including ensuring that additional support is available as needed through Account Managers and specialist teams within SE. This is an ongoing area to support companies to achieve their growth ambitions. SIB ensures that as many of the supported companies as possible are also Account Managed to ensure that, post investment, they can benefit from wider SE support. The evaluation evidence highlights the important role that wider support plays in assisting the company growth.

The evaluation evidence also highlighted that one reason that funding opportunities were rejected by private investors was a lack of investor readiness. To help address this, SIB Financial Readiness Specialists work with companies to help them access external finance for the first time.

## **7. SIB and evidence gaps**

The evaluations highlighted that many of the supported companies are pre-revenue and early stage, so that impacts to date are either negative or modest. Given this, ongoing monitoring allows company progress to be assessed.

It is also the case that the nature and exact scale of the equity gap and changes in the wider funding market seems to be becoming increasingly blurred. For example, Angels seem to be moving out of their “traditional” start-up and seed role whilst there is a call for new funding models such as the Super Co-Fund mentioned above, whilst there are claims that the traditional funding escalator (the model on which SIB’s Funds tend to be based) is no longer relevant<sup>125</sup>. All of these factors would repay ongoing monitoring and research.

## **8. What Works?**

The companies that SE supports through its funds report net additional GVA and jobs. This reflects a variety of things facilitated by having access to SIB funding including:-

- The ability to recruit “the right people with key skills”<sup>126</sup>;
- Making it easier to obtain additional funding from sources other than SIB (as SIB support had increased the credibility of the business in the eyes of other funders):

---

<sup>125</sup> [http://www.research.ed.ac.uk/portal/files/12536283/Harrison\\_Transformations\\_paper.pdf](http://www.research.ed.ac.uk/portal/files/12536283/Harrison_Transformations_paper.pdf)

<sup>126</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513>

- Increased spending on R & D so that new products and services were introduced;
- Increased productivity;
- Increased sales in existing markets;
- Increased exports in existing markets; and
- Facilitating entry into new domestic and export markets.

What are the factors that drive these changes in behaviours? The various evaluations of SIB funds have identified a number:-

- A common thread is that financial support does not drive impacts in isolation: it is “*necessary but not sufficient*”<sup>127</sup>. Thus without financial support the impacts would not have occurred (or would not have occurred to the same extent) but the finance is used in conjunction with other interventions. Being able to access funding is therefore part of a process that enables beneficiaries to access a range of other support. In its turn this then maximises the impact of the funding. The resultant benefits are said to justify the “*rationale of providing advice along with finance*”<sup>128</sup> ;
- Of this other support, the key seems to be the additional advice that companies receive, often from an Account Manager, in that many of the investees either are, or become, Account Managed<sup>129, 130</sup>, and investment staff<sup>131</sup>. This support was felt to be a significant factor underpinning the businesses’ growth<sup>132</sup>;
- The Account Managers’ role involved providing strategic advice and support as well as signposting companies to more specialist services, both within SE and elsewhere, including academia and external consultants. This covered such things as alternative sources of funding, market positioning and introductions to customers, collaborators and suppliers. For Seed Fund companies Investor Readiness and the High Growth Start-Up Unit were “well used”<sup>133</sup>;
- The funds themselves were a catalyst to the provision of additional advice and support in that often a representative of the investors had a seat on the board. This brought specialist advice to bear for the benefit of the company<sup>134</sup>. The evaluation of the Venture Fund confirmed this through the finding that the employment impact of support was reduced the more arms-

---

<sup>127</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=512>

<sup>128</sup> Ibid, p. 61.

<sup>129</sup> For example the Venture Fund evaluation found that 63% of companies interviewed had received support from an Account Manager (Ibid, p. 57).

<sup>130</sup> The Co-Investment Fund evaluation found that 73% of interviewees were Account Managed:-

<http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=32>

<sup>131</sup>

<http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513>

<sup>132</sup> For example the Seed Fund evaluation found that three quarters of interviewees had received advice from an Account Manager and other investment staff. Almost three quarters rated this advice “very important” or “important” in driving business growth. Ibid, p.6

<sup>133</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513>

<sup>134</sup> For example 2 in 5 of the Seed Fund investees had an investor board member:-

<http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513>

(p.59)

Whilst a quarter of the Venture Fund investees had such a board member:-

<http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=512>

p. 57

length the co-investors were<sup>135</sup>. This was also confirmed in the earlier Co-investment Fund evaluation which found that partners played a hands-on role with their investments, having what were described as “*company building*” skills rather than the “*financial engineering expertise*” that was more typical of venture capitalists<sup>136</sup>. Work undertaken on the Loan Fund also highlighted the importance of having a Fund Manager appointed observer on the board of the supported companies. This was useful in acting as a “*sounding board*” for key business decisions<sup>137</sup>;

- Having an investor board member based outwith Scotland was important in developing international links with their seemingly being an association between increase export sales and such links<sup>138</sup>; and
- Providing support to address investee readiness weaknesses, including such things as advising the management teams and involving professional advisers at an early stage was seen as a significant driver of impacts in the work done on the Seed Fund<sup>139</sup>. SE’s Access to Finance programme was introduced to improve this situation. However, one of the findings of the Review of this, undertaken in 2013, was that one of the main barriers companies faced in accessing finance (and therefore in stimulating the benefits outline above) was poor company management<sup>140</sup> so that it may be that more work needs to be done here before companies are investor ready.

There is evidence that SIB’s activities have impacted positively upon the amount of funding available to SMEs in Scotland. For example the evaluations of the Seed and Venture Funds both highlighted improvements in the scale and quality of funding available. This would seem to reflect a number of things:-

- The co-investment model which involves risk sharing so that private investors, especially Business Angels, are more willing to make investments; and
- SE’s activities in supporting companies to develop more effective business cases through Investor Readiness activities. This would seem to have improved the quality of propositions.

It is also significant that SIB’s activities have not crowded out other investors, perhaps indicative of SIB’s entry overcoming, or alleviating, some market failures.

---

<sup>135</sup> Ibid, p. 51

<sup>136</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=32>

p.22

<sup>137</sup> Watson, M., 2014, ***Scottish Loan Fund: Market Review and Economic Impact Assessment***, July. p.14

<sup>138</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=513>

p. 88

<sup>139</sup> Ibid, p.49

<sup>140</sup> Scottish Enterprise, 2013, ***Review of Access to Finance Programme***, April, p. 13.



## CREATIVE INDUSTRIES

### 1. Why is the Creative Industries sector important?

The Scottish Government defines the Creative Industries as comprising 13 sub sectors; advertising; architecture; art & antiques; crafts; design; designer fashion; film; interactive leisure software; music; performing arts; publishing; software & computer services; and TV & radio<sup>141</sup>.

Whilst Scottish Enterprise's role is to maximise the economic potential of all of the creative industries, the key focus is in the area of digital media which encompasses the high growth areas within creative industries. The key opportunity is in creation, distribution and commercial exploitation of digital content through extending audience reach and enriching content through the creation and marketing of games for mobile and console devices; publishing such as e-books and e-magazines; the creation of new digital "experiences" with innovative apps using technologies such as augmented reality and TV production (particularly targeted towards connecting television and mobile devices, such as tablets or smart phones).

The adoption of digital technologies in these industries has created enormous opportunities for businesses as they exploit their content in new markets across a range of devices. Globally, the sector is expected to grow to \$1.3 trillion by 2016 with significant growth expected in internet advertising, mobile internet access, online and wireless gaming<sup>142</sup>.

In addition to "digital" opportunities where most growth potential is to be found, other opportunities exist in more traditional areas of Creative Industries such as television production.

A number of trends<sup>143</sup> in the creative industries have contributed to an emergence of an increasingly complex digital landscape: continued digitisation, fragmentation of audiences, changing user behaviours, the need for services to work across different devices and environments and disintermediation i.e. cutting out the need for the middleman. These trends have contributed to the emergence of an increasingly complex digital landscape and whilst they are having a big impact on traditional ways of gaining value from products and services, at the same time, they have the potential to offer significant opportunities for creative businesses.

Scotland has world class companies in all areas of the creative industries, from international leaders in games development and interactive platforms to national broadcasters and successful production companies. There are also global centres of research excellence, for example at Abertay University and the School of Informatics at Edinburgh University which develop next generation technologies to support the ongoing growth in the digital media sector.

### 2. Recent Sector Performance

---

<sup>141</sup> <http://www.scotland.gov.uk/Resource/0046/00462098.pdf>

<sup>142</sup> PricewaterhouseCoopers' Global Entertainment and Media Outlook report 2013

<sup>143</sup> <https://connect.innovateuk.org/web/creativektn>

Creative Industries GVA was £3.1bn in 2012, an increase of £37m since 2008. GVA per employee is £51,500. The sector employs 65,200 people and has a turnover of £5.5bn. Creative Industries R&D spend is £99m. Digital industries accounts for £1.2bn of GVA (around 40% of sectoral GVA) and 30% of turnover (£1.9bn), it has a higher GVA per employee at £67,000 and accounts for 30% of sectoral employment (approximately 19,000)<sup>144</sup>.

### **3. Creative Industries challenges and market failures**

A particular challenge faced by the sector is access to investment and growth finance in relation to “investor readiness” i.e. the business skills and entrepreneurial capacity of management teams, as well as not enough investors who are knowledgeable about the sector. In addition, freelance employment is a feature of the creative industries which can provide difficulties/barriers in accessing support and growing the company base, for example, where grants are linked to permanent headcount.

Digital media companies can also face barriers to creating and exploiting IP for commercial return. Low levels of innovation can be due to a lack of information on the costs and benefits of technical and business development, and ‘positive externalities’, where it is recognised that competitors could benefit from the technical knowledge developed by a company. Combined, these result in strong barriers to innovate and willingness to invest in technological development. Further, the risk element associated with R&D activity, where future returns are often undefined, can negatively affect technology investment decisions.

Creative Industries companies can also lack sufficient information on the range of opportunities in digital media markets both domestically and globally and how to exploit them effectively in order to grow their businesses. In relation to internationalisation, there are lower levels of export growth in significant sub sectors such as TV production as well as a need to increase engagement in emerging markets, such as China and India, which are becoming the largest global markets for consumption of digital content.

The sector also lacks “companies of scale” and there is a need to raise the level of ambition of the leadership within Scottish companies and encourage more ambitious growth.

Other challenges include availability of business space for Creative Industries businesses, where the private sector has been unwilling to provide suitable space due to perceived risks with businesses in the sector. In addition, a lack of digital IT skills has been identified as an inhibitor of growth across the sector in Scotland.

The identified challenges relate to imperfect/asymmetric information and externality market failures.

### **4. Scottish Enterprise Creative Industries support**

Scottish Enterprise works with two specific industry bodies: the Digital Media Industry Leadership Group and the Broadcast and Television Production Working Group supported by Creative Scotland and in partnership with industry, government and the wider public sector to deliver sector specific support.

---

<sup>144</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors/Database>

There are a number of interventions to address the market failure of imperfect information. In addition to the range of business growth support (including investment, innovation, internationalisation and talent attraction), there is specific support tailored to digital media companies.

For example, the Creative Launchpad project developed in partnership with the Technology Strategy Board (TSB) offers competitive funding to small and medium sized Creative Industries businesses to stimulate innovation and R&D. Support to access finance and investment is delivered through broader Scottish Enterprise investment support.

The Interactive Scotland project works with digital media companies to support their business growth through the provision of business advice surgeries, one to one support, market intelligence and facilitating partnerships, networking and information sharing (e.g. on sector developments and opportunities) through workshops and larger scale events across Scotland.

The Creative Edge programme which ran until June 2014 was targeted at digital media companies within the TV and broadcast sectors and is delivered by TRC Media in partnership with Scottish Enterprise, Channel 4 and Creative Scotland. The programme included support to develop leadership and technical skills, R&D and innovation support, adapting business models and business processes, international trade missions and a range of networking events and activities. Scottish Enterprise and partners are currently reviewing options to support the next phase of the programme "Leading Edge".

Infrastructure projects supported by Scottish Enterprise and partners include the Creative Clyde project which builds on the achievements of the Pacific Quay, Clyde Waterfront and Digital Media Quarter projects to create a hub for creative businesses based in Glasgow.

The District 10 project at Seabraes yard in Dundee uses shipping containers to build affordable office accommodation and is aimed at early stage creative industry companies. Both the Creative Clyde and District 10 projects support business growth in the sector and enhance inward investment propositions.

SE support is also provided for the Creative Industries companies through several other sector activities, for example construction (architecture); technology and engineering (informatics); textiles (high end design) and tourism (support for key venues and events).

## **5. Impacts of Creative Industries support**

An evaluation of Interactive Scotland reported evidence of new products and services developed by businesses directly and through networking and collaboration activity and increases in employment and turnover<sup>145</sup>. The evaluation reported an estimated £9m in cumulative GVA (actual and forecast over the period 2009 to 2014), and an impact to cost ratio of 6:1. This was driven by such project activities as networking, partnership development and signposting companies to other support.

---

<sup>145</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=484>

The District 10 project is estimated to create a gross GVA of £10 million over 10 years (by 2021) and gross employment of 32. This gives an impact investment ratio of 1:8.

The Creative Clyde Programme is forecast to deliver a total of 84,000sqm of business floorspace estimated to deliver an impact investment ratio of 1:12 over 10 years (2022). Through the provision of bespoke infrastructure such as the Hub building, the programme has attracted a diverse range of digital media businesses, promoted networking and collaboration and seeks to develop an international creative industries location.

