BiGGAR Economics

Evaluation of the Scottish Semiconductor Supplier Forum Network

A final report to Scottish Enterprise Lanarkshire

Version 2.4

15th February 2006

BiGGAR Economics Ltd
Midlothian Innovation Centre
Pentlandfield
Roslin
EH25 9RE
0131 440 9032
info@biggareconomics.co.uk

CONTENTS **Page**

EXECUTIVE SUMMARY

Introduction

BiGGAR Economics Ltd was appointed in October 2005 to evaluate the Scottish Semiconductor Supplier Forum Limited (SSSF), an integral component of Scottish Enterprise (SE) Micro and Opto Electronics (MOET) cluster support to the semiconductor sector.

The SSSF, formed in 1998, is currently composed of 91 suppliers with operations in Scotland. It is a non-profit making company limited by guarantee, run by a Board of nine Directors drawn from its members with representation from SE Lanarkshire (which manages the programme for SE). A part-time Managing Executive administers the network and organises SSSF activities. These include 'tabletops' (where members exhibit to all employees of major wafer fabricators on their premises) and other networking and training events.

Annual membership fees are £100 to £300 dependent upon company size, with SE funding accounting for over 75% of annual income of around £50,000. The overriding goal of the SSSF is to assist members to develop their businesses.

The study objective was to evaluate SE support to the SSSF through consideration of:

- rationale for, and appropriateness of, intervention;
- management processes and performance;
- project inputs, activities and outputs, and meeting of objectives;
- quantifiable and wider economic development benefits, value for money; and
- potential enhancements and future direction.

While the study involved stakeholder consultations, including a workshop with the SSSF Board, and various desk-based analysis tasks, its central component was a survey of SSSF members. A total of 57 face to face or telephone interviews were achieved (63% of members), giving confidence[1] that the views of those surveyed accurately reflected those of the population of SSSF members.

Semiconductor Suppliers

The survey confirmed the sharp decline of the semiconductor sector since the 1990s and the testing conditions for suppliers caused by the closure of Scottish based fabricators like NEC and Motorola, and increased global competition. SSSF members are:

- Scottish firms (43% have their HQ here);
- small (56% employ 5 or less in Scotland, and 51% have < £500k of turnover from Scottish operations);

[1] with a margin of error at a 95% level of confidence of up to +/- 8% on survey questions which were answered by the entire sample

- limited exporters (exports account for 20% or less of turnover in 50% of members); and
- not diversified (semiconductors account for > 50% of turnover at 54% of members).

The survey picked up a degree of cautious optimism concerning the next 5 years however:

- growth of turnover (69% of members) and employment (45%);
- constant or increased levels of exposure to the semiconductor sector (77%);
- opportunities for members through diversification into related sectors (e.g. MEMS, medical devices, pharmaceuticals, renewables) and new export markets (predominantly in Europe).

SSSF Performance

There has been a marked improvement in SSSF performance since the incumbent Chairman and a new Managing Executive were appointed in early 2004. The SSSF is currently delivering real benefits cost effectively to more engaged members through efficient and proactive management:

- more networking and training events are being delivered;
- participation rates are increasing at 42% of members;
- membership is rising (up 15% since early 2004); and
- users are positive (>80%) about the usefulness of principal SSSF events; and
- members are positive (>85%) about the effectiveness of current SSSF management in most areas.

54% of members reported a quantitative impact as a result of SSSF membership – most commonly in improved turnover. Impact analysis suggests estimates, at the level of the Scottish economy, for:

- net additional turnover impact of £3.15 to 3.66 million (with these estimates subject to margins of error of +/- 14% and +/- 24% respectively);
- net additional GVA impact of £1.21 to £1.40 million (derived from this net additional turnover impact); and
- net additional employment impact of 19 to 22 ftes (derived from this net additional GVA impact).

This suggests a value for money for SE funding per net additional job of the order of £12,435 to £14,460, which is reasonable for a project in a declining sector and of a nature whose focus is not on activities that are aimed at job creation per se.

Wider impacts from SSSF membership were extensive:

- sales related – 61% stated that SSSF membership had played a part in the marketing effort that had led to sales conversions; and

- other – 70% of respondents reported other benefits through: marketing cost savings, market information sharing, improved profile, and cost savings through new suppliers.

In addition, the two major wafer fabricators located in Scotland reported significant cost and efficiency savings (running into several hundred thousand pounds each) as a result of tabletop events. This is significant given the high interdependency between the wafer fabricators and the Scottish semiconductor supplier base.

The SSSF is meeting its objectives and targets set for it by SE through its activities and objectives, which remain relevant in terms of their contribution to strategic MOET cluster objectives of network development and internationalisation.

The SSSF is contributing well to SE objectives at low cost to SE. The governance model, effectiveness and proactivity of Board and Managing Executive represent best practice in network management that should be disseminated across the SE network.

The SSSF does not require changing and its resourcing level is right for the organic growth trajectory which is appropriate for it. The SSSF Board should:

- continue to critically review its activities, and consider development of activities in other sectors and at other European wafer fabricators; and
- prepare a formal strategy and Business Plan on where it plans to be in 5-10 years' time.

SE Intervention

The justification for continued public sector intervention must be made on the grounds of continuing market failure. Market failures deriving from information deficiencies and risk have been diminishing as SSSF activities have increasingly brought about market adjustment:

- costs to suppliers of finding out about market opportunities have reduced sharply, as SSSF network membership has increasingly provided a low cost way of identifying market opportunities;
- the high barriers to entry of, and associated high risks of targeting, overseas markets have been reduced. SSSF membership has increasingly offered lower risk and lower cost ways of accessing foreign markets; and
- the uncertainty that a new industry network might not deliver real benefits (and therefore not be supported by private funding initially) that meant that public sector funding was required has now disappeared.

SE should therefore prepare an exit strategy in close discussion with the SSSF Board which should be:

- developed for the medium-term to give the Board plenty of time to prepare for future self-sustainability; and
- phased, so that SE funding diminishes gradually;

Financial self-sustainability within 5 - 8 years should be achievable because:

- members already provide approximately 24% of SSSF income;

- 55% of members are prepared to pay slightly more for their membership – the benefits of membership exceed the costs in most cases; and
- other potential avenues of increased income are realistic, for example charging participation fees for valued events such as tabletops; exploring sponsorship opportunities; and expanding membership.

The exit strategy agreement committing SE to continued funding of the SSSF over the medium term should contain targets related to both continued performance and increased financial self-sustainability.

GLOSSARY OF ABBREVIATIONS

Acronym	Full Definition
MOET	Scottish Enterprise Micro and Opto Electronics Cluster
SDI	Scottish Development International
SE	Scottish Enterprise
SEL	Scottish Enterprise Lanarkshire
SME	Small and Medium Sized Enterprise
SSSF	Scottish Semiconductor Supplier Forum Limited

1 INTRODUCTION

BiGGAR Economics Ltd was appointed by Scottish Enterprise Lanarkshire (SEL) in October 2005 to conduct an evaluation of the Scottish Semiconductor Supplier Forum Limited (SSSF), which is an integral component of wider semiconductor supplier network development support. This support project sits within the Scottish Enterprise (SE) Micro and Opto Electronic Technologies (MOET) Cluster and is managed on behalf of SE by SEL.

The SSSF, formed in 1998, is currently composed of 91 suppliers to the semiconductor sector with operations in Scotland. It is a non-profit making company limited by guarantee, run by a Board of Directors drawn from its members and with representation from SEL. A part-time Managing Executive organises SSSF activities which include 'tabletop' exhibitions at wafer fabricators, networking and training events. SE funding meets the majority of SSSF annual costs, with members paying an annual fee of £100 to £300 dependent upon number of employees in Scotland.

The overriding goal of the SSSF is to assist its members to develop their businesses, and its objectives include the:

- promotion and development of semiconductor supplier infrastructure;
- promotion of cooperation and sharing of industry knowledge among members;
- development of linkages with industry bodies and lobbying of major stakeholders; and
- informing of SE and other stakeholders of relevant industry matters.

1.1 Study Objectives

The objective of the study is to evaluate the implementation and development of the SSSF from 1998 to 2005. Issues to be addressed include:

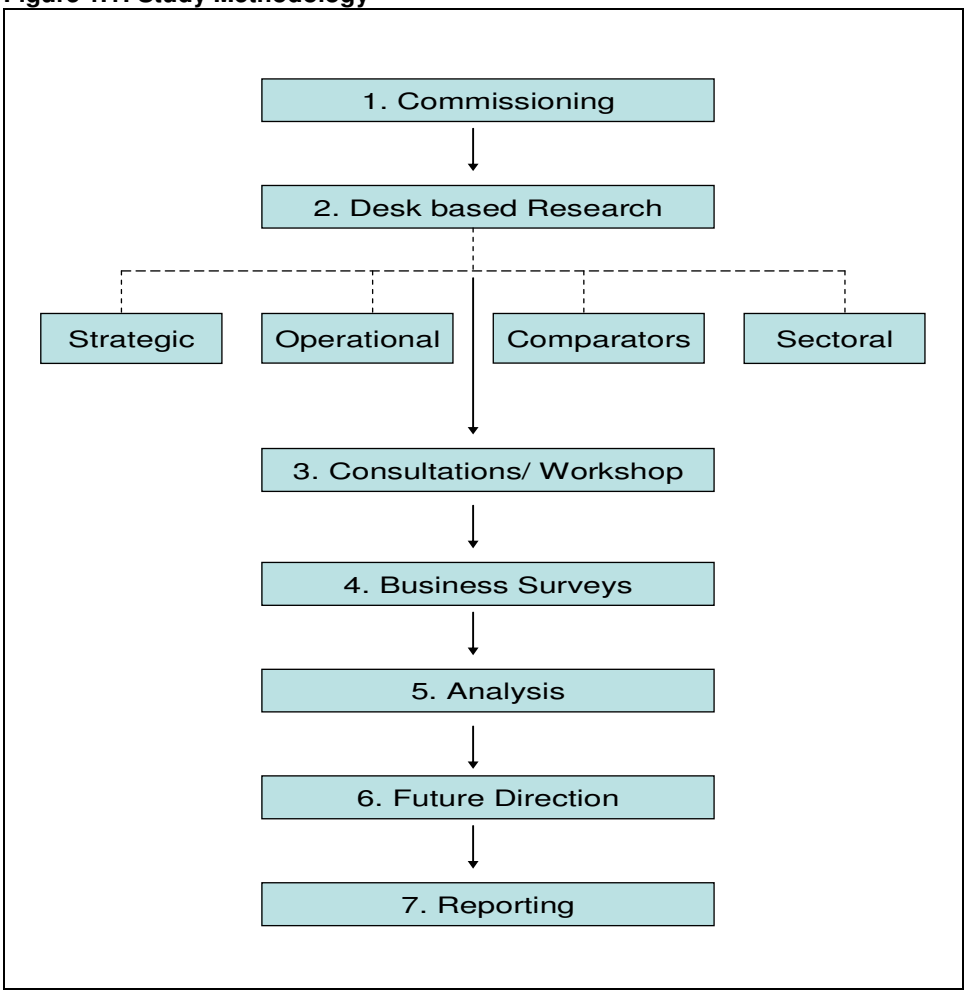
- rationale for, and appropriateness of, intervention;
- management processes and performance – efficiency and effectiveness;
- project inputs, activities and outputs (economy, effectiveness and efficiency);
- meeting of aims and objectives;
- economic development benefits – quantifiable (e.g. impact on turnover) and wider (e.g. enhanced intangible assets);
- value for money; and
- potential enhancements and future direction.

1.2 Study Methodology

A study methodology aimed at meeting these objectives was developed and agreed with SEL. The SSSF members are the only stakeholders who can accurately communicate the value of SSSF membership. As a result, a survey of

as many as possible SSSF members formed the most significant component of the study (Figure 1.1).

Figure 1.1: Study Methodology



Following commissioning, the desk-based research task included four evaluation components which also served to inform later tasks:

- strategic – assessing the need and rationale for the SSSF with regard to market failure, and its historic and future fit with relevant national strategies;
- operational – reviewing inputs, activities and outputs over the project lifetime;
- comparators – reviewing comparator networks. This task was conducted at a limited scale and therefore not reported on due to: client concerns over the value of consulting with other Scottish MOET sector networks, and the unavailability for consultation of the contact at the obvious international comparator, Silicon Saxony. Information available on websites of comparator networks was descriptive, rather than analytical/ evaluative, and it was agreed with the client at inception that description of other networks was not required, but rather evidence of best practice;
- sectoral – reviewing past trends in the semiconductor sector and of future prospects, nationally and internationally.

Consultations were conducted with a range of stakeholders through aide memoires tailored to the role of the interviewee. Study consultees are listed in Appendix A and included:

- the SSSF Chairman and Managing Executive, and the SEL project coordinator;
- the Managing Directors of the two major wafer fabricators still located in Scotland – Freescale and National Semiconductors;
- the Director and two other members of the SE MOET cluster team;
- the Scottish Development International Advisor who attends SSSF Board meetings and works within the MOET cluster;
- one Global Scot who operates in the semiconductor sector; and
- two individuals at comparator networks.

A workshop session was conducted at an SSSF Board meeting focusing on issues relating to the future development of the SSSF, and a semiconductors breakfast presentation and network event was attended.

The members' survey was designed with considerable input from SEL (Appendix B), piloted (with 8 firms) and completed with individuals from 57 member firms (see below).

A telephone survey of 'non-beneficiaries' (those within the sector who are not current members of the SSSF) was conducted, primarily to understand why firms had not heard of, or had decided not to join, the SSSF.

Of a historic list of 34 firms in the sector drawn from a historic SSSF database for this 'non-beneficiaries' survey, five interviews (15%) were completed. In 20 cases (59%) the information in the database was incorrect, with either the introductory email, or the follow-up phonecall failing to connect. In the remaining cases participation was declined or the interviewee was unavailable and did not call back. This illuminates the need for a more up to date database of firms and contacts in the semiconductors sector, if marketing of SSSF membership benefits to non-members is to occur in future.

The findings from the previous tasks were brought together, analysed and reported. This included consideration of the future direction of the SSSF.

Study findings and recommendations were disseminated through two presentation and discussion sessions. These were conducted with the client steering group, and then with representatives from the SSSF Board. This dissemination session was attended by four SSSF Board members (including the Chairman), two SSSF Board meeting attendees (the SSSF Managing Executive and the SDI representative), and the client steering group.

Comments received at these dissemination sessions, and in writing on the draft report, were taken on board during the finalisation of the report.

1.3 SSSF Members' Survey

Members were made aware of the study by an email from the Managing Executive of the SSSF. BiGGAR Economics Ltd staff then followed this up by telephone to arrange a face-to-face appointment. The objective was to arrange

as many face to face interviews as possible into a tight three week fieldwork timescale, recognising that a face to face meeting often provides more scope for discussion around issues than a telephone interview. Where members requested a phone interview instead, or were so busy that it was not possible to coordinate a face to face meeting, telephone interview appointments were arranged.

All interviewers were involved in the drafting of the survey design and feeding back early interview experiences to the rest of the team to ensure a conformity of interview approach across the team. Interviewers went over their scripts after conducting interviews to ensure that all boxes had been completed, and that answers were clear and legible.

Data entry was conducted by a trusted subcontractor who the team has used before. The quality of data entry was assured by a member of BiGGAR Economics Ltd not connected with the study, who checked the database entries for six interview scripts (11%) drawn at random. This revealed only two minor inconsistencies with the scripts, suggesting a very high level of database to script accuracy.

1.3.1 Sample and Population

A total of 57 interviews were completed with members out of a population of 91 SSSF members. This represents a response rate of 63%, and the willingness of interviewees to give their time to the study was invaluable.

Of these, 28 (49%) were completed by face to face interview, and 29 (51%) by telephone (10 of these were England-based contacts who were not offered a face to face survey). Among the 34 with whom interviews were not completed:

- 6 proved uncontactable (phone out of service/ person unknown);
- 13 were not completed after a series of phone messages had been left; and
- 15 could not be completed, principally due to the busy schedules of potential interviewees.

1.3.2 Non-respondents

Profiling data was available (from the SSSF Rev 7 Baseline database) for 24 of the 34 firms (71%) not interviewed. This is not directly comparable with that obtained from this SSSF survey in some instances, and could be out of date, relying as it does on members to update it when a new baseline review is being conducted. Caution should therefore be used in placing too much emphasis on differences in profile between these 24 firms and the 57 respondent firms. Comparison shows:

- 17% were headquartered in Scotland and 67% were headquartered elsewhere (with no information on 17%). This suggests a slight over-representation in the sample achieved (43% headquartered in Scotland);
- 46% had five or fewer employees, which is a slightly lower proportion than that of the survey (55%);
- 71% were listed as having semiconductors as a 'primary sector' of operation. This is difficult to compare with the survey sample, which had 54% of respondents stating that semiconductors accounted for over 50% of turnover;

- the main sub-sector of operation of the 24 non-respondents was recorded as follows (with survey sample comparison proportions in brackets):
- construction/ facilities – 38% (compared with plant construction/ maintenance – 7%);
- equipment – 21% (compared with equipment manufacture – 33%);
- equipment related – 29% (compared with equipment maintenance/ supply – 37%); and
- services – 21% (compared with technical services – 40%).

1.3.3 Confidence

The level of confidence that can be invested in a survey sample accurately representing its wider population depends on three factors:

- the absolute size of the survey sample;
- the percentage response to particular questions – for example in a question with two answers, there will be less margin for error where one answer receives 90% of responses than where it receives 50% of responses; and
- the absolute size of the survey population (only a factor in populations of fewer than 1,000).

Consideration of these factors for the SSSF members' survey means that[2]:

- for an answer selected by 90% (or 10%) of the survey sample of 57, we can be 95% confident that the true value among the wider population of 91 lies within a margin of +/- 5%, or between 85% and 95%; and
- for an answer selected by 50% of the survey, we can be 95% confident that the true value among the wider population of 91 lies within a margin of +/- 8%, between 42% and 58%.

The rule of thumb for surveying small populations[3] is that interviews should be completed with at least 50%. This survey achieved 63%. Overall, therefore, we are justified in trusting that the survey findings reported here accurately reflect the views of the entire population of current SSSF members on questions where the entire sample of members provided answers.

The margin of error increases significantly as the number of respondents to an answer declines, and the nearer to 50% lies the proportion of respondents selecting a particular answer. Margins of error have been quoted throughout the report to give an indication of the reliability of the survey findings, and it has been clearly stated that findings relating to impact on employment, profitability and cost reductions should be treated as indicative only due to very small sample sizes.

[2] entering a population of 91, sample size of 57 and percentages respectively of 90% and 50% into the confidence interval calculator provided at www.surveysystem.com/sscalc.htm
[3] Conducting Primary Research – FutureSkills Scotland, October 2002

1.4 Structure

The findings from the members' survey have been combined throughout the report with findings from the other tasks into appropriate sections. The remainder of this report is structured as follows:

- Chapter 2 – details the strategic context behind the project, and the rationale for intervention;
- Chapter 3 – provides a brief review of performance in the semiconductor sector to the present day;
- Chapter 4 – provides a profile of SSSF structure, activities and membership;
- Chapter 5 – provides a review of operations, considering inputs, activities and output, including member feedback;
- Chapter 6 – assesses the quantitative and wider impact of SSSF membership on its members;
- Chapter 7 – profiles future prospects for the sector and services which The SSSF could offer; and
- Chapter 8 – draws together conclusions and recommendations.

Appendices A – E contain, respectively, a list of study consultees, the member survey questionnaire, detailed member survey response findings, non-beneficiary survey findings, and the SSSF's Memorandum of Association.

2 STRATEGIC CONTEXT AND RATIONALE

This chapter sets out the strategic context and rationale that underpins the development and support of, SSSF activities. It also details SSSF's vision and objectives.

2.1 A Smart Successful Scotland

A Smart Successful Scotland (SSS)[4], refreshed in late 2004, is the enterprise framework for Scotland, providing strategic direction for the SE Networks. SSSF aims to contribute to productivity and growth in Scotland by progressing aspects of the *Framework for Economic Development in Scotland (FEDS)*[5] that are key to enterprise development under three broad organising themes. Its specific objectives are:

- Growing businesses: taking forward entrepreneurial dynamism and research and development to deliver innovative companies growing in scale;
- Learning and Skills: developing skills to make best use of our human capital and to prepare for tomorrow's labour market; and
- Global Connections: taking forward aspects of physical and electronic infrastructure, together with building the global connections of Scottish businesses to create world class locations, part of Europe and connected to the global economy

SSSF activities can contribute to the first and third of these themes. With respect to *Growing Businesses*, The SSSF can assist Scottish suppliers to the semiconductor sector to develop and grow to a scale that enables them to compete successfully in the global economy (for example through new business developed as a result of SSSF network participation).

Growing Businesses also seeks to increase the number of sectors with critical mass in Scotland so that it can:

- achieve maximum impact from sectors in which it enjoys a competitive advantage; and
- ensure that sectors that play a leading role in local economies are equipped with the capabilities to meet the challenges of constantly changing local and international conditions.

The SSSF operates in one such key sector, Micro and Opto Electronics (MOET). SSS advocates support for key sectors to identify industry-specific opportunities with the potential for increasing productivity and growth. Support is viewed particularly appropriate for industry networks that promote innovation, outward orientation, high quality and best practice diffusion within an industry.

Global Connections encourages the promotion of knowledge transfer which can help improve productivity and competitiveness among firms through new product and/ or process development. This is a fundamental objective of an industry network such as the SSSF.

[4] A Smart, Successful Scotland – Strategic Direction to the Enterprise Networks and an Enterprise Strategy for Scotland – Scottish Executive, Nov 2004
[5] The Framework for Economic Development in Scotland – Scottish Executive, Nov 2004

This theme also encourages Scottish firms and industries to embrace and capitalise on globalisation. By operating internationally in partnership with SDI, the SSSF can help to create awareness about the attractiveness of the Scottish semiconductor sector, both as a world-class supplier base and potentially as a location for inward investment.

An overall theme of SSS is the importance of partnership working to achieve economic growth in Scotland. Business and industry organisations, such as the SSSF, are identified as important partners in delivering SSS objectives because of their industry insight and close relationship with individual firms.

2.2 Scottish Enterprise's Micro and Opto Electronics Sector Review and Strategy

In 2004 SE produced its review of the performance of the Micro and Opto Electronics sectors and its strategic priorities for the sectors in the upcoming five-year period (2005-2009)[6].

The strategy focuses on a number of broad issues with which the SSSF is complementary:

- placing more emphasis on indigenous company growth;
- a need to maximise Scotland's intellectual property portfolio;
- development of complementary business skills such as marketing and business management; and
- strongly linking the manufacturing, processing and the supply base with innovation.

In addition the strategy includes several objectives and goals to which the SSSF can contribute:

- building critical mass in key market areas including automotive, communications, defence and security, and medical devices, all of which use semiconductors in production;
- strengthening local and global networks – aimed at producing collaborations to exploit synergies in terms of products and process, new applications and markets, intellectual property, business activities and industry intelligence;
- increasing global competitiveness – through assisting firms in the sector to access and compete in international markets; and
- promoting company creation, growth and competitiveness in Scotland.

SE MOET cluster themes and programmes therein, on which its budget are spent, are referred to in Chapter 4.

2.3 SSSF History, Vision and Objectives

The SSSF was established in 1998 by a group of leaders of Scotland based suppliers to the semiconductor sector at a time when fortunes within the sector were dipping. The objective was to pull together and undertake activities which

[6] Micro and Opto Electronics Cluster Review and Strategy – Scottish Enterprise, 2004

benefited local suppliers to the industry. The initial SSSF Managing Executive established the connection with SE, which agreed to support the network on the basis of its fit with a strategy of support to key sectors.

SSSF's vision is to build on the existing and dynamic supplier community, by working in close partnership with its customers across Europe and beyond. This vision will be achieved through key objectives, the over-riding one being to assist its members to develop their businesses. Objectives include:

- to promote and develop the semiconductor supplier infrastructure;
- among members, to encourage co-operation on matters of common interest and to communicate and share industry knowledge;
- to act as an influencing and lobbying body, assisting where appropriate in the promotion of Scotland and the UK in inward investment opportunities;
- to support, where possible, indigenous growth and development;
- to develop linkages with other industry bodies; and
- to provide direction to bodies, such as SE, on matters concerning the development of the semiconductor industry.

2.4 Market Failure

Any grant funding or other form of non-market investment in a mature capitalist society must be justified in terms of market failure and market adjustment. That is, the intervention must generate activity that would not otherwise take place at the time (which can mean accelerating the delivery of the activity as well as increasing its absolute scale), or that is of a higher quality, which results in more/ better outcomes with respect to policy objectives. If the private sector would conduct the activity to a similar scale, quality and timescale in any case, then there should not be public sector intervention.

Market failure can be said to exist where the market fails to take account of all relevant costs and benefits in allocating resources. Interventions that result in market adjustment are those that change market conditions to address the identified market failure.

There are a number of potential sources of market failure including:

- risk aversion – where the private sector considers investment to be riskier (relative to rewards) than other potential investments;
- externalities – where the full benefits accrue to others as well as the investor;
- information deficiencies – where there is low awareness in the private sector of the full potential of an investment opportunity; and
- scale or institutional barriers – where barriers to accessing new markets may be high due to high levels of investment required, scale economies or institutional and regulatory requirements.

The SSSF addresses the information deficiencies that exist among suppliers to the semiconductor industry. Similarly, in many cases firms experience barriers to obtaining certain market information. The dynamics of information flows are crucial to the nature of competition within the semiconductor industry and

essential to the process of growth. With incomplete information, many of the suppliers are unaware of the potential commercial opportunities available to them, for example, large manufacturers require a number of suppliers with a wide range of product inputs; many potential customers to the fabricators are unaware of these requirements and the concomitant commercial opportunities. The SSSF facilitates the passing of information between suppliers to the semiconductor industry and the wafer fabricators.

The diffusion of commercial opportunities depends on the informal non-market communications that are provided through the activities the SSSF organises and supports. Moreover, the clustering of high technology industries is dependent on the need to learn about latest developments rapidly. The activities organised by the SSSF facilitate such exchanges.

A further market failure which the SSSF addresses is barriers to entry to markets - for example the costs, particularly to SMEs, of accessing new markets both nationally and internationally. The resources SMEs need to divert into attending exhibitions and trade shows are often not feasible. The activities SSSF supports, including tabletops in markets abroad and trade-show support, address these barriers.

3 SECTORAL REVIEW

3.1 Nature of Industry

The UK has three main semiconductor hubs in Cambridge, Bristol and Scotland (Silicon Glen). The cluster in Scotland accounts for approximately one sixth of all integrated circuit (chip) design in the UK, a 7.1% share of European semiconductor productive capacity, and almost half of UK semiconductor productive capacity[7].

Demand for semiconductors is a derived demand i.e. dependent on demand for products that use chips as an essential component. These products include personal computers, mobile phones, automobiles, medical devices, and media equipment. Consequently the semiconductor industry is subject to cyclical fluctuations in demand for its products and, naturally, this effect is felt throughout the industry's supply chain.

The industry's cycle is fragmented, with different sectors experiencing peaks and troughs in demand at different times – for example foundries (solely manufacturers) often experience low demand sooner in the cycle than chip designers. Product development in the industry is characterised by long lead times – it takes years to develop a chip and even longer before the product generates a profit. In sales terms, the industry is characterised by high volumes and low margins.

Industry slumps are usually the result of excess capacity and supply, and when this occurs firms tend to halt investment in production and allow inventories to deplete. As supply contracts again prices rise with demand, and firms begin to reinvest in production, triggering the cycle again.

3.2 Industry Performance

From the 1960's to 2000 the semiconductor industry enjoyed high growth with annual growth rates of around 16% and increasing globalisation as demand was fuelled by the discovery of ever more applications for its output. In the 1960's the key drivers of demand for semiconductors were the government and aerospace sectors. In the 1970's and '80's demand remained high as corporations and businesses computerised. During the 1980's and 1990's demand was fuelled by the consumers following the emergence of the personal computer and other consumer products such as video recorders and, later, mobile phones and CD and DVD players. Consumers are now the driving force behind demand for the semiconductor industry's output[8].