## **6. Creative Industries evidence and policy development**

As markets for digital media products and services are inherently global and in response to evidence from consultations with stakeholders and companies, Interactive Scotland working with SDI developed an increased focus on building international profile and connections, and supporting companies to engage with international market opportunities.

The first digital media industry strategy, Digital Inspirations, was published in 2009 and a refresh of the strategy is now underway. The strategy will have a stronger emphasis on supporting innovation and internationalisation, particularly in emerging markets like China for which product localisation has been a major area of interest for companies in this sector. A vital part of the refreshed strategy is that it should be “digital” and “live” with an ability to respond to the changes and pace of the sector.

## **7. Creative Industries data and evidence gaps**

The area of digital media is rapidly evolving with increasing numbers of businesses from other “non digital” sectors (e.g. financial services) creating digital solutions for their businesses. A better understanding of how to measure the actual scale and impact of the digital component of these industries is required as this is not currently captured by the current sector definition. Related to this, a better understanding of how the increase in the digital components of these industries impacts on companies’ business models and productivity.

Further research to understand the benefits and impacts of significant TV and film productions taking place in Scotland and whether there may be more of a role for Scottish Enterprise and partners to support these “single interventions”. Freelance employment is an issue across the creative industries and other sectors such as tourism. Cross sectoral research could provide a better understanding of the implications of this issue on company growth.

The Scottish Creative Industries Partnership (SCIP) consists of public sector agencies with responsibility for aspects of the creative industries, and was established to respond to the development needs of the creative industries as a key priority sector of the Scottish economy. Work is underway with SCIP partners to develop a deeper understanding of the range of support delivered to the sector by the public sector, what evidence is available and what evidence gaps may exist.

## **8. What Works?**

Support tailored specifically to the needs of digital media companies such as Interactive Scotland has been shown to compliment broader company growth and internationalisation support. Ensuring the discrete elements of support are effectively

linked together for companies are important in helping them gain maximum benefits and impact from the support delivered. The evaluation of Interactive Scotland found that the beneficiaries mainly valued:-

- Industry knowledge of the project staff;
- The effective partnerships that the project had brokered, in particular facilitating international partnerships and networking events; and
- The mix of services and activities it provided.

Creative industries companies have expressed positive views of the Creative Clyde location<sup>146</sup>, recognising it as a location that supports significant employment in the creative industries with the potential to attract investors into the sector.

---

<sup>146</sup> Creative Clyde Baseline Research, TBR 2014

## ENERGY

### 1. Why is the Energy sector important?

Energy is important to the Scottish economy due to the continuing scale of oil and gas sector operations and the size of opportunity in the renewables, Carbon Capture and Storage (CCS) and Low Carbon Technologies (LCT) sectors in which Scotland enjoys a strong comparative advantage. Global energy demand is expected to increase by 37% by 2040, with the share of renewables in total power generation growing from 21% in 2012 to 33% in 2040, as concerns over climate change continue<sup>147</sup>.

The oil and gas sector has GVA of £16.8bn<sup>148</sup>; with an estimated 196,000 jobs supported by the industry, including onshore and offshore and wider supply chain jobs<sup>149</sup>. The sector is internationally competitive and has the skills, knowledge and capabilities that are transferable to, and can accelerate the development of, the renewables and CCS sectors.

The Government Economic Strategy<sup>150</sup> highlights the significant opportunity for Scotland from renewable energy and low carbon. This is driven by its commitment that by 2020 renewables will account for the generation of 100% of domestic electricity demand (and a 30% share of all energy demand) and by the Climate Change (Scotland) Act which commits Scotland to reducing its carbon emissions by at least 80% from 1990 levels by 2050 and by at least 42% by 2020<sup>151</sup>.

Scotland is estimated to have the largest offshore renewable energy resources in the EU (25% of EU offshore wind; 25% of EU tidal; and 10% of EU wave power)<sup>152</sup>. Growth of renewables and demand for low carbon products is supporting a significant number of jobs in Scotland with employment of 10,000 in thermal generation; 11,700 in renewables and 34,000 in environmental and low carbon activity<sup>153 154</sup>.

Opportunities in CCS will grow rapidly as a result of EU directives<sup>155</sup>. The EU has stated the need for a number of demonstration CCS plants in Europe by 2020 and Doosan Babcock estimates a worldwide market for 80 CCS projects per year post 2020.

---

<sup>147</sup> World Energy Outlook 2014 Factsheet (International Energy Agency, 2014) - [http://www.worldenergyoutlook.org/media/weowebpage/2014/141112\\_WEO\\_FactSheets.pdf](http://www.worldenergyoutlook.org/media/weowebpage/2014/141112_WEO_FactSheets.pdf)

<sup>148</sup> Growth Sector Statistics Database (Scottish Government, 28 October 2014) - <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors/Database>

<sup>149</sup> Oil & Gas UK Economic Report 2010 (Oil & Gas UK, 2010) - <http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/EC021.pdf>

<sup>150</sup> The Government Economic Strategy (Scottish Government, 2011) - <http://www.scotland.gov.uk/Publications/2011/09/13091128/0>

<sup>151</sup> Climate Change (Scotland) Act 2009 - <http://www.legislation.gov.uk/asp/2009/12/contents>

<sup>152</sup> Energy in Scotland: Get the Facts (Scottish Government webpage, 2014) - <http://www.scotland.gov.uk/topics/business-industry/energy/facts>

<sup>153</sup> Scottish Key Facts 2014 (Scottish Enterprise, 2014) - <http://www.scottish-enterprise.com/knowledge-hub/articles/publication/scottish-key-facts>

<sup>154</sup> Employment in Renewable Energy in Scotland (O'Herlihy & Co. Ltd). For Scottish Renewables) - [Renewables Scotland](#)

<sup>155</sup> Large Combustion Plants Directive, Industrial Emissions Directive and Emissions Trading Scheme 3

## 2. Recent Sector Performance

The value of Scottish oil and gas supply chain sales increased by 15.8% in 2011/12, taking supply chain sales to £17.2 bn. This is against a 2030 target of £30bn<sup>156</sup>, with international sales growing by 22% between 2011 and 2012 to £10bn<sup>157</sup>. In 2013 capital investment reached £14.4bn and investment is forecast to remain above £10bn until 2015. However, current projections forecast that by 2016-17 investment will fall to half that invested in 2013<sup>158</sup>. The sector's GVA accounted for 17% of Scottish GVA in 2012, and it had by far the highest sectoral GVA per employee at over £958k<sup>159</sup>.

## 3. Energy challenges and market failures

A significant challenge for offshore renewables is the very high development costs and technology risks that inhibit investment, especially while the costs of exploiting other energy sources remain significantly lower and less risky. The Scottish Government's Routemap for Renewable Energy describes five inter-linked challenges<sup>160</sup>:-

- Maintaining Scotland's global lead in wave and tidal energy;
- Addressing grid access and transmission charging problems;
- Risks to the commercial viability of wave and tidal sectors due to strike prices (the minimum prices developers can expect to be paid for electricity) announced by the Department of Energy and Climate Change in December 2013 retaining an island uplift<sup>161</sup> for onshore wind projects, but not for wave or tidal projects. This could also destabilise the case for a transmission link to the mainland;
- Accessing opportunities offered through the revised Strategic Energy Technology Plan and European funding; and
- Ensuring the European Marine Energy Centre in Orkney is able to meet changing demands of the marine renewables industry to maintain market position as world leading test centre.

Similar challenges face the development of CCS and emerging LCTs. For example, in CCS and LCT there is a strong Scottish cluster of companies with market leading technology and global operations and reputations. However, most of the technologies, for example for the next generation of clean coal power stations and carbon capture, exist at small scale, but require demonstration on operational plant to prove their effectiveness and reliability.

In the oil and gas sector the challenge is for Scottish-based companies to keep innovating to ensure that remaining United Kingdom Continental Shelf (UKCS) oil and gas can be recovered economically and global markets can be exploited. Using

---

<sup>156</sup> Scotland's Oil and Gas Strategy 2012 – 2020 (Scottish Enterprise webpage, 2014)

<http://www.scottish-enterprise.com/knowledge-hub/articles/publication/oil-and-gas-industry-strategy>

<sup>157</sup> Survey of International Activity in the Oil & Gas sector 2012-13 (SE/SDI, April 2014) - [weblink](#)

<sup>158</sup> Activity Survey 2014 (Oil & Gas UK, 2014) -

<http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/EC040.pdf>

<sup>159</sup> Scottish Annual Business Statistics (Scottish Government, 2014) -

<http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/SABS/ScotDiv>

<sup>160</sup> 2020 Routemap for Renewable Energy in Scotland – Update (Scottish Government, 19 December 2013) -

<http://www.scotland.gov.uk/Resource/0044/00441628.pdf>

<sup>161</sup> The island uplift is the additional price paid to generators based on the islands to reflect the higher transmission costs they incur. The fact that this is not to be paid for wave and tidal projects potentially puts these generators at a cost disadvantage.

oil and gas sector know-how is also crucial to building competitive advantage in offshore renewables.

For those parts of the sector that involve the development of commercially viable technology (for example offshore renewables, CCS and LCT) generally this would not happen on any large scale without public sector intervention. This reflects the fact that the market price for energy produced from carbon sources is generally lower than that produced from renewables. The rationale for public sector intervention in renewables is largely driven by public good and positive externalities: public sector intervention will encourage the development of non-carbon emitting energy sources as well as developing ways of mitigating the production of carbon as a by product of energy generation. This will not happen if left to the market while emissions-producing generation activity is much cheaper. Public sector intervention, through regulation and subsidy, is one way of incentivising investment. Underpinning this public good rationale are a number of more conventional market failures, especially a lack of information in the market relating to:-

- The nature and scale of market opportunities, costs and future returns. This is often affected by uncertainty around government policies, subsidies and regulation, as well as energy demand and prices;
- Technologies and their potential, especially if energy is to be produced in challenging offshore environments;
- Supply chain capabilities, in particular the capabilities of indigenous companies to support developers and manufacturers and to recognise and exploit opportunities in these sectors;
- The routes to commercialisation, especially the knowledge of how to develop and finance technologies and take them to market; and
- Public sector and other support that is available to facilitate the exploitation of opportunities and the best way of accessing this.

These failures can result in lack of awareness, uncertainty, lack of confidence and risk aversion across developers and investors which then limits investment. History shows (with North Sea oil and gas, for example) that government intervention is required to provide information and demonstrate the potential of new markets, industries and technologies and facilitate investment in them.

There are also positive externality market failures restricting private investment in port and grid infrastructure and R&D. This is as other businesses and society also benefit from these investments, reducing the willingness of an individual business to invest. This results in the under provision of necessary infrastructure and R&D and again provides a rationale for public sector support.

#### **4. Scottish Enterprise Energy support**

To contribute to the achievement of the Routemap and address the challenges highlighted above, Scottish Enterprise supports activity across a range of areas from facilitating supply chain development in order to address information failures, through innovation and commercialisation support to the provision of grant support to de-risk experimental technologies especially in offshore renewables.

Support is provided through a wide range of initiatives such as:-

- National Renewables Infrastructure Fund (NRIF) which is to lever private investment into key port demonstration and manufacturing infrastructure



- prioritised in the National Renewables Infrastructure Plan (NRIP) to enable turbine manufacturing and testing to take place in Scotland<sup>162</sup>;
- International Technology and Renewable Energy Zone (ITREZ) in Glasgow where companies, academics and support providers will co-locate, driving research, collaboration, innovation and commercialisation<sup>163</sup>;
  - Investment in renewables through the £103 million Renewable Energy Investment Fund (REIF) which is managed by the Scottish Investment Bank on behalf of the Scottish Government. This involves investment in both community based renewable schemes (with the Routemap having a target of 500Mw of community and locally owned generating capacity by 2020) and ones being developed by the private sector;
  - The £15 million Scottish Innovative Foundations Technologies (SIFT) fund, that supports companies to manufacture and deploy innovative deep-water offshore wind foundations in Scotland;
  - Renewables R&D funding to support the prototyping of offshore wind turbines (POWERS<sup>164</sup>);
  - The WATERS Fund that provides grant support for the testing of wave and tidal energy prototypes to enable them to move closer to commercialisation<sup>165</sup>;
  - Infrastructure and support for businesses at strategic sites;
  - Supply chain development; and
  - Provision of market information and analysis.

These projects are in addition to the support which SE and SDI is providing to growing numbers of renewables companies to encourage inward investment, growth, internationalisation and innovation.

## 5. Impacts of Energy support

Because Scottish Enterprise's interventions in the offshore renewables, CCS and LCT sectors are so recent, with many major projects in their infancy (of example SIFT was launched in June 2014), estimates of benefits are based on economic appraisal rather than evaluation evidence. Appraisal evidence highlights that support has resulted in private sector investment happening that would not have otherwise taken place, investment occurring faster and on a larger scale.

In many instances, especially for the larger projects, Scottish Enterprise support has been part of a package of funding: for example, with the Crown Estate, Highlands & Islands Enterprise, and support from the Department of Environment and Climate Change through the Marine Energy Array Demonstrator (MEAD) Fund. Scottish Enterprise support therefore helps lever further public funding.

Support through funding streams such as WATERS has sufficiently de-risked projects to make it attractive to private sector partners. Thus additional resources are being levered into Scotland both from private and other public sector investors.