In 2000 however, the global semiconductors industry was hit by a deep recession. A 2004 National Microelectronics Institute (NMI) report[9] on the semiconductor industry stated that although the industry cycle is usually considered to be four years, the recession which began in 2000 was the longest and deepest downturn in the industry's history, with the recovery only arriving in late 2003. Table 3.1 shows the average five year growth rates in the semiconductors industry across a range of countries, which clearly illustrate the scale of the recession e.g. in the US

[7] Data from www.scotbusiness.org

[8] Scottish Enterprise (2005) Electronics Market Research: Semiconductors

[9] Moor, J. (2004) The UK Semiconductor Industry: How Can a Trade Association Support a New Strategy for UK Competitiveness? Available from www.nmi.org.uk

the semiconductor industry's annual five year growth rate fell by 37% between the periods 1996/00 and 2001/05.

Table 3.1 Average Five Year Growth Rates, Semiconductors

Country	1986-1990	1991-1995	1996-2000	2001-2005
Germany	4.60%	10.30%	15.10%	13.60%
France	2.40%	2.30%	19.70%	0.40%
Italy	10.20%	10.20%	-2.00%	-5.60%
UK	6.10%	5.70%	10.40%	-6.60%
US	14.00%	27.90%	56.70%	19.80%
Japan	9.20%	4.70%	9.50%	3.50%

Source: Oxford Economic Forecasting

The recession began with a surge in demand in 1999 as individuals and firms invested in new ICT equipment to avoid the 'millennium bug' problems associated with older equipment. This 'boom' period was accompanied by unrealistic demand forecasts and over-investment in productive capacity so that when demand fell back in early 2000, there was considerable excess capacity in the industry. In addition, the ICT equipment market became flooded with high-quality, second-hand equipment that had become available as dotcom companies folded after the 'Internet bubble' burst. As a result of these factors, demand for new production plummeted while this excess supply was used up[10].

The semiconductors boom and bust were reflected in industry growth rates. Oxford Economic Forecasting reports that the UK, Germany, France, US and Japan experienced substantial growth in their respective semiconductor sector between 1996 and 2000 (over 10% in the UK). There was a sharp divergence of performance between 2001 and 2005, as the UK posted a contraction of over 6.6%, while the US experienced close to 20% growth[11].

As the recession took hold in the global industry, firms sought to reduce their costs by moving production. The Scottish semiconductor sector had been dominated by low-value, high volume production, but as firms looked for lower cost bases Scotland found it difficult to compete with countries like Taiwan and China. The recession saw the closure of a number of important plants in Scotland – notably Motorola (semiconductors for mobile phones, 3,100 job losses in 2001) and NEC (semiconductors, 1,860 job losses in 2001-02) plant closures at Livingston.

The effects of the semiconductors slump in Scotland and the rest of the world were felt throughout the supply chain. A Datamonitor report for 2003[12] on the global semiconductors equipment and products market showed that between 2000 and 2001, the global semiconductor equipment and products market contracted by 33% in terms of value.

In Scotland the semiconductors supplier industry includes companies producing motors, drives, bearings, cleanroom equipment, chemicals and gases, instrumentation, wafer processing equipment, pumps, photoresists, wet etch equipment, monitoring and control equipment, vacuum fittings, cutting and

[10] Ibid.
[11] Oxford Economic Forecasting (2005) Average Five Year Growth Rates: Semiconductors
[12] Datamonitor (2003) Global Semiconductor Equipment and Products: Industry Profile

polishing equipment, quartz and thermocouple manufacture, cleanroom clothing, service and repair, and training and consultancy.

According to Scottish Enterprise (2005)[13] the amount of opportunities for the Scottish semiconductors supplier sector have drastically declined in recent years because of a number of significant plant closures in Scotland in the wake of the recession e.g. NEC and Motorola. SSSF baseline reports on employment in Scottish semiconductors firms appear to bear this out (Table 3.2).

Providing a precise picture of the semiconductor sector in Scotland both in 1997/98 before the SSSF was formed, and in 2005, has not proved possible. This is principally because firms involved in semiconductors operate across a wide and diverse range of sectors (see Chapter 4), and because official data is not collected for a semiconductor sector as such.

The SSSF has recorded headcount at firms it defines as operating in semiconductors in its Baseline Reviews since 2000. Employment decreased after 2000 and did not begin to recover until 2004. The overall loss in employment since 2000 is estimated at 35%. In June 2005, overall employment in Scottish semiconductor firms was estimated at 2,123 people in 138 firms, an average of 15 workers per firm (Table 3.2).

Table 3.2 Longitudinal Data on Employment in Scottish Semiconductors Firms

Date	Number Employed	% Change on Previous Date
December 2000	3,269	N/A
December 2001	2,427	-25.76
February 2002	2,551	5.11
July 2003	1,919	-24.77
January 2004	1,841	-4.06
September 2004	2,008	9.07
June 2005	2,123	5.73

Source: SSSF Member Baseline Reviews

The SSSF has 91 members currently, suggesting that 66% of Scottish semiconductor firms are in the SSSF. The June 2005 Baseline provides Headcount figures for semiconductor firms and whether or not they are SSSF members. This suggests that 1,245 employees work in SSSF firms, or 59% of workers in Scottish semiconductor firms.

Data on the turnover from Scottish semiconductor firms is not available. However, it was estimated by SE[14] in 2003 that there were over 350 companies in Scotland developing products and services using micro and opto electronics technologies, employing over 25,000 people and contributing over £1.1 billion to Scotland's GVA. The proportion of these that were operating with semiconductors is not clear, however.

[13] Op cit.
[14] Micro and Opto Electronic Technologies Cluster Strategy 2004-09 SEEL Board Approval Paper, 2003

3.3 SSSF Member Experience

The survey of SSSF members asked respondents to comment on company performance since 1998, the inception of the SSSF.

3.3.1 Experiences in line with broad sector trends

Some firms (13 firms – 23%) reported struggling during the period (1998-2005). The most common cause of poor performance was the closure of the large wafer fabricators in Scotland. Many companies (obviously not surveyed) did not survive these closures. Poor performance was also a reflection of the cyclical nature of the industry, and of how the industry downturn experienced in the early part of this century filtered directly through to the supply chain.

Among the other reasons stated were:

- price competition from China; manufacturers relocating to China and other low labour cost countries; and other forms of competition posed by the emergence and rise to prominence of Asia, having the effect of reducing prices, and therefore squeezing margins;
- the stagnant nature of industry in Scotland currently;
- lack of further investment in semiconductor fabricators in Scotland;
- a higher degree of competition for a smaller amount of business; and
- therefore many respondents felt that they were simply 'running to a stand-still' – having to increase turnover annually to balance lower margins.

3.3.2 More positive experiences

Other members, while acknowledging the detrimental global market conditions experienced in the semiconductor sector, were more positive about their company performances, with many reporting steady or increasing turnover.

A number of reasons were cited for this, the primary one being diversification into other sectors, or having already been diversified into other sectors. These included biotechnology, MEMS, medical devices, pharmaceuticals, renewables, and optoelectronics, and had the effect of lowering exposure to the declining semiconductors sector.

Other reasons given included:

- refocusing to work in a range of sectors in a range of specific capabilities (e.g. design, project management, technician, facilities manager);
- involvement/ seeking to expand in other markets including Asia, Ireland and the rest of Europe;
- building up the customer base through strong and consistent marketing, good quality service, networking and a general focus on sales;
- producing bespoke rather than mass market products;
- increasing capacity;
- improving efficiency; and

- being involved in servicing and refurbishing equipment.

3.3.3 Specific Benefits/ Trends Experienced

Prior to assessing the qualitative economic benefits attributable to SSSF, it was necessary to establish what precise benefits/ trends firms had experienced over their time as an SSSF member. These statistics help develop an understanding of how the firms surveyed have performed over the period. The benefits are summarised as follows:

- 65% of firms (37 out of 57[15], margin of error +/- 7.6%) had accessed new UK markets since joining SSSF, while a smaller proportion of 47% (27 out of 57, margin of error +/- 8.0%) had accessed new international markets;
- 51% of firms (29 out of 57, margin of error +/- 8.0%) had experienced improved market share in their core business, while 46% (26 out of 57, margin of error +/- 8.0%) reported diversifying into new business areas;
- 56% of firms (32 out of 57, margin of error +/- 7.9%) had developed new products or services, with only 26% (15 out of 57, margin of error +/- 7.0%) creating these based on R&D; and
- over half of firms had not:
- developed new technologies – 53% (30 out of 57, margin of error +/- 8.0%);
- made patent applications – 51% (29 out of 57, margin of error +/- 8.0%);
- licensed new technology – 56% (32 out of 57, margin of error +/- 7.9%);
- created research links with Scottish universities – 53% (30 out of 57, margin of error +/- 8.0%); or
- increased their R&D spend – 51% (29 out of 57, margin of error +/- 8.0%);

Detailed statistics on these are reported in Table 0.10, Appendix C.

[15] proportions expressed are of all responses, including those that could not answer the question (due to their role/ position in the firm), didn't know, or for whom the question was not applicable (due to the nature of the firm's operations). See Table 0.10, Appendix C.

4 SSSF PROFILE

This chapter provides a profile of the SSSF in terms of structure, operations, activities and funding. It continues with a summary of member characteristics as reported by members during the survey of members. There are currently 91 members of the SSSF.

4.1 Structure

The SSSF has always been organized with a Board and Managing Executive, but a major change in direction occurred in 2004 when the founding Managing Executive was replaced by the current Managing Executive (April 2004) and the incumbent Chairman was appointed (August 2004). A year later (May 2005) the organisation changed its legal status to 'company limited by guarantee' in order to restrict the liability of its members.

The SSSF is governed by a Board of Directors consisting of a Chair, Vice-Chair and six directors drawn from member companies and one representative from SE. Directors do not receive remuneration for their services and attend Board meetings every 5 weeks or so. Decisions are made when at least five Directors vote in favour of a measure. An Annual General Meeting allows the Board to present accounts and report formally on the year ended to its members.

Directors serve for two years, at which point they can be put forward for re-election. The Chair is replaced by the Vice-Chair every two years, at which point he/ she can go forward for re-election. Every member has one vote in elections of office bearers.

Items of expenditure require to be authorised by the Vice Chairman, after which cheques must be signed by two of three designated signatories. Money can only be spent on activities which promote the objects of the SSSF as set out in its Memorandum of Association (see Appendix E)..

Decisions are implemented by a part-time Managing Executive who spends approximately 5 days per month on SSSF time from his home office. As well as organising activities and keeping members and Board informed of these, he is responsible for administration, maintaining accounts, and updating baseline information on membership twice a year.

4.2 Membership

The annual membership fee has remained unchanged for several years at £100 for firms with up to 9 employees based in Scotland, £200 for those with 10-50 employees, and £300 for those with >50 employees. As well as being entitled to a vote at the AGM, any EGM and elections of office bearers, members have the right to full participation in SSSF activities, access to the members' section of the SSSF website and their own webpage on this site, and access to reports bought in by the organisation.

4.3 Activities

The principal activities through which the SSSF targets its objectives are as follows.

4.3.1 Tabletop Exhibitions

A tabletop exhibition is a trade exhibition which is held at the premises of a single wafer fabrication plant over one day. SSSF members attending each have one stand, and members of staff from all departments within the wafer fab are encouraged to attend – including not just senior management and procurement personnel, but engineers, operators, sales and marketing, and administration staff.

This offers great potential benefits to both host and exhibiting companies in terms of business development:

- suppliers get 'a foot in the door' on an equal footing to their peers, a chance to market their products to a number of potential customers within the one company, gain a better understanding of the company's needs, the directions it is moving in, and the way it does business;
- staff at all levels within the host company get the opportunity to meet new potential suppliers and view new products and innovations, offering potential future cost and efficiency savings.

4.3.2 Networking Events

These are events – such as dinners before tabletops and golf days – which bring the suppliers together in an informal manner, enabling them to make connections and improve market knowledge, potentially leading to business development.

4.3.3 Trade Shows

The SSSF has taken a stand to major international tradeshows – SemiCon Europa and SemiCon China – in recent years (funded by Scottish Development International (SDI)) on which members can take space at a subsidised rate. This offers a cheap and effective way for members to target this audience and gives The SSSF valuable exposure.

4.3.4 Training Events/ Presentations

The SSSF runs occasional training seminars on topics specific to the needs of members. These have included how to increase sales, exhibiting at tradeshows, and insurance.

4.3.5 Market Reports

The SSSF buys in market and sectoral reports, for example from Yole Developpement, which members can access for free from the SSSF website. If purchased directly these could cost several thousand pounds each.

4.3.6 SSSF Website

For external users, this provides links through to SSSF members, who are entitled to a page on the website each, under different search categories. There is also a members' section where information and opportunities can be exchanged.

4.3.7 Communication

The Managing Executive sends out regular emails to members informing them of upcoming events and providing information which could be of use. This offers feedback opportunities, and members can raise issues which can then be discussed at Board meetings.

4.3.8 Representation

The Managing Executive represents The SSSF at industry events and meetings of other networks, and members of the Board have lobbied a UK government minister directly.

4.4 Income and Expenditure

Although it varies from year to year dependent upon the scale of activities, The SSSF costs about £40,000 on average to run per year. Management (principally activity organisation) and administration (including provision of accounts) cost approximately £16,000 per annum, with most of the remainder spent on network activities.

Membership fees provide approximately 23% of income per annum currently, with the remaining 77% provided from the SE MOET cluster, via SEL.

4.4.1 SE MOET Cluster

The annual budget for semiconductor supplier development within the MOET cluster is £100,000 (2005/06), representing under 1.8% of the annual cluster budget of approximately £5.6 million. The proportion of the cluster budget spent supporting the SSSF is therefore approximately 0.7%. In terms of overall MOET cluster spend, therefore, the SSSF represents a tiny component.

The MOET cluster budget is spent on five themes of which network development (in which SSSF funding sits) is one. The other themes are:

- innovation – including activities aimed at new product/ process development and company start ups through awards, company assists and collaborative projects support (e.g. RSE and Industrial Fellowships, Proof of Concept);
- infrastructure – including activities aimed at new product/ process development and company start ups through facility development, company assists and collaborative projects support (e.g. Alba Centre, Scottish Microelectronics Centre, Optocap);
- talent – including activities aimed at getting talent into the sector through training initiatives and individual/ company support (e.g. High Technology Talent Strategy, TalentScotland, Analogue Design Initiative); and
- internationalisation – including activities aimed at expanding the understanding and participation of firms in international markets and of securing inward investment projects through missions, company support and marketing initiatives.

Funding for SSSF activities is authorised on an activity by activity basis through SE's SSSF Board member. SSSF's Board/ Managing Executive start planning for future events months in advance, at which point authorisation is sought for SE

funding. Funding is therefore in place before money is committed to events, ensuring that the accounts do not go into the red.

The remainder of the £100,000 budget for semiconductor supplier development is spent on other projects. In recent years these have included support for:

- collaborations between Scottish suppliers and universities;
- feasibility studies on potential collaborative opportunities in the sector; and
- missions researching opportunities in foreign markets.

The link between these projects and the SSSF is primarily through the SEL officer responsible for these projects who is also an SSSF Board member. SSSF members appropriate for involvement in these projects can be identified through this link.

This study does not assess these supplier development projects, and does not include the cost of them in value for money calculations.

4.4.2 Scottish Development International

SDI has a close working relationship with the SSSF, through an advisor who attends the SSSF Board meetings. SDI has contributed towards the cost of foreign events which SSSF members have benefited from, such as stands and networking events at SemiCon trade shows and a networking event at a foreign tabletop exhibition. These costs were not provided by the SDI and are not included in the analysis.

4.5 Member Profile

This section draws from the survey of SSSF members in summarising the characteristics of current SSSF members. Full detail is provided in Appendix C.

In this and future chapters, cross-tabulated analysis of survey findings is conducted where it is most meaningful, by:

- member headquarters (Scotland or outside Scotland); and
- size of Scottish operations by turnover (1 – 5 employees compared with 6 or more employees).

Cross-tabulated analysis by size of operations based on turnover was not conducted due to there being a smaller group of respondents which were able or willing to answer this question. Cross-tabulated analysis by semiconductor sub-sector was not conducted due to the fact that the majority of members operate in more than one sub-sector.

4.5.1 Date of Establishment in Scotland

- 44% of responding firms have been established in Scotland since 1998, when the SSSF was formed;
- 35% set up in Scotland during 1990-97; and
- 21% set up in Scotland during the 1960s (4%), 1970s (4%) or 1980s (13%).

4.5.2 Headquarters Location

- 43% of members have their HQ in Scotland;
- 29.5% have their HQ in another part of the UK; and
- 29.5% have their HQ abroad.

4.5.3 Employment

The SSSF Baseline Reviews record headcount at firms it defines as operating in semiconductors in Scotland. The latest two baseline reviews also include a field on whether these firms are SSSF members or not. This suggests 1,245 people employed at members firms in June 2005, an average of 14 per firm. This had increased by 10% from 1,127 in September 2004.

These numbers appear broadly in line with those received from survey respondents commenting on employment in Scotland in November 2005. Data aggregated from 53 respondents suggested a total of 577 workers at Scottish operations, which when grossed up to 91 members firms would give 992 people employed in Scotland at SSSF firms, an average of 11 per firm.

On the basis of SSSF Baseline figures, 59% of workers in Scottish semiconductor firms (recorded at 2,123 workers in June 2005) could work at SSSF member firms.

75% of SSSF members employ 10 or less people in Scotland (39 of 52 responding firms, margin of error +/- 8%). This includes both Scottish headquartered SMEs (19 of the 39 firms) and firms headquartered outside Scotland with a small Scottish workforce (20 of the 39 firms) presence in employment terms.

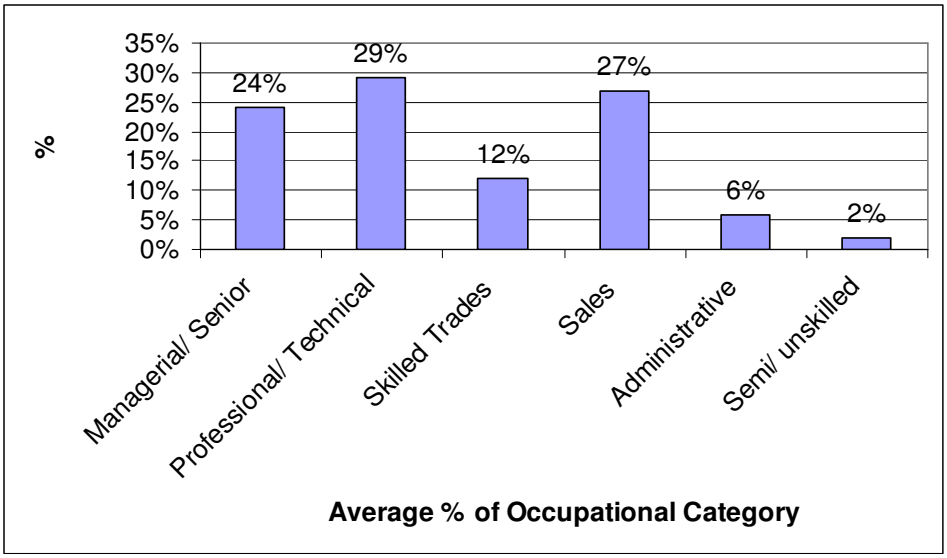
- 56% of responding members have employment in Scotland of 1-5 people;
- 19% have 6-10 employees;
- 12% have 11-20 employees;
- 10% have 21-50 employees; and
- 4% have 51-100 employees.

4.5.4 Occupational Profile

Member responses (51 out of 57) indicate a relatively highly skilled occupational profile among employees in Scotland (Figure 4.1):

- managers/ senior staff (24%);
- professional/ technical staff (29%);
- skilled trades (12%),
- sales (27%);
- administrative and semi/ unskilled (8%).

Figure 4.1: Occupational Breakdown - Average (Scottish Operations)



Source: BiGGAR Economics Ltd; n = 57

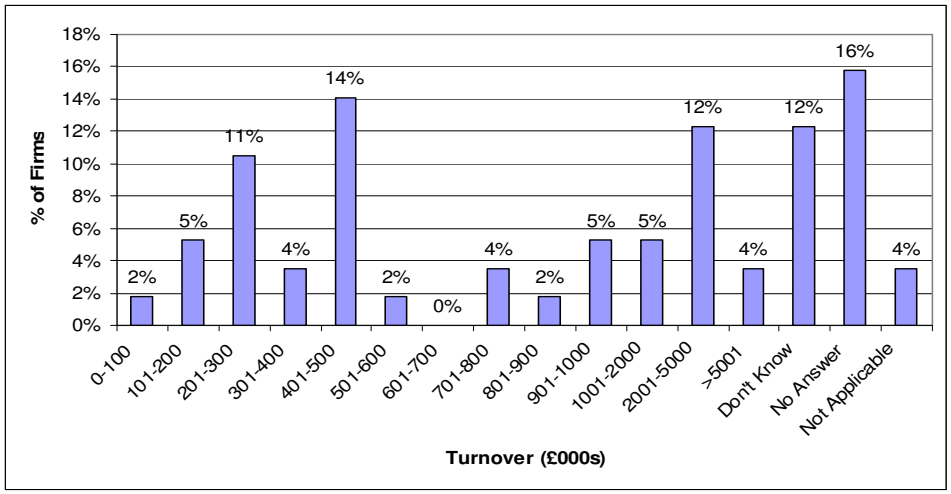
4.5.5 Turnover

Members generate a wide range of annual turnovers from Scottish operations currently (Figure 4.2, latest annual turnover figures given – 2004/05). 18 interviewees could not provide a figure for current turnover from Scottish operations, inferring a margin of error of up to +/- 12% on the following proportions of those who could answer:

- £500,000 or less – 51%;
- £500,001 - £1 million – 18%;
- £1 million - £5 million – 26%; and
- > £5 million – 5%.

The total turnover at the Scottish operations of the 38 companies who answered was £72.67 million. This would suggest an average turnover per company of £1.91 million, which when grossed up would suggest turnover across the 91 SSSF members of £174 million. The majority of SSSF members have turnover far below this level, however, given that only ten firms recorded turnover of £2 million or more.

Figure 4.2 Annual Turnover from Scottish Operations (2004/05) (% of Sample)



Source: BiGGAR Economics Ltd; n = 57

Firms headquartered in Scotland (43% of respondents) tend to be concentrated in the lower turnover ranges, with 58% having a turnover of £500,000 or less (Table 4.1, margin of error +/- 17%). The picture is less reliable for firms headquartered outside Scotland because 45% were unable to answer this question.

Table 4.1 Turnover from Scottish Operations, Scottish and Non-Scottish Firms

Turnover Range (£000s)	% of Scottish Firms (n=24)	% of non-Scottish Firms (n=33)
0-100	4%	0%
101-200	8%	3%
201-300	21%	3%
301-400	4%	3%
401-500	21%	9%
501-600	0%	3%
601-700	0%	0%
701-800	0%	6%
801-900	4%	0%
901-1000	8%	3%
1001-2000	4%	6%
2001-5000	8%	15%
>5001	4%	3%
DK/ No/ NA	12%	45%

Source: BiGGAR Economics Ltd

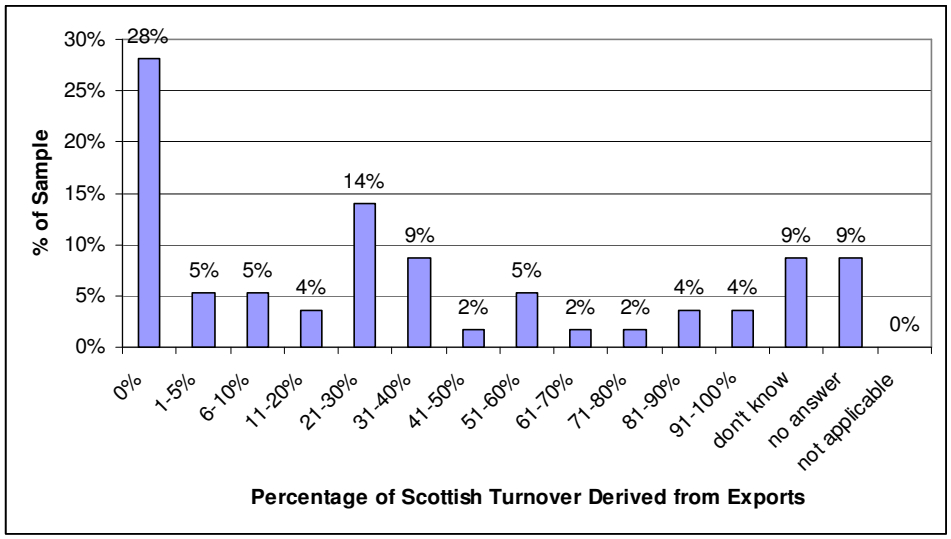
4.5.6 Exports

Significant proportions of member companies are not exporting at all, or only at low levels (Figure 4.3). This has obvious sustainability implications in a sector

where activity is increasingly being concentrated in Asia. 10 interviewees could not provide information on proportions of exports, inferring a margin of error of up to +/- 9.4% on the following proportions of those who could answer (47 respondents):

- 33% do not export at all from Scotland;
- a further 17% have exports accounting for 20% or less of current turnover generated from Scottish operations; and
- 11% have exports accounting for 80% or more of current turnover generated from Scottish operations.

Figure 4.3 Proportion of Turnover from Exports (Scottish Operations) (% of Sample)



Source: BiGGAR Economics Ltd; n = 57

Analysis of propensity to export suggests a slightly higher propensity to export among Scottish headquartered firms:

- of the Scottish headquartered firms, 25% do not export at all (margin of error +/- 15%), and 75% derive less than 50% of their turnover from Scottish operations from exports (margin of error +/- 15%); and
- of the non-Scottish headquartered firms, 30% do not export at all (margin of error +/- 13%), and 61% derive less than 50% of their turnover from Scottish operations from exports (margin of error +/- 13%).

Analysis of propensity to export shows a much higher propensity to export among firms employing more than 5 workers in Scotland:

- of the firms with five or less employees in Scotland, 47% do not export at all (margin of error +/- 15%), and 80% derive less than 50% of their turnover from export markets (margin of error +/- 12%); and
- of the firms with six or more employees in Scotland, 0% do not export at all (margin of error +/- 3%), and 48% derive less than 50% of their turnover from export markets (margin of error +/- 17%).

4.5.7 Profits

Only 24 interviewees (42%) knew or agreed to divulge information on current profit, inferring a margin of error of up to +/- 17% on the following current profit ranges recorded:

- £50,000 or less – 42% of 24 respondents;
- £50,001 - £100,000 – 13%;
- £100,001 - £200,000 – 21%;
- £200,001 - £300,000 - 20%; and
- > £300,000 - 4%.

4.5.8 Nature of Semiconductor Operations

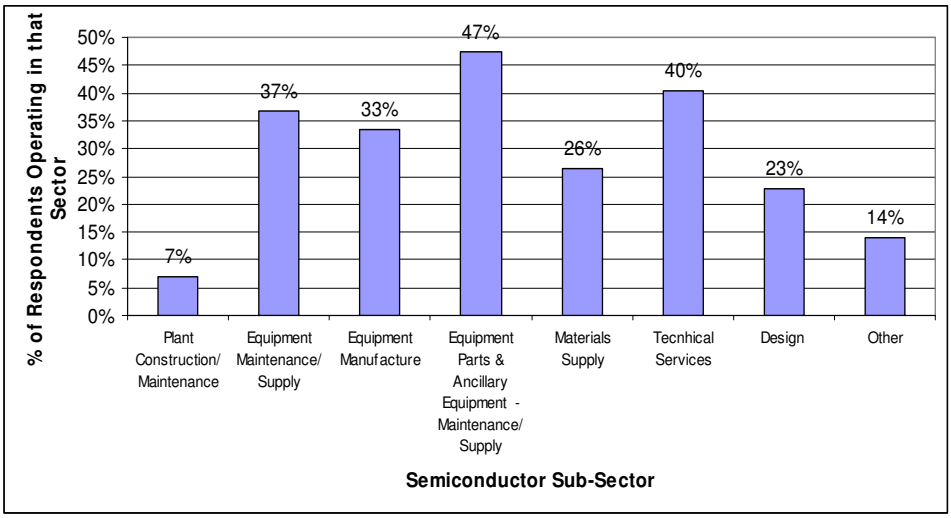
The sub-sectors in which respondent firms operate are illustrated in Figure 4.4. The majority of respondents operate in more than one sub-sector, and the most common sub-sectors of operation are:

- maintenance/ supply of equipment parts & ancillary equipment (47% of firms);
- technical services (40%);
- maintenance/ supply of equipment (37%);
- equipment manufacture (33%);
- supply of materials (26%);
- design (23%); and
- plant construction/ maintenance (7%).