---

<sup>162</sup> National Renewables Infrastructure Fund (Scottish Enterprise webpage, 2014) - <http://www.scottish-enterprise.com/services/develop-new-products-and-services/nrif/overview>

<sup>163</sup> ITREZ (University of Strathclyde webpage, 2014) - <http://www.strath.ac.uk/tic/itrez/>

<sup>164</sup> Prototyping for Offshore Wind Energy Renewables Scotland (Scottish Enterprise webpage, 2014) - <http://www.scottish-enterprise.com/services/develop-new-products-and-services/powers/overview>

<sup>165</sup> Wave and Tidal Energy Support Fund – WATERS3 (Scottish Enterprise webpage, 2014) - <http://www.scottish-enterprise.com/services/develop-new-products-and-services/waters/overview>

Support is often given, especially through schemes like WATERS, for prototype devices. In some instances SE support has enabled these to be commercially proven so that they can then move to the next development

## **6. Energy evidence and policy development**

It will be some time before comprehensive evaluation evidence is available on the impact and wider value of SE's interventions. The current focus is on robust project impact appraisal, good project monitoring and reviews which assess processes, outputs and potential outcomes and identify learning. This can then be fed back into project development.

## **7. Evidence gaps**

The main evidence gap is the economic impact of Scottish Enterprise interventions, although, as pointed out above, this reflects the limited time that they have been operational and the time taken to deliver impacts. In due course this will be filled with evaluation evidence. Other areas where there is a need for greater insight include:-

- The renewables supply chain, in particular the identification of those elements where Scotland seems to have limited capacity;
- Skill needs for the sector and what partners can do to meet these, given the often expressed concerns about the age of the engineering workforce and competition for the available skills from a number of sectors (for example, chemicals and engineering);. and
- More understanding of the displacement effects of renewables support. This is both within the sector as, for example, increased tidal generating capacity may be competing with onshore wind and across the energy sector more generally in that renewables may be competing against conventional power generation.

## **8. What Works**

There is a clear relationship between the financial support that Scottish Enterprise provides and its impact on levering in other public and private sector investment into the renewables industry. Scottish Enterprise is therefore playing an important part in reducing some of the risk in what are often technologically and operationally challenging activities. This then has the potential to bring benefits such as the development of commercially viable renewables generating capacity. It therefore seems that, at this stage, the support currently being provided is appropriate for delivering the objectives for the sector. As the various projects being supported become more established then it will be possible to add to our understanding of what drives impacts in this area.

## FINANCIAL AND BUSINESS SERVICES

### 1. Why is the Financial & Business Services sector important?

Financial and Business Services (F&BS) in Scotland employed a total of 215,200 in 2013, 85,400 in the financial service sector and 129,800 in the business services sector<sup>166 167</sup>. The sector has businesses which are, and have the potential to be, world class in areas of global demand in sub-sectors such as asset management, insurance, pensions and legal services.

F&BS contribute to a number of drivers of economic growth. The financial services sector contributed £7.5bn to the Scottish economy in 2011, while the business services sector contributed £6.4bn in 2012<sup>168</sup>. In addition, the financial services sector accounts for 5.4% of overseas exports<sup>169</sup>.

Scotland is internationally recognised as the most important financial centre in the UK outside London and the South East, and is increasingly recognised globally as an internationally competitive destination and attractive place for F&BS companies to locate and expand<sup>170</sup>. Many of the world's leading financial services firms have operations in Scotland across each of the sub-sectors.

### 2. Recent Sector Performance

Prior to the economic downturn, the sector grew at a faster pace than the Scottish economy as a whole, and since 2008 growth has broadly matched it. The 10 year annual average growth rate over the period 2002-2012 for Financial & Business Services was 2.7% (Scotland 1.2%). Financial Services overseas exports reached £2.4bn in 2012, an increase of £540m since 2008<sup>171</sup>. The Financial & Business Services sector has an annual average growth rate of 6.9% compared to 2.8% for all Scottish international exports (2002-2012). Statistical issues for the sector mean that data on such things as productivity and GVA per head can vary according to the source used. However, if GVA for the sector is divided by employment then the GVA per head in 2009 was some £68,700 and in 2010 £70,500, an increase of 3%<sup>172</sup>.

### 3. Financial & Business Services Challenges and Market Failures.

The F&BS sector is made up of a number of sub-sectors including Banking; General Insurance; Asset Management & Asset Servicing; Life & Pensions; and Business Services (includes focusing on legal services, shared service centres and outsourcing).

---

166 This figure does not include Global Business Services. No official figure exists for the GBS sector. However, the most recent contact centre audit found that there were over 90,000 employed in over 400 contact centres in 2011. This represents only part of the GBS sector which also includes outsource service providers and shared services operations across sectors and functions)

167 <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors>

168 <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors>

169 [Global Connections Survey 2012](#)

170 <http://www.scotland.gov.uk/Publications/2010/02/15090915/1>

171 Global Connections Survey 2012 <http://www.scotland.gov.uk/Resource/0044/00442854.pdf>

172 2009 and 2010 are the most recent dates for which these figures can be calculated.

The sub-sectors can often experience similar trends and challenges in the markets they are operating in. Currently, these include: increasing demand for new technological and innovative approaches to meeting customer needs; greater outsourcing of functions (e.g. administrative) to reduce costs and allow businesses to concentrate on their core operations; consolidation of functions; internationalising, in particular to emerging markets; and, significant regulatory changes<sup>173</sup>.

#### **4. Scottish Enterprise Financial & Business Services support**

The industry strategy has recently been refreshed<sup>174</sup>. This is an evolution of the previous strategy rather than a wholesale review of the strategic direction of the industry<sup>175</sup>. The strategic themes that set out the priorities for support: People, Profile, Infrastructure, Innovation & New Technology.

In response to the challenges, market failures and the sector strategy, Scottish Enterprise supports the sector through the attraction of inward investment, Account Management and infrastructure development (for example Glasgow City Centre West

#### **5. Impacts of Financial & Business Services support**

The attraction of F&BS inward investment is a key focus for Scottish Enterprise. In 2013/14 17 Inward Investment projects were secured, with planned employment of 3,000 (625 of which are high value).

#### **6. Financial & Business Services evidence and policy development**

The 2014 strategy refresh reflects the changing regulatory and economic landscape, such as the public ownership of major banks, new regulations (e.g. Basle III and Solvency II<sup>176</sup>) across all of financial services (designed to avoid systemic risk to the economy and provide greater protection for the public), the emergence of new competitors and increased mergers and consolidation within the industry, and the increased importance of technology within the industry.

It is difficult to know if SE's evidence as to both the impacts of support and what drives these has had any influence upon the support provided and its focus.

In response to the challenges, market failures, evidence and the FS strategy, SE supports the sector in the following ways:

- **Internationalisation – Inward Investment:** The community of practice has prioritised the sub-sectors for prospective inward investment and trade. The prioritisation is explicit that the major opportunity for this sector to contribute to the GES<sup>177</sup> is from Inward Investment. The sector has been a major contributor to

---

<sup>173</sup> Regulatory changes can include: Retail Distribution Review (published by FSA) a key part of consumer protection strategy; MIFUD II – Markets in Financial Services Derivative II – EU Framework for legislation for investment intermediaries providing service to clients in relation to shares, bonds etc; AIFMD Alternative Investment Fund Managers Directive – covers management, administration and marketing of alternative investment funds; EMIR – EU Market Infrastructure Regulation – regulation on derivatives, central counterparties and trade repositories introduces new requirements to improve transparency and reduce risks.

<sup>174</sup> The strategy has not, at the time of writing (October 2014), been published.

<sup>175</sup> <http://www.scotland.gov.uk/Resource/0044/00441656.pdf>

<sup>176</sup> <http://www.fsa.gov.uk/>

<sup>177</sup> [Government Economic Strategy](#)

the overall targets for SDI, both for jobs and high value investment – between 2008 and 2014, the team secured almost 70 projects with 14,000 planned jobs and was the single largest contributor to this target;

- **Company Growth:** Through Account Management, SE will work with around 110 companies in the FBS sector seeking to influence both domestic growth and to attract further inward investment;
- **Strategic Engagement in Scotland:** Closer engagement is being developed with major firms (for example Lloyds, RBS and Santander) at operational and leadership levels through, for example, sharing sector insights and running joint workshops. This results in greater co-ordination and connectivity at the relationship and account management levels;
- **Infrastructure:** More than many other sectors, F&BS is dependent on having property options for firms to locate functions. Over the last two years, the market for property has improved significantly and, with prospective buildings likely to enter the market in the next year, there is sufficient capacity for several years, particularly in Glasgow for example the City Centre West which our infrastructure team is currently leading on;
- **Innovation:** In particular the development and application of technology solutions to customer facing and internal processes is an increasing source of competitive advantage in FS. Recognising this opportunity, as part of the inward investment activity, technology firms, for whom FS is a major market, will be targeted. The local supply base will also be engaged with to explore the potential opportunities for international trade through facilitating access/supply chains to the Tier 1<sup>178</sup> suppliers. It is also recognised that linkages to academia on collaborative research could be strengthened; and
- **Cross Sector:** There are cross sector opportunities, particularly in shared service centres, from major firms. In an attempt to both reduce costs and focus on core operations, many large firms are outsourcing functions such as HR, Finance and Accounting, and ICT to specialist providers. To increase the likelihood of attracting investment in this area there is a requirement for proposition material to focus on specific functions rather than generic material for Global Business Services. Furthermore, since this trend is taking place across almost every sector, there is the opportunity for other sector colleagues to present this proposition while in discussion with major firms in their sector. This is taking place currently but only to a limited extent and more could be achieved with greater awareness and resource. There is also a major cross-over between FS and Technology & Advanced Engineering (TAE) as many FS firms develop and implement technology solutions.

## 7. Financial & Business Services data and evidence gaps

Current research concentrates on Business Services. Research will be being undertaken on the Global Business Services sector (GBS)<sup>179</sup>. Specifically this includes undertaking an audit of the outsource service providers, shared services

---

<sup>178</sup> Tier 1 Supplier - A tier one company is the most important member of a supply chain, supplying components directly to the original buyer that sets up the chain.

<sup>179</sup> This involves companies contracting with third parties for the delivery of certain services on their behalf, for example Information Technology, data processing or activities such as Human Resources.

and global operations of companies based in Scotland. This research will provide information to support the development of specific projects in the GBS sector. In addition work is underway to develop a business services skills investment plan. This will identify skills requirements and gaps across the business services sector in Scotland.

## **8. What Works?**

SE & SDI set out to lower the risks that companies face in trying to enter new markets by making it as easy as possible to expand and relocate. This is achieved by facilitating the contacts and networks the company will need to liaise with in order to implement their plans e.g. identifying and introducing the company to local partners, recruitment agencies, universities, colleges and legal advisors.

From these introductions intelligence is gathered which allows the company to consider choices and make decisions. F&BS companies are attracted to Scotland by the high quality, lower cost and lower risk proposition offered. Whilst the establishment costs for a company are high, the ongoing costs can be up to 40% lower compared to competitor areas such as London. This leads to greater efficiency and productivity. Scotland is not the lowest cost location (for example India is lower cost) but with an established financial services sector, including a skilled workforce and supporting environment, Scotland is able to offer the quality combined with a lower cost.

## FOOD AND DRINK

### 1. Why is the Food & Drink sector important?

The Food and Drink sector, including food processing, alcoholic and non-alcoholic beverages, agriculture, fishing and aquaculture, makes a significant contribution to the Scottish economy, accounting for £13.9bn turnover and £4.8bn GVA in 2012<sup>180</sup>. The sector employs 118,000 people across the supply chain, including sectors such as packagers, labellers and bottlers<sup>181</sup>. Scotland has:-

- World-class research including land use, animal health & genetics, brewing & distilling, life-sciences and nutrition & health;
- A strong natural asset base – one of the top three salmon producers in the world, just under three quarters of the UK fish catch, approximately one quarter of the UK beef herd and almost half of all soft fruit production; and
- International exports totalling £5.3bn, with drink exports continuing to account for the majority - 81% (by value).

The sector also has strong links with the Tourism and Life Sciences sectors.

### 2. Recent Sector Performance

Between 2008 and 2012, GVA in Scotland's food and drink growth sector rose marginally by 0.4% or £21m to an estimated value of £4.8bn in 2012. So while the sector has witnessed strong growth in turnover, GVA growth remains relatively weak.

In 2012, food and drink manufacturing overseas exports reached £5.3bn, of which £4.3bn was whisky exports<sup>182</sup>. Exports have risen by 41% since 2008, double the rate of all Scottish exports. The sector is Scotland's biggest exporter (around 18% of total Scottish exports) and its continued growth is key to achieving the Scottish Government's ambition to increase Scottish exports by 50% by 2017. With 80% of food and drink exports coming from whisky, the need for further export growth in food manufacturing sub-sectors is evident in order to reduce this imbalance in the long term.

Data (for 2012) showed that the overall Food & Drink sector productivity is up to £98,688 per employee from £81,706 per employee in 2010. Food sector productivity is up – driven mainly by sustained growth in the fish & seafood sector – to £40,724 from £34,676 in 2010, but still lags behind the drinks sector which has continued its long-term, strong growth, up to £293,447 per employee from £244,985 in 2010. The lack of productivity growth in most of the major food sub-sectors has been highlighted as a significant issue for the food sector in Scotland.

### 3. Food & Drink challenges and market failures

The structure of the Scottish food and drink sector is characterised by a small number of large scale multi-national companies and a significant number of smaller companies. In 2013 of the approximately 17,000 registered companies in the Scottish food and drink sector only about 70 (0.4%) employed over 250 employees, although

---

180 <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors>

181 <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors>

182 [www.uktradeinfo.com](http://www.uktradeinfo.com)

these companies accounted for 34% of the sector's workforce<sup>183</sup>. This structure poses challenges for engagement.