In terms of the number of different sub-sectors in which SSSF members operate:

- 40% operate in only one sub-sector;
- 23% operate in two sub-sectors;
- 14% operate in three sub-sectors; and
- 23% operate in four or more sub-sectors.

Figure 4.4 Semi-Conductors Sub-Sectors (% of Sample stating operation in Sub-sector)



Source: BiGGAR Economics Ltd; n = 57

Scottish headquartered firms are less likely than non-Scottish headquartered firms to be involved in technical services, maintenance/ supply of equipment parts and ancillary equipment, and equipment manufacture, but more likely to be involved in equipment maintenance/ supply and other services (Table 4.2).

Table 4.2 Semiconductors Sub-Sectors, Scottish and non-Scottish Firms

Semiconductors Sub-Sector	% of Scottish Firms (n=24)	% of non-Scottish Firms (n=33)
plant construction/ maintenance	4%	9%
equipment maintenance/ supply	38%	33%
equipment manufacture	25%	36%
maintenance/ supply of equipment parts & ancillary equipment	38%	52%
supply of materials	21%	27%
technical services	33%	45%
design	21%	24%
other	25%	6%

Source: BiGGAR Economics Ltd

Firms with five or less employees in their Scottish operations are more likely than those with more than five employees to be involved in equipment maintenance/ supply, maintenance/ supply of equipment parts and ancillary equipment, and technical services. The latter group are more involved in equipment manufacture, materials supply and design (Table 4.3).

Table 4.3 Semiconductors Sub-Sectors, by Employment Size of Scottish Operations

Semiconductors Sub-Sector	% of Firms with Five Employees or Less (Scottish Operations) n=29	% of Firms with >Five Employees (Scottish Operations) n=23
plant construction/ maintenance	10%	4%
equipment maintenance/ supply	43%	26%
equipment manufacture	20%	44%
maintenance/ supply of equipment parts & ancillary equipment	50%	41%
supply of materials	20%	30%
technical services	43%	37%
design	20%	26%
other	13%	15%

Source: BiGGAR Economics Ltd

Eight respondents were providing 'other' sectoral services:

- logistics;
- labour supply;
- wafer testing;
- clean-room laundry;
- software supply;
- consultancy services; and
- business incubation.

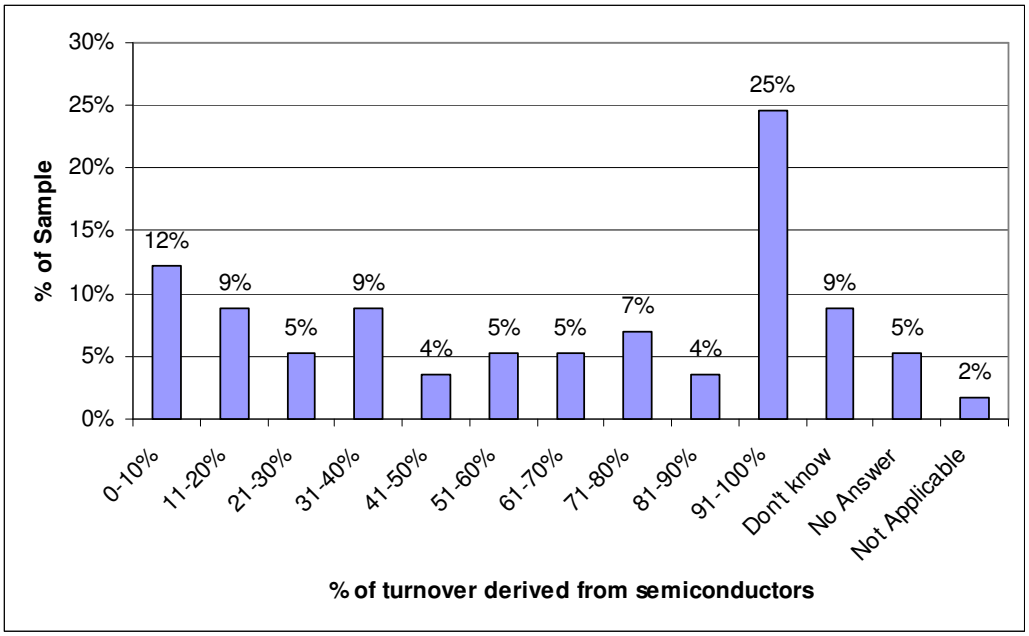
4.5.9 Exposure to the Semiconductor Sector

Of the 48 respondents who could answer the question (margin of error of up to +/- 10%):

- 29% stated that 100% of their turnover was derived from semiconductors;
- a further 25% had 'exposure' of over 50% to the sector; and
- for 46%, semiconductors accounted for 50% or less of turnover.

The main reason why the others could not provide a reason was that their role in the firm did not afford them an overview of all company operations. Figure 4.5 illustrates this data graphically.

Figure 4.5 Percentage of Turnover Derived from Semiconductors (% of Sample)



Source: BiGGAR Economics Ltd; n = 57

Scottish headquartered firms are more exposed to the semiconductor sector than those headquartered elsewhere

- 33% (margin of error +/- 16%) derive 100% of their turnover from semiconductors compared with 18% (margin of error +/- 11%); and
- 58% (margin of error +/- 17%) derive more than 50% of their turnover from semiconductors compared with 36% (margin of error +/- 13%).

Smaller firms by employment (1 – 5 employees) in Scotland are slightly more diversified than larger ones:

- 23% (margin of error +/- 12%) derive 100% of their turnover from semiconductors compared with 27% (margin of error +/- 16%); and
- 40% (margin of error +/- 14%) derive more than 50% of their turnover from semiconductors compared with 54% (margin of error +/- 18%).

4.5.10 Other Sectors of Operation

The most common other sectors of operation were (Table 4.4):

- pharmaceuticals/ life sciences (18% of);
- optics/ optoelectronics (12%);
- medical/ medical devices (12%);
- R&D (11%);
- energy/ renewables (9%);

- general electronics (7%); and
- chemicals/ petrochemicals (7%).

Other sectors of operation included education, aerospace, packaging, photovoltaics, radio frequency, and coatings.

Table 4.4 Other Sectors of Operation

Sector	% of Firms	% Turnover Derived (Range)
Pharmaceuticals/ Life Sciences	18%	5-70%
Optics/ Optoelectronics	12%	4-35%
Medical/ Medical Devices	12%	3-30%
Research & Development	11%	3-80%
Energy/ Renewables	9%	10-20%
Other Electronics	7%	10-35%
Chemicals/ Petrochemicals	7%	10-95%
General Industrial/ Manufacturing	5%	20-50%
Automotive	5%	25%
MEMS	4%	2-20%
OEM	4%	48-60%
Other	32%	5-85%

Source: BiGGAR Economics Ltd; n=43

4.5.11 Date of Joining the SSSF

- 25% of responding firms have been members since 1998 when the SSSF formed; and
- 18% joined in 2005, and 18% in 2004.

This suggests both that membership has offered benefits that have caused longstanding members to continue renewing their subscriptions, and that the network is dynamic, attracting over a third of current members in the last two years.

4.5.12 Reasons for Joining the SSSF

The most common reasons for joining the SSSF (Figure 4.6) were:

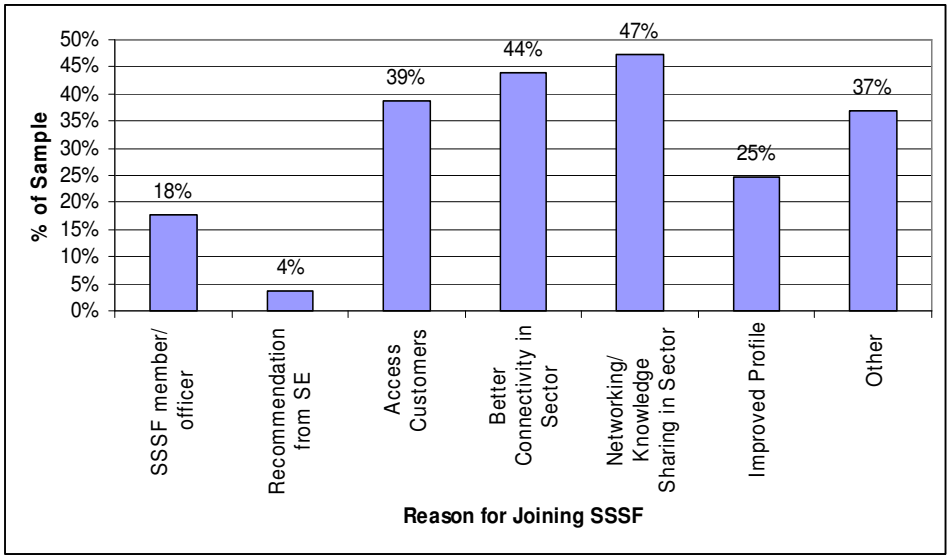
- networking/ sharing knowledge within the sector (47%);
- better connectivity within the sector (44%);
- better access to customers (39%); and
- improved profile through SSSF accreditation (25%).

Other reasons stated included:

- to take advantage of specific SSSF events/ services;

- positive word of mouth – typically a positive recommendation from an SSSF member;
- as a cost-effective marketing measure; and
- to support the local sector/ industry.

Figure 4.6 Reasons for Joining SSSF (% stating each Reason)



Source: BiGGAR Economics Ltd

Almost half of SSSF members are also members of other trade networks. Those mentioned were: JEMI (Joint Equipment and Materials Initiative), S2C2 (Scottish Society for Contamination Control), NMI (National Microelectronics Institute), Federation of Small Businesses, Scottish Optoelectronics Association, British Institute of Facilities Management, Institute of Civil Engineers and SEMI (the highest profile international semiconductors association).

5 OPERATIONAL REVIEW

This chapter reviews the operational performance of the SSSF through consideration of governance, inputs and expenditure, activities, and member feedback.

5.1 Governance

The SSSF is structured as, and follows business practices of, a private company. Anecdotal remarks gathered from a number of consultees and survey respondents suggest that the election of the current Chairman (August 2004) and the appointment of the current Managing Executive (April 2004) coincided with the beginning of a period of improved governance of the SSSF. This is because the current Board is viewed as proactive, more transparent and more engaged with its members than in previous years when there was more of an 'us and them' perception among members.

Board members are increasingly derived from a broad range of sub-sectors and bring a diverse range of skills and experiences to the table. They have tended to be drawn from the ranks of owner/ managers, rather than senior positions in multinational firms, possibly giving them a better insight into the needs of predominantly SME members.

While in the past some Board members served for several years, a commitment to two year terms (with re-election opportunities) now means a faster turnover of Board members which should ensure a regular influx of new ideas into the Board. While there is a risk that this 'churn' could lead to a lack of continuity at Board level, the opportunity for re-election mitigates this to an extent.

The Board is unified in its objective of creating business development opportunities for its members, and focuses most of its time on events that can achieve this. There is consensus that the Board should focus closely on core activities and not overextend itself by developing too many member events at the same time.

Board members are using their personal connections to the benefit of all SSSF members, for example in liaising with high level customers at wafer fabricators to arrange tabletop exhibitions.

That one Board Member is an SE employee, and that the SDI representative also attends Board meetings is very important in linking The SSSF and its members into wider initiatives and support.

The Managing Executive has had a significant impact since his appointment, proving very effective at organising events in particular, and implementing Board decisions in general. Communication with members is much improved, something which has effected higher member participation rates. All record keeping is now much more thorough, providing a detailed picture of activity within the network.

The relationship between Board and Managing Executive is a good one, and there are good checks and balances in place governing expenditure. Professionally audited accounts are now produced.

5.2 Inputs & Expenditure

5.2.1 Inputs

Membership fees provide £12,000 of funding per annum (2004-05, Table 5.2), with additional funding of £40,000 coming from SE. SE therefore provides approximately 76% of SSSF total income (2004-05). This implies a leverage ratio of 100:32 for SE funding – i.e. for every £1 of SE funding of SSSF, £0.32 is levered in from the private sector.

Other inputs unpriced to the SSSF are:

- Board Directors' time – Directors are not remunerated for attendance at Board meetings and other work undertaken on behalf of The SSSF. The value of this has been estimated in SEL's current semiconductor supplier support Board paper at £134,000, but it is accepted that this figure has not been arrived at through rigorous research;
- SDI – has made a significant contribution by supporting Scottish stands at SemiCon Europa and China tradeshows in recent years, as well as networking events attached to these. Some funding was also made available to members towards traveling expenses to international events. Funding of future SemiCon tradeshows is currently under review. SDI also assists on bespoke projects, for example, engaging its Moscow representative in research into the potential benefits of SSSF participation in a tradeshow in Moscow; and
- Other SE funded Supplier Development activities – the balance of the £100,000 MOET cluster semiconductor supplier development budget not funding The SSSF is available for use on other bespoke projects aimed at realising opportunities for semiconductor suppliers. Some of this work will directly benefit SSSF members, and the fruits of any findings will be disseminated through the network.

These inputs are not included in the value for money analysis conducted later in the report.

Income has varied considerably over the years according to SSSF accounts kept. Details of current and past income are recorded in Tables 5.1, 5.2 and 5.3. Statements of account for SSSF income and expenditure for 1998/99 and 1999/2000 could not be located. The SSSF has recorded an operational surplus in all but one year since 2000/01.

Table 5.1: SSSF Income and Expenditure, 2000-01 – 2004-05

Financial Year	Income (£)	Expenditure (£)	Surplus/ Deficit
1998/99	*N/A*	*N/A*	*N/A*
1999/00	*N/A*	*N/A*	*N/A*
2000/01	25,813	19,059	6,754
2001/02	64,763	24,606	40,157
2002/03	43,908	73,496	(29,588)
2003/04	49,231	44,139	5,092
2004/05[1]	52,598	37,605	14,993

Note[1]: Figures for 2004/05 relate to the 11 month 19 day period up to the change of status to limited company
Source: The SSSF

Table 5.2: SSSF Income and Expenditure, 2004/05

Component of Income	Income (£)	Component of Expenditure	Expenditure (£)
Members Fees Received	11,700	Management Costs	21,226
Members Fees due	200	Website Costs	1,081
Contribution from Scottish Enterprise	39,896	Exhibition Costs	8,007
Other Income	802	Masterclass	750
-	-	Networking Event	596
-	-	Other Costs (Management, Solicitors Fees, Insurance etc)	5,945
Total	***52,598***	***Total***	***37,605***

Source: The SSSF

Table 5.3: Scottish Enterprise Funding of the SSSF

Financial Year	SE Funding (£)
1998/99	50,000[1]
1999/00	50,000[1]
2000/01	6,810
2001/02	57,508
2002/03	22,150
2003/04	51,500
2004/05	39,896
Total	277,864

Note[1]:SEL Estimates, see paragraph below
Source: The SSSF/ SEL

Recorded information on SE funding of the SSSF was not available for 1998/99 and 1999/2000. A best estimate, provided by the SEL officer attached to the

SSSF project for several years, is of £50,000 in each of the first two years. This has been used in the value for money calculations. This suggests a total SE contribution to the SSSF network of £277,864, or just under £40,000 per year on average.

5.2.2 Expenditure

The SSSF costs about £40,000 on average to run per year, varying dependent on the level of activities supported. It is composed as follows:

- management (principally event organisation) and administration (including provision of accounts) - £16,000, equating to five days per month of time input by the Managing Executive and his bookkeeper;
- two annual supplier baseline updates - £8,000 per annum;
- remainder, principally network activities - £16,000.

Expenditure has varied considerably over the years according to SSSF accounts kept. Details of current and past expenditure are recorded in Tables 5.1 and 5.2.

5.3 Targets

While the SSSF has a small set of targets to meet for SE, it has a high degree of flexibility to develop activities which will best meet its objectives. These centre on generating business development opportunities for its members.

The targets set for the SSSF by SE in its Development Plan 2004/05 include:

- Theme 1 – Measurement – production of two SSSF membership baseline updates, covering member profile and performance; and
- Theme 2 – Networking, Links and Information sharing – monthly website update; two networking events; two tabletops (one which could be in Europe).

SSSF activities also contribute towards meeting the targets of the £100,000 semiconductor supplier development project within the MOET cluster. These targets have evolved over the years, and in 2004/05 were:

- active participants in cluster – 40;
- collaborative networks (through which collaborations between companies should produce economic returns) – 2;
- collaborative ventures – 2;
- new processes – 2;
- new products – 1; and
- businesses introduced to new international markets – 25.

The target for the current year 2005/06 has been reduced to two targets, being the first two of the above list.

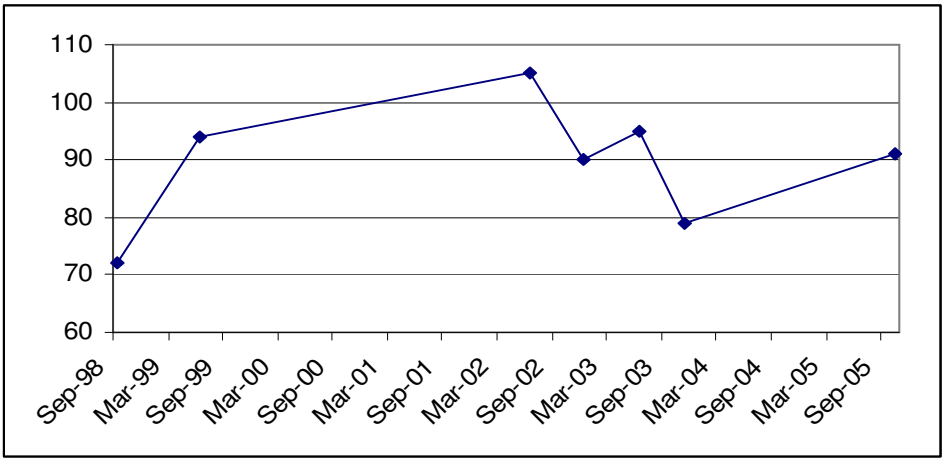
5.4 Performance

5.4.1 Membership

SSSF membership has fluctuated over the years according to SSSF baseline information (Figure 5.1). 72 members were achieved in September 1998, increasing to 105 in June 2002, before falling back to 79 in November 2003. Over the last two years membership has grown steadily, by 15% overall, to 91 members currently.

The SSSF Baseline Review of June 2005 defines 138 firms as involved in semiconductors in Scotland. According to these measures, therefore, the SSSF could be considered to have attracted the membership of 66% of semiconductor firms operating in Scotland.

Figure 5.1: Size of SSSF Membership, 1998-2005



Source: The SSSF

5.4.2 Tabletop Exhibitions

Since 2002, an average of two tabletops per year have been held in wafer fabricators located in the UK, Ireland and France. These are exhibitions which all SSSF members have the right to attend and exhibit on a stall of a fixed size. All employees of the fabricator are encouraged to attend the event, held over a full day at their premises. This means that SSSF members have access to people at all levels of the fabricator – from users on the factory floor through engineers, designers, marketers, the procurement team and heads of department, to the Chief Executive. This potentially creates many opportunities for SSSF members in terms of attaining new business, and is also valuable for the fabricator itself (see Chapter 6).

These have been well attended, ranging from 24 to 51 attending members:

- Atmel, England, October 2002, 44 SSSF member attendees;
- Intel, Ireland, February 2003, 44 SSSF member attendees;
- National Semiconductors, Scotland, September 2003, 45 SSSF member attendees;
- International Rectifiers, Wales, July 2004, 34 SSSF member attendees;

- National Semiconductors, Scotland, November 2004, 27 SSSF member attendees;
- ST Micro, France, January 2005, 24 SSSF member attendees; and
- Freescale, Scotland, August 2005, 51 SSSF member attendees.

The next tabletop is scheduled to take place at ST Micro in the south of France in early 2006. Negotiations have started on the possibility of holding three tabletops in the same week in Ireland.

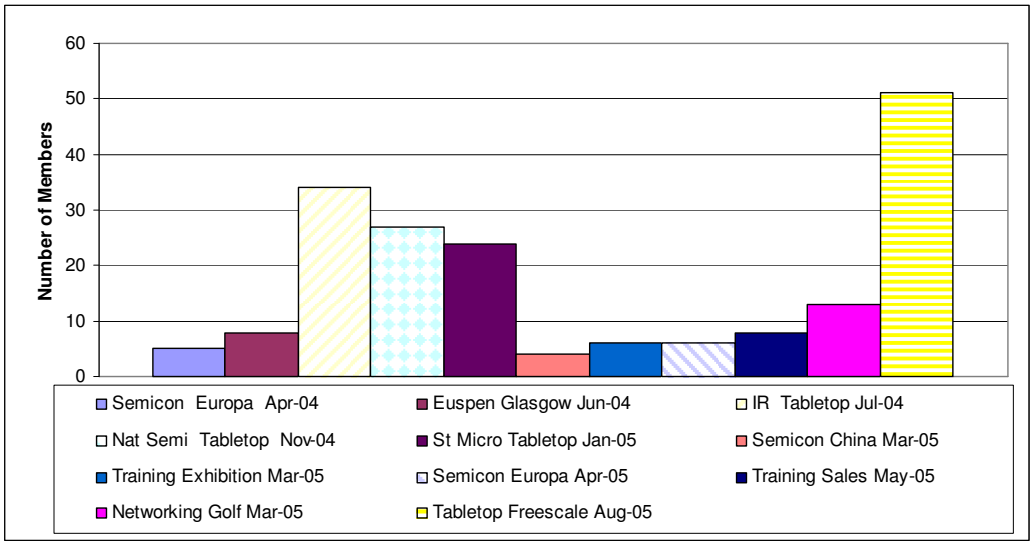
5.4.3 Other Activities

- SSSF stands at SemiCon Europa in 2004 and 2005 (with 4 and 6 members taking space on the SSSF stand) and at SemiCon China (4 members on the SSSF stand). The SemiCon shows are the major events in the global semiconductors calendar. The other major annual SemiCon shows are SemiCons West (USA), Korea, Japan and Taiwan. These are typical trade shows, where exhibitors pay for exhibition space, and thousands of delegates from the sector attend. SDI supported the SSSF stands at these SemiCon shows, and sharing space on the stalls makes it possible for smaller firms to attend the events which could be prohibitively expensive if done independently. Other SSSF members attend SemiCon Europa with their own stalls;
- networking events – these have included networking dinners on the eve of tabletop exhibitions which bring the members and employees from the hosting firm together informally, and a golf day (13 attendees), bowling night and go-karting evening. The new Managing Executive has been proactive in arranging these, and their frequency has risen;
- training events – in 2005, training events have been held in exhibiting at tradeshows (6 attendees) and sales (8 attendees). A recent insurance presentation was coupled with a networking event. Again, the frequency of these events has risen over the last two years;
- website – this has been improved over the years. In particular, a members' area has been developed in which SSSF members can interact, for example by posting and responding to potential business opportunities. Each SSSF member has a page on the website, and there is an effective search mechanism by which surfers are directed to members according to which key area they operate in. The reports bought in by the SSSF for the benefit of its members are also available for downloading within the members' area.

5.4.4 Participation

Since April 2004, good records have been kept on participation of members at SSSF events (Figure 5.2). SSSF records on the number of events held, and on participation at events for previous years are not so clear.

Figure 5.2: SSSF Member Participation, April 2004 - August 2005

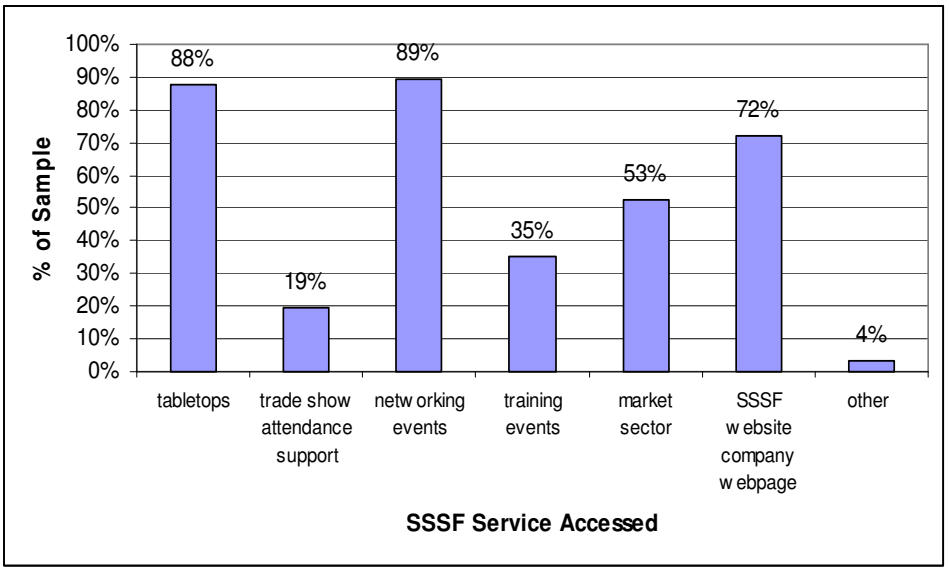


Source: The SSSF (legend reads left to right along rows for readers in black and white)

The members' survey confirmed high levels of participation among members since joining the SSSF (Figure 5.3, number of respondents 57 (all answered the question), giving margins of error of up to +/- 8% depending on the level of percentage recorded):

- 89% of members have attended a networking event, and of these the average number of networking events attended by the member per year was 2;
- 88% have attended a tabletop exhibition, of which 2 per year are attended on average. This means that those who have started attending tabletop events tend to attend every one that is organised;
- 72% stated that they use the SSSF website and have their firm's information on a webpage therein;
- 53% have used the market reports available through the SSSF website;
- 35% have attended a training event; and
- 19% have taken space on an SSSF stand at a SemiCon trade show, and/ or have accessed support (funded by SDI) to attend. One reason why this appears low is that many members (not quantified in SSSF statistics) attend SemiCon Europa with their own stall.

Figure 5.3 SSSF Activities/ Services Accessed



Source: BiGGAR Economics Ltd; n = 57

The vast majority of participating members (89%, out of 55 respondents) stated that their level of participation in activities had either been increasing (42%, margin of error +/- 8%) or remaining constant (47%, margin of error +/- 8%). Only 11% of members (margin of error +/- 5%) stated that their participation had been decreasing.

Reasons for changing levels of participation fell into eight main categories (Table 5.4). The most common comments were:

- participation was as high as possible given various constraints of firm size and firm/ individual workloads (particularly true of one or two people firms);
- participation in all SSSF services of use and relevance to their firm; and
- participation has increased because the quantity/ quality of SSSF services has increased. A number of these members specifically attributed this increase to new management at The SSSF.

Table 5.4: Reasons for Level of SSSF Participation

Category	Number of Comments	Percentage of Respondents
1. Firm participates as much as possible given staff and time constraints	12	21%
2. Satisfied with SSSF and take advantage of everything of relevance	10	18%
3. SSSF has improved volume/ quality of services/ events	7	12%
4. Participate a lot because firm is very pleased with SSSF service	6	11%
5. Firm is hoping to increase participation in future	4	7%
6. Semiconductors sector is decreasing in importance for firm	3	5%
7. Firm's Scottish operations are decreasing in size/ importance	2	4%
8. Other[16]	3	5%
No Answer	10	18%
Total	57	100%

Source: BiGGAR Economics Ltd

The above statistics on participation clearly enable the MOET cluster's semiconductor supplier development programme to meet its annual target of 40 active participants in the cluster, and half of its target of two collaborative networks.

Another point picked up in consultations with Board and members is that the optimal level of activities may be being approached – i.e. 2 or 3 tabletop exhibitions per year may be most appropriate given both internal resourcing (principally Director/ Managing Executive time) and members' time (every event takes members away from the office, which can be difficult particularly for directors of SMEs) constraints.