There a number of key challenges for the industry to overcome in order to fulfil its potential<sup>184</sup>. These include:-

- Increasing productivity and exports, particularly in the food sector;
- Increasing the number of companies of scale;
- Overcoming project specific route to market challenges, particularly for international opportunities;
- Increasing investment in skills and innovation; and
- Accessing funding to build scale through expansion and collaboration.

One particular gap identified in terms of helping the sector to become more innovative is the lack of provision of facilities and equipment in Scotland that can be accessed to pilot technical development of food and drink products and processes<sup>185</sup>.

The interim evaluation of Scotland Food and Drink<sup>186</sup> identified a number of market failures which still remain relevant. To some extent these reflect the characteristics of the industry, particularly its diverse nature with a predominance of small enterprises. The main failures identified were:-

- Imperfect information and uncertainty caused by a lack of communication between companies resulting in an inefficient allocation of resources. This reflected the fragmented nature of the industry and limited understanding and awareness of existing advisory and support services;
- Market power reflecting the limited number of large companies in the sector. The smaller businesses are unable to access opportunities within the market due to their limited resources to invest in R & D and training. This impacts on productivity and makes it difficult to engage with the larger companies in the supply chain; and
- Failures were also identified around coordination and networking. Thus small companies could not afford the time to devote to networking whilst there could be a reluctance to share information with companies seen as potential competitors.

For the health food and drink market, which has been identified as having significant growth opportunities, challenges include access to the right skills for specific projects, limited access to market intelligence/foresighting and lack of investment, in particular companies not being willing to invest in R & D, which reflect risk perceptions and uncertainty regarding new products/processes.

---

<sup>183</sup> <http://www.scotland.gov.uk/Resource/0045/00455609.pdf>

<sup>184</sup> <http://www.scotland.gov.uk/Publications/2009/10/23153824/0> and <http://www.scotlandfoodanddrink.org/media/10025/industry%20strategy%20refresh.pdf> and <http://www.evaluationonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=445&taxonomy=FAD>

<sup>185</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=546>

<sup>186</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=445>



#### 4. Scottish Enterprise Food & Drink support

SE's support to the sector has been driven by the priorities identified in the industry strategy 'Fresh Thinking'<sup>187</sup>. This strategy was developed with strong input from industry and sector organisations following a comprehensive economic research and consultation process. An action plan to deliver the strategy was subsequently developed.

Support is focused on three areas of growth: premium, provenance and health with a number of projects contributing to each. For example:-

- Core funding to Scotland Food and Drink (SFD), the industry body;
- Funding industry intelligence research (Insights);
- Funding of Food Forums that aim to stimulate collaboration allowing companies to cooperate, share ideas and achieve sufficient scale to compete globally;
- Food and Health Innovation Service which looks to assist companies to increase the level of business innovation and new product development in the area of food health (e.g. gluten free, reduced salt etc);
- Premium Scotland: a newly launched project designed to increase the export of premium Scottish products and services in three key sectors: food and drink, tourism and textiles, to the North American market;
- Market Driven Supply Chains: four year, £1.6m project that looks to map out the issues within existing or proposed supply chains, develop action plans, and work intensively with the businesses and organisations involved to improve or re-engineer the supply chain; and
- Scottish Food & Drink Skills Academy.

In order to improve supply chain linkages, SE launched the Market Driven Supply Chains project in December 2013. The project aims to build supply chains that exploit specific market opportunities based on the growth market opportunities of Premium, Health and Provenance both in the UK and internationally. With a budget of £1.6m until 2017 the project is currently delivering seven work packages (with a further nine in development) across a range of sub sectors including bakery, red meat, poultry and both the berry and herb supply chains. A key initiative is the Premium Scotland Project which will look to boost international activity by taking a cross-sectoral approach (linking food & drink, tourism and textiles) to exploit premium opportunities in international markets. The first phase of the project focuses on opportunities in the US market and a dedicated resource will be based in Boston.

#### 5. Impacts of Food & Drink support

The 2010 Interim Evaluation of Scotland Food and Drink (SFD) found that supported companies had:-

- Increased turnover;
- Safeguarding and creation of employment; and
- Businesses reported both absolute and time additionality as a consequence of SFD activities<sup>188</sup>

---

<sup>187</sup> <http://www.scotlandfoodanddrink.org/media/10025/industry%20strategy%20refresh.pdf>

<sup>188</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=445>

A recent review of the Food and Health Innovation Service (FHIS), SFD's flagship health related project, found that the project had encouraged greater interaction between industry and academia, resulting in increased investment in R&D. However, the review found that support to companies was ending too early, resulting in new product development stalling and limited turnover and GVA creation. The review concluded that there was a continued rationale for the project, with market failures still prevalent within the sector, particularly regarding information on available market expertise on innovation options that companies can access. The project team are currently assessing potential improvements to the project in order to maximise impacts during the final two years of current funding.

## **6. Food & Drink evidence and policy development**

The 2013 mid-term review of the industry strategy resulted in an increase to the industry strategy's turnover KPI (up to £16.5bn by 2017)<sup>189</sup>. The action plan was also refreshed to reflect the findings of the review, resulting in a sharpening of focus from eight to six key priorities: primary (specifically agriculture and fishing/aquaculture), productivity, exporting (including increased penetration in new markets such as China and India), environment (stressing such things as provenance), innovation and reputation (in particular marketing Scotland as the "Land of Food and Drink") Additional focus is now being given to increasing exports and food sector productivity, and primary food processing, recognising that these are areas of significant challenges for the sector, especially given its fragmented nature and the dominance of small enterprises. The scale of opportunity in the global market, particularly in emerging economies suggests a need for additional effort related to exports.

A review of Food and Drink Fellowship, which provided accredited leadership training specific to the food and drink industry<sup>190</sup> highlighted a number of issues including: a lack of ownership of the programme; limited marketing of the programme; the timing of the programme's launch; the design of the programme, particularly around the value for money it provides, time taken out of work by participants, the focus on theoretical learning over practical application, and the flexibility of the course; and uncertainty over what qualifications participants would receive. Subsequently the Course was not offered again, with SE instead continuing to offer its generic leadership development programmes to the Food and Drink Sector. All available leadership and management provision is currently being reviewed by the re-constituted Scotland Food and Drink Skills Academy.

A number of projects are now in place to support the "Big six" priorities. SDI, alongside Scottish Government, Scotland Food & Drink and the main trade bodies launched the SF&D Export Plan in March 2014 which focuses on 15 priority markets which have been identified as offering the best opportunity to strengthen Scotland's existing presence or to gain a new foothold

## **7. Food & Drink data and evidence gaps**

A monitoring and evaluation plan was developed in 2012 for all SFD sector partners in order to track the impacts of step-change projects so that it would be possible to

---

<sup>189</sup> <http://www.scotlandfoodanddrink.org/industry/strategy.aspx#>

<sup>190</sup> <http://www.evaluationsonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=515&taxonomy=FAD>

begin to assess impacts. Scottish Enterprise is currently working with SFD to adapt the monitoring framework so that it aligns with the revised Big Six strategy priorities and captures outputs from step change projects delivered by all partners.

## **8. What Works?**

Evidence from the FHIS evaluation highlighted the importance of providing companies with access to market intelligence. Information deficiencies have long been identified as a key barrier for the sector and interventions such as Insights and FHIS have been highlighted by companies as useful sources for accessing such information.

Evidence also suggests that Scottish Enterprise support has encouraged greater interaction and collaboration between sub-sectors of the food and drink industry and also between food and drink and other Scottish industries (for example, academia, and tourism). FHIS has provided food and drink companies with a clear avenue to access support from Scotland's higher education institutes, which is now leading to a number of collaborative projects.

Given this it would seem that one of the key "what works" interventions is the provision of information, given that this is one of the main market failures in the sector, in part reflecting its structure (a dominance of small enterprises). Thus the provision of information linked to the facilitation of networking and collaboration: across the sector, between sub-sectors with other sectors and with academia seems to be the main drivers of impacts.

## LIFE AND CHEMICAL SCIENCES

### 1. Why are the Life & Chemical Sciences sectors important?

Scotland is home to the second largest life science cluster in the UK and one of the most sizable life science clusters in Europe, with significant academic and business strengths and internationally recognised capabilities in stem cells/regenerative medicine, translational and stratified medicine, medical technologies (MedTech), pharmaceutical services (Pharma Services) and animal health. Scotland is notable for its expertise in drug discovery and bioinformatics and has a number of emerging subsectors such as health informatics. In addition, environmental research in Scotland is recognised as world class and this will be influential in addressing future markets in sustainability and the low carbon environment<sup>191</sup>.

Many of Scotland's industries including chemicals, life sciences, electronics and food & drink have chemical sciences at their core. These industries are dependent on innovative chemistry to create new products, technologies and new market opportunities. The Chemical Sciences industry contributes £1.1bn GVA to the Scottish economy. Significant global opportunities exist in petrochemicals, speciality and fine chemicals markets, which ensure that the chemical sciences sector will continue to heavily contribute to the Scottish Government's ambitions in the areas of Low Carbon and increased export performance, as well as offering solutions to global societal challenges, for example in healthcare solutions.

Industrial biotechnology is at the interface of chemical, life sciences and engineering and can be applied across a wide range of sectors including energy and food & drink. It is defined as "the use of biological resources for producing and processing materials into desired intermediate and final products including energy and high value chemicals". Industrial Biotechnology applications have the potential to transform many sectors, deliver new innovation, investment and exporting opportunities and contribute to the transition to a low carbon economy.

### 2. Recent Sector Performance

There are 555 life science companies employing approximately 16,000 people. If academic research organisations are included this increases to a total of 650 and 24,400 people. There are around 140 medical technology companies that collectively generate around a third of life sciences sector turnover. The Life Sciences sector turnover in 2011 was between £1.9m and £3.2m and contributed between 0.8% and 1.2% to the Scottish Economy<sup>192 193</sup>. Total Life Sciences R&D was £0.1bn in 2012 (2.9% of UK Life Sciences R&D), 10-year annual average real growth rate of -4.9% (compared to +0.9% for Scotland) (BERD for pharmaceuticals)<sup>194</sup>, with total international exports in 2011 of £860m, 3.3% of Scottish Exports<sup>195</sup>. GVA per head in Life Sciences was £75,380 in 2012.

---

<sup>191</sup> <http://www.scotland.gov.uk/Publications/2010/01/26105228/0>

<sup>192</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors/Database>

<sup>193</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors/LifeSciencesSourcebook>

<sup>194</sup> <http://www.scotland.gov.uk/Resource/Doc/933/0123568.xls>

<sup>195</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/KeySectors/Database>

There are around 215 chemicals companies in Scotland generating £8.6bn turnover £1.1bn GVA and employing around 9,400 staff, 0.4 % of Scottish employment<sup>196</sup>. The sector is highly productive with GVA per employee of £161,000. Investment in R&D in is £128m (19.2% of UK Chemical Sciences R&D) with total exports from the chemicals sector in 2010 of £4.5bn<sup>197 198</sup>. In addition, Scotland has the UK's number one academic chemistry department at the joint Chemistry Research School of Edinburgh and St. Andrews Universities (EaStChem).

### 3. Life & Chemical Sciences challenges and market failures

Scottish based life science companies face challenges<sup>199</sup>:

- For the drug discovery and development process there is a longer time to market than other industries
- Accessing growth and R&D funding, especially for later stage growth and internationalisation and to reduce the reliance on local business angel funding
- Accessing affordable specialist accommodation
- Accessing quality specialist staff – both recruitment of experienced senior management teams and appropriate experts at critical stages of company development
- Stimulating business innovation
- Health care product reimbursement in UK – accessing and understanding the NHS to achieve collaborative working in early stage product development.

For chemical sciences, the main challenges for the sector are to:

- Maintain global competitiveness and sustainability of the existing business base in the face of merger and acquisition activity
- Address the lack of collaboration between academia and business
- Address skills availability
- Tackle the limited public knowledge, understanding and perception of the sector.

The rationale for SE's intervention and support in life and chemical sciences is based mainly on the imperfect information market failure. For example, there are uncertainties surrounding the costs and benefits of providing specialist accommodation and services for the life sciences sector. This means that the private sector is unwilling to make such provision. There is also insufficient information on the outcomes and benefits of academic/industry collaboration and investments in R&D and innovation.

SE research and evaluations highlight the existence of information market failures, particularly around the assessment and quantification of the outcomes and benefits of academic/industry collaborations and investments in research and innovation<sup>200 201</sup>. The very nature of some life science research activities means that outcomes can be uncertain and highly risky. Stem cells and regenerative medicine is a

---

<sup>196</sup> <http://www.scotland.gov.uk/Resource/0040/00402024.xls>

<sup>197</sup> <http://www.scotland.gov.uk/Resource/Doc/933/0123568.xls>

<sup>198</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/Exports/GCSIntroduction>

<sup>199</sup> <http://www.scotland.gov.uk/Publications/2010/01/26105228/2>

<sup>200</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=390>

<sup>201</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=474>

particular example where innovation is frequently non-linear in nature (i.e. does not always follow the traditional commercialisation process). In addition, the end market, the level of demand, the cost of and the willingness to pay for new products can be uncertain<sup>202</sup>. Scottish Enterprise has a role to play, focused on the business and commercial aspects of the process, in supporting collaboration and facilitating co-ordination between academia and the private sector in order to increase the rate at which research is commercialised<sup>203</sup>.