5.4.5 Usefulness of SSSF Services

Users rated the services of which they avail highly in terms of usefulness[17] to their businesses (Table 5.5):

- tabletop exhibitions – 87% rated them 'very' or 'quite' useful (out of 49 responses, margin of error of +/- 6%);
- networking events – 84% rated them 'very' or 'quite' useful (out of 38 responses, margin of error of +/- 9%);

[16] See Appendix C for details of answers categorised as 'other' in Question C2b.
[17] answering scale was very useful, quite useful, undecided, not very useful, not at all useful and don't know

- training events – 79% rated them 'very' or 'quite' useful (out of 19 responses, margin of error of +/- 16%);
- market/ sector reports – 71% rated them 'very' or 'quite' useful (out of 31 responses, margin of error of +/- 13%). However 29% were undecided or found the reports not very or not at all useful (margin of error of +/- 13%), due to their not being that relevant or not having time to read them, see below);
- trade show stand/ attendance support – 71% of a small group of users rated this 'very' or 'quite' useful (12 responses, margin of error of +/- 24%);
- SSSF website/ member web link – out of 37 responses, 62% rated this 'very' or 'quite' useful (margin of error +/- 12%), with 22% 'undecided' on its usefulness (margin of error +/- 10%).

The above statistics suggest high usefulness ratings even when the relatively high margins of error are considered. Anecdotal evidence from non-users reported above suggests that personal workload/ time commitments is a more common reason for non-attendance at events than because events are not considered useful. Overall these statistics, therefore, give a strong endorsement of the usefulness of the SSSF's package of activities – particularly of its tabletop and networking events.

Table 5.5: Rating the Usefulness of SSSF Activities/ Services

	No. Who Rated Useful-ness	Percentage of Users Who Rated Usefulness				
Activity/ Service		**Very**	**Quite**	**Undecided**	**Not Very**	**Not at All**
Tabletop Exhibitions	49	63%	24%	2%	10%	0%
Trade Show Attendance Support	12	58%	8%	8%	17%	8%
Networking Events	38	42%	42%	8%	8%	0%
Training Events	19	47%	32%	5%	16%	0%
Market/ Sector Reports	31	29%	42%	10%	13%	6%
SSSF Website Member Web link	37	16%	46%	22%	8%	8%

Source: BiGGAR Economics Ltd

Interviewees supported these ratings with comments on the usefulness of the SSSF services/ activities they had accessed (Table 5.6).

Table 5.6: Comments[18] on Usefulness of SSSF Services/ Activities

Comment Category	% of Total Comments
Tabletop Exhibitions	
• efficient and cost-effective way to meet new customers	64%
• good for networking with other firms	14%
• other[19]	22%
Total Number of Firms Who Commented (Total Comments)	35 (50)
Networking Events	
• particularly useful to SMEs	10%
• also have an impact on sales	17%
• networking events useful for building relationships/ gaining industry intelligence	48%
• other	24%
Total Number of Firms Who Commented (Total Comments)	23 (29)
Training Events	
• training events well-organized and useful e.g. sales event, web design, exhibiting	67%
• other	33%
Total Number of Firms Who Commented (Total Comments)	8 (9)
Market/ Sector Reports	
• reports are useful, well-read and cost effective	55%
• difficult to find time to read reports e.g. for SMEs	18%
• haven't accessed/ of no use	27%
Total Number of Firms Who Commented (Total Comments)	11 (11)
SSSF Website Member Web Link	
• difficult to quantify usefulness/ benefit of web link but happy with service	58%
• company info needs to be updated more regularly	16%
• other	26%
Total Number of Firms Who Commented (Total Comments)	16 (19)

Source: BiGGAR Economics Ltd

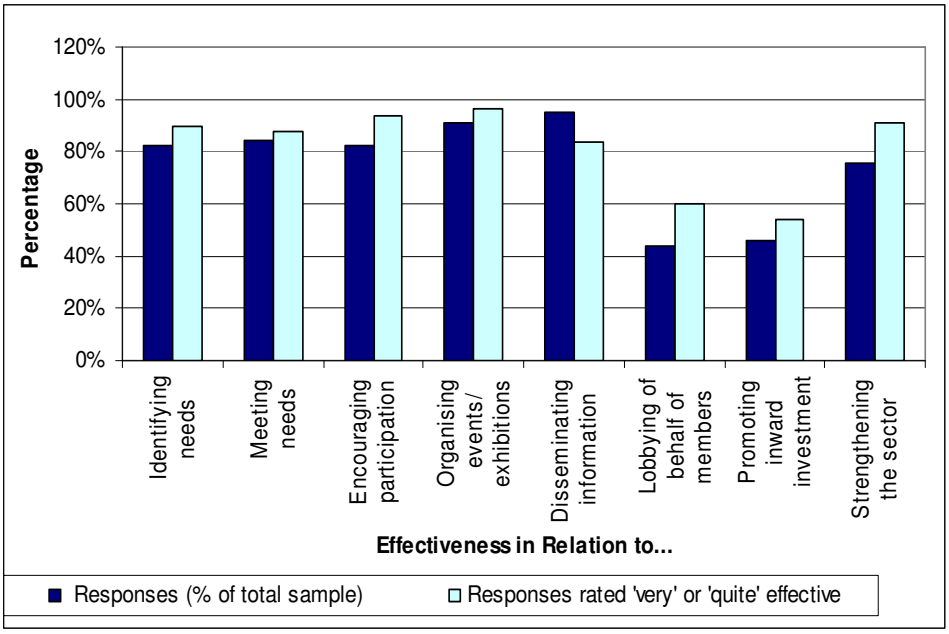
[18] 'Other' comments tended to be diverse and only mentioned by one or two interviewees.
[19] See Appendix C for details of answers categorised as 'other' in Question C3a.

5.4.6 Effectiveness of SSSF Executive and Board

Respondents rated the effectiveness[20] of the SSSF Managing Executive and Board highly (Figure 5.4) across a range of indicators:

- identifying members' needs - 89% replied 'very' or 'quite' effective (out of 47 respondents who provided an effectiveness rating, margin of error +/- 6%);
- meeting members' needs - 88% replied 'very' or 'quite' effective (out of 48 responses, margin of error +/- 6%);
- encouraging member participation - 94% replied 'very' or 'quite' effective (out of 47 responses, margin of error +/- 5%);
- organising events and/ or exhibitions - 96% replied 'very' or 'quite' effective (out of 52 responses, margin of error +/- 4%);
- disseminating information - 83% replied 'very' or 'quite' effective (out of 54 responses, margin of error +/- 6%);
- lobbying on behalf of its members - 60% replied 'very' or 'quite' effective (margin of error +/- 16%) and 32% were undecided (margin of error +/- 16%) out of a lower response rate of 25 interviewees who felt they could comment;
- promoting inward investment - 54% replied 'very' or 'quite' effective (margin of error +/- 16%) and 31% were undecided (margin of error +/- 15%), again out of a lower response rate of 26 interviewees who felt they could comment; and
- strengthening the Scottish semiconductor supplier sector - 91% replied 'very' or 'quite' effective (out of 43 responses, margin of error +/- 6%).

Figure 5.4 Effectiveness of SSSF Management and Board



Source: BiGGAR Economics Ltd

[20] answering scale was very effective, quite effective, undecided, not very effective, not at all effective and don't know

These findings clearly show that SSSF members believe that the SSSF Board and Managing Executive are operating effectively across a number of areas. The two areas where there was less consensus on the effectiveness of the Board/ Managing Executive and the role they were playing (more respondents answering 'don't know') were lobbying on behalf of members and promoting inward investment. The Board should consider disseminating more information to members on its activities in these areas, therefore.

A summary of comments made in support of these positive ratings is provided in Table 5.7.

Table 5.7 Comments[21] on Effectiveness of SSSF Management and Board

Comment Category	% of Total Comments
Identifying Members' Needs	
• SSSF Board and particularly the Managing Executive very good - pro-active, receptive, responsive	63%
• unsure/ difficult to judge/ irrelevant	26%
• prefer to see more services/ activities tailored to individual firms	11%
Total Number of Firms Who Commented (Total Comments)	19 (19)[1]
Meeting Members' Needs	
• good and/ or even better now because of introduction of new Managing Executive	57%
• becoming much less cliquey	14%
• other[22]	29%
Total Number of Firms Who Commented (Total Comments)	12 (14)
Encouraging member Participation	
• Managing Executive very pro-active and effective	80%
• other	20%
Total Number of Firms Who Commented (Total Comments)	10 (10)
Organising Events/ Exhibitions	
• Managing Executive particularly good in this respect	40%
• events generally well-organized and effective	53%
• other	7%
Total Number of Firms Who Commented (Total Comments)	14 (15)

[21] 'Other' comments tended to be diverse and only mentioned by one or two interviewees.
[22] See Appendix C for details of answers categorised as 'other' in Question C4b.

Comment Category	% of Total Comments
Disseminating Information	
• Managing Executive particularly effective in this respect	33%
• SSSF good generally in this respect	33%
• more information wanted on SSSF long-term strategy/ objectives	11%
• other	22%
Total Number of Firms Who Commented (Total Comments)	16 (18)
Lobbying on Behalf of Members	
• SSSF generally good in this respect e.g. understanding what is needed and communicating it to government	36%
• SSSF could do more in this respect	21%
• unsure/ no experience of this function	21%
• other	21%
Total Number of Firms Who Commented (Total Comments)	13 (15)
Promoting Inward Investment	
• SSSF good in this respect e.g. proactive and vocal	25%
• inward investment to Scotland is poor generally	42%
• SSSF could do more in this respect	25%
• Other	8%
Total Number of Firms Who Commented (Total Comments)	10 (12)
Strengthening the Scottish Semiconductor Supplier Sector	
• SSSF effective in this respect e.g. promoting sector unity and interaction between members	61%
• SMEs particularly benefit from SSSF's work	28%
• Other	11%
Total Number of Firms Who Commented (Total Comments)	15 (18)

Note[1]: Some firms gave more than one comment in answer to the question. This column reports the number of firms responding, with the total number of comments in parentheses
Source: BiGGAR Economics Ltd

5.4.7 Meeting Expectations

There was strong evidence in support of the statement 'my expectations of SSSF membership have been met' among 54 respondents:

- 57% strongly agreed (margin of error +/- 8%);
- 35% agreed (margin of error +/- 8%); and
- 8% were undecided (margin of error +/- 5%).

5.5 Overall Operational Performance

The evidence reported above supports the following conclusions on operational performance:

5.5.1 Effectiveness and Quality

There has been a marked improvement in performance since early 2004 which is being sustained. The following provide evidence that support the statement that the SSSF is operating effectively in meeting its objectives:

- rising membership – membership fell from over 100 members in the third quarter of 2002 to under 80 members in the first quarter of 2004. Since then it has grown steadily.
- increasing quantity of activities – more networking and training events have been held on average during the last two years than previously, and the number tabletop exhibitions has been maintained;
- rising levels of participation – 42% of SSSF members stated that their participation in SSSF activities has been increasing, while 11% stated that it has been decreasing;
- high ratings for usefulness of activities among users;
- high ratings for the effectiveness of the SSSF Board/ Managing Executive among members; and
- strong agreement that expectations of membership have been met (92% of 54 respondents).

5.5.2 Meeting Objectives

The current Managing Executive is keeping detailed records of all SSSF activities in terms of participating members and is updating the SSSF Member Baseline twice a year with information received from members. This has improved the monitoring and evaluation of the SSSF.

The SSSF is meeting the targets set for it by SE in its Development Plan 2004/05 of:

- Theme 1 – Measurement – two SSSF membership baseline updates are being produced by the Managing Executive currently; and
- Theme 2 – Networking, Links and Information sharing – the website is being updated monthly; at least two networking events and two tabletops (one which could be in Europe), are being held each year.

The SSSF is contributing towards the targets of the semiconductor supplier development project within the MOET cluster:

- active participants in cluster – 40 – clearly met on the basis that representatives of 51 members attended the Freescale tabletop in August 2005; and
- collaborative networks – the SSSF is one, meeting half the cluster target of two.

The evidence reported above (SSSF activities and member feedback) suggests that the SSSF is meeting its own objectives of:

- promoting and developing semiconductor supplier infrastructure (events for members);
- encouraging co-operation on matters of common interest and communicating and sharing industry knowledge (events for members and information dissemination);
- providing direction to SE on matters concerning the development of the semiconductor industry (feedback through SE representative on SSSF Board); and
- supporting, where possible, indigenous growth and development (events for members and information dissemination).

Other objectives are being partially met:

- acting as an influencing and lobbying body, assisting where appropriate in the promotion of Scotland and the UK in inward investment opportunities (SSSF Board members had a meeting with the Rt Hon Alasdair Darling MP, for example); and
- developing linkages with other industry bodies (cooperation occurs with other Scottish networks through the SSSF Chairman's role on the Scottish Technology Forum; and the Chairman of JEMI is an SSSF Board member).

The next chapter on impact provides evidence of SSSF performance in meeting its overriding objective of enabling its members to develop their businesses. The recommendations section comments on the appropriateness of current targets and monitoring arrangements.

5.5.3 Economy and Efficiency

The SSSF is currently operating economically and efficiently:

- economy – the procurement of necessary inputs with the minimum possible resources. The SSSF does not remunerate Directors, nor rent premises, administration costs are low, and the Managing Executive works part-time. Checks and balances on expenditure are appropriate, and complete accounts are kept and professionally audited;
- efficiency – the ratio of inputs to outputs. Money is well focused on the development of activities and the costs of their realisation; and
- process efficiency – effectiveness of management/ implementation. The decision-making and implementation process is efficient – the Board is committed and proactive, the Board/ Managing Executive relationship is an effective one, and the current Managing Executive has proved effective at organising events and disseminating information across the network.

6 IMPACT

This chapter provides estimates of the quantitative impact of the SSSF directly upon the Scottish economy during the evaluation period of 1998 to 2005. It then considers value for money to the public sector, the extent of wider member benefits, and benefits derived by Scottish based wafer fabricators from involvement with the SSSF.

6.1 Methodology

The survey and analysis methodology was designed to enable the estimation of the impact of the SSSF at the level of the Scottish economy in terms of net additional turnover, employment and gross value added (GVA – an indicator of wealth creation at a firm, sectoral or geographical area[23], estimated at the firm level as turnover minus the cost of bought in goods and services).

Table 6.1 below provides definitions of each of the key assumption terms used in estimating the quantitative impact of the SSSF.

Table 6.1: Assumptions Definition

Assumption	Definition
Additionality	The impact from an intervention that is in addition to the impact that would have occurred in its absence. The net additional impact of an intervention is therefore the impact of the intervention minus the estimated impact of the reference case (deadweight) scenario.
Deadweight	The quantification of outputs and outcomes under the reference case (i.e. the position in terms of target outputs and outcomes that would occur at the end of the project life if the project was not implemented).
Displacement	The proportion of project outputs/ outcomes accounted for by reduced outputs/ outcomes elsewhere in the target area.
Leakage	The proportion of outputs that benefit those outside of the programme/ project target area or group.
Substitution	This effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. It can be thought of as 'within firm' displacement
Multipliers	Further economic activity (jobs, expenditure or income) associated with additional local income and local supplier purchases.

Source: English Partnerships Additionality Guide, Second Edition, September 2004

[23] Measuring GVA and the Impact of Activities – Scottish Enterprise Strategy Directorate, June 2005

The survey questionnaire was designed in order to gather fieldwork data which could inform the extent of deadweight and displacement, and the level of income and supplier multipliers. The application of survey evidence in impact analysis is clearly preferable to the application of data from published sources, as it comes directly from the individual involved in the specific project being evaluated.

These were used to convert gross impacts into net impacts by taking account of the following:

- **deadweight**: the extent to which the impacts may have been achieved in the absence of SSSF membership (or would have been achieved later or on a smaller scale). This was estimated by respondents in survey questions E3 a);
- **leakage**: the extent to which the benefits of SSSF membership accrued to non-semiconductors firms or SSSF members who were meeting contracts won through the SSSF out of non-Scottish based operations. Leakage was assumed to be zero on the basis that benefits of SSSF membership do not leak out to non-semiconductor firms (there are no non semiconductor firms in the SSSF network), and impacts elicited relate to Scottish operations and contracts attributable to SSSF membership are fulfilled in Scotland with workers based in Scotland[24];
- **displacement**: the extent to which any outputs may have been realised at member firms at the expense of other businesses in the Scottish economy (i.e. if the firm had not benefited, would another Scottish based competitor have won the contract, and at the same level). This was derived from responses received to survey question E5 a) & b);
- **substitution**: it was assumed that there was no substitution effect – it is unlikely that firms would substitute one activity for another one as a result of membership of a public sector supported industry network;
- **supplier multiplier** – the wider impacts on the economy as a result of firms within the SSSF buying in supplies and services from other Scottish based firms. This was derived from responses received to survey questions E4 a) & b); and
- **income multiplier** – the spending of wages of individuals employed in companies within the SSSF in the wider Scottish economy. This was derived from responses to survey questions A4c (% of employees at Scottish operations located in Scotland) and E4 a) (% of turnover accounted for by wages/ salaries).

This methodology follows best practice guidance as set out in the English Partnerships Additionality Guide[25] which is focused on project appraisals. The impact methodology used is detailed in Table 6.2.

[24] Interviewees stated whether employment impacts occurred inside or outside Scotland, and the scale of turnover impacts reported appear to be at a level which would be met by the Scottish operation (i.e. its ability to fulfil the contract would not be constrained by a scarcity of labour/ capital available in Scotland).

[25] A Standard Approach to Assessing the Additional Impact of Projects, Second Edition – English Partnerships, Sept 2004

Table 6.2: Impact Methodology

Estimation Steps	***Source***
Additional Net Impact Calculation	
Phase 1: Aggregate gross direct turnover impact at members attributable to SSSF membership, and aggregate gross deadweight – the amount of this gross turnover impact that would have occurred at the firms anyway in the absence of SSSF membership. These two form the INTERVENTION and REFERENCE CASES.	
Gross direct turnover impact at Scottish operations (from SSSF membership) – INTERVENTION CASE	from Survey E2 a)
Gross deadweight – REFERENCE CASE	derived from Survey E3 a)
Phase 2: Apply the following factors to the INTERVENTION and REFERENCE CASE gross turnover impacts	
minus leakage (assumed = zero)	BEL assumption
= Gross direct turnover impact (Scottish based Semiconductor operations)	
minus displacement (amount of gross turnover that would have been taken by Scottish based competitors in the absence of SSSF membership)	from Survey E5 a) & b)
minus substitution (assumed = zero)	BEL assumption
= Net direct turnover impact at Scottish operations (from SSSF membership)	
multiplied by supplier multiplier (wider impact on the economy as a result of company purchases in Scottish supply chain)	from Survey E4 a) & b)
multiplied by income multiplier (wider impact on the economy as a result of spending of employees in Scotland)	from Survey A4 c) & E4 a)
= Total net turnover impact at Scottish operations	
Phase 3: Subtract REFERENCE CASE total net turnover impact from INTERVENTION CASE total net turnover impact	
= Net additional turnover impact from SSSF membership	
Phase 4: Net Additional Gross Value Added Calculation	
= Net additional turnover impact from SSSF membership	
multiplied by proportion of GVA to turnover (38%)	Scottish Executive Annual Business Statistics 2003, Electronics Industry 1998-2003
= Net additional Gross Value Added impact from SSSF membership	

Source: BiGGAR Economics Ltd

6.2 Quantifiable Benefits – Survey Findings

Points to make concerning the questions pertaining to economic development benefits are as follows:

- 31 different companies (54% of sample) reported an economic impact with respect to the benefits attributable to SSSF membership; 18 (32% of sample) reported no impact. The others in the survey who did not know or could not answer were assumed in this analysis not to have recorded an impact from the SSSF;
- an impact on turnover was identified by 29 companies (51% of sample, margin of error +/- 15%);
- Scottish based firms were slightly more likely to have identified an impact (54% - 13 out of 24 respondents) than non Scottish based firms (48% - 16 out of 33 respondents);
- of these 29 firms, 14 respondents could quantify an impact on turnover (25% of sample, margin of error +/- 21%);
- an impact on increased or safeguarded employment was identified by 12 companies, but only 2 could quantify this impact.

A number of reasons can be given for the number of respondents not in the position to quantify the economic impact, including:

- unavailability of information to the interviewee;
- information not accessible at time of interview;
- unwillingness to divulge such information;
- onerous nature of question; and
- concerning impact on turnover, given the small scale of turnover impacts quantified, it was very difficult for interviewees to align these with actual jobs created/ safeguarded.

The issue of a minority of respondents able to quantify benefits is a familiar one – a characteristic of most evaluations of SE activity of which BiGGAR Economics Ltd is aware. These include evaluations of *direct* business development type support to businesses where impact should be much easier for interviewees to quantify than on programmes, such as support for networks, where impacts are less direct and harder to quantify.

Indeed work undertaken for the SE network on learning from evaluations[26] has highlighted this as a concern. A turnover impact quantified by an interviewee in 25% of firms surveyed compares favourably with proportions recorded in previous evaluations of direct business development support programmes conducted by BiGGAR Economics Ltd for the SE network[27].

[26] see point 5, Gaps in capturing and valuing benefits, p7, in Learning from Evaluation – Frontline Consultants, 2004

[27] For example: Evaluation of SE Fife High Growth Start Up Programme – BiGGAR Economics Ltd (2003) – 25% of survey quantified a turnover impact; Evaluation of SE Tayside Expert Support Programme – BiGGAR Economics Ltd (2003) – 36%; and Evaluation of SE Grampian High Growth Start Up Programme – BiGGAR Economics Ltd (2005) – 17%

6.3 Turnover Impact

Of the 29 companies that reported a turnover impact, 14 were in a position to place a current value against this impact in their firm since joining the SSSF (aggregate impacts expressed in this analysis relate to the full period of the SSSF, 1998-2005 – though impacts at individual firms relate back only to the start of their SSSF membership).

Turnover impacts were quantified by interviewees either as proportions of current turnover, or aggregated up from individual impacts (e.g. a sales lead gained at an SSSF event that was converted into a sale, which may have then led to further sales to the same client). Table 6.3 below summarises the estimation of net additional turnover impact at the 14 firms which quantified a turnover impact, through the consideration of Intervention and Reference Cases.

This analysis suggests total net turnover impacts of £2.16 million under the SSSF intervention case, and £1.05 million under the reference (deadweight) case. This suggests:

- net additional turnover impact from SSSF membership quantified by 14 member firms during the period 1998 – 2005 of £1,106,779; and
- average net additional turnover impact per member firm (quantifying an impact) during the period 1998 – 2005 of £79,056.

The level of deadweight, applied on a case by case basis according to information provided by survey interviewees, ranged from 10% to 100%, with the total amount recorded for the 14 firms equivalent to £693,500, or 48%. Ten of the 14 firms suggested no deadweight – i.e. the impact attributed to SSSF membership would not have happened at all if they had not become SSSF members.

The level of displacement (again applied on a case by case basis) suggested by firms was 100% in four cases and 0% in ten cases. Because the 100% displacement was attached to very small impacts, the total displacement recorded by the 14 firms was very low (working out at 1.18% under the Intervention Case scenario).

Supplier and income multipliers were estimated on a case by case basis for firms responding, and then the average was applied to all firms in the impact analysis. This produced a supplier multiplier for SSSF members of 1.16, and an income multiplier of 1.31, at the level of the Scottish economy, making a combined multiplier of 1.52.

6.3.1 Benchmarking

Given that this analysis is based on only 14 cases, SEL provided proxy data gathered from four previous SEL evaluation studies[28] to run through the model. These proxy assumptions are detailed in Table 6.4 alongside the ones used in the impact analysis above.

[28] Evaluation of Internationalisation Support (2005), Evaluation of E-Business Support (2005), Evaluation of Innovation Support Programme (2004), Evaluation of Business Growth Initiative (2004)

Table 6.3: Turnover Impact Analysis, 1998-2005, for 14 Firms who Quantified an Impact

Variable	*Calculation*	*Intervention Case*	*Reference Case*	*Additionality*
A – Gross direct turnover impact	A	£1,436,000	£693,500	
B – Leakage (0%)	B = A x 0%	£0	£0	
C – Gross direct turnover impact (Scottish based Semiconductor operations)	C = A - B	£1,436,000	£693,500	
D – Displacement (firm by firm basis, equivalent to 1.18% under Intervention Case and 0.36% under Reference Case)	D = C x (1.18% or 0.36%)	£17,000[1]	£2,500[1]	
E – Substitution (0%)	E = C x 0%	£0	£0	
F – Net turnover impact	F = C – (D + E)	£1,419,000	£691,000	
G – Combined Multiplier of 1.52 (1.16 supplier multiplier & 1.31 income multiplier)	G = F x (1.52 – 1)	£738,307	£359,528	
H – Total net turnover impact	H = F + G	£2,157,307	£1,050,528	
I – Total net additional turnover impact	I = H (Intervention Case) – H (Reference Case)			£1,106,779
J – Average net additional turnover impact per firm	J = I / 14			£79,056

Note[1]: displacement amounts derived by applying the full displacement proportions of 1.183844% and 0.36049% respectively
Source: BiGGAR Economics Ltd

Table 6.4: Proxy Additionality Figures

Assumption	SSSF Impact	Other Impact Studies
Deadweight	48%[1]	53%
Leakage	0%	5%
Displacement	1%[1]	10%
Substitution	0%	0%
Combined Supplier/ Income Multiplier	1.52	1.62

Note[1]: Average figure, but deadweight and displacement applied on a case by case basis according to survey information. Displacement proportions derived in the SSSF Impact study were 1.18% for the Intervention Case and 0.36% for the Reference Case (see above)
Source: SEL, BiGGAR Economics Ltd

Applying these proxy figures to our gross turnover impact of £1,436,000 suggests a net additional turnover impact of £934,832. This is within £172,000 (or 16%) of the impact suggested by the survey evidence and assumptions used in the SSSF impact analysis, suggesting that the estimates are reasonable when considered next to impact estimates provided in other impact evaluations.

6.3.2 Grossing Up

The next stage is to gross up the net impact recorded across the 14 firms to the level of full SSSF membership (91 firms). Following discussion with SEL, we present two grossing up methodologies.

Methodology A:

- 29 surveyed firms stated that SSSF membership had led to a quantitative turnover impact for them. 14 of the firms were able to quantify this impact and the other 15 could not.
- the average net additional turnover impact per firm reported above for the 14 firms was applied to these 15 firms. We believe that this is a reasonable assumption, as there was no indication in interviews with people unable to state a turnover impact of the scale of this impact;
- 18 firms stated that they had recorded no turnover impact from SSSF membership (survey question E1 a)), and 10 firms did not know or could not answer. We believe that it is reasonable to assume that there was no quantifiable impact in these 10 cases;
- following these two steps gives an estimated total net additional impact for the survey sample of 57 firms;
- we then gross this up to the SSSF population of 91 by assuming that this scale of impact is experienced to the same extent among the non-surveyed firms. Again, we believe that this is a reasonable assumption made in the absence of information on these 34 non surveyed firms.

The margin of error on the application of this final step is of the order of +/- 24%, reflecting that raw data came from 14 respondents.

The issues relating to assumptions made in this methodology, therefore, are:

- does applying the average turnover impact quantified at 14 firms to the 15 firms which could not quantify an impact over or understate the actual impact at these firms?
- does assuming zero turnover impact at the 10 firms which could not answer whether or not there had been a turnover impact understate the actual impact at these firms?
- does applying the average turnover impact derived for the survey of 57 firms to the 34 non surveyed SSSF members over or understate the actual impact at these firms?

This approach to grossing up could under or overstate the net additional turnover impact of the SSSF.

Methodology B:

SEL is concerned about attributing an average turnover impact to the 15 firms which stated a turnover impact but could not quantify it. It prefers to focus only on firms surveyed which quantified an impact – that is the 14 firms which quantified an impact and the 18 firms which quantified a zero impact. An average net additional impact can then be estimated for these 32 firms and grossed up to the SSSF population of 91 firms.

The issues relating to assumptions made in this methodology are:

- by excluding consideration of the 15 firms that stated a turnover impact that they could not quantify, to what extent is aggregate impact understated?
- to what extent does applying the average turnover impact generated for the 32 firms over or understate the actual impact at the other 59 firms?

The attraction of this approach is that it is based solely on quantified turnover impacts. Its weakness is that it does treat the 26% of interviewed firms who stated a turnover impact that they could not quantify differently from those which could not answer the question or which did not participate in the survey. It is therefore likely that this approach understates the actual net additional turnover impact of the SSSF.

6.3.3 Aggregate Net Additional Turnover Impact – Methodology A

Applying this approach suggests that the net additional turnover impact across all SSSF firms over the period 1998-2005 could be of the order of £3.66 million (Table 6.5). This suggests an average additional net turnover impact per SSSF member during this period of £40,221.

Table 6.5: Turnover Impact, 1998-2005, Grossing Up Analysis – Methodology A

Variable	*Calculation*	*Value*
A – Additional Net Turnover Impact (based on 14 firms)		£1,106,779
B – Additional Net Turnover Impact (sample of 57 firms)	B = A x (29/14)	£2,292,614
C – Additional Net Turnover Impact (population of 91 firms)	C = B x (91/57)	£3,660,137
D – Average Additional Net Turnover Impact per SSSF Member	D = C/91	£40,221

Source: BiGGAR Economics Ltd

Applying the margin of error of +/- 24% suggests that the total net additional impact could lie between £2.78 million and £4.54 million.

It could be considered that this might underestimate the real impact as impacts from SSSF membership may have occurred at firms which subsequently relocated out of Scotland or went bankrupt, and were therefore not captured by the survey.

This suggests an average net additional turnover impact per year of £0.52 million during 1998-2005. Evidence gathered from survey respondents suggests that the impact will have been higher than this in the most recent years, and lower in the earlier years, however, because:

- proportions of firms have not been members since 1998, but only joined recently;
- participation rates are increasing on average; and
- impact will grow in many cases as years pass (e.g. a sale gained from a tabletop exhibition a few years ago turns into larger and expanded sales to the same client as the relationship develops).

In order to put this average figure in some degree of context, the turnover for all members of the SSSF, in consideration of their Scottish operations solely, was estimated to be £174 million currently. This underlines that the fact that for all its benefits, SSSF membership appears to have only a very small quantitative impact relative to the aggregate turnover of SSSF member firms.

6.3.4 Aggregate Net Additional Turnover Impact – Methodology B

Applying this approach suggests that the net additional turnover impact across all SSSF firms over the period 1998-2005 could be of the order of £3.15 million (Table 6.6). This suggests an average additional net turnover impact per SSSF member during this period of £34,587.

Table 6.6: Turnover Impact, 1998-2005, Grossing Up Analysis – Methodology B

Variable	*Calculation*	*Value*
A – Additional Net Turnover Impact (based on 14 firms)		£1,106,779
B – Additional Net Turnover Impact (based on 32 firms, the 14 firms quantifying an impact of >£0 and the 18 firms quantifying a £0 impact)	B = A + (18 x £0)	£1,106,779
D – Additional Net Turnover Impact (population of 91 firms)	B x (91/32)	£3,147,403
D – Average Additional Net Turnover Impact per SSSF Member	D = C/91	£34,587

Source: BiGGAR Economics Ltd

Grossing up from a sample of 32 to the population of 91 implies a margin of error of up to +/- 14%. This suggests that under this methodology the total net additional turnover impact could lie between £3.02 million and £3.59 million.

6.4 Net GVA Impact

In line with SE Guidance[29] it is necessary to assess the contribution to the economy in terms of GVA (Gross Value Added). From Annual Business Statistics[30] data for the electronics industry in 2003, the ratio between turnover and GVA in the electronics industry is 2.61 to 1.

Applying this ratio to net additional turnover impact of £3.66 million (under grossing up Methodology A) suggests that the increase in GVA at the level of the Scottish economy from SSSF membership benefits can be estimated to be £1.40 million for the period 1998-2005. This would equate to an average annual figure of £200,336.

Using the +/- 24% margin of error suggests that total additional net GVA from the SSSF during 1998-2005 could be between £1.07 million and £1.74 million.

Applying this approach to grossing up Methodology B would suggest net additional GVA of £1.21 million, giving an average annual additional net GVA of £172,272. Using the +/- 14% margin of error suggests that total additional net GVA from the SSSF during 1998-2005 could be between £1.04 million and £1.37 million.

6.5 Employment Impact

Of the 15 respondents (26% of sample) who stated that SSSF membership had led to an impact in terms of jobs created or safeguarded, only two could quantify this impact. The data from these two suggested 12 gross jobs created, although 9 of these jobs would have been created anyway, implying deadweight of 75%, and

[29] Measuring Gross Value Added and the Impact of Activities – Scottish Enterprise Strategy Directorate, April 2005

[30] Scottish Executive Annual Business Statistics 2003, Electronics Industry 1998-2003, http://www.scotland.gov.uk/Topics/Statistics/16170/2003ElecInd

only 3 additional gross jobs. A sample of two is not a sufficient basis on which to draw reasonable conclusions, however, so full impact analysis was not conducted on this survey evidence.

The number of net additional jobs created through the SSSF can be estimated using the net additional GVA impact for the SSSF of £1.40 million (grossing up Methodology A) derived above, however. Dividing this by average GVA per employee in the electronics sector[31] of £62,757, which is an average value derived for the years 1998-2003, provides an estimate of 22.4 net additional fte jobs created or safeguarded as a result of the SSSF over the period 1998-2005 in Scotland.

This suggests an average of 3.2 fte jobs created or safeguarded per year during 1998 to 2005 as a result of SSSF activities.

Applying the +/- 24% margin of error to this suggests that net additional employment created by the SSSF between 1998 and 2005 could lie between 17 and 28 net fte jobs in Scotland.

Applying this approach to grossing up Methodology B would suggest 19.2 net additional fte jobs created or safeguarded. This suggests an average of 2.8 fte jobs created or safeguarded per year during 1998 to 2005 as a result of SSSF activities.

Applying the +/- 14% margin of error to this suggests that net additional employment created by the SSSF between 1998 and 2005 could lie between 16.5 and 21.9 net fte jobs in Scotland.

6.6 Value for Money

Net Additional Turnover per £1,000 Public Sector Spend

The total cost to SE of supporting the SSSF during 1998-2005 was estimated at £277,864 in Chapter 5. Applying this to net additional turnover impact estimated at £3.66m under grossing up Methodology A suggests that net additional turnover per £1,000 spent by the public sector could be of the order of £13,172 (ranging between £10,011 and £16,334 when margin of error is considered).

Applying this to net additional turnover impact estimated at £3.15m under grossing up Methodology B suggests that net additional turnover per £1,000 spent by the public sector could be of the order of £11,327 (ranging between £9,741 and £12,913 when margin of error is considered).

Net Additional GVA per £1,000 Public Sector Spend

When this total cost is applied to the £1.40 million figure for net additional GVA under grossing up Methodology A, the net additional GVA generated per £1,000 spent by the public sector is estimated to be of the order of £5,047 (ranging between £3,836 and £6,258 when margin of error is considered).

When this total cost is applied to the £1.21 million figure for net additional GVA under grossing up Methodology B, the net additional GVA generated per £1,000 spent by the public sector is estimated to be of the order of £4,340 (ranging between £3,732 and £4,947 when margin of error is considered).

[31] Scottish Executive Annual Business Statistics 2003, Electronics Industry 1998-2003, http://www.scotland.gov.uk/Topics/Statistics/16170/2003ElecInd

Public Sector Spend per Net Additional fte Job Created/ Safeguarded

Applying the net additional employment impact of 22.4 ftes (grossing up Methodology A), suggests that the cost per net additional job created by the SSSF could be of the order of £12,435. Applying margin of error considerations suggests that this could range from £10,028 to £16,362.

If this is applied to the net additional employment impact of 19.2 ftes derived under grossing up Methodology B, the cost per net additional job created by the SSSF could be of the order of £14,460. Applying margin of error considerations suggests that this could range from £12,685 to £16,815.

Value for money provides a measure of effectiveness of the programme – i.e. the conversion of inputs into outputs and impacts. This evidence suggests reasonable value for money to the public sector for a project of this type whose focus has not been on activities that are likely to lead to business expansion and job creation per se, and which is in a sector which has declined significantly during the project period.

6.6.1 Benchmarking

It is difficult to put this figure in context, given the limited availability of directly comparable evaluations – network impact evaluations are a relatively new area of evaluation research, and methodologies pursued differ. Three studies referred to us for comparison did not include value for money estimation, and the fourth[32] yielded an estimated cost per job of £11,666. This was based on fieldwork undertaken with seven participating firms.

[32] Supply Chain Improvement Programme – O'Herlihy & Co Ltd, 2004

6.7 Quantitative Impact – Summary

The net additional impacts estimated for the SSSF network under grossing up Methodologies A and B are summarised in Table 6.7.

Table 6.7: Net Additional Impacts of the SSSF, 1998-2005, under Grossing Up Methodologies A & B

Variable	*Methodology A*	*Methodology B*
Net Additional Turnover Impact	£3,660,137	£3,147,403
Range of Net Additional Turnover Impact (after consideration of margin of error)	£2,781,704 to £4,538,570	£3,021,507 to £3,588,039
Average Net Additional Turnover Impact per Firm	£40,221	£34,587
Average Net Additional Turnover Impact per Year	£522,877	£449,629
Net Additional GVA Impact	£1,402,352	£1,205,901
Range of Net Additional GVA Impact (after consideration of margin of error)	£1,065,787 to £1,738,916	£1,037,075 to £1,374,728
Average Net Additional GVA Impact per Firm	£15,410	£13,252
Average Net Additional GVA Impact per Year	£200,336	£172,272
Net Additional fte Employment Impact	22.4	19.2
Range of Net Additional fte Employment Impact (after consideration of margin of error)	17.0 to 27.7	16.5 to 21.9
Average Net Additional fte Employment Impact per Firm	0.25	0.21
Average Net Additional fte Employment Impact per Year	3.19	2.75
Cost to the Public Sector per Net Additional fte Job	12,435	£14,460
Range of Cost to the Public Sector per Net Additional fte Job (after consideration of margin of error)	£10,028 to £16,362	£12,685 to £16,815

Source: BiGGAR Economics Ltd

6.8 Wider Impact

Members were asked about changes to their operations since joining the SSSF in terms of markets; products and services; people; innovation and change; strategy, planning and execution; finance and investment; and risk, reward and uncertainty, and about the importance of SSSF membership in attaining these (Appendix C).

Significant proportions of interviewees found it difficult to respond to these questions, and among those who did, it is not surprising that high proportions suggested that SSSF membership was of little importance at best in achieving

these changes – attending network events a few times a year is unlikely to provide a scale of benefits comparable to those that accrue from the day to day management and operations of the firm.

As such there is little evidence of wider economic project benefits in areas such as the following:

- encouragement of enterprise, including impacts on:
- decisions related to business start-up, growth and survival;
- the development of new products or processes; and
- investment in skills and learning;
- developing a knowledge-based economy, including:
- strengthening of the Scottish ICT industry;
- improving the knowledge base and potential for knowledge creation;
- improving the stock of skilled people through the generation of additional high quality jobs; and
- knowledge creation with commercial potential;
- promoting sustainable development, including:
- improving the skills base within Scotland.

It must be stressed, however, that none of the above are specific objectives of the SSSF, so the extent which one could expect them to show impacts in these areas is questionable. The two areas where the SSSF had been adjudged to have played a more important role were:

- accessing new UK markets (3%, 30% and 21% of respondents respectively rating the SSSF role as 'critical to', 'important to' and 'somewhat important to' achieving this); and
- increased links with Scottish suppliers (15%, 41% and 7% respectively).

The discussions with members, however, underlined recurring ways in which members were benefiting from their SSSF memberships:

- increased sales with new or existing customers – while only 14 respondents (25%) could definitively quantify a turnover impact, in terms of tying it back directly to a connection made at an SSSF event, 61% stated that attendance at SSSF events had in some way contributed to increased sales. This acknowledges that deal-making tends to be the lagged product of a prolonged period of marketing activity composed of many different approaches, one of which is SSSF networking events;
- cost reductions – attending tabletop exhibitions was a very cost effective way of conducting marketing. In the absence of these, marketing to the wafer fabricators could involve numerous individual trips, and for the smallest firms, getting a foot in the door at these firms would not be realistic in any case;
- market information – talking to other suppliers at networking events and tabletops yielded valuable information, for example on changing needs/

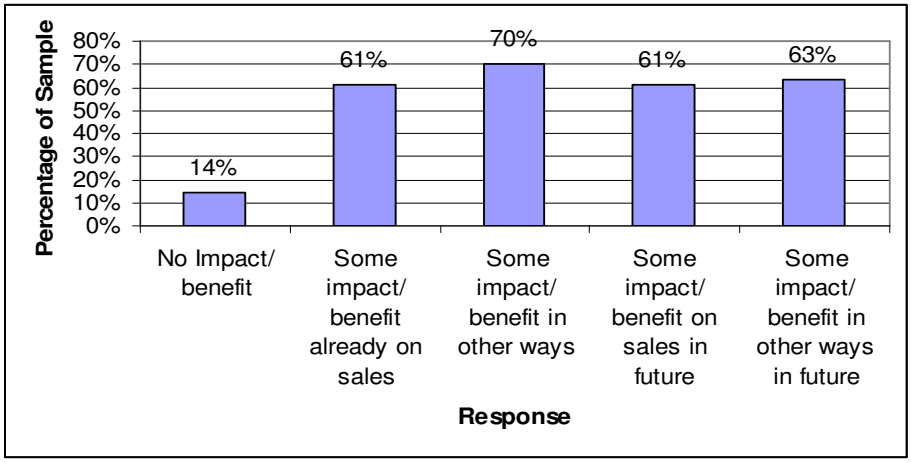
approaches at major customers and new developments/ opportunities in the sector;

- improved profile – by attending SSSF events and being included on the SSSF website, the profile of firms was being raised in ways it would not have been in the absence of The SSSF; and
- new suppliers – members have been benefiting by meeting other suppliers who can supply them with cheaper/ better goods and services.

Interviewers aggregated these benefits into sales-related (first bullet point above) and other (other four bullet points) qualitative impacts (Figure 6.1). This shows:

- sales related impact – experienced by 61% of respondents already, and likely to be experienced by 61% of respondents in the future;
- other impact – experienced by 70% of respondents already, and likely to be experienced by 63% of respondents in the future; and
- no impact – 14% of respondents.

Figure 6.1: Proportion of Respondents Deriving Qualitative Impacts from SSSF Membership



Source: BiGGAR Economics Ltd

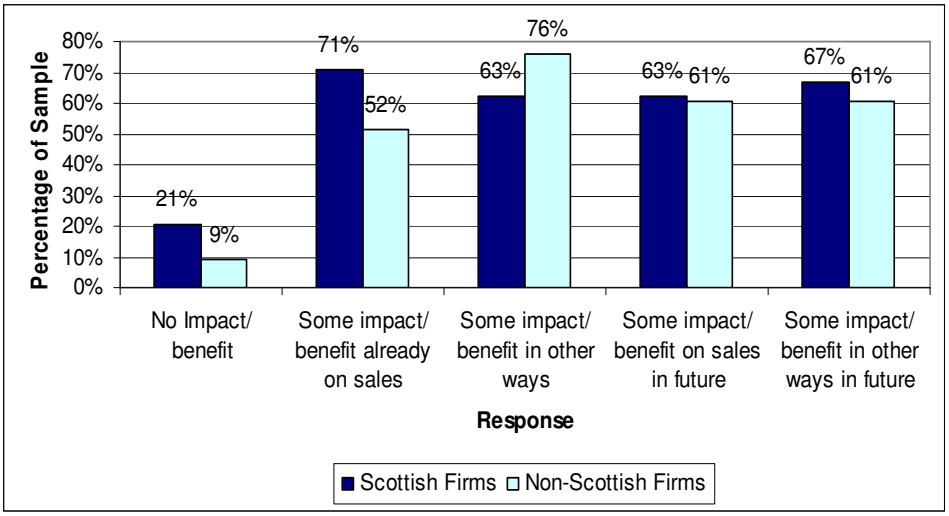
Analysis of wider benefits derived by location of company headquarters shows (Figure 6.2):

- Scottish headquartered firms are more likely to have already derived some sales related benefit, while non-Scottish headquartered are more likely to have already benefited in other ways; and
- Scottish headquartered firms are slightly more likely to experience future sales related and other wider impacts.

Analysis of wider benefits derived by number of employees in Scottish operations shows (Figure 6.3):

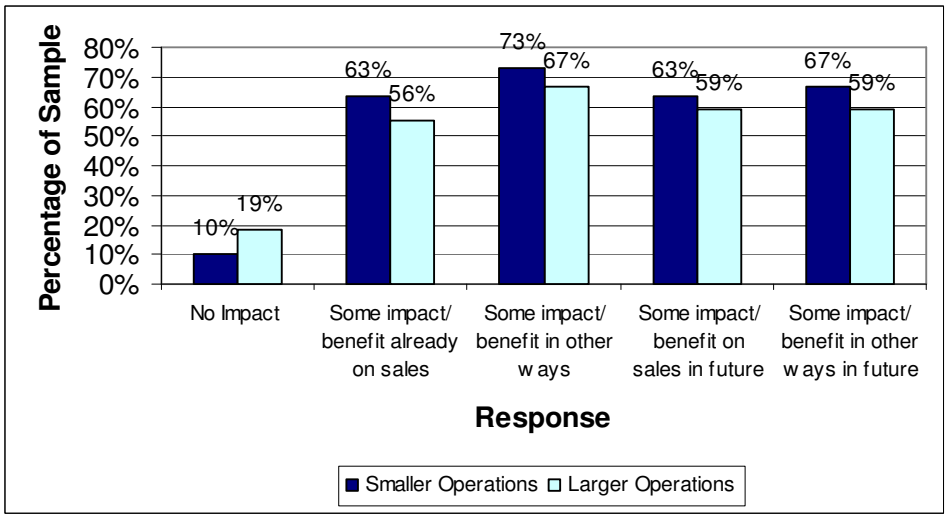
- firms with 5 or fewer employees in Scotland are more likely to have already derived both kinds of wider impact, and are more likely to experience these wider impacts in the future.

Figure 6.2 Wider Impacts, Scottish and Non-Scottish Headquartered Firms



Source: BiGGAR Economics Ltd

Figure 6.3 Wider Impacts, Employment in Scottish Operations



Source: BiGGAR Economics Ltd

The wider impacts mentioned above are the most common ones arising at SSSF member firms. In addition to these, mention was made of other wider benefits which included:

- better appreciation of how to do business internationally, and understanding of the support available (e.g. from SDI); and
- better sectoral linkages in general, including to academic institutions in certain cases – potentially of benefit in product development and recruitment.

6.9 Impact at Wafer Fabricators

The Managing Directors and one Purchasing Manager at the two major wafer fabricators in Scotland – Freescale and National Semiconductors – were consulted on the benefits which their firms had derived from the tabletop

exhibitions which they had hosted. Both were effusive in their praise of the tabletop exhibitions, supported by a stated willingness to host them again in the future at regular intervals – every one or two years.

6.9.1 Quantitative Impacts

Both firms stated that the impact in terms of cost savings as a result of contracts developed with suppliers attending the tabletops was significant:

- one stated it had captured 'hundreds of thousands of $US savings';
- the other suggested procurement savings of $US 300,000 – equivalent to savings of 12% in the cost division concerned;
- one quantified the outcomes of its tabletop as $US 100,000 of business to new customers and $US 200,000 of new business to existing customers;
- one decided to centralise and outsource its pump maintenance, following discussions at a tabletop, in a supplier contract worth £300,000 which has led to big cost savings;
- one changed its safety glove order as a result of its technicians and operatives trying the new product out at the tabletop. The new product is both better and slightly cheaper;
- one changed its strategy on clean wipes as a result of being informed of how it could do things better by a member; and
- significant cost savings of having suppliers exhibit their products on the company's premises, substituting for the need for a lot of individual trips out by the company procurement team.

6.9.2 Wider Impacts

These included:

- unparalleled opportunity to meet suppliers and talk in depth about products, processes, innovations, markets and other sectoral issues;
- great opportunity to 'see what's out there' in terms of new and emerging products and services, and new customers;
- valuable opportunity for product users within the company to meet suppliers;
- reconfirms the quality of the local supply chain;
- creates a great buzz within the company and the inclusion of all levels of staff is a positive thing; and
- very positive feedback received in-house from tabletop attendees.

7 THE FUTURE

This chapter outlines the growth forecasts for the semiconductors sector over the short to medium term. Survey results from members on opportunities and constraints posed for their own firm and other suppliers to the semiconductor industry, as well as future outlook in terms of turnover and employment, are then recorded. The chapter also reports SSSF member viewpoints on activities The SSSF could consider supporting in the future.

7.1 Outlook for Sector Globally

7.1.1 Broad Semiconductor Sector

Growth forecasts for the global semiconductors sector over the short-medium term are mixed, but there is some agreement that growth will be modest but positive until 2009. However, there is less optimism for the semiconductors equipment market.

With regard to semiconductors, Datamonitor reported the following industry trends:

- the global market grew by 26.6% in 2004 to a value of $210.6 billion, largely driven by demand for wireless communications chips;
- the growth in 2004 followed positive growth in 2003 of 13%, but the Compound Annual Growth Rate (CAGR) for 2000-2004 remained at 0% because of the fall of 31% experienced in 2001;
- the market in the Asia-Pacific region accounted for 54.8% of the global market; and
- integrated circuits account for the largest individual market segment at 89.7%, fuelled by growth in demand for personal computers and multimedia devices.

Although different sources vary in their outlook for the global semiconductor market over the short to medium term, they all report a positive picture for the industry going forward.

Using 2004 as the base year, Datamonitor[33] calculated that the global market for semiconductors is set to grow by 40.9% by 2009 with a CAGR of 7.1%.

In 2005 Gartner Dataquest[34] produced short-run quarterly forecasts for revenue growth in the global semiconductor market for the period 2005-2006. The data shows that revenue growth is expected to be 7.0% in 2005, increasing to 8.1% for 2006.

The Semiconductor Industry Association (SIA) forecasts a modest growth rate of 6% in the global semiconductors market for 2005. The SIA predicts that the principal drivers of demand for semiconductors in this period will be worldwide sales in personal computers, flash memory chips, mobile phones and consumer electronics products such as MP3 players.

[33] Datamonitor are a business information company specializing in industry analysis.
[34] Gartner Dataquest is an organisation that provides research and analysis on the global ICT industry.

The SIA projects that modest growth in the industry will continue until 2008 when the industry's CAGR will be 9.8%, slightly higher than the comparable figure of 7.1% forecast by Datamonitor.

Oxford Economic Forecasting provides longer-term growth forecasts for the period 2006-2010 for the semiconductors market in a range of countries including the UK (Table 7.1). It predicts positive growth in the UK Semiconductor industry and its competitors. The US is expected to enjoy the highest growth rate of 18%, although this remains low in comparison with the US industry's historic high of 56.7% average growth in the five-year period 1996-2000.

At 4.4% the UK industry's growth rate will be modest, but similar to that of Japan and France.

Table 7.1 Forecast Growth, Semiconductor Industry – UK and Others

Country	2006-2010
Germany	6.40%
France	4.40%
Italy	1.00%
UK	4.40%
US	18.00%
Japan	4.50%

Source: Oxford Economic Forecasting

Overall, although growth is expected in the semiconductors market in the medium term, this growth is expected to be relatively modest compared to historical highs. Gartner (2005) states that this is in part because two of the key applications for semi-conductors, PCs and mobile phones, have reached maturity in their product life cycles, and no new "killer applications" have been developed to replace them.

Demand for semiconductors is expected to be increasingly driven by individuals upgrading existing consumer products to digital versions e.g. digital cameras, mp3 players, and 3G mobile phones. In terms of geographical markets, China and India represent the largest growth markets for semiconductors because of two factors: the growth in demand for consumer goods in these countries and their location as the most important centres of production for consumer electronics.

7.1.2 Semiconductor Equipment Market

In May 2005 Datamonitor published an analysis of the global semiconductor equipment market. The market consists of the manufacture and sale of equipment used to manufacture semiconductors. The main findings of the report were as follows:

- the global semiconductor equipment sector was valued at $32.7 billion, an increase of 49.7% on the previous year;
- in 2009, the market is forecast to have a value of $32.1 billion, estimated to be a decrease of 1.8% on 2004;
- the largest sub-sector is wafer fab equipment, accounting for 86.5% of the total global market;

- the Asia-Pacific region accounts for 66.2% of the global market; and
- within the sector Applied Materials generates the largest revenues at 24.5% of total revenues in the sector.

Looking forward, the market's performance is set to improve considerably although its value should continue to decline with a CAGR of -0.4% to 2009. This implies an increasingly competitive environment for companies operating within this sector as they look to maintain or raise their market share.

In terms of the long-term future for the semiconductors equipment industry, Gartner[35] predicted in 2005 that by 2014 less than 10 equipment suppliers will satisfy over 80% of semiconductor manufacturing equipment demand. Given the conservative growth predictions for the semiconductor industry in the UK and globally, SE believes that the firms who supply the semiconductors sector should begin to exploit their latent capabilities that have multiple applications across a wide range of sectors e.g. biotechnology, medical devices, automotives etc. If supplier firms can achieve this then the cluster has the potential to diversify away from its sole reliance on the cyclical semiconductor market into high growth areas.

7.2 SSSF Members' Outlook

Members were asked what they thought the opportunities would be for their firm over the next five years. 50 interviewees responded with 98 comments falling into broadly six categories as summarised in Table 7.2 below. 27% of all comments received alluded to diversification into other sectors, which included MEMS, optoelectronics, renewables, instrumentation, and life sciences (biotechnology, pharmaceuticals, and medical devices) sectors.

Table 7.2 Opportunities for Firms over Next Five years

Comment Category	Number of Comments	% of All Comments
• diversification to other sectors	26	27
• export to other markets	24	24
• retain focus on semiconductors	14	14
• outlook pessimistic	8	8
• outlook optimistic	11	11
• other[36]	15	15

Source: BiGGAR Economics Ltd

They were also asked about the opportunities for suppliers to the semiconductor industry in general over the next five years. 37 interviewees gave 62 comments which were grouped into six types (Table 7.3). The two most commonly cited opportunities were diversification (21%) and increased exports (18%).

Of note was the 11% of comments alluding to other suppliers focussing more on R&D/ innovation, much more frequently mentioned than with respect to opportunities facing the firms themselves. This could suggest that spending on R&D/ innovation is viewed as a luxury for many of the members.

[35] Gartner (2005) Market Profile: Semiconductor Industry
[36] See Appendix C for details of answers categorised as 'other' in Question F1a.

Table 7.3 Opportunities for Other Suppliers Over Next Five Years

Comment Category	Number of Comments	% of All Comments
• diversification to other sectors	13	21
• export to other markets	11	18
• focus more on R&D/ innovation	7	11
• outlook pessimistic	8	13
• outlook optimistic	5	8
• other[37]	18	29

Source: BiGGAR Economics Ltd

Respondents were then asked to state some of the constraints to exploiting these opportunities. 36 members commented and 63 comments were recorded (Table 7.4). The most commonly mentioned constraint was the competitive pressures firms face both domestically and nationally.

Table 7.4 Constraints to Firm Exploiting Opportunities

Comment Category	Number of Comments	% of All Comments
• competitive pressures	14	22
• the state of inward investment into Scotland and the market generally	5	8
• lack of financial/ business support for Scottish firms/ SMEs	8	13
• barriers to market entry e.g. poor market information	8	13
• resource input difficulties e.g. labour, capital	9	14
• other[38]	19	30

Source: BiGGAR Economics Ltd

Finally, interviewees were asked to consider the constraints to other suppliers exploiting these opportunities. 39 members responded with 72 comments which were sorted into seven categories (Table 7.5). The five most commonly mentioned constraints were the same as those mentioned facing firms individually.

[37] See Appendix C for details of answers categorised as 'other' in Question F1b.
[38] See Appendix C for details of answers categorised as 'other' in Question F2a.