#### **4. Scottish Enterprise Life & Chemical Sciences support**

The Life Sciences Strategy for Scotland highlights the need to build (and retain) more resilient and ambitious companies and associated supply chains by enabling companies to translate innovation into new products and services, and evolve into stronger businesses, for example by encouraging mergers and acquisitions and boosting manufacturing capacity and international sales<sup>204</sup>.

Priorities for Scottish Enterprise's support of the Life and Chemical sciences sectors are based around three key elements: ensuring the sectors are investment ready; building and demonstrating a confident sector; and, focusing support on organisations and activities that will drive increases in company turnover and exports.

Within life sciences, SE has identified opportunities in the following sectors:

- Medical technologies – supporting companies to internationalise and trade in new markets and working with NHS Scotland to develop a more supportive domestic market
- Pharmaceutical services – encouraging companies to collaborate with local partners and promote their combined expertise internationally and supporting companies to develop new services
- Stem cells/regenerative medicine – support companies to attract international contracts, collaborate more with each other and build upon a strong local academic research cluster and support plans for commercialisation.
- Support for cluster development around Bioquarter and Grangemouth through supporting leadership, developing the location vision and delivery of infrastructure and business support.

A key feature of many of the sectoral interventions has been a focus on addressing co-ordination and information failures. A number of projects seek to develop strategic collaboration between NHS, academia and industry to help grow the sector. NHS engagement is critical to the success of Scotland's biomedical company base, and Scottish Enterprise works closely with the NHS to understand its current and future needs and how companies in Scotland can maximise the opportunities of working with the NHS.

Edinburgh BioQuarter is a life sciences real estate, research and commercialisation project that aims to establish Edinburgh and Scotland as one of the world's top centres for biomedical commercialisation. The BioQuarter programme addresses information market failures by its tailored commercialisation support programme and through the provision of specialist accommodation that the private sector is unwilling to provide either wholly or within the timescales required to grow the sector.

---

<sup>202</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=295>

<sup>203</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=489>

<sup>204</sup> <http://www.lifesciencesscotland.com/media/14388/lss-strategy-2011.pdf>

The Stem Cells Intervention Framework (SCIF) was established in 2005 and is a series of complementary products and services to facilitate the growth of the stem cells and regenerative medicine sector in Scotland, and many of these activities are also linked to the BioQuarter programme, such as support for Roslin Cells and the Centre for Regenerative Medicine that are located on the BioQuarter site.

Innovation centres (Stratified Medicine Scotland Innovation Centre, Digital Health Institute, Sensors Innovation Centre and Industrial Biotechnology Innovation Centre) have been developed with the support of Scottish Enterprise and the Scottish Funding Council to foster collaboration between academia and industry. For a number of projects supported, the attraction of additional research income (i.e. competitive funding to undertake research activities) is a key outcome which can result in economic benefit to Scotland through the additional employment associated with the research activities.

The life sciences venture fund invests in young companies developing novel approaches in the study and treatment of major diseases and technologies designed to advance better healthcare delivery. Initial investors include the European Investment Fund (EIF), Scottish Enterprise (via the Scottish Investment Bank), Strathclyde Pension Fund and Rock Spring Ventures.

For Chemical Sciences, the focus is also on growth and retention of the sector in Scotland through increasing exports, attracting new international businesses to Scotland and encouraging innovation and collaboration within the sector. Support focuses on helping companies to become more efficient by embracing innovation, to win more investment from their global HQ and supporting co-location of supply chain businesses. Strengthening the dynamic sector hub around Grangemouth is a key focus in supporting transformational change in the sector, as exemplified in the National Plan for Industrial Biotechnology in chemicals and related sectors<sup>205</sup>.

## **5. Impacts of Life & Chemical Sciences support**

Evidence from an evaluation of the Scottish Stem Cell Network <sup>206</sup>(part of the Stem Cell Intervention Framework) suggests a strong achievement of outputs and a broader range of wider benefits including the development and protection of IP, culture change within the academic base (such as encouraging a more commercial focus and a stronger engagement by academia with industry) and building the international reputation of the sector<sup>207</sup>.

Similarly, monitoring data from the BioQuarter programme indicates it has led to the creation of spinout companies, the attraction of research income, the attraction of venture capital and collaborations e.g. between industry, the academic sector and the NHS.

For Chemical Sciences, a review of Chemical Sciences Scotland activity highlighted more than 30 collaborations between industry and academia, growth of new

---

<sup>205</sup> [http://www.ibioic.com/files/media/National\\_Plan\\_for\\_Industrial\\_Biotec.pdf](http://www.ibioic.com/files/media/National_Plan_for_Industrial_Biotec.pdf)

<sup>206</sup> The Network aimed to encourage collaborative links between research scientists, clinicians, industry representatives and other stakeholders within an integrated stem cell community, in order to improve the rate at which laboratory research translated into therapeutic benefits for patients

<sup>207</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=489>

businesses and that more than 30 businesses participated in SDI trade missions resulting in estimated increased orders of £5m<sup>208</sup>.

## **6. Life & Chemical Sciences evidence and policy development**

Evaluation and appraisal evidence has highlighted the importance of monitoring and tracking the outputs of R&D and commercialisation activities to help identify appropriate routes to impact, that the projects are en route to achieving impact (and the expected timeframe) , and for those that are not, actions that are required.

Future support will focus on organisations that will drive significant increases in company turnover. In order to have an impact on the turnover of the sector, companies will already be in market or close to market. Identifying this group of companies and working more closely with them will be a priority.

The evidence on the positive linkages between internationalisation and economic impact has informed Scottish Enterprise's focus on growth opportunities within the life sciences sector e.g. an increased focus on driving export growth (e.g. in Medical Devices and Technologies), building partnerships to drive international trade (e.g. pharmaceutical services) and international high value collaborations to drive inward investment (stem cells/cell therapies/regenerative medicine).

## **7. Life & Chemical Sciences data and evidence gaps**

The current impact evidence relates to the effects on individual companies and there is insufficient evidence to assess the extent that Scottish Enterprise support has had in influencing the performance and direction of the life sciences sector as a whole. To some extent, this may reflect the profile of some of the beneficiaries of support, for example, in the early period of stem cells companies and organisations were often pre-revenue. However, outcomes are starting to emerge in stem cells for, example through Roslin Cells and its collaborations within Scotland and internationally.

For the Edinburgh BioQuarter, a deeper understanding of the benefits (outcomes and impacts) realised to date of investment in the project is required and the estimated timescales to realising its full economic potential.

Similarly, by 2015, the Stem Cell Intervention Framework will have been in existence for almost 10 years and evidence on the achievement of outcomes and outcomes (and importantly "time to impact") will inform any future support in this area.

Finally, future research will develop a better understanding of how support contributes to both building sector assets (e.g. through the infrastructure developments at the BioQuarter ) as well as building capacity in terms of providing the information, skills and expertise to grow internationally competitive companies.

## **8. What Works?**

The evidence suggests there are positive linkages to economic impacts associated with innovation and internationalisation support to life science account managed companies. For specific sector projects, especially in stem cells and regenerative medicine, the impact evidence is currently less well defined. However, evidence on a

---

<sup>208</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=485>



range of outputs and outcomes already achieved across the projects to date suggests that the “building blocks” are in place to ensure that there will be net economic benefits in the future.

There is some evidence as to the contribution that specific projects make. For example the Stem Cell Network “worked” in that it was very effective in brokering links between academic and industry members and external partners. This saved all parties time and money. It was also helping to overcome market failures by developing better understanding between industry and academia. Part of its role involved identifying skills gaps and then designing projects to fill these. These outcomes would seem to emphasise the importance of good interpersonal skills and the ability to develop and maintain networks.

Similarly, the BioQuarter commercialisation programme has been successful in stimulating industrial collaborations and helping to address information failures through the provision of information on collaborative opportunities.

## TECHNOLOGY AND ADVANCED ENGINEERING

### 1. Why is Technology & Advanced Engineering important?

The Enabling Technology Strategy for Scotland, *Towards a Brighter Future*, states that one of the best ways to enable economic growth is to encourage a far wider adoption of new technology<sup>209</sup>. The UK Government Office for Science outlines the strong opportunities for growth in the UK economy through the 2020s if businesses can harness scientific and industrial capabilities to take advantage of technology-enabled transformations in manufacturing, infrastructure and the internet<sup>210</sup>.

Technology & advanced engineering (TAE) covers:

- Aerospace, Defence and Marine
- Information & Communications Technology
- Electronics & Photonics
- Engineering Services
- Engineering Manufacturing.

These are activities that in turn support the development of many other sectors such as energy, life sciences and digital media. The capabilities of the sector are diverse but there are clusters around 'rugged engineering' (applications in hostile environments such as the deep sea), data capture, real world interfaces (turning physical quantities such as temperature, movement, radiation into electrical signals or vice versa) and informatics.

The Enabling Technology Strategy for Scotland highlights that a 1% increase in output driven by technology could result in 38,500 new jobs for the economy as a whole.

### 2. Recent Sector Performance

While TAE cannot be easily defined (there is no standard SIC code), Scottish Enterprise has identified nearly 1,000 technology and engineering companies in Scotland employing circa 88,900 people in total<sup>211</sup>. Annually the sector generates turnover of £24.4bn<sup>212</sup>, including exports of £6.9bn<sup>213</sup>, contributing a gross value added (GVA) of £10.4bn to the Scottish economy. Its highly skilled workforce produces £70,000 GVA per head, well above the Scottish average of £56,000 in 2011<sup>214</sup>.

### 3. Technology & advanced engineering challenges and market failures

The main challenges facing the Technology and Engineering sector includes:

- Low levels of innovation, which is closely linked to other challenges in internationalisation, productivity, skills and leadership

---

<sup>209</sup> <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/DEF/enabling-technologies-strategy-towards-a-brighter-future.ashx>

<sup>210</sup> <http://www.bis.gov.uk/assets/bispartners/foresight/docs/general-publications/10-1252-technology-and-innovation-futures.pdf>

<sup>211</sup> Scottish Enterprise Technologies sourcebook (figures from 2010, 2011 and 2012)

<sup>212</sup> Scottish Annual Business Statistics

<sup>213</sup> Global Connections Survey 2012 Based on SIC 24, 25, 26, 27, 28, 29, 30, 33, 62, 63, 69,70, 71

<sup>214</sup> Scottish Annual Business Statistics

- Lower BERD than other advanced countries, with the Scottish sector estimated to under invest by a factor of two to three compared to major international competitors
- Maintaining share of a declining market in the shipbuilding sector
- Raising internationalisation to the levels of other small successful countries such as Switzerland, Sweden and Finland
- Increasing the pace of productivity improvements in the company base.

Market failures exist for both the adoption/use of technology by Scottish companies and the creation of technology. For adoption/use, information failures are related to knowledge of how new technology can drive company performance, the technologies that are available and how best to implement new technologies. This can result in companies underestimating the benefits of technology, overestimating the cost resulting in reduced investment.

Information and externality market failures can reduce the incentives for businesses to invest in R&D. For example, a lack of information or uncertainties about the markets for new products, technology applications and the returns from R&D can increase their perceived riskiness thereby reducing investment and technology creation. Externalities, where other companies could benefit from new technologies, can also act as a disincentive to invest in R&D.

There are also challenges around business/university links and engagement. University research expertise and knowledge can potentially be a significant asset to businesses in Scotland, and there are 30 world ranked university departments in Scotland involved in TAE related activities. However, information failures among universities (e.g. how to approach and work with businesses, IP ownership uncertainties) and businesses (e.g. awareness of services and support universities can offer) can reduce the scope for effective business university collaboration.

#### 4. Scottish Enterprise Technology & Advanced Engineering Support

The main strategic priorities are:

- Enduring market sectors – such as Aerospace, Defence and Marine and oil & gas supply chain
- High certainty market opportunities – covering digital health & care technology, smart mobility, smart built environment and smart production
- Wide application opportunities – including data markets and sensor and imaging markets
- Niche opportunities – such as space, subsea mining & minerals and cyber and data security

Scottish Enterprise sector specific support is focused on areas of expertise and potential, based on the expertise and capabilities company base:

- **Rugged engineering:** the Advanced Forming Research Centre (and associated High Value Manufacturing catapult) focused on developing forging and forming technologies for the Aerospace sector (and other markets as appropriate);
- **Real world interfaces:** support for research organisations including the Fraunhofer Centre for Advanced Photonics and the James Watt Nanofabrication Centre at Glasgow university;
- **Data capture:** the Censis Sensors and Imaging Systems Innovation Centre

- **Informatics:** the Digital Health Institute and the Data Lab Innovation Centre, both focused on improving the crossover between academic research and industry exploitation.

## 5. Impacts of Technology & Advanced Engineering Support

A number of the major projects in the Technology and Engineering sector have been reviewed or evaluated over the past few years. These include a review of the Advanced Forming Research Centre, which highlighted the long term nature of the support in this area, with the centre now built, fully operational and delivering a core programme of research to members. The review suggested that R&D spending in member companies had increased but that it had not appreciably changed the level of BERD in Scotland to any significant degree. It did recognise that there had been a boost to productivity due to cost savings at one members Scottish operation through research results and that connections between industry and academia had improved.

The impact assessment suggested that in 10 years the project would deliver a return around the cost of investment and that there was significant potential for further value to be realised over time. The evaluation also suggested that it had attracted research funding to Scotland and increased the profile, reputation and influence of the University of Strathclyde through its association with the centre and the major companies engaging with it. In addition a number of consultees in the review attributed the Technology Strategy Board's investment of £17.3 million in the High Value Manufacturing Catapult in part to the AFRC<sup>215</sup>.

The Informatics Department at Edinburgh University has a global reputation for excellence and to help maximise its economic contribution to the economy SE and the Scottish Government invested £19m in the PROSPEKT program. This was to support expansion of the Department and the development of new commercialisation activities focused on company creation, business adoption and exploitation of informatics technologies. An impact evaluation of the PROSPEKT<sup>216</sup> program found that it had delivered benefits such as increased networking (e.g. making new business contacts), knowledge improvements (such as improved technical understanding of informatics), financial benefits (with companies securing new public and private sector investment) and R&D benefits, including the development of new and improved products, processes and services. PROSPEKT met 18 of its 20 performance indicators (in most cases by quite some way) and had generated £14 million of net additional GVA by 2011 and had the potential to increase this to £85.3 million over a ten year period (between 2006/07 to 2016/17). This could amount to a cumulative impact ratio of 7 to 1 and a peak of 400 jobs at year 10.

The evaluation of the Scottish Technology Showcase showed that attendance had resulted in networking benefits (making contacts with other companies) and knowledge improvements (mainly on understanding support available). There were also a small number of companies reporting sales as a result of the event, giving the overall project an economic impact ratio of 1 to 2<sup>217</sup>.

---

<sup>215</sup> Stewart Brown Associates (2012) *Interim Evaluation of the Advanced Forming Research Institute*, Scottish Enterprise

<sup>216</sup> Ekos (2011) *Impact Evaluation of ProspeKT and Informatics Ventures*, Scottish Enterprise

<sup>217</sup> <http://www.evaluationonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=510>

## **6. Technology & Advanced Engineering evidence and policy development**

Scottish Enterprise works closely with the industry and the Technology Advisory Group for Scotland to continue to develop the sector through:

- Building a stronger understanding of the sector
- Providing direct support to the sector
- Strengthening the sector through proactive leadership.

The aim of this is to optimise the impact from the sector and ensure Scotland is maximising the value from the range of strengths it has.

An example of this is the development and implementation of a new follow on project to the PROSPEKT programme called Informatics in Scotland. This took the learning from the delivery of PROSPEKT into a new scaled up programme working with the Scottish Informatics and Computing Science Alliance (SICSA), the Scottish informatics research pool to continue new firm formation and the provision of support to existing Scottish companies to improve their business performance. In the first two years of delivery the project has supported 353 collaborations with businesses and generated 18 spin outs.

## **7. Technology & Advanced Engineering data and evidence gaps**

The current evidence covers Technology projects that are at a relatively early stage of development and implementation. The economic impact assessments are largely based on company views of future benefits rather than benefits actually achieved. Ongoing monitoring of the progress and any successes will provide a better understanding of actual economic benefits realised.

There is also scope to track and understand the impact of joint research calls with other public agencies (such as the TSB<sup>218</sup> and the new Innovation Centres) in areas such as collaborative research and the development of key technologies, and the benefits of projects designed to encourage business-academic collaborations in key technology areas.

## **8. What Works?**

Leveraging the value of national assets: developing projects around leading edge universities or company strengths, are strongly linked to projects with high levels of benefit and impact. The PROSPEKT project, which built on the internationally recognised excellence at the University of Edinburgh's five star rated informatics department, provides a good example of this.

Having strong multi-partner governance: ensuring a strong governance framework that ties in all partners around a common vision is a characteristic of projects that deliver on their targets. The development of an agreed research plan at the AFRC and co-ordination of partners around the development of a successful bid to the Technology Strategy Board for 'Catapult status' exemplifies this.

The importance of technology as just one part of the mix in developing successful companies. A study into high growth firms in Scotland found that they were

---

<sup>218</sup> Including the £18 million Technology Strategy board (now InnovateUK) call for collaborative research and development projects that stimulate innovation across key technology areas (including advanced materials; biosciences; electronics, photonics and electrical systems; information and communications technology; and nanoscale technologies)

competing on the basis of their technological and industry knowledge, strong connections to customers and expertise rather than on the basis of their technology alone and this appeared to drive success.

## TEXTILES

### 1. Why is the Textiles sector important?

The Scottish textiles industry is innovative and internationally competitive with a world class reputation for quality, service and product. Around 540 companies operate in Scotland, including leading names in luxury and performance textiles such as WL Gore & Associates (Ltd), Bute Fabrics and MacKintosh. Scottish textiles sell in over 150 countries and are a significant contributor to the rural economy of Scotland where around 30% of companies are located.

### 2. Current sector performance

In 2012 textiles sector<sup>219</sup> GVA<sup>220</sup> was £282.6 million and employment<sup>221</sup> 8,400, 4.5% of all Scottish manufacturing employment. GVA per head in 2012 was £33,794, compared to a figure of £64,281 for all manufacturing so that textiles was 47% lower. Productivity, that is turnover per head, was £99,500 (43% lower than the manufacturing average of £176,485) and exports were £375m, 1.4% of all Scottish manufactured exports<sup>222</sup>. However, the value of international textiles exports fell at an annual average rate of 0.5% between 2002 and 2012 compared to an increase of 2.8% for all Scottish exports<sup>223</sup>.

### 3. Textiles challenges and market failures

The textiles sector suffered in the recent economic downturn as consumer demand for higher value/premium goods reduced significantly. However, and whilst recovery has been erratic, the industry is now recovering and is more buoyant, positive and actively seeking opportunities for growth.

Key challenges for the sector were outlined in the 2011/15 sector strategy<sup>224</sup>:-

- Addressing the importance and cost of environmental sustainability, with particular attention to manufacturing processes, energy usage and raw materials sources;
- Availability and access to funding and investment with particular regard to cash flow financing, increasing pressure to cut costs and the loss of skilled staff to the industry;
- Growing strength of competition from low-cost manufacturing countries resulting in pressure to out-source and reduce costs;
- Poor industry attractiveness that can lead to an inability to retain staff and key skills which can result in an uncertain future for manufacturing capabilities in Scotland and reduced investment in training at a time when this is critical to the survival of the industry;

---

<sup>219</sup> These figures refer to the Manufacture of Textiles, Wearing Apparel and Leather Products: SIC Divisions 13, 14 and 15.

<sup>220</sup> [Scottish Annual Business Statistics](#)

<sup>221</sup> [Scottish Annual Business Statistics](#)

<sup>222</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/Exports/GCSIntroduction/GCS2012Excel>

<sup>223</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/IME2011Q3XLS>

<sup>224</sup> <http://www.bing.com/search?q=Scottish+Textile+sector+strategy+2011-15&src=IE-SearchBox&Form=IE8SRC>

- Low levels of R&D spend by Scottish textiles companies and a perceived lack of product innovation and technology compounded by a lack of understanding of assistance available; and
- Increased government financial support for other EU textile industries creates an uneven playing field, threatening the short to medium term growth of the sector in Scotland.

Imperfect information is one of the market failures the sector experiences. Information on market conditions can be difficult and expensive to obtain, especially for new and small firms. This lack of information can make it difficult for textiles companies to be aware of potential partners and markets outside their immediate vicinity and supply chain, and being unaware of the opportunities and benefits that can result from collaborating with other businesses and academia. This low level of collaboration within the textile industry, particularly with respect to inter-company collaboration, leads to industry fragmentation, reducing the capability to compete and impeding the development of new markets or routes to market. A general lack of know-how amongst sector businesses means a lack of awareness about how to capitalise on any opportunities arising. This results in a lack of confidence and leads to companies either being unable or unwilling to invest in R&D and skills development thus reducing its attractiveness to buyers and impacting on its ability to attract and retain skilled staff into the sector, which is vital to the future success of the sector.

Many textile companies are relatively small and have difficulty attracting funders to invest. Developing new products and new markets is an extremely costly exercise, particularly in the current economic context where the risk is increased due to the withdrawal of credit insurance facilities.

#### **4. Textiles Strategy Support**

The evaluation of the Textiles sector published in 2012 found that some of these issues are being overcome to an extent – R&D investment is increasing across the industry, and a higher proportion of the industry is employed in high value occupations<sup>225</sup>. However, the industry remains highly fragmented. While there are signs that productivity is increasing, as average business size decreases, fewer and fewer firms have the capacity to invest time or resources in understanding industry trends, exploring opportunities to implement new technologies or diversify into new markets, or forming collaborative ventures with other businesses or research organisations. Furthermore, at a time when the industry as a whole faces a number of critical issues, relating in particular to its image within and outside Scotland and the urgent need to address skills shortages, there is an important role for Scottish Enterprise to play in providing a leadership and co-ordination role for the.

There is evidence that the perception of Scottish textiles is varied among buyers, developers, media and customers. Communicating widely what Scotland can provide by way of product and service needs both focus and consistency.

Scottish Enterprise priorities in addressing the challenges and market failures are in the areas of Internationalisation, Innovation and Profile:-

---

<sup>225</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=505>



- Building the industry's profile, capacity and capability, especially within the interiors sector;
- Developing relationships with target customers in key international markets where there is demonstrable growth i.e. US, Asia and Europe;
- Working more deeply with those companies who can achieve significant international growth;
- Nurturing and building capacity for innovation across the whole sector with a focus on product and process innovation to establish a creative culture. In particular, encouraging investment in Innovation and R&D through the Textiles Future forum;
- Engaging the sector in leadership development activity to ensure the long term future of the sector;
- Working in partnership with the Industry Leadership Group in the development of a refreshed strategy for the industry; and
- Building capacity within the sector through increasing investment in leadership and world class customer engagement.

Scottish Enterprise works closely with other partners to support the delivery of the industry strategy focusing on generating opportunities to deliver industry growth and sustainable impact. Delivery of this can be through customer focused initiatives such as events to meet buyers and provision of industry trend information that augment individual company activity undertaken through wider company growth support. The combined effort increases profile and opportunities for the wider industry.

The Scottish Textiles Industry Strategy is due to be refreshed and launched in 2015 following consultation with key stakeholders and partners.

## **5. Impact of Textiles support**

Evidence shows that textiles support results in positive impact for both textiles companies and the textiles industry. The evaluation of textiles support covering the period of 2006-09, looking at both the achieved and forecast impact showed an impact ratio of 1:7 and net jobs created of 67. Net GVA (2008 to 2016) was £16.2m with the cost of SE textile sector team interventions for the same period being £2.7m which gives a cost per job of £40,000 and an impact ratio of 1:7<sup>226</sup>. The evaluation also found that support from SE's Textiles Team had enabled companies to make cost savings, enter new domestic and export markets and increase export sales.

In 2009 the Textiles Technology Facilitator Service (TTFS) was set up aiming to link technology providers, end users and global networks in order to increase the level of technical innovation of products in the technical textiles industry in Scotland. The project sought to address the market failures associated principally with imperfect information and knowledge which made it difficult for textile companies, in particular 'lower technology' businesses, to collaborate outside of their immediate supply chain. An evaluation of the TTFS<sup>227</sup> found that it had largely met or exceeded all of

---

<sup>226</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=505>

<sup>227</sup> [Evaluation of the Textiles Technology Facilitator Service](#)

its targets. In addition the evaluation found that the innovative and flexible approach in delivering the project had allowed TTFS to repond to business needs and work in a way that best suits the companies involved. As a result, customer satisfaction with the support was high.

A review of textiles engagement (a sub-set of the Textiles Team's activities) was undertaken in 2014<sup>228</sup>. This examined the delivery of support for companies to access and raise their profile with potential buyers. In total 73 companies had participated in the various events of which .40 were surveyed. It found that whilst most of the companies (69%) experienced an increase in sales (average £10k per company) through events organised by the Textiles Team, 84% of the companies attending the events made new contacts, allowing the potential to build ongoing relationships which could result in further sales over the longer term. When asked about the value of the events, 47% of companies considered that they would have had no access at all to the buyers otherwise, indeed, 82% of the companies would only be partially able to access buyers. This represents a high level of additionality. In addition, as well as being beneficial for individual companies, the review concluded that the events provided opportunities for awareness-raising of the whole industry to buyers, allowing them to gain understanding of the process and quality.

Recommendations review included the need to tighten up on company selection for the events. The review highlighted that, after attending an event and being successful in obtaining an order, one company did not subsequently have the capacity to fulfil that order. In addition, views were expressed that some companies did not make the most of the opportunities the events offered. Reasons for this could be a lack of selling skills. Therefore, in order to get the optimum benefit from an event, the right companies, with, where required, additional support, need to be chosen to attend. It was also recommended that greater consultation should be undertaken with Account Managers who, whilst expressing some awareness of the events and considered them to be valuable for the companies they account managed and for the textiles industry in Scotland, did not feel they had been fully communicated with. These recommendations were accepted and are being actioned by the SE textiles Team.

## 6. Textiles evidence and policy development

Research has recently been carried out to assess where opportunities for Scotland's textiles exist within the European Technology Platform<sup>229</sup> for the Future of Textiles and Clothing. Based on assessment of the capability and capacity for innovation of both Scotland's textile (and related supply chain) companies and its research base, this work found that the more attractive and feasible opportunities could be found:-

- In the areas of Advanced manufacturing technologies for 3d textile materials and components and Innovative textiles for construction and architecture where it was considered that there is both substantive business capability and relevant research expertise;
- There are also opportunities in innovative technical textiles for: various marine applications and coastal protection: erosion and plant protection,; and water efficiency in agriculture and landscaping;

---

<sup>228</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=showPromoted&id=543>

<sup>229</sup> European Technology Platforms (ETPs) are industry-led stakeholder fora that develop short to long-term research and innovation agendas and roadmaps for action at EU and national level to be supported by both private and public funding.