Table 7.5 Constraints to Other Suppliers Exploiting Opportunities

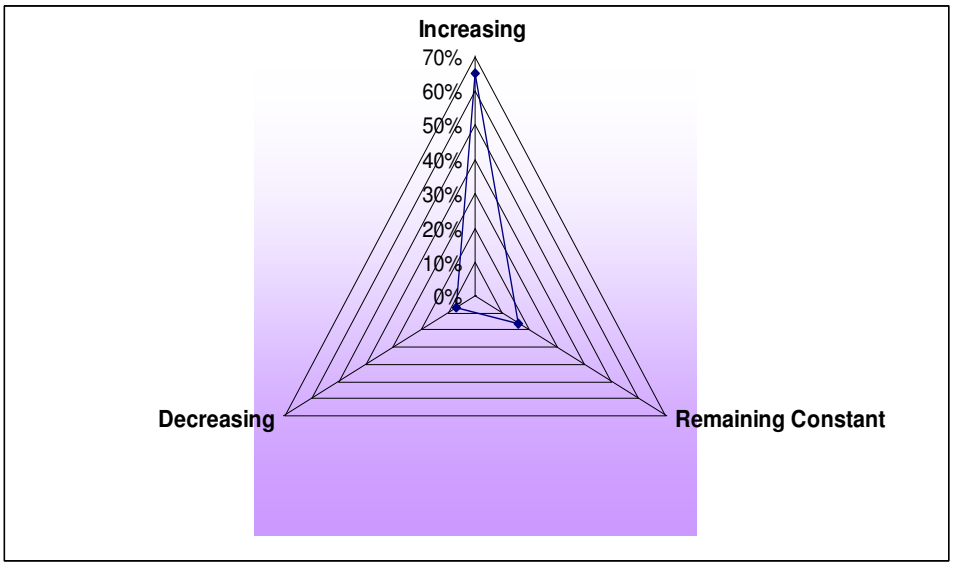
Comment Category	Number of Comments	% of All Comments
• the state of investment in Scotland and the market generally	25	35
• competitive pressures	19	26
• market barriers e.g. poor market information	5	7
• lack of financial/ business support for Scottish firms/ SMEs	3	4
• resource input difficulties e.g. labour, capital	3	4
• unsure/ don't know	3	4
• other[39]	14	19

Source: BiGGAR Economics Ltd

7.3 Turnover and Employment Outlook

Figure 7.1 and Figure 7.2 below summarise respondents' answers when asked to gauge the outlook for their in terms of turnover and employment over the next 5 years. The figures show a broadly optimistic outlook with almost 70% of firms believing turnover will increase over the next five years. This optimism does not transfer itself directly into employment forecast with only 45% believing employment will increase over the coming five years. Further details of the outlook for turnover and employment are provided in Appendix C.

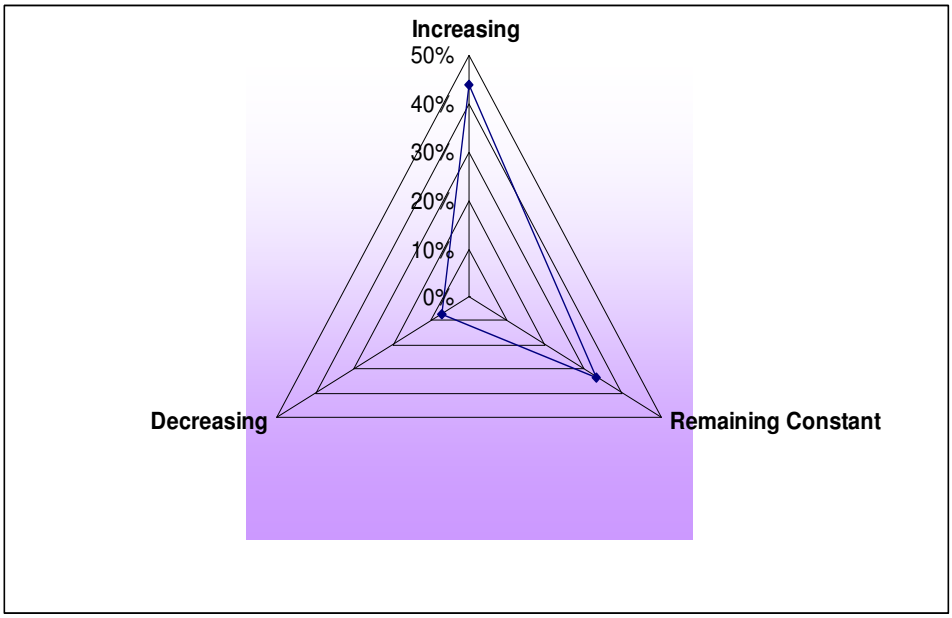
Figure 7.1: Turnover Outlook Over the Coming Five Years



Source: BiGGAR Economics Ltd

[39] See Appendix C for details of answers categorised as 'other' in Question F2b.

Figure 7.2: Employment Outlook Over the Coming Five Years



Source: BiGGAR Economics Ltd

Scottish headquartered firms are much more likely than non-Scottish headquartered firms to predict a rise in their turnover and employment over the next five years (Table 7.6)

Table 7.6 Outlook for Coming Five Years, Scottish and Non-Scottish Firms

	Increasing		Remaining Constant		Decreasing	
	% Scottish Firms	% Non-Scottish Firms	% Scottish Firms	% Non-Scottish Firms	% Scottish Firms	% Non-Scottish Firms
Turnover	75%	58%	13%	18%	4%	9%
Employment	63%	30%	25%	39%	4%	9%

Source: BiGGAR Economics Ltd

Smaller firms (1 – 5 employees) are slightly more likely than larger firms to predict a rise in their employment in Scotland over the next five years (Table 7.7).

Table 7.7 Outlook for Coming Five Years, Employees in Scottish Operations

	Increasing		Remaining Constant		Decreasing	
	% Smaller Operations	%Larger Operations	% Smaller Operations	%Larger Operations	% Smaller Operations	%Larger Operations
Turnover	67%	63%	17%	15%	7%	7%
Employment	43%	44%	40%	26%	7%	7%

Source: BiGGAR Economics Ltd

7.4 SSSF – Possible Future Activities

Interviewees were asked to comment on what activities the SSSF should consider offering to support its members' development in the next five years. Table 7.8 presents the categorised comments which can be summarised as follows:

- 18% of the comments encouraged the SSSF to adopt a more global outlook, promote the sector outside Scotland, and help members to export to external markets;
- 22% related to a wish for the SSSF to help members diversify and exploit their capabilities in other sectors;
- 17% encouraged the SSSF to increase the type and volume of events and marketing efforts; and
- 13% suggested more business/ financial support to members, in particular SMEs.

Table 7.8 Comments, Other SSSF Activities to Consider

Comment Category	Number of Comments	% of all Comments
• help members diversify into other sectors e.g. pharmaceuticals, medical devices, biotechnology, optics	11	14%
• increase marketing efforts for the sector e.g. more marketing at important industry shows	7	9%
• increase volume/ frequency/ type of events/ exhibitions	6	8%
• provide help/ advice/ support to members seeking to export	7	9%
• provide more business development support e.g. for entrepreneurs/ SMEs	6	8%
• develop more links/ collaborations with other networks/ industry groups within and outside Scotland	4	5%
• hold more events outside Scotland e.g. tabletops	4	5%
• provide more help for firms requiring financial support	4	5%
• adopt more global outlook - too focused on Scotland	3	4%
• promote more collaboration between members	3	4%
• promote more investment in Scotland / Scottish firms	3	4%
• hold more events in other sectors e.g. tabletops	2	3%
• other[40]	18	23%

Source: BiGGAR Economics Ltd

[40] See Appendix C for details of answers categorised as 'other' in Question F4.

7.5 Future Resourcing of the SSSF

Members were asked about the resourcing of the SSSF:

- 61% strongly agreed or agreed that it is adequately resourced (margin of error +/- 8%);
- 89% strongly agreed or agreed that it provides value for money (margin of error +/- 5%);
- 55% strongly agreed or agreed that they might be prepared to pay more annual membership fee (margin of error +/- 8%);
- non-Scottish headquartered firms were slightly more likely to agree that the network is adequately resourced than Scottish headquartered ones;
- non-Scottish headquartered firms were slightly more likely to agree that they would consider paying more for their membership (58% compared with 50%);
- firms with more than five employees in Scottish operations were more likely to agree that the network is adequately resourced than smaller firms; and
- smaller operations were more likely than larger operations to agree that they would consider paying more for their membership (60% compared with 48%).

While it is easy to state a willingness to pay higher fees, and another thing to actually do it when requested to, this is another clear indicator of the fact that members believe that SSSF membership represents good value for money.

When asked how much they would be prepared to pay, the answers tended to be of the order of £50 - £100. Individuals employed in larger firms suggested that as long as membership fees remain 'below the radar' (of the order of a few hundred pounds and under £500 or 'not at the level of JEMI fees'), fee increases would be acceptable. If they were of the order where a specific internal authorisation process was required for the spending, then they may think again about rejoining. Comments made relating to potential fee increases are summarised in Table 7.9.

Table 7.9 Comments on Willingness to Pay Potentially Higher Membership Fees

Category	Number of Responses	% of All Responses
willing to pay more conditional on seeing strategic goals of SSSF	2	9%
willing to pay more conditional on seeing increased services/ benefits	5	23%
pay increase must not place undue financial burden on SMEs	2	9%
reiterated willingness to pay more	2	9%
reiterated unwillingness to pay more	3	14%
any increase must be modest	4	18%
other[41]	4	18%

Source: BiGGAR Economics Ltd

[41] See Appendix C for details of answers categorised as 'other' in Question G3.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Performance

The SSSF is a successful project which is delivering real benefits to increasingly more engaged members through efficient and proactive management. It is delivered cost effectively, and at little cost to the public purse represents good value for money.

Member feedback is overwhelmingly positive among users on the usefulness of the SSSF events, and among members on the effectiveness of the current Board/ Managing Executive across a range of indicators including identifying and meeting member needs, and organising events. Membership and participation rates have been increasing during the last two years.

54% of members reported a quantitative impact as a result of SSSF membership – most commonly in improved turnover. Impact analysis suggests estimates, at the level of the Scottish economy, for:

- net additional turnover impact of £3.15 to 3.66 million (with these estimates subject to margins of error of +/- 14% and +/- 24% respectively);
- net additional GVA impact of £1.21 to £1.40 million (derived from this net additional turnover impact); and
- net additional employment impact of 19 to 22 ftes (derived from this net additional GVA impact).

This suggests a value for money for SE funding per net additional job of the order of £12,435 to £14,460, which is reasonable for a project in a declining sector and of a nature whose focus is not on activities that are aimed at job creation per se.

Qualitative impacts were recorded as follows:

- sales related – 61% of respondents stated that SSSF membership had been a constituent factor of the marketing effort that had led to sales conversions; and
- other – 70% of respondents reported other qualitative benefits of SSSF membership through: marketing cost savings, market information sharing, improved profile through SSSF accreditation, and cost savings through new suppliers.

Another important impact area is at the wafer fabricators located in Scotland that have held tabletop events. These reported significant cost and efficiency savings (running into several hundred thousand pounds each) as a result of contact initiated at these events. This is significant given the high level of interdependency between the remaining wafer fabricators and the Scottish semiconductor supplier base.

8.2 Dissemination/ Learning

The SSSF is an example of a successful industry network that is contributing well to SE objectives at low cost to SE. The governance model, effectiveness and proactivity of Board and Managing Executive represent best practice in network

management and are worth disseminating across the SE network in order to inform the development of other SE supported networks.

8.3 Future

The key point is that the SSSF does not require changing. It is a very successful project, and the Board's approach of slow, organic growth – and of not over-stretching itself – is the right one. The temptation to 'do more' with a successful project such as this should be resisted in case focus became lost and network achievements became compromised.

The resourcing level of the SSSF appears about right. It is approaching its limit in terms of the number of events that can be run per year, both from an in-house resourcing perspective (principally Board/ Managing Executive time) but also in terms of the time its members have available for attendance at events. Increased resourcing would therefore likely involve diminishing returns.

The current Board/ Managing Executive structure is working well and is the appropriate future structure for the SSSF. Alternative options can be easily discarded:

- of taking the network in-house under SE management – private sector efficiency, knowledge and drive would be lost to the project; and
- tendering out of the contract to run events – the SSSF operates economically and efficiently, and it is unlikely that another party could run the contract at similar cost without significant cuts in activities. Sectoral connectivity and knowledge would be lost, and a public sector exit strategy (see below) would not be appropriate.

The Board should continue to critically review its activities in terms of meeting members' needs, and guard against automatically repeating the same events. Continuing to expand tabletop exhibitions into wafer fabricators in other European countries is an activity which fits with members' recognition of a need to operate at a more international level.

The Board/ Managing Executive should prepare a formal strategy on where it plans to be in 5-10 years – a few members mentioned a desire to understand more about the strategic direction of the network. A Business Plan should also be developed to support the strategy (incorporating the exit strategy, see below). It is accepted, however, that the fast pace of change in the sector makes planning definitively beyond even the short-term difficult.

In conjunction with the strategy and planning exercise, the redefining of performance targets in consultation with SE could yield benefits in maintaining focus in the years ahead. The current Board and Managing Executive are proactive, motivated and well focused on objectives and targets, however, and detailed and up to date records are kept on SSSF activities. There is no obvious requirement, therefore, for a 'heavier' targeting and monitoring regime. SSSF activities and objectives remain relevant in terms of their contribution to strategic MOET cluster objectives, particularly under the themes of network development and internationalisation.

Having been through this detailed evaluation exercise which directly engaged such a high proportion (63%) of SSSF members, the SSSF could consider expanding the range of its baseline reviews (currently recording employment,

sector and activity) to capture data that could allow for the updating of the SSSF's impact.

Areas of opportunity which the SSSF could increasingly investigate over the next five years, in partnership with the SE MOET cluster team, include:

- development of activities in other sectors (MEMS, medical devices, pharmaceuticals, renewables, etc) which proportions of members are already engaged in;
- these could be explored in partnership with other networks (for example other Scottish Technology Forum members), indeed closer working with these networks can only be a good thing for the Scottish electronics sector;
- more signposting to members of other public sector support for business development – for example SE's global companies development programme (though companies referred would have to meet the relevant criteria) – and exploration of potential opportunities for members through the Global Scot network;
- associations with similar international networks could be explored where a common and specific interest was being served (for example penetration of the Asian market). This kind of link has been developed in the life sciences between Scotland and Maryland;
- establishing closer links to academic institutions and the Intermediary Technology Institutes (ITIs), whose outputs in the area of pre-competitive research could be of value to members, encouraging innovation in supplier firms (much of the responsibility for facilitating these links rests with the SE MOET cluster team); and
- as far as members are willing to share their knowledge with competitors, exploring the giving of seminars by member firms on pertinent issues at networking events.

The SSSF Board is already focusing on whether its name should be changed (is it still appropriate to include the word 'semiconductor' in its title given the range of sectors in which its members operate?) and this discussion should be pursued to a conclusion.

8.4 Future SE Intervention

The justification for continued public sector intervention must be made on the grounds of continuing market failure – that the SSSF is a successful project delivering real benefits at a reasonable cost is not of itself a justification for continued public sector funding.

There are grounds for believing that the principal market failures deriving from information deficiencies and risk have been diminishing as SSSF activities have evolved and increasingly brought about market adjustment:

- the scale of the cost to SME suppliers of finding out about market opportunities has reduced sharply from pre-SSSF days, as SSSF network membership has increasingly provided a low cost way of identifying market opportunities;

- the high barriers to entry of, and associated high risks of targeting, overseas markets of pre-SSSF days have been reduced. SSSF membership has increasingly offered lower risk and lower cost ways of accessing foreign markets through foreign tabletops and subsidised stands at trade shows, as well as through information sharing among members; and

- the initial uncertainty that a new trade network might not deliver benefits to members (and therefore not be supported by private funding initially) that meant that public sector funding was required has now disappeared. This report provides full information of the real benefits which SSSF membership has been bringing to members.

It is therefore recommended that SE prepare an exit strategy in close discussion with the Board. This should:

- be developed for the medium-term to give the Board plenty of time to prepare for future self-sustainability; and

- be phased, so that SE funding diminishes gradually (from the start of year 4 onwards, for example);

The phased, medium-term features of this proposed exit strategy are essential to ensure that the current operations and benefits of SSSF are not compromised in any way.

A goal of self-sustainability within 5 - 8 years should be achievable because:

- members already provide approximately 24% of SSSF income;

- the member survey provided a fair level of support for the idea of paying slightly more for their membership – the benefits of membership are priced at more than the costs of membership in most cases; and

- other potential avenues of increased income are realistic, for example:

- charging attendance fees for valued events such as tabletops (a common practice in other networks);

- expanding membership (anecdotal evidence from conversations with current non-members suggests that there could be a pool of former members who left the network because it was not benefiting them, and who do not now realise that the scale of benefits has increased in recent years); and

- exploring sponsorship opportunities.

The exit strategy agreement committing SE to continued funding of the SSSF over the medium term should contain targets, therefore, both related to continued performance and increased financial self-sustainability.

APPENDIX A – STUDY CONSULTEES

Name	Organisation
Derek Boyd	CEO, National Microelectronics Institute
Dr Ron Dickinson	Chief Executive, Freescale (Scotland)
Gerry Edwards	Chief Executive, National Semiconductors (Scotland)
Neil Francis	Director, SE MOET Cluster
Mark Hodgetts	SSSF Ltd Managing Executive
Ian Hyslop	Chairman, JEMI
John Kane	SSSF Project Officer, SE Lanarkshire; SSSF Ltd Board Member
Ron Leckie	Freelance Consultant and Global Scot
Alastair McGowan	Procurement Manager, National Semiconductors (Scotland)
Gary McMorrin	International Business Adviser, Scottish Development International
Mike Robertson	Executive, SE MOET Cluster
John Roseman	Chief Executive, Sematek; SSSF Ltd Chairman
Bert Saunders	CEO, SCS Electronics Exporters Group
Scott Wilson	Executive, SE MOET Cluster

APPENDIX B – MEMBER SURVEY QUESTIONNAIRE

EVALUATION OF SEMICONDUCTOR SUPPLIER DEVELOPMENT
QUESTIONNAIRE FOR INTERVIEWS WITH SSSF LTD MEMBER BUSINESSES

SECTION A: BACKGROUND/ HISTORICAL PERFORMANCE

Business Name	
Interviewee's name	
Position in company	
Interviewer	

A1 Confirm HQ Location	**Tick One**
Scotland	
Other UK	
Abroad	
Don't know	
No answer	
Not applicable	

A2	**Establishment in Scotland**	**Joining SSSF**
Year		
Don't know		
No answer		
Not applicable		

A3a Confirm Semiconductor Sub-Sectors	**Tick all that apply**	
Semiconductor plant construction/ maintenance		a
Equipment maintenance/ supply		b
Equipment manufacture		c
Equipment parts & ancillary equipment – maintenance/ supply		d
Materials supply		e
Technical services		f
Design		g
Other – specify		h
Don't know		I
No answer		j
Not applicable		k

A3b Other Sectors Served	**% of Turnover**	
Semiconductors sector (above)		a
Other – specify		b
Other – specify		c
Other - specify		d
Other – specify		e
Other - specify		f
Other – specify		g
	100%	
Don't know		h
No answer		I
Not applicable		j

A3c Considering the next 3-5 years, is your exposure to the semiconductor sector going to:

	Tick One	
Increase		a
Remain Constant		b
Decrease		c
Don't know		d
No answer		e
Not applicable		f

A4a Current Employment/ Turnover/ Profit

	Year Ending	Employment (FTE)	Turnover (£)	Profit (£)	Don't know	No answer	Not applicable
	a	B	c	d	e	f	g
Group							
Scottish Operations							

A4b What proportion of current turnover generated from Scottish operations comes from the following geographic markets?

	Turnover (%)	
Scotland		a
UK (excluding Scotland)		b
Exports		c
Don't know		d
No answer		e
Not applicable		f

A4c Current Employment (Scottish operations)

Employee Location	%	Number	Don't know	No answer	Not applicable
	a	b	c	d	e
Scotland					
Elsewhere					
	100%				

A4d What is the approximate occupational breakdown of your firm's employment in Scotland?

Employment by Occupation	%	
Managerial/ senior		a
Professional/ technical		b
Skilled trades		c
Sales		d
Admin		e
Semi/ unskilled		f
	100%	
Don't know		g
No answer		h
Not applicable		i

A5a Company performance in Scotland since 1998 (numbers or as % of 2005). Put NA in boxes for years before firm existed.

	1998	1999	2000	2001	2002	2003	2004
Employment							
Don't know							
No answer							
Turnover							
Don't know							
No answer							
of which Exports							
Don't know							
No answer							
Profitability							
Don't know							
No answer							

A5b Comment on reasons for company performance since 1998

Comment	No Comment (Tick)

Section B – Reasons for Joining SSSF Ltd

B1 What were your reasons for joining SSSF Ltd?

	Tick all that apply	
Recommendation from an SSSF member/ officer		a
Recommendation from SE		b
Access to customers		c
Better connectivity within sector		d
Networking/ knowledge sharing within sector		e
Improved profile through SSSF accreditation		f
Other (specify)		g
Don't know		h
No answer		i
Not applicable		j

Section C – Services/ Management Process

C1 Which SSSF Ltd network services/ activities have you accessed?

	Tick all that apply	Total Number (per year)	
Tabletop exhibitions			a
Trade show attendance support			b
Networking events			c
Training events			d
Market/ sector reports			e
SSSF website company webpage			f
Other, specify:			g
Don't know			h
No answer			i
Not applicable			j

C2a Has your participation in SSSF activities been:

	Tick One	
Increasing		a
Remaining Constant		b
Decreasing		c
Don't know		d
No answer		e
Not applicable		f

C2b Comment on reasons for this pattern of participation

Comment	No Comment (Tick)

C3a How would you rate the usefulness to your business of the following SSSF network activities/ services accessed? (ONLY ask for activities mentioned in C1)

	1. Very	2. Quite	3. Undecided	4. Not very	5. Not at all	6. Don't Know	7. No Answer	8. Not Applicable	
Tabletop exhibitions									a
SSSF Trade show support									b
Networking events									c
Training events									d
Market/ sector reports									e
SSSF website member weblink									f
Other, specify:									g

C3b Comment on the usefulness of SSSF network activities/ services:

	Comment	No Comment (Tick)	
Tabletop exhibitions			a
Trade show attendance support			b
Networking events			c
Training events			d
Market/ sector reports			e
SSSF website company webpage			f
Other, specify:			g

C4a How effective is the SSSF Ltd network management executive and Board in relation to:

	1. Very	2. Quite	3. Undecided	4. Not very	5. Not at all	6. Don't know	7. No Answer	8. Not Applicable	
Identifying member needs									a
Meeting member needs									b
Encouraging member participation									c
Organising events/ exhibitions									d
Disseminating information									e
Lobbying on behalf of members									f
Promoting inward investment									g
Strengthening the Scottish Semiconductor Supplier Sector									h

4b Comment on the effectiveness is the SSSF network management executive and Board in relation to:

	Comment	No Comment (Tick)	
Identifying member needs			a
Meeting member needs			b
Encouraging member participation			c
Organising events/ exhibitions			d
Disseminating information			e
Lobbying on behalf of members			f
Promoting inward investment			g
Strengthening the Scottish Semiconductor Supplier Sector			h

Section D – Economic Development Benefits – Qualitative

D1 Can you confirm which of the following have occurred since joining the SSSF?

How important was the SSSF in achieving this? 1 Critical to achieving; 2 Important; 3 Somewhat important; 4 Of little importance; 5 Not applicable/ irrelevant

	Code Yes = 1 No = 2 Don't know = 3 No Answer = 4 Not applicable = 5	**If YES, No/ % /scale** Don't know = DK No Answer = NO	**SSSF Role 1-5** Don't know = DK No Answer = NO	**Comment**	
Markets					
Accessed new UK markets (No.)					a
Accessed new international markets (No.)					b
Improved market share in core business (%)					c
Diversified into new business areas (No.)					d
Products and services					
Developed new or improved products or services (No.)					e
Created new products or services based on R&D (No.)					f
People					
Improved attraction, retention or development of key people (scale 1-5)*					g
Creation of new R&D posts (No.)					h
Innovation and Change					
Development of new technologies (No.)					i
Patent applications (No.)					j
Licensing of new technology (No.)					k
Create research links with Scottish universities or firms (No.)					l
Increased R & D spend (%)					m
Increased links with Scottish suppliers (No.)					n
***1= very improved; 2= improved; 3= somewhat improved; 4= little improvement; 5= Not applicable/ Irrelevant**					

	Code Yes = 1 No = 2 Don't know = 3 No Answer = 4 Not applicable = 5	**If YES, No/ % /scale** Don't know = DK No Answer = NO	**SSSF Role 1-5** Don't know = DK No Answer = NO	**Comment**	
Strategy, Planning and Execution					
Improved business planning (scale 1-5)					o
Improved corporate governance (scale 1-5)					p
Finance and Investment					
Improved access to finance and investment (scale 1-5)					q
Improved efficiency – cost reduction (%)					r
Risk, Reward and Uncertainty					
Improved risk management (scale 1-5)					s
other (specify)					
					t
					u
					v
					w

***1= very improved; 2= improved; 3= somewhat improved; 4= little improvement; 5= Not applicable/ Irrelevant**

D2 BiGGAR Economics Ltd Fill-in Box, on impact as a result of SSSF membership following above discussions on qualitative impacts:

Impact/ Benefit from SSSF Membership – To Date and Future	**Tick Those that Apply**	
No impact/ benefit		a
Some impact/ benefit already on sales – networking through SSSF has played a part in overall marketing effort in securing sales with new/ existing customers		b
Some impact/ benefit in other ways – e.g. new suppliers, better customer/ competitor/ market/ opportunity understanding, working links with others, higher profile		c
Some impact/ benefit on sales likely in future		d
Some impact/ benefit in other ways likely in future		e

Section E – Economic Development Benefits – Quantitative

E1 With respect to the benefits attributable to SSSF Ltd membership which you've just mentioned, have they resulted in:

	Yes	No	Don't Know	No Answer	N/A	
a) increased turnover?						a
b) increased/ safeguarded employment?						b
c) increased profitability?						c
d) cost reductions						d

E2 For these benefits, what is their current value (Note: £/ no. value OR as a % of current (A4a))

	£/ No.	%	Don't Know	No Answer	N/A	
a) increased turnover?						a
b) 1) increased/ safeguarded employment?						b 1
b) 2) increased/ safeguarded employment? IF NOT LOCATED IN SCOTLAND						b 2
c) increased profitability?						c
d) cost reductions						d

E3 ADDITIONALITY. (For each of the impacts above answered YES). Considering these impacts, what proportion of the impact is directly attributable to SSSF membership?

Note to interviewer: 100% = would not have happened at all without SSSF membership; 99%-1% = partial additionality: SSSF membership either speeded up realisation of impacts or led to a larger scale of benefit than would have been the case without SSSF.

	% Additionality	Comment	
a) increased turnover?			a
b) increased/ safeguarded employment?			b
c) increased profitability?			c
d) cost reductions			d

E4 SUPPLIES

a) What proportion of current turnover is accounted for by:

	%	Don't Know	No Answer	Not Applicable	
bought in goods and services	**%**				a
wages/ salaries	**%**				b

b) What proportion of bought in goods and services (0- 100%) are sourced in Scotland:

	%	Don't Know	No Answer	Not Applicable
proportion	**%**			

E5 DISPLACEMENT

a) If you hadn't joined the SSSF and derived these turnover benefits, what proportion of them (0-100%) would have been taken by your competitors?

	%	Don't Know	No Answer	Not Applicable
proportion	**%**			

b) And what proportion of these (0-100%) would have been taken by competitors based in Scotland?

	%	Don't Know	No Answer	Not Applicable
proportion	**%**			

E6a For each of the impacts above answered YES, has the scale of quantifiable impact been increasing, remaining constant, or decreasing? (TICK ONE IN EACH ROW)

	Increasing	**Remaining Constant**	**Decreasing**	**Don't Know**	**No Answer**	**Not Applicable**	
a) turnover							a
b) employment							b
c) profitability							c
d) cost reductions							d

E6b Comment on reasons for trend

Comment	**No Comment (Tick)**

Section F – Future

F1a What are the opportunities for your firm over the next 5 years?

Comment	No Comment (Tick)

F1b What are the opportunities for other suppliers to the semiconductors industry over the next 5 years?

Comment	No Comment (Tick)

F2a What are the constraints to your firm's exploiting of these opportunities?

Comment	No Comment (Tick)

F2b What are the constraints to other suppliers to the semiconductors industry exploiting these opportunities?