- The areas of sustainable textile raw materials (resource efficiency in textile materials) and turning major wet textile processes to dry energy efficient processes (From wet to dry) are strategically important for Scotland however innovative capacity and capability need to be strengthened; and
- In the area of Digital Fashion (consumer-driven integrated digital textile and clothing creation and making near the point of sale or point of use) the picture is unclear. For some in the industry the theme is not appropriate to traditional knitwear and garment producers. For others it has wide relevance to the fashion and apparel industry.

SE's response to the Forum's work has been to become one of the funding partners in the Textiles Future Forum. This aims to accelerate collaboration between the industry and academia so that innovation is fast tracked both in the textiles industry and the wider market where textiles is a key part of the supply chain

In terms of the wider response to the evidence, the Textiles Team has drawn on this to shape future policy and delivery. The Textiles Delivery Plan 2014 sets out growth opportunities for textiles companies. These span a multitude of different end usages. Key strengths and asset base can be found in:-

- **Performance Textiles** – The global performance fabrics market is expected to reach \$160 billion by 2018, of which Scotland has a minute share. Scotland's specific market opportunities depend on the end use of products, which will often fit into other sectors for example medical, defence, food and drink. As leaders in fabric technology and garment construction, Scottish companies have the potential to drive increased innovation within the sector. It has a major strength in the supply of interior fabrics for transportation with high quality leather increasingly being used in the transport industry and other performance fabrics such as woven, knitted and non-woven performance fabric that can end up in a range of products including filters, tea bags, vascular grafts, bullet proof vests, tarpaulins, sails, ropes, and artificial grass. There are clusters of companies who have interests in products for defence applications, a number of which are involved in medical textiles and others in performance clothing. These emerging clusters have the potential to be developed. However, this needs to be explored further before a route to market is established.
- **Interior Textiles** – Identified as a priority area for growth, Scotland has a key strength in the supply of luxurious high-end interiors solutions for both domestic and commercial applications with fabrics such as Harris Tweed, traditional tartan and lace gracing interiors including castles, film-sets, private houses and hotels. The largest market is the US and there is an opportunity for Scotland to collectively maximise this opportunity through increasing our knowledge of the market; and
- **Fashion** – Scotland has an internationally recognised strength in the fashion sector, supplying high-end retailers seeking luxury products with strong provenance. Many well-known brands source materials from Scotland such as Hermes, Polo, Ralph Lauren, Nike and Chanel. Harris Tweed is Scotland's most famous cloth and, along with tartan, tweed, cashmere and knitwear, is seen as

quintessentially Scottish. Scotland has a pool of creative, talented fashion designers who represent Scotland on the world stage.

## **7. Textiles evidence and data gaps**

Research is planned on:

- International Sector Benchmarking: research is required to identify areas of competitive advantage (such as innovation, quality, service excellence, productivity and creativity) for Scottish textile businesses against similar and competitor countries (rest of the UK, Italy, USA, Germany, Sweden). The results will inform future activity at a sector level to maximise the Scottish business global success
- Leadership: some initial scoping of the leadership development challenges within the Scottish textile sector has been undertaken. This is critical to the long-term future of an innovative and profitable sector within Scotland and requires further research to establish the best routes to engage Scottish textile sector management in meaningful leadership development
- Customer Service Excellence: the business impact of excellent customer service has long been proven and this is an area where the Scottish textile sector is still relatively immature after many decades of being in the middle of a long supply chain.

## **8. What works?**

The evaluation SE's support to the textiles industry found that the Team had established itself as a well known and respected source of support for the industry, with the Team being described as "the 'glue' which holds the industry together"<sup>230</sup>. The recent review of Textiles Engagement shows that the events organised by SE that allow Scottish Textiles companies to meet with potential buyers are valuable for both the individual companies and the textiles industry. Without these events, companies would not have had the same opportunity to meet and engage with key decision-makers in global companies.

Evidence shows that the 'Trend Presentations' is valuable for businesses, in particular, small businesses that do not have the capacity to access the information themselves. This support allows businesses to keep informed about global trends in the fashion and interiors sub-sectors of the Textiles industry. In addition the Textiles Team supports a number of sub-sector groups and forums such as the Scottish Textiles and Leather Association, Harris Tweed Authority and Scottish Tartans Authority either in a financial and/or advisory capacity. One benefit of this is that the various sub-sectors are helped to present a consistent image to the market.

What tends to underpin these various initiatives and ensures that they "work" is:-

---

<sup>230</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=505> p. 3.

- The Textiles Team's knowledge, awareness and understanding of the industry both in the Scotland and elsewhere in the world;
- Its success in disseminating information to the industry in Scotland;
- The market foresighting it undertakes so that the industry in Scotland is aware of sector trends and developments;
- Its success in facilitating networking opportunities both between manufacturers and manufacturers and buyers; and
- The Team's success in lobbying for the industry over such things as apprenticeships.

The success of these things reflects the respect that the Team is held in by the industry so that its views and information carries weight.

## TOURISM

### 1. Why is the Tourism sector important?

The tourism sector currently contributes in £3.2bn GVA to the Scottish economy and employs over 181,500 people in 13,700 tourism-related businesses (2012 figures). Overall, the Scottish tourism sector accounts for 11% of total service sector GVA (for the UK as a whole, tourism accounts for 9% of service sector GVA). The sector includes hotels, restaurants, bars, travel agencies, museums, sporting activities and other recreational activities.

Scotland's tourism sector has distinctive strengths, built on Scotland's natural and built environment and culture, which makes it a distinct destination in the international tourism market.

Tourism has a key role to play in relation to regional equity, being the mainstay of many rural economies across Scotland. There are also strong links to other sectors, for example food and drink (e.g. Experiencing Scotland, a project working to improve the quality and provenance of food within tourism facilities) and textiles (e.g. Premium Scotland, promoting Scottish textiles products to high end American purchasers).

The tourism sector has proved resilient, despite current economic challenges and significant international competition. The industry is playing a key role in supporting the economic recovery, especially in maintaining levels of employment and

### 2. Recent Sector Performance

In 2013 almost 15 million overnight tourism trips were taken in Scotland, resulting in visitor expenditure in excess of £4.6 billion with an estimated further £4.7bn spent on leisure day trips by residents<sup>231</sup>. Within the UK since 2005, Scotland has attracted a disproportionate share of UK domestic visitor expenditure (13% compared to a population share of 8.4%). Scotland's share of spending by overseas visitors to the UK has been just over 8%<sup>232</sup>.

The vast majority of the volume and value of Scotland's tourism is accounted for by visitors from the domestic markets - Scotland, England, Wales and Northern Ireland. In 2013, their total share was 84% of trips and 63% of visitor spend. However, 36% of Scotland's total visitor spend is delivered by the 17% of trips made by international visitors, highlighting the high value of many foreign visitors<sup>233</sup>. Their trips are often longer than those of domestic visitors, involving more spend per trip. The USA, Germany, France and Australia are long-time major markets for Scotland whilst in the last few years growth has also been from Norway, Austria and China. Overseas visits rose from 2.2 million in 2012 to just over 2.4 million in 2013 with associated spend rising from £1.4 billion to almost £1.7 billion.

---

<sup>231</sup> <http://www.visitscotland.org/pdf/VS%20Insights%20Key%20Facts%202013.pdf>

<sup>232</sup> [http://www.stforum.co.uk/wmslib/PDF\\_Docs2012/TLG\\_report\\_of\\_trends\\_and\\_markets\\_research\\_final\\_-\\_updated\\_15\\_February\\_2012.pdf](http://www.stforum.co.uk/wmslib/PDF_Docs2012/TLG_report_of_trends_and_markets_research_final_-_updated_15_February_2012.pdf)

<sup>233</sup> <http://www.visitscotland.org/pdf/VS%20Insights%20Key%20Facts%202013.pdf>

### 3. Tourism challenges and market failures

Tourism is an SME dominated industry. Challenges exist around productivity, innovation, collaboration, skills, access to information on markets, competition from other countries and access to investment funding<sup>234</sup>.

In 2012, productivity per employee was £18,515 compared to the Scottish average of £32,800 for the service sector as a whole<sup>235</sup>. There are a number of possible reasons for such low productivity including the proportion of the workforce that are part-time, the seasonal nature of some activities, low skill levels and low investment and innovation levels.

Evidence suggests the main market failures affecting the tourism sector are<sup>236</sup>:-

- Imperfect Information – as an industry dominated by small firms, many do not have the resources or knowledge to be able to easily source the business advice/access the data that will help them to grow;
- Externalities – individual businesses do not tend to make investments on their own that might benefit other businesses, particularly on activities such as place marketing, resulting in a need for collaboration and co-ordinated action or public sector intervention; and
- Public goods – tourism firms are heavily dependent on the quality of the physical environment and infrastructure and publicly provided facilities. Visitors are frequently attracted by what is available within a destination as much as by the services that can be provided by the companies in the area. All of the companies benefit from the provision of these facilities but if it is left to the companies alone they will not be best, if at all, provided.

### 4. Scottish Enterprise Tourism support

Scottish Enterprise support to the sector is aligned with the Tourism Scotland 2020 Industry strategy launched in 2012<sup>237</sup>. Tourism sector projects focus on:-

- **Understanding Growth Markets** – encouraging greater use of market intelligence through the delivery of Tourism Intelligence Scotland (TIS). Scottish Enterprise aims to build greater understanding of the growth markets identified in the strategy; highlight Scottish tourism assets and how these can be more effectively exploited and provide guidance and case studies to help businesses respond;
- **Turning Assets into Experiences** – assistance to realise the full tourism and economic value of the main tourism destinations in the Scottish Enterprise area (Edinburgh, Glasgow, Loch Lomond, St Andrews, Royal Deeside and Stirling) through specific Destination Management approaches including the administration of the Edinburgh Tourism Action Group (ETAG) and development of area strategies, as well as capacity building and development support with industry groups and businesses in a range of markets including, golf, mountain biking and business tourism;

---

<sup>234</sup> <http://www.scotland.gov.uk/Publications/2009/12/21143709/1>

<sup>235</sup> <http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Publications/GrowthSectors/Database>

<sup>236</sup> [http://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/UK\\_THL\\_VisitorEconomy\\_Sept08.pdf](http://www.deloitte.com/assets/Dcom-UnitedKingdom/Local%20Assets/Documents/UK_THL_VisitorEconomy_Sept08.pdf)

<sup>237</sup> <http://scottishtourismalliance.co.uk/wp-content/uploads/2013/03/Scottish-Tourism-Strategy-TourismScotland2020.pdf>

- **Managing the Customer Journey** – working with businesses and destinations, to provide the highest quality of visitor experience including awareness of digital opportunities, enhanced food & drink offering and encouragement of accommodation investment; and
- **Building Capabilities** – the Scottish Tourism Alliance (STA) is positioning itself as the key industry leadership group for the tourism sector and aims to co-ordinate delivery of the national strategy. The continued development of STA will be supported by Scottish Enterprise in order to establish itself. In addition Scottish Enterprise will continue to encourage greater leadership and collaboration across the industry and expansion of Scottish Enterprise’s tourism account managed portfolio.

## 5. Impacts of Tourism support

During 2008-2012, just under £1.5m was invested in the Tourism Innovation Programme, a suite of innovation projects including support for TIS (which continues to be funded). An evaluation in 2012 found that there remains a strong case for continuing with the programme. More than 75% of survey respondents agreed that the programme had helped to instil a stronger culture of innovation within the sector and had made a strong contribution to rural diversification with almost half of those involved located in rural areas. Unfortunately the evaluation focused on the programme as a whole and did not look to attribute impacts to specific activities. The evaluation recommended that investment in the programme continue, with stronger links being built between the various components (e.g. Tourism Intelligence Scotland and Tourism Innovation Fund) and that more could be done to encourage greater uptake from the Tourism Destination areas. By the end of 2010/11 the programme had created £1.8m of net GVA and 59 net jobs. By 2014/15 the evaluation estimated that net GVA impact could exceed £10m, resulting in a cost to GVA ratio of 1:7<sup>238</sup>.

A 2013 evaluation of SE’s Tourism Destination approach reported that as a result of £5m invested over the 2008-2012 period, the Destinations were perceived to be in a better position than they otherwise would have been with greater co-ordination of activity now evident within the destination and better strategic thinking at business level. This enhanced planning, coupled with greater enthusiasm and commitment to success was reported to have resulted in additional GVA estimated at £5.6m-£6.1m<sup>239</sup>. Investment covered a wide range of activities, from support for development managers in specific areas and networking events, through to research and feasibility studies and investment in area infrastructure projects.

The flexibility of the approach, recognising that each destination is different, has unique strengths and weaknesses and hopes to develop in different ways was identified as a key reason for the success of the intervention. As a result of the intervention there was shown to be a greater involvement of businesses in shaping tourism support, although this has tended to be through engagement, rather than actual leadership at this stage.

The report concluded that the destination approach should remain an appropriate intervention to support tourism and this was reinforced by the new industry strategy which stresses the importance of destination management. A key recommendation of the evaluation was the need for a new destinations strategy and this is currently being developed. Following the evaluation and through discussion with the

---

<sup>238</sup> <http://www.evaluationsonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=503&taxonomy=TOU>

<sup>239</sup> <http://www.evaluationsonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=531&taxonomy=TOU>



destination group, the decision was taken by SE to exit from providing support to Highland Perthshire with the local business community now focussing on destination marketing activities. In the future the focus will be on Stirling and Dundee.