Comment	No Comment (Tick)

F3a What is the outlook for your firm in Scotland in terms of turnover and employment over the next 5 years? (TICK ONE IN EACH ROW)

	Increasing	Remaining Constant	Decreasing	Don't Know	No Answer	Not Applicable	
a) turnover							a
b) employment							b
c) profitability							c

F3b Comment

Comment	No Comment (Tick)

F4 Are there any other services/ activities which SSSF Ltd should consider organising to support the development of its members in the next 5 years?

Yes, Comment	No	Don't Know	No Answer

Section G – SSSF Ltd Membership, SE and Other Networks

G1 Do you have any other involvement with the SE network?

	Tick One
Yes	
No	
If yes, nature of involvement:	

G2 On a scale of 1 to 5 where 1 is strongly agree, 3 is undecided and 5 is strongly disagree, please respond to the following statements:

	1. Strongly Agree	2. Agree	3. Undecided	4. Disagree	5. Strongly Disagree	6. Don't know	7. No Answer	8. N/A	
My expectations of SSSF Ltd membership have been met									a
The SSSF network is adequately resourced									b
SSSF Membership has provided value for money									c
We would consider paying more for SSSF Ltd membership									d

G3 If you would consider paying more for SSSF Ltd membership, how much would you be prepared to pay?

	£	Not Sure	No Answer	Comment	No Comment (Tick)	
Currently Pay						a
Prepared to Pay						b

G4 If you are a member of any other industry networks/ organisations, what does the SSSF do well and less well in comparison? (NAME or TICK)

If member: Name(s) of Networks	Not a Member	Not Sure	No Answer

Comment	No Comment (Tick)

G5 Do you have any further comments on any issue related to SSSF Ltd membership or the semiconductors sector?

Comment	No Comment (Tick)

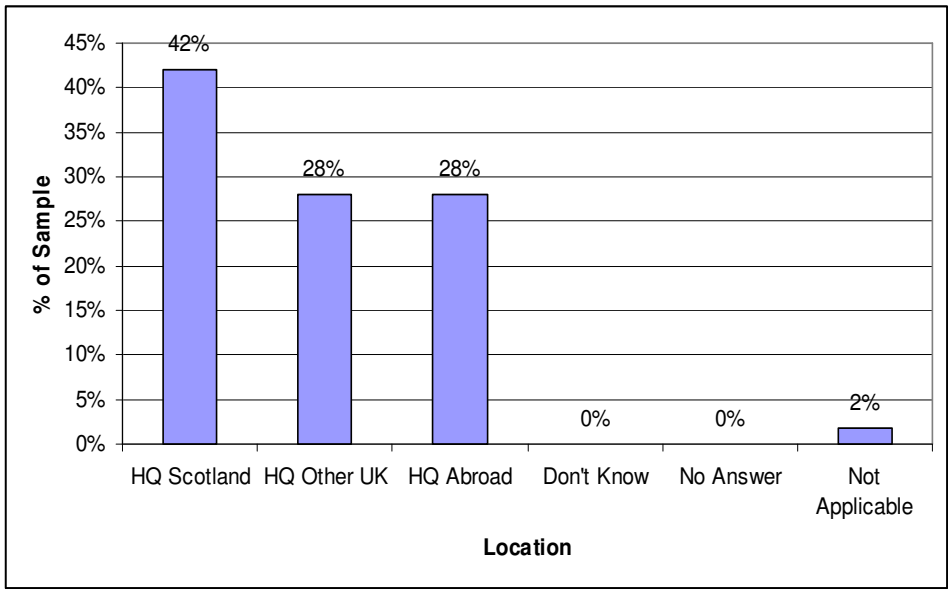
Thank and Close

APPENDIX C – MEMBER SURVEY FINDINGS

This Appendix provides a full record of responses received from members to the questionnaire through face-to-face and telephone interview.

Figure 0.1 shows that the majority (42%) of respondents had their main headquarters in Scotland. The next most common locations for respondents' head offices were 'abroad' and 'other UK' at 28%.

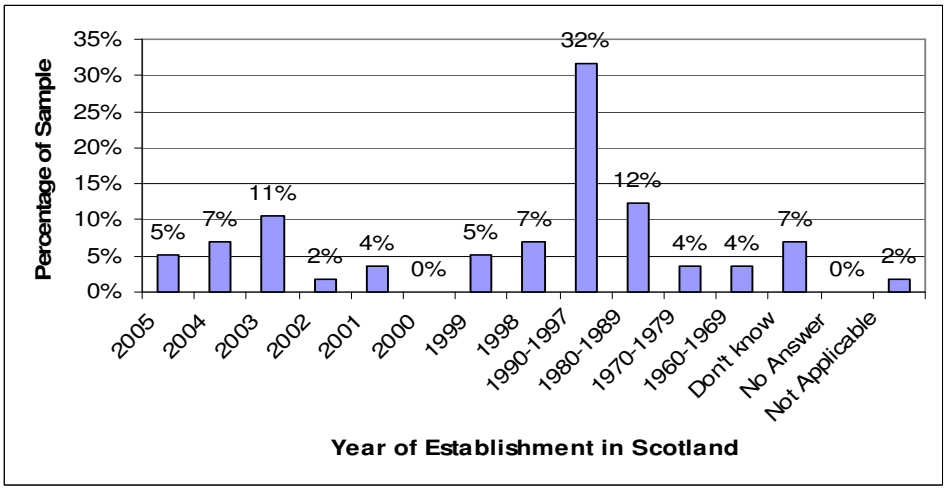
Figure 0.1 Question A1



Source: BiGGAR Economics Ltd

Figure 0.2 shows that the most common period for firms to have established operations in Scotland was 1990-1997 (32%). It is interesting to note that although none of the firms established in Scotland in 2000, over a quarter (28%) were established between 2001 and 2005.

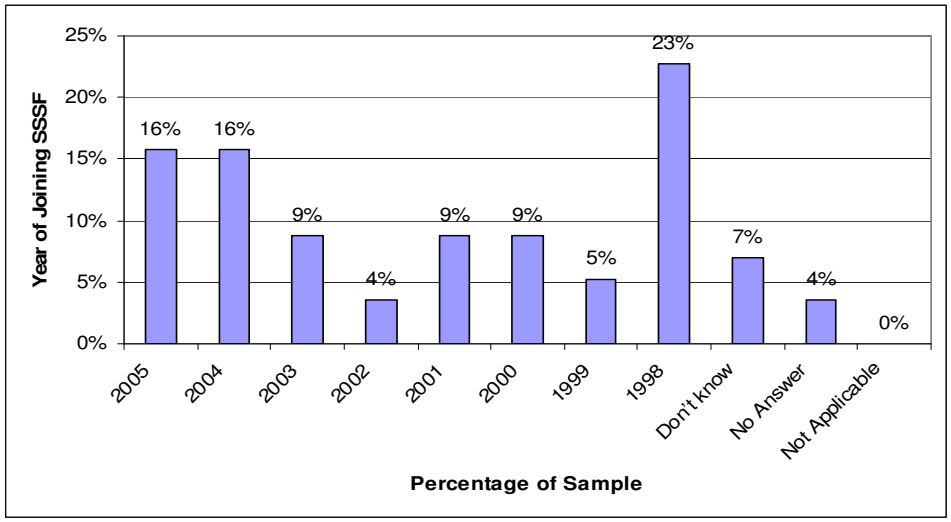
Figure 0.2 Question A2



Source: BiGGAR Economics Ltd

Figure 0.3 indicates that the most common year in which respondents first joined the SSSF was 1998, when 23% joined. The next most common years were 2005 and 2004 (16% each).

Figure 0.3 Question A2



Source: BiGGAR Economics Ltd

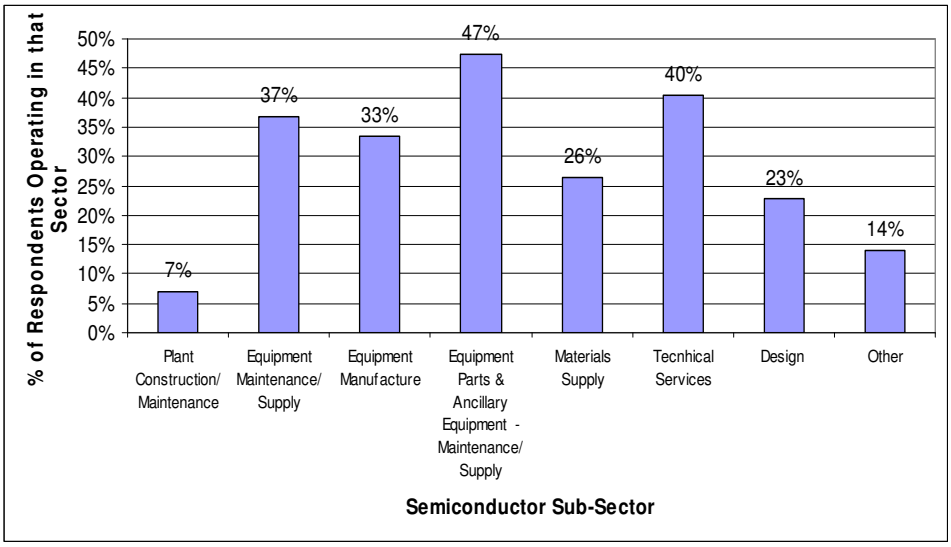
Figure 0.4 depicts the sub-sectors in which the respondent firms operate. The majority of respondents operate in more than one sub-sector, and the most common was the maintenance/ supply of semi-conductor equipment parts and ancillaries with almost half of respondents listing this one of their sub-sectors of operation. The next most common sub-sectors were technical services (40%), equipment maintenance/ supply (37%) and equipment manufacture (33%).

The least common sub-sector was semiconductor plant construction/ maintenance with only 7% of respondents operating in that sub-sector.

In terms of other sub-sectors, eight respondents were operating in sub-sectors not listed in the questionnaire. These were:

- logistics;
- labour supply;
- wafer testing;
- clean-room laundry;
- software supply;
- consultancy services; and
- business incubation services.

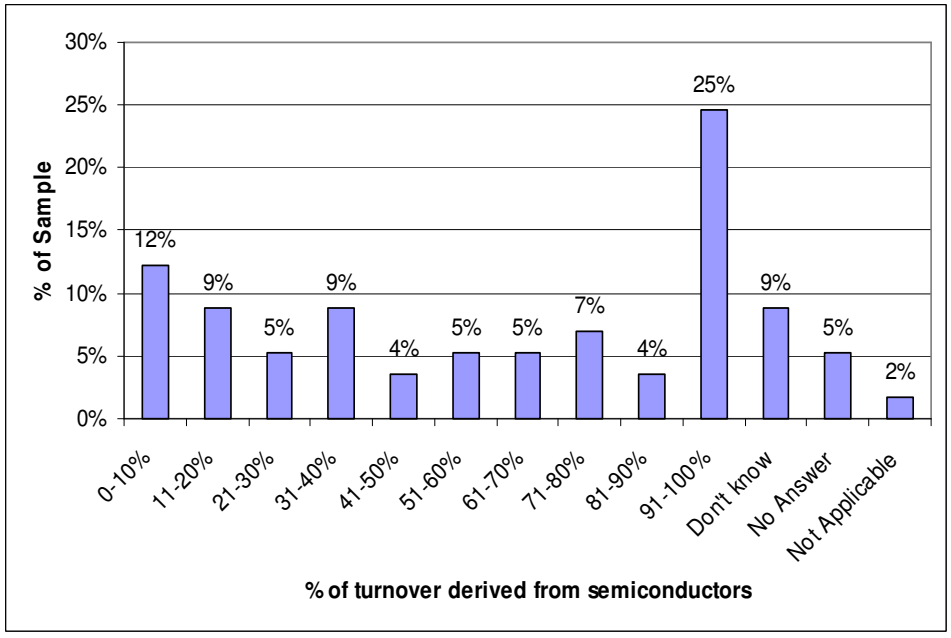
Figure 0.4 Question A3a



Source: BiGGAR Economics Ltd

Figure 0.5 shows the relative percentage of respondents' turnover that is derived from the semiconductors sector. 46% of respondents derive more than half their annual turnover from semiconductors. 39% derived half or less of their turnover from the sector and 16% declined to answer, were unsure or stated that this question was 'not applicable' to them.

Figure 0.5 Question A3b



Source: BiGGAR Economics Ltd

Respondents were also questioned about the other sectors in which they are operating and Table 0.1 summarises the results. The most common sectors for respondents were pharmaceuticals/ life sciences (18%), optics/ optoelectronics

(12%), medical/ medical devices (12%), R&D (11%) and energy/ renewables (9%).

Other notable sectors included electronics (unspecified) (7%), chemicals/ petrochemicals (7%) and others (30%) which included:

- education;
- aerospace;
- packaging and bottling;
- glass manufacturing;
- radio frequency; and
- coatings.

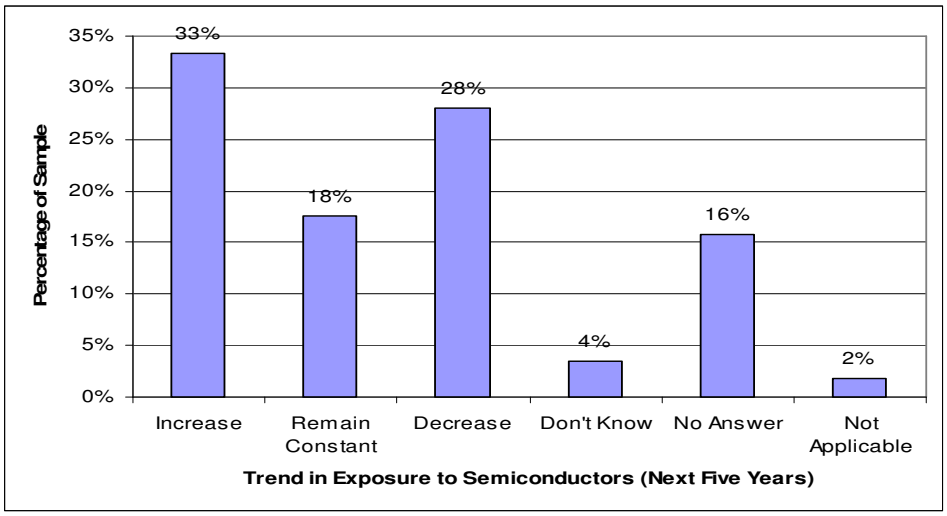
Table 0.1 Question A3b, Additional Sectors of Operation

Sector	% of Firms	% Turnover Derived (Range)
Research & Development	11%	3-80%
Micro Systems	2%	50%
Optics/ Optoelectronics	12%	4-35%
Medical/ Medical Devices	12%	3-30%
Industrial/ Manufacturing (Unspecified)	5%	20-50%
Electronics (Unspecified)	7%	10-35%
Pharmaceuticals/ Life Sciences	18%	5-70%
Automotive	5%	25%
Chemicals/ Petrochemicals	7%	10-95%
Energy/ Renewables	9%	10-20%
MEMS	4%	2-20%
OEM	4%	48-60%
Photovoltaic	2%	10%
Other	28%	5-85%

Source: BiGGAR Economics Ltd

As Figure 0.6 depicts, when asked about their firm's expectations about its involvement with the semiconductors sector over the next 3-5 years, 33% of respondents said their exposure would increase, 28% felt it would decrease and 18% expected it to remain constant. 16% of interviewees declined to respond to this question and 6% considered it inapplicable or did not know.

Figure 0.6 Question A3c



Source: BiGGAR Economics Ltd

The results were analysed separately for Scottish and non-Scottish as shown in Table 4.4. As shown, Scottish firms were much more likely to predict an increase in their exposure to semiconductors than non-Scottish firms. In addition Scottish firms were less likely to envisage a decrease in their level of exposure.

Table 0.2 Question A3c, Scottish and non-Scottish Firms

Reply	% of Scottish Firms	% of non-Scottish Firms
Increase	42%	27%
Remain Constant	17%	18%
Decrease	21%	33%
Other	21%	21%

Source: BiGGAR Economics Ltd

The results were also analysed according to the size of firms' Scottish operations in terms of employees. Table 0.3 shows that firms with fewer employees in their Scottish operations were more likely to predict an increase in their exposure to semiconductors over the next few years.

Table 0.3 Question A3c, Firms Grouped by Employees Numbers

Reply	% of Firms with Five or Less Employees (Scottish Operation)	% of Firms with More Than Five Employees (Scottish Operations)
Increase	37%	30%
Remain Constant	20%	15%
Decrease	30%	26%
Other	13%	30%

Source: BiGGAR Economics Ltd

Table 0.4 shows the data derived from the questions about respondent firms' latest employment levels, turnover and profit.

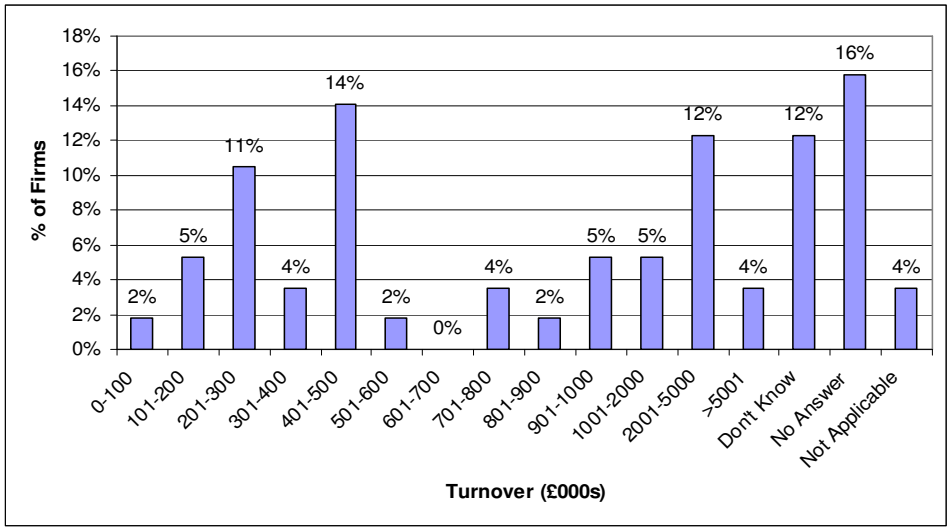
Table 0.4 Question A4a

Variable	Positive Responses	Average of Positive Responses
Group		
Employment	32	408
Turnover	26	£272,919,808
Profit	10	£ 1,295,500
Scotland		
Employment	53	11
Turnover	38	£1,912,368
Profit	24	£284,479

Source: BiGGAR Economics Ltd

Figure 0.7 presents the results for the question about firms' turnover in their Scottish operations (if applicable). The turnover range with the largest response was £401,000-500,000 with (14% of respondents falling into this category. The categories £201-300 and £2001-5000 also had sizeable populations at 11% and 12%, respectively. A considerable proportion (32%) did not reply to this question, did not know, or considered it inapplicable to their firm.

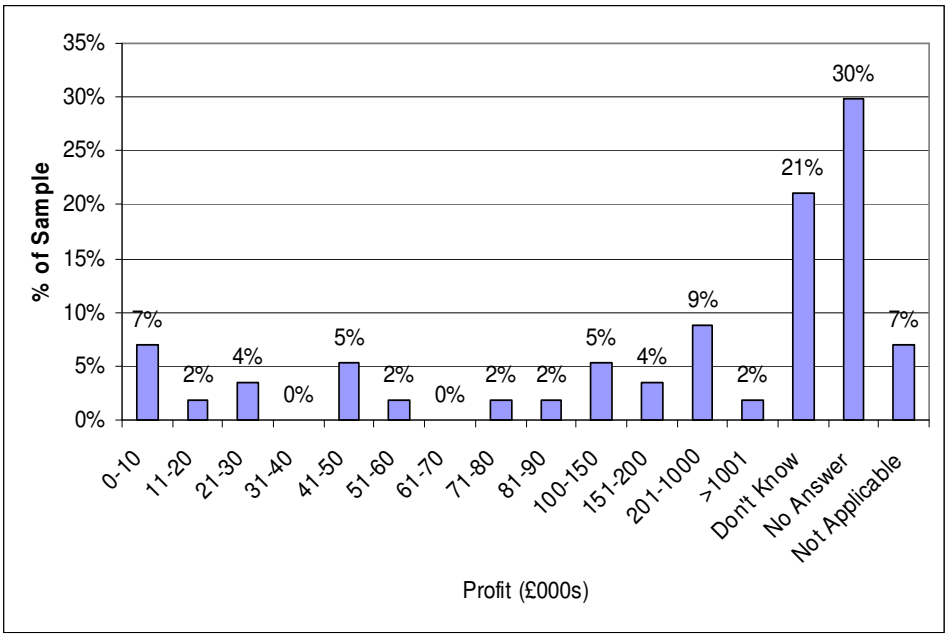
Figure 0.7 Question A4a, Turnover



Source: BiGGAR Economics Ltd

Figure 0.8 gives the levels of profit among respondent firms. Of the total population 42% gave a positive response. 18% of the total had a profit of equal to or less than £50,000 in 2005, and 25% had a profit level higher than £50,000 in 2005. By far the highest profit made by one firm in that year was £4.2 million with the next highest standing at £300,000. 58% of firms replied "don't know", "no answer" or "not applicable".

Figure 0.8 Question A4a, Profit



Source: BiGGAR Economics Ltd

Table 5.4 shows that in terms of employment in their Scottish operations, the profile between Scottish and non-Scottish firms is similar. However there is a higher proportion of firms with 10 or less employees in their Scottish operations among Scottish firms (79% compared with 64% for non-Scottish firms).

Table 0.5 Question A4a, Employment in Scottish Operations

Number of Employees in Scottish Operations	% of Scottish Firms	% of non-Scottish Firms
0-5	54%	52%
6-10	25%	12%
11-20	8%	0%
21-50	8%	9%
51-100	4%	3%
DK/ No/ NA	0%	12%

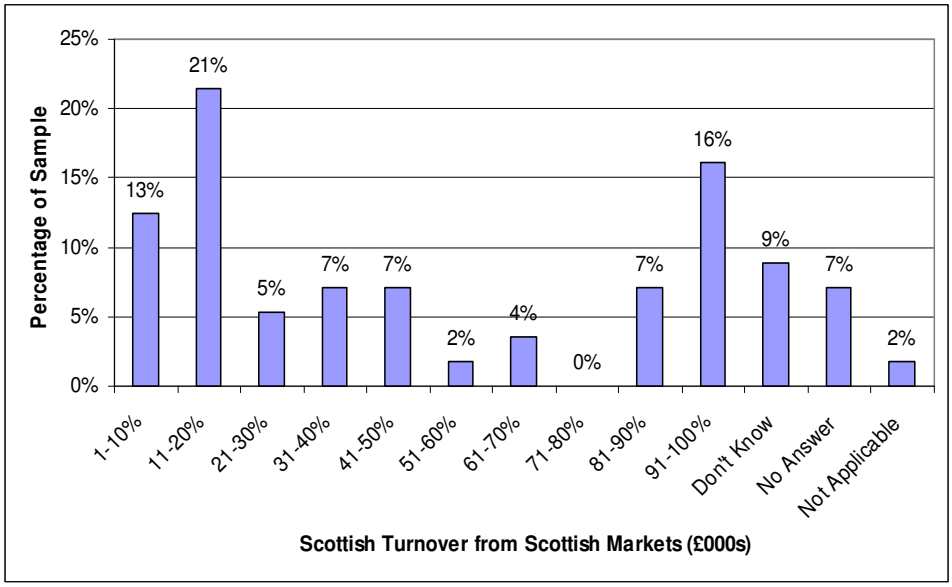
Source: BiGGAR Economics Ltd

Figure 0.9 depicts the figures for the percentage of respondents' turnover in Scottish operations that is derived from Scottish markets. Just over half (53%) of all firms questioned stated that half, or less than half of their Scottish turnover is derived from Scottish markets.

28% of the total population derived between 51% and 100% of their Scottish turnover from Scottish markets. 19% did not give a positive response.

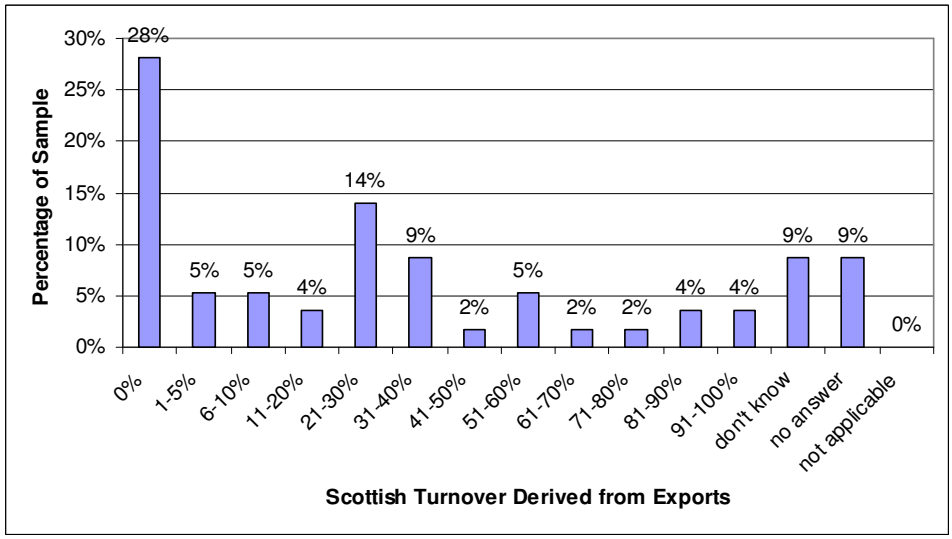
In addition, Figure 0.10 shows that 26% of the total population of 57 stated that they do not derive any turnover from exports. 17% derived between half and their entire turnover from exports outside the UK.

Figure 0.9 Question A4b, Scottish Markets



Source: BiGGAR Economics Ltd

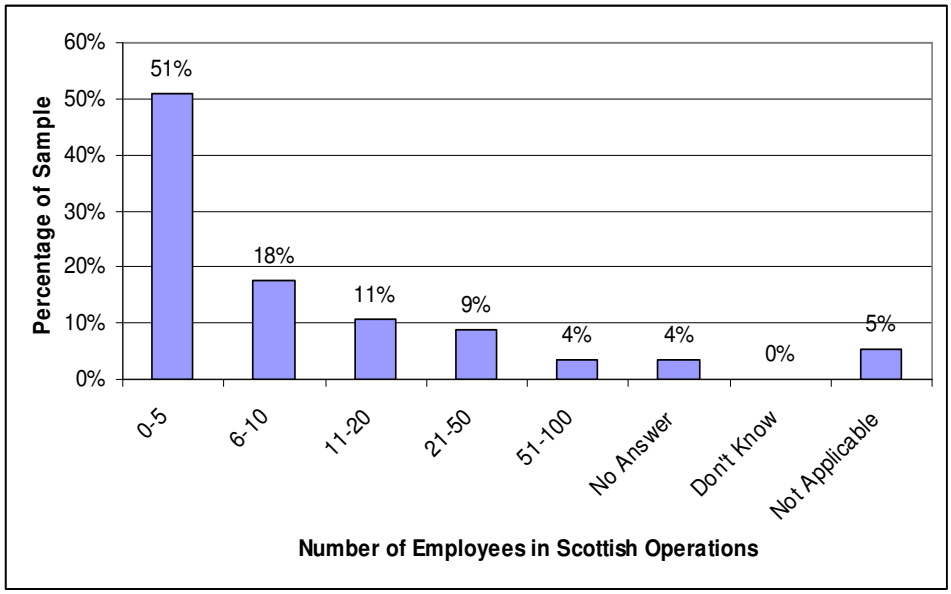
Figure 0.10 Question A4b, Exports



Source: BiGGAR Economics Ltd

As shown in Figure 0.11 just over two thirds (68%) of respondent firms with operations in Scotland have 10 or less employees. Only 4% of respondent firms with operations in Scotland had more than 50 employees.