Similar to previous evaluations the destinations evaluation noted the difficulty in identifying quantitative evidence of impact in terms of GVA<sup>240</sup>. This is partly as a result of the difficulty attributing spend to new visitors, but also as many of the activities to date have been focused on building capacity and improving customer experience.

In addition, the SE Rural Team have recently commissioned an evaluation of their Planning to Succeed programme 2010-2014 which focused on the rural tourism sector. The project, which aims to “*work with rural tourism business leaders to increase innovation, collaboration, investment and leadership in order to achieve higher value add from Scotland’s rural tourism assets*” was found to have been a success with participants reporting benefits including a greater willingness to share learning and experience with others, pursue opportunities for joint working and network with others to offer/seek advice. Respondents reported that the programme had helped them improve the products they offered, diversify, improve business and financial planning/accounting and improved their marketing of their business. All of the companies surveyed confirmed that the performance of their business had improved, although only a small minority were able to quantify this. The report included a number of recommendations to improve future P2S intakes, including the need for a more targeted and structured approach to recruiting group members.

## **6. Tourism evidence and policy development**

Evaluation, and other evidence, has been used to develop interventions in a range of areas as the Tourism 2020 industry strategy clearly indicates. Focus is being given to specific market opportunities in nature, heritage and activities; destination towns and cities; events and festivals; and, business tourism.

Taking on board the findings of the Tourism Destinations evaluation, Scottish Enterprise are currently working to devise a new approach to assisting Royal Deeside and wider tourism in rural Aberdeenshire.

Research has recently been completed on both the potential of golf tourism and business tourism. This is now being utilised to develop new approaches to harness growth opportunities in both activities.

## **7. Tourism data and evidence gaps**

There are a number of key gaps in evidence which require further investigation in order to influence prioritisation of support. These include:-

- Deeper understanding of the specific scale of the growth opportunities in the Nature, Heritage and Activities themes, as well as the potential barriers to growth, such as the liability concerns in relation to the development of Adventure Sports; and
- Further evidence to prioritise which new destinations across Scotland should be supported in order to provide the greatest contribution to the growth ambitions of

---

<sup>240</sup> <http://www.evaluationonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=324&taxonomy=TOU>  
and <http://www.evaluationonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=354&taxonomy=TOU>

the sector. Stirling has been included into the Destination approach, with Dundee an option in light of large scale development in the Waterfront area;

## **8. What Works?**

Destination management has been shown to successfully encourage greater strategic thinking within tourism businesses, resulting in closer working in order to grow the value of their tourism offering. This has brought together various sub-sectors of tourism such as accommodation providers and tourist attractions, as well as supporting sectors such as food & drink. The success of this approach is reflected in the desire to roll this approach out to other areas (e.g. Stirling).

Anecdotal evidence from the Sector Team suggests that success is also being recognised in using the Scottish Government's Themed Years as opportunities to focus and align existing activities on a cross sectoral/thematic basis, for example people development as part of Destination Glasgow in 2014 or Scotland House in support of the Commonwealth Games. The Year of Food and Drink in 2015 and Innovation and potentially sustainable construction in 2016 in support of the Year of Innovation Architecture and Design are all likely to create opportunities for the Scottish tourism sector.

Drawing on the successful approaches used by the Rural Team such as the Planning to Succeed project, which was initially targeted at farm diversification has also helped to stimulate tourism development in rural destinations.

The Sector Team have also found that utilising business engagement mechanisms such as destination groups to deliver a one to many type approach in areas such as innovation, internationalisation and digital capability development has been highly beneficial and encouraged tourism businesses to focus on improving the value of their product offering.

## UNIVERSITIES

### 1. Why are universities important?

Scotland's universities contribute to Scotland's economy by developing the graduate skills base, by attracting students and research income to Scotland, by maintaining Scotland's world leading position in research and through knowledge transfer and exchange with the business base. Some of Scotland's universities are regularly ranked among the best in the world and are as strong as, or stronger, than key international competitors on measures such as the production of research publications, citations and knowledge transfer efficiency<sup>241</sup>.

A number of studies outline the breadth and significance of universities' impact on the economy. The major ESRC (Economic and Social Research Council) research programme 'IMPACT' highlights their importance to regional competitiveness through activities such as knowledge exchange with businesses, the impacts of students, graduates and skills development, and the benefits of community engagement. Quantifying the economic impact of universities also requires consideration of the scale of their employment, purchasing power, property holdings and the talent, vibrancy and cultural benefits that their students and staff bring. Universities also play a key role in the governance of city or regional partnerships<sup>242</sup>.

An OECD review highlighted the role of universities as engines of growth through:

- Their contribution, alongside business and the public sector, to innovation systems and clusters (both of which are reflected in Scotland)
- Improving the balance between labour market supply and demand
- Through building the capacity for engagement between universities and other regional economic partners<sup>243</sup>.

The European Commission similarly outlines the important role universities can play in regional economic growth and competitiveness<sup>244</sup>.

### 2. Current Performance

In 2012/13 Scotland's universities contributed £6.7bn GVA to Scotland's economy, supported over 142,000 full-time jobs and attracted over £1bn of income to the economy through research contracts and overseas students<sup>245</sup>. Higher education expenditure on R&D (HERD) in Scotland reached £973m in 2012, equivalent to 0.80% of GDP. Scotland's HERD as a percentage of GDP is fourth highest among the OECD countries that reported in 2012<sup>246</sup>. Scotland has a strong track record on commercialisation, and particularly spin-outs from university research, which compares favourably to the rest of the UK and the USA<sup>247 248</sup>.

---

<sup>241</sup> <http://www.scotland.gov.uk/Publications/2009/11/10153556/0>

<sup>242</sup> <http://www.impact-hei.ac.uk/>

<sup>243</sup> <http://www.oecd.org/dataoecd/51/27/39378517.pdf>

<sup>244</sup> [http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/documents/connecting\\_universities2011\\_en.pdf](http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/documents/connecting_universities2011_en.pdf)

<sup>245</sup> <http://www.universities-scotland.ac.uk/uploads/Grow%20Export%20Attract%20Support%20Universities%20Scotland.pdf>

<sup>246</sup> <http://www.scotland.gov.uk/Resource/0044/00447162.pdf>

<sup>247</sup> <http://www.universities-scotland.ac.uk/uploads/Grow%20Export%20Attract%20Support%20Universities%20Scotland.pdf>

### **3. Universities' challenges and the rationale for intervention**

Universities can face challenges in effectively commercialising research and in developing links with the business community around technology transfer. On the commercialisation of research, information market failures can make it hard, for example, to attract the necessary funding to take a product from the concept stage through to market. Academic staff may also lack the management and marketing skills to grow spin-out businesses. The challenges in growing businesses of scale from spin-outs are highlighted in the commercialisation section of this paper (e.g. accessing growth funding).

There are also challenges around business/university links and engagement. University research expertise and knowledge can potentially be a significant asset to businesses. However, there are information failures among universities, for example how to approach and work with businesses and how they manage IP ownership. These information failures are also in evidence in businesses as well. This can include a lack of awareness of services and support universities can offer. Businesses can also face challenges in understanding which departments or centres have genuine strengths and how they can access and work with them. These barriers reduce the scope for effective business university collaboration.

There are also wider challenges as Universities look to develop their international reach. Some of these are similar to the wider challenges any business faces when looking at international markets including understanding what the opportunities are and how to access them. For universities, this can require a strong understanding of partnering as they look to work with other institutions in other countries. There are challenges around developing the business model for internationalisation to both grow the universities as institutions but also do so in ways that are profitable and sustainable.

Broadly there are issues around imperfect information, both within the business base and the universities, which limit optimal economic outcomes in relation to universities. This lack of information essentially limits activity that could be potentially valuable to both parties. This also applies to universities as they seek to develop their international ambition, with lack of information limiting growth in this area.

### **4. Scottish Enterprise's university support**

In Scotland eight innovation centres recently secured £90 million of funding from the Scottish Funding Council (SFC) with the aim of ensuring that Scotland is at the forefront of innovation across its key sectors. The centres are:-

- Construction Scotland Innovation Centre (CSIC)
- Stratified Medicine Scotland Innovation Centre (SMS-IC)
- Digital Health Institute (DHI)
- Sensors and Imaging Systems (CENSIS)
- Industrial Biotech (IBio IC)
- Oil & Gas Innovation Centre (OGIC)
- Scottish Aquaculture Innovation Centre (SAIC)
- Data Lab.

Scottish Enterprise will be supporting the centres through provision of various products and services that can complement the activities of the centres. This will be focused on how Scottish Enterprise can support the companies accessing the centres.

Scottish Enterprise also has a track record, through a partnership approach, of supporting the development of a number of technology and research centres (including the Advanced Forming Research Centre – AFRC and Power Networks Demonstration Centre – PNDC), increasing engagement between leading edge university research, the Scottish company base and inward investors and has been active in the development of the Technology Strategy Board’s Catapult Centres (formerly TICs – Technology Innovation Centres) for the UK. These include the International Technology and Renewable Energy Zone (ITREZ), in partnership with Strathclyde University whilst drawing on the expertise of other universities through the Energy Technology Partnership; and the Edinburgh BioQuarter, in partnership with Edinburgh University, which also draws on research strengths in Glasgow, Dundee and Aberdeen through Health Sciences Scotland.

In other sectors, Scottish Enterprise support assists universities to deliver specialist consultancy services. For example, the Food & Health Innovation Centre (where the lead university is Aberdeen and Interface provides the link to other institutions) helps companies exploit the growing market for healthy food and drink products.

The focus within Scotland’s International Trade & Development Strategy on Scotland’s education assets reflects the growing importance of universities in increasing both export earnings and inward investment. For example SDI is currently working with Universities Scotland to develop market entry plans for research pools<sup>249</sup> and the new innovation centres in targeted overseas markets.

For commercialisation, support includes development funding (Proof of Concept) and early-stage technology company support (for example Enterprise Fellowships). Funding is also provided to Regional Business Advisors for the most promising growth prospects among the Scottish Institute for Enterprise’s work with students. This wide range of support is designed to actively bring companies and universities closer together and to overcome the information barriers that exist, by showing that joint activities can work and lead to the desired outcomes for all parties.

## **5. Impacts of Universities support**

Findings from the review of Scottish Enterprise’s commercialisation support provide strong evidence that a more business growth focused approach to commercialisation, including university spin-outs, is positively influencing company development and helping to put in place more of the key characteristics for future growth and higher impacts. The review concluded that there continued to be a strong strategic case for continued commercialisation support and that potential impacts attributable to SE support represent a good value-for-money return. Over the period 2004-2021 it is estimated that spin-outs could disproportionately contribute to the impact from commercialisation companies: accounting for almost half of the impact from just over

---

<sup>249</sup> an initiative developed by the Scottish Funding Council in 2003 to encourage researchers across Scottish Higher Education to pool their resources in the development of dynamic collaborations that could provide a competitive edge internationally

a third of the companies. Wider benefits, for example those that cannot readily be monetised, are also recognised, such as improved skills and expanded networks<sup>250</sup>.

The Edinburgh BioQuarter is expected to generate a peak of 4,200 net additional jobs over a 30 year period alongside a cumulative GVA impact of over £1 billion. This could be a 6 to 1 impact ratio over this time period. In addition, the ITREZ project is forecast to deliver a net additional GVA impact of almost £400 million over a 25 year period, an impact ratio of 5 to 1.

The evidence therefore suggests that university projects have the potential to deliver significant economic benefits, though over the long term (15-20 years in some cases).

## **6. Universities evidence and policy development**

Drawing on evaluation and research evidence, Scottish Enterprise is developing its role as a significant partner in the university sector's ambitions for Scotland. Current and evolving interaction is focused on utilising the universities' considerable research assets to help grow businesses through commercialisation and innovation, to attract inward investment, to help universities grow their own overseas presence, to embed entrepreneurship across the sector, and to work in partnership to enhance leadership in Scotland. Scottish Enterprise also works with the sector to develop its overall role in building regional competitiveness, including areas such as graduate skills flow.

## **7. Universities data and evidence gaps**

While there is strong evidence on elements of Scottish Enterprise's work with universities (for example commercialisation of research), there are evidence gaps in areas such as the impact of universities on business leadership and the impact of attracting additional research income from outside Scotland. Work is underway to quantify the baseline for the sector's impact in the areas where Scottish Enterprise is most actively engaged. There is also a need for a better understanding of what is actually achieved over time, with most evaluation studies focused on projected economic impact. Developing the evaluation evidence base will consider the extent to which these expected impacts are actually realised.

## **8. What Works?**

There is a wide range of evaluation evidence of university projects and from this it is possible to draw out a number of areas of what works. This includes:

- Developing the commercialisation and knowledge transfer capacities of world leading university assets, such as the support provided to the five star rated Edinburgh University School of informatics can drive economic growth
- Providing long term support to universities to enable capacity and capability to be built over time, such as the long term plan to develop the Edinburgh Bioquarter, at the University of Edinburgh as a major hub for life sciences research, commercialisation and exploitation
- Ensuring strong industry engagement in the development of specialist centres of excellence, such as the engagement of a number of leading global aerospace companies (such as Rolls Royce and Boeing) in the development of a core research programme at the Advanced Forming Research Centre,

---

<sup>250</sup> <http://www.evaluationsonline.org.uk/evaluations/Search.do?ui=basic&action=show&id=349>

based at Strathclyde university ensuring strong and relevant academic industry engagement

- Building on the powerful networks of universities globally, such as the work being delivered between SDI and Glasgow University to develop the universities networks in Singapore to support Scottish companies as they look to access this market.