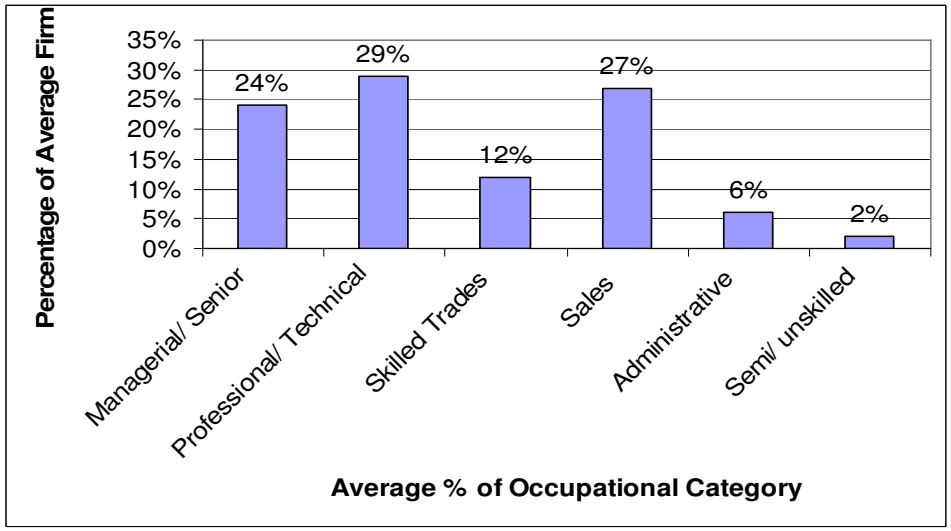
Figure 0.11 Question A4c



Source: BiGGAR Economics Ltd

Interviewees were asked about the occupational breakdown of their firm's employment in Scotland. Figure 0.12 depicts the occupational breakdown for the average firm. On average, firms' occupational breakdown is as follows: professional/ technical (29%), sales staff (27%), and managers/ senior staff (24%). A smaller proportion of personnel are concentrated in skilled trades (12%), administration (5%) and semi/ unskilled labour (3%).

Figure 0.12 Question A4d



Source: BiGGAR Economics Ltd

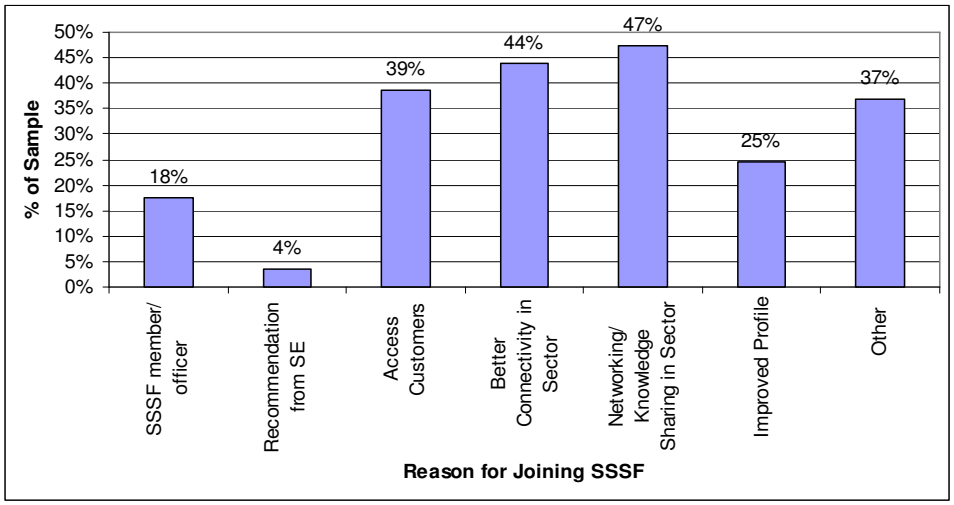
Figure 0.13 shows the reasons stated by members for joining the SSSF. Almost half of all firms (47%) stated that their reason for joining the SSSF was to network/ share knowledge with the sector. The next most common reasons for joining were to gain better connectivity within the sector (44%) and to get better access to

customers (39%). A significant proportion of firms (25%) also felt that joining SSSF would help improve their profile.

37% of firms stated another reason for joining and these included:

- to take advantage of specific SSSF events/ services/ activities e.g. table top exhibitions;
- they had gained a preview of benefits of membership from previous exposure to SSSF before becoming a member;
- following recommendation from a customer;
- as a cost-effective marketing measure; and
- to support the local sector/ industry.

Figure 0.13 Question B1



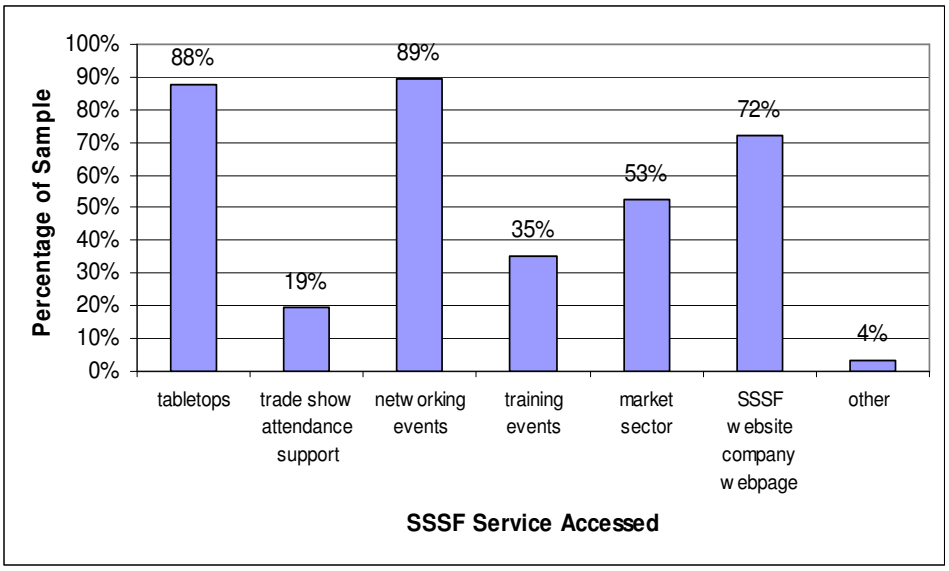
Source: BiGGAR Economics Ltd

Figure 0.14 illustrates the SSSF activities and services accessed by members. The activities most often accessed by members are the networking events and tabletops exhibitions with 89% and 88% of members taking advantage of them, respectively. The least commonly used activity/ service is the trade show attendance support, although almost a fifth of all members use it.

Respondents were also asked about the annual number of each activity they attended and the following are the average for each one:

- tabletop exhibitions – 1.9;
- trade show attendance support – 1.1;
- networking events – 1.76; and
- training events – 1.69.

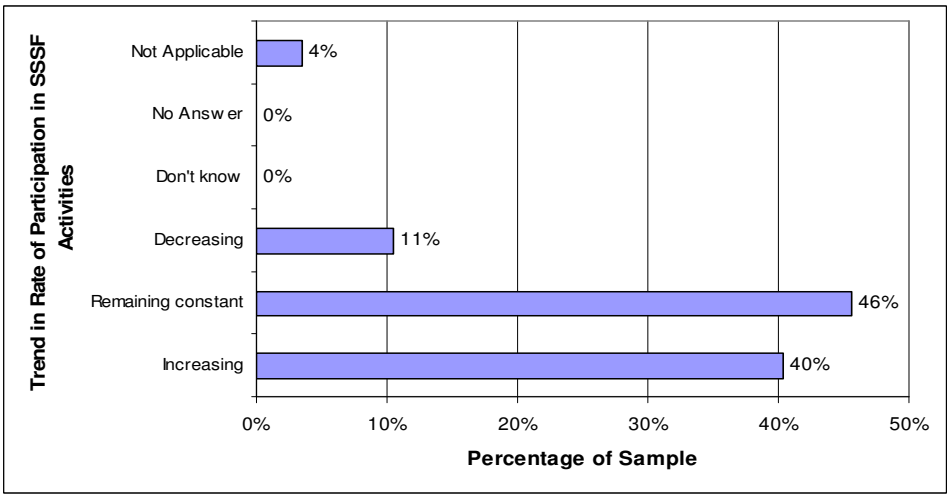
Figure 0.14 Question C1



Source: BiGGAR Economics Ltd

Figure 0.15 shows that the vast majority (86%) of SSSF members have either been increasing their level of participation or participating at a constant level. Only 11% of members stated that their level of participation had been decreasing. Members were also asked to comment on the reasons for their level of participation.

Figure 0.15 Question C2a



Source: BiGGAR Economics Ltd

The figures were also analysed separately for those firms with headquarters in Scotland and those with headquarters outside Scotland:

- non-Scottish firms were more likely to have been increasing their level of participation (48% compared with 29% of Scottish firms);
- Scottish firms were almost twice as likely as non-Scottish firms to have had a constant level of participation; and

- Scottish firms were less likely to have been decreasing their level of participation (4% compared with 15% of non-Scottish firms).

The figures were also analysed by the size of firms' operation sin Scotland (in terms of employees) with the following results:

- smaller operations (those with five or less employees in their Scottish operations) were less likely that larger operations (those with more than five employees) to have been increasing their level of participation;
- the firms with fewer employees were more likely than those with more employees to have been maintaining a constant level of participation.

Interviewees were asked to state their reasons for their level of participation. These reasons generally fell into eight main categories as outlined in Table 0.6. The most common reasons related to:

- the firm's level of participation was as high as possible given various constraints because of firm size and firm/ individual workloads e.g. some firms only consisted of one or two people;
- just under a fifth of respondents stated that they participate in all SSSF services of use and relevance to their firm; and
- 12% of respondents stated that their level of participation had increased because the quantity/ quality of SSSF services had increased. Many of these firms specifically attributed this increase to new SSSF management/ board.

Table 0.6 Question C2b

Category	Number of Comments	Percentage of Respondents
Semiconductors sector is decreasing in importance for firm	3	5%
Firm participates as much as possible given staff and time constraints	12	21%
Firm is hoping to increase participation in future	4	7%
Firm's Scottish operations are decreasing in size/ importance	2	4%
SSSF has improved volume/ quality of services/ events	7	12%
Satisfied with SSSF and take advantage of everything of relevance	10	18%
Participate a lot because firm is very pleased with SSSF service	6	11%
Other	3	5%
No Answer	10	18%
Total	57	100%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question C2b are as follows:

- don't participate (1 respondent);
- as a result of recent merger (ATMI with Metron), firm now has more individuals involved in SSSF (1 respondent); and
- because respondent took up position with firm and feels he is more proactive (1 respondent).

Respondents were asked to rate the usefulness to their business of the SSSF activities/ services of which they avail. The results are shown in Table 0.7 and can be summarised as follows:

- tabletop exhibitions – of those who commented on the usefulness of the tabletop exhibitions, 87% felt they were 'very' or 'quite' useful;
- trade show attendance support – although there was low uptake of this service, over two thirds of those who rated its usefulness found it 'very' or 'quite' useful;
- networking events – of those who rated the usefulness of these events, 84% found them 'very' or 'quite' useful;
- training events – the majority (79%) of those who rated the usefulness of these events found them 'very' or 'quite' useful;
- market/ sector reports – these reports were rated as 'very' or 'quite' useful by 71% of those respondents who rated their usefulness; and
- SSSF website member web link – of those respondents who rated the usefulness of this service, 62% found it 'very' or 'quite' useful, although a significant proportion (22%) were 'undecided' on its usefulness.

Table 0.7 Question C3a

	No. Who Rated Usefulness	Percentage of Those Who Rated Usefulness				
Activity/ Service		**Very**	**Quite**	**Undecided**	**Not Very**	**Not at All**
Tabletop Exhibitions	49	63%	24%	2%	10%	0%
Trade Show Attendance Support	12	58%	8%	8%	17%	8%
Networking Events	38	42%	42%	8%	8%	0%
Training Events	19	47%	32%	5%	16%	0%
Market/ Sector Reports	31	29%	42%	10%	13%	6%
SSSF Website Member Web link	37	16%	46%	22%	8%	8%
Other	1	0%	100%	0%	0%	0%

Source: BiGGAR Economics Ltd

Interviewees were offered the opportunity to provide additional comments on the usefulness of the SSSF services/ activities they had accessed. Table 0.8 provides a summary of these comments.

Table 0.8 Question C3a, Comments

Comment Category	% of Total Comments
Tabletop Exhibitions	
• efficient and cost-effective way to meet new customers	64%
• good for networking with other firms	14%
• other	22%
Total Number of Firms Who Commented (Total Comments)	35 (50)
Trade Show Attendance Support	
• helped firm to attend shows abroad	20%
• other	80%
Total Number of Firms Who Commented (Total Comments)	4 (5)
Networking Events	
• particularly useful to SMEs	10%
• also have an impact on sales	17%
• networking events useful for building relationships/ gaining industry intelligence	48%
• other	24%
Total Number of Firms Who Commented (Total Comments)	23 (29)
Training Events	
• training events well-organized and useful e.g. sales event, web design, exhibiting	67%
• other	33%
Total Number of Firms Who Commented (Total Comments)	8 (9)
Market/ Sector Reports	
• reports are useful, well-read and cost effective	55%
• difficult to find time to read reports e.g. for SMEs	18%
• haven't accessed/ of no use	27%
Total Number of Firms Who Commented (Total Comments)	11 (11)
SSSF Website Member Web Link	
• difficult to quantify usefulness/ benefit of web link but happy with service	58%
• company info needs to be updated more regularly	16%
• other	26%
Total Number of Firms Who Commented (Total Comments)	16 (19)

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question C3a under each service/ event are as follows:

Tabletop Exhibitions

- as long as attendance is high - low attendance spoils the event (1 respondent);
- haven't been to first one yet but it's coming up soon(1 respondent);
- Concentrates the correct people in the same room at the same time (1 respondent);
- have the customers already - no concrete impact but a useful exercise (1 respondent);
- all companies already customers (1 respondent);
- good for keeping up to date with developments (1 respondent);
- very useful (1 respondent); and
- host company must be completely committed from MD down (1 respondent).

Trade Show Attendance Support

- hasn't used this service yet but intends to (1 respondent);
- dealing with the Chinese is difficult they are far behind Europe / US;
- thinks they are of little value in general (1 respondent); and
- useful in general even though they haven't availed (1 respondent).

Networking Events

- only a small percentage of respondent's business is in semiconductors so less likely to court semis heavily (1 respondent);
- difficult to attend because of his remote location (1 respondent);
- again, fantastic (1 respondent);
- respondent located in West so too far and little benefit (1 respondent);
- must be reasonably local or attached to events like tabletops (1 respondent);
- they are well organised (1 respondent); and
- sees the networking events as a bit of a turnoff, think they try too hard i.e. simply make it a finger buffet, don't need to be as elaborate as go-karting, puts some people off (1 respondent).

Training Events

- haven't accessed yet but will in future (1 respondent);
- sales event was not relevant to this form(1 respondent); and
- difficult for members to find the time to attend though (1 respondent).

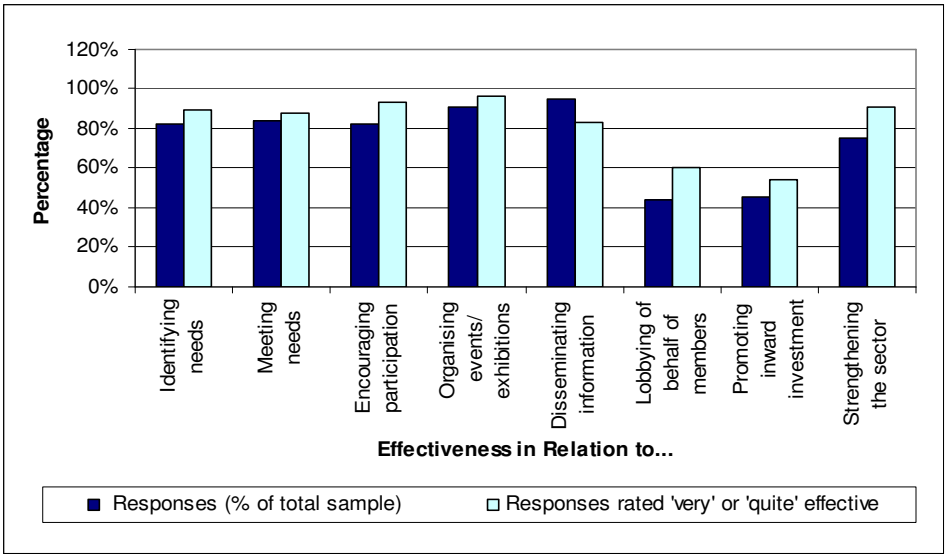
SSSF Website Member Web Link

- little value since firm is so well known already (1 respondent);
- gets 1-2 hits per month through SSSF website (1 respondent);
- general speculative enquiries from Asia, haven't come to anything (1 respondent);
- company has logo (1 respondent);
- presence (1 respondent);

Respondents were asked to rate the effectiveness of the SSSF management executive and board in relation to a number of factors. The results are presented in Figure 0.16 and can be summarised as follows:

- response rates were high in this question and the results were positive overall;
- when asked about the effectiveness of SSSF in identifying members' needs, 82% responded positively, of which 89% replied 'very' or 'quite' effective;
- 88% found the SSSF 'very' or 'quite' effective at meeting members' needs;
- 94% felt the management and board were 'very' or 'quite' good at encouraging members' participation;
- 96% rated the SSSF as very or quite good at organising events and/ or exhibitions;
- 83% felt the SSSF was 'very' or 'quite' good at disseminating information;
- the response rate was low when interviewees were asked about the SSSF's effectiveness at lobbying on behalf of its members. 44% of total interviewees gave a rating and, of these, 60% rated the SSSF as 'very' or 'quite' effective. 32% were undecided on this matter;
- similarly, only 46% rated the SSSF's effectiveness at promoting inward investment and, of these, 54% felt the SSSF was 'very' or 'quite' effective while 31% were undecided; and
- 75% of interviewees rated the effectiveness of the SSSF management and board in relation to strengthening the Scottish semiconductor supplier sector and, of these, 91% rated the SSSF 'very' or 'quite' effective.

Figure 0.16 Question C4a



Source: BiGGAR Economics Ltd

Interviewees were offered the opportunity to make additional comments on the effectiveness of the SSSF management board in relation to a number of factors. A summary of these comments is found in Table 0.9.

Table 0.9 Question C4b

Comment Category	% of Total Comments
Identifying Members' Needs	
• SSSF and particularly Mark Hodgetts very good in this respect e.g. pro-active, receptive, responsive	63%
• unsure/ difficult to judge/ irrelevant	26%
• prefer to see more services/ activities tailored to individual firms	11%
Total Number of Firms Who Commented (Total Comments)	19 (19)
Meeting Members' Needs	
• good and/ or even better now because of introduction of full-time, paid executive	57%
• becoming much less cliquey	14%
• other	29%
Total Number of Firms Who Commented (Total Comments)	12 (14)
Encouraging member Participation	
• Mark Hodgetts very pro-active and effective in this respect	80%
• other	20%
Total Number of Firms Who Commented (Total Comments)	10 (10)

Organizing Events/ Exhibitions	
• Mark Hodgetts particularly good in this respect	40%
• events generally well-organized and effective	53%
• other	7%
Total Number of Firms Who Commented (Total Comments)	14 (15)
Disseminating Information	
• Mark Hodgetts particularly effective in this respect	33%
• SSSF good generally in this respect	33%
• more information wanted on SSSF long-term strategy/ objectives	11%
• other	22%
Total Number of Firms Who Commented (Total Comments)	16 (18)
Lobbying on Behalf of Members	
• SSSF generally good in this respect e.g. understanding what is needed and communicating it to government	36%
• SSSF could do more in this respect	21%
• unsure/ no experience of this function	21%
• other	21%
Total Number of Firms Who Commented (Total Comments)	13 (15)
Promoting Inward Investment	
• SSSF good in this respect e.g. proactive and vocal	25%
• inward investment to Scotland is poor generally	42%
• SSSF could do more in this respect	25%
• Other	8%
Total Number of Firms Who Commented (Total Comments)	10 (12)
Strengthening the Scottish Semiconductor Supplier Sector	
• SSSF effective in this respect e.g. promoting sector unity and interaction between members	61%
• SMEs particularly benefit from SSSF's work in this respect	28%
• Other	11%
Total Number of Firms Who Commented (Total Comments)	15 (18)

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question C3a under each service/ event are as follows:

Meeting Members' Needs

- not sure (1 respondent);
- need member on Board to diversify into new markets (1 respondent);

- needs would have to be more tailored to company (1 respondent); and
- difficult sometimes - members not telling Board what they need (1 respondent).

Encouraging member Participation

- not sure (1 respondent); and
- Mark's very good, get plenty of emails (1 respondent).

Organizing Events/ Exhibitions

- lots of information (1 respondent).

Disseminating Information

- company does not really seek this support (1 respondent);
- very suspicious that competitors on Board don't let opportunities flow to members (1 respondent);
- too much - difficult sifting the useful from the other (1 respondent); and
- ask for inputs(1 respondent).

Lobbying on Behalf of Members

- no real need given large scale of company (i.e. we lobby for ourselves) (1 respondent);
- should this be a role for SSSF? (1 respondent); and
- links to STF (1 respondent).

Promoting Inward Investment

- technology is 10-15 years out of date (1 respondent).

Strengthening the Scottish Semiconductor Supplier Sector

- feels Scot Enterprise don't do enough to help industry (1 respondent); and
- tried to explore leads through SSSF at one point but received no reply from companies contacted (1 respondent).

Table 0.10 Question D1

	Benefit Realised			Scale of Benefit		Attributing a Role to SSSF - Number and Percentage of (1-5) Responses					
Indicator	**Yes (% of total)**	**No (% of total)**	**Other[42] (% of total)**	**Total no. able to estimate scale**	**Average scale of increase (no/%)**	**Number of Responses 1-5**	**1**	**2**	**3**	**4**	**5**
Accessed new UK markets	65%	21%	14%	8	7.13	33	3%	30%	21%	12%	33%
Accessed new international markets	47%	25%	28%	6	2.5	24	4%	13%	8%	13%	63%
Improved market share in core business	51%	16%	33%	1	4%	23	4%	17%	13%	4%	61%
Diversified into new business areas	46%	30%	25%	5	2.6	23	9%	13%	4%	9%	65%
Developed new or improved products or services	56%	23%	21%	6	1.67	28	4%	4%	18%	4%	71%
Created new products or services based on R&D	26%	46%	28%	0	n/a	15	0%	7%	0%	7%	87%
Improved attraction, retention or development of key people	26%	28%	46%	2	3	14	0%	7%	14%	14%	64%
Creation of new R&D posts	9%	63%	28%	2	1.5	5	0%	0%	0%	20%	80%

[42] 'other' is the sum of 'don't know', 'no answer' and 'not applicable'.

Development of new technologies	23%	53%	25%	1	2	13	0%	0%	0%	0%	100%
Patent applications	25%	51%	25%	2	1.5	13	0%	0%	0%	0%	100%
Licensing of new technology	18%	56%	26%	0	n/a	9	0%	0%	0%	0%	100%
Created research links with Scottish Universities or firms	26%	53%	21%	3	1.33	14	0%	7%	7%	7%	79%
Increased R&D spend	25%	51%	25%	1	10%	12	0%	8%	17%	0%	75%
Increased links with Scottish suppliers	47%	32%	21%	4	2.75	27	15%	41%	7%	7%	30%
Improved business planning	35%	30%	35%	8	2.13	19	0%	11%	16%	5%	68%
Improved corporate governance	26%	32%	42%	4	2.25	15	0%	13%	13%	7%	67%
Improved access to finance and investment	16%	51%	33%	2	2.5	10	0%	10%	0%	0%	90%
Improved efficiency – cost reduction	49%	26%	25%	3	10.3%	24	17%	4%	8%	8%	63%
Improved risk management	25%	37%	39%	2	3	14	0%	7%	14%	0%	79%

Source: BiGGAR Economics Ltd

Members were asked what they thought the opportunities would be for their firm over the next five years. 50 interviewees responded with 98 comments which fell into broadly six categories. These are summarised in Table 0.11.

Table 0.11 Question F1a

Comment Category	Number of Comments	Percentage of All Comments
• diversification to other sectors	26	27%
• export to other markets	24	24%
• retain focus on semiconductors	14	14%
• outlook pessimistic	8	8%
• outlook optimistic	11	11%
• other	15	15%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question F1a are as follows:

- big fabs are restructuring and outsourcing more (1 respondent);
- distributors / agent: limited opportunities (1 respondent);
- lots of skilled labour in Scottish sector for his growing firm to draw on (1 respondent);
- given any new project, we would like to think we would be involved (1 respondent);
- firm folded (1 respondent);
- firm no longer exists (1 respondent);
- looking at 3-5 niche markets, + have x over with semi/conductors (1 respondent);
- sector is still small-scale (1 respondent);
- collaborations with SSSF members to serve customers, rather than employing people in-house (1 respondent);
- SSSF very useful for events in England now has resource to follow up (1 respondent);
- increased subcontracting opportunities (1 respondent);
- counterparts do it in other markets (1 respondent);
- need to get more out of R&D (1 respondent);
- margins are squeezed as semiconductors (1 respondent); and
- no special focus in Scotland (1 respondent);

They were also asked about the opportunities that they thought might exist for other suppliers to the semiconductor industry over the next five years. 37

interviewees gave 62 comments which were categorised into six types. The results are summarised in Table 0.12.

Table 0.12 Question F1b

Comment Category	Number of Comments	Percentage of All Comments
• diversification to other sectors	13	21%
• export to other markets	11	18%
• focus more on R&D/ innovation	7	11%
• outlook pessimistic	8	13%
• outlook optimistic	5	8%
• other	18	29%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question F1b are as follows:

- depends on investment of main players (1 respondent);
- increasing subcontracting opportunities as big fabs restructure and outsource (1 respondent);
- US semiconductors operators like doing business with English speakers (1 respondent);
- opportunity is existing fabrications and savings accrue to National /Freescale (1 respondent);
- can't see semis being crucial in future, but there will be existing suppliers (1 respondent);
- it will depend on how semiconductors perform (1 respondent);
- feels on average will be competing for market share but it depends on their area of business / market segment if they can increase their business (1 respondent);
- can only speak about own firm's output (1 respondent);
- skills / reputations very high (1 respondent);
- sector won't get worse - it's bottomed out. thinks Scottish fabs will stay as technology is not going to change (1 respondent);
- not all doom in Scotland: potential £6m MEMS investment at Semifab and new clean room at NatSemi (1 respondent);
- small companies will either have to sell to the big players or be forced out (1 respondent);
- 20 years old fabs in Scotland (1 respondent);
- culturally difficult (1 respondent);
- what is required is investment in Scotland (1 respondent);

- if this IP is to remain in Scotland, there needs to be the infrastructure in place (1 respondent); and
- all that is happening is drip-fed from current fabs to existing suppliers (1 respondent).

Next, members were asked what the constraints would be to their firm exploiting its available opportunities. 36 members chose to comment and 63 comments were collected in total. These are summarised in Table 0.13 in six categories.

Table 0.13 Question F2a

Comment Category	Number of Comments	Percentage of All Comments
• competitive pressures	14	22%
• the state of investment in Scotland and the market generally	5	8%
• lack of financial/ business support for Scottish firms/ SMEs	8	13%
• barriers to market entry e.g. poor market information	8	13%
• resource input difficulties e.g. labour, capital	9	14%
• other	19	30%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question F2a are as follows:

- he is realistic but optimistic (1 respondent)
- cost reduction is focus. lots of mergers and acquisitions activity (1 respondent);
- no constraints from a corporate point of view (1 respondent);
- age of fabs/technology, it's too old will become obsolete, far from leading-edge (1 respondent);
- credibility (1 respondent);
- no - he's very optimistic (1 respondent);
- he feels he's doing the right thing by being flexible and diversifying constantly (1 respondent);
- they take their lead from parent company (1 respondent);
- he feels his firm's business model is fundamentally flawed (1 respondent);
- none (2 respondents)
- firm will struggle to cope with J.I.T. methods of production. (e.g. like large fabs) so they will target SMEs (1 respondent);
- in state of flux. Just taken over (1 respondent);
- diversifying (1 respondent);

- Parabillis model - lower price; supplier consolidation - one face for customer (1 respondent);
- hard to predict semiconductor market but they are very mobile and will go where the market goes (e.g. they have an engineer in China for a few weeks) (1 respondent);
- constantly have to justify their own existence (1 respondent);
- stock control - 30 days vs. 60 days (1 respondent); and
- any constraints are internal (1 respondent).

Finally, interviewees were asked what they considered the constraints to be to other suppliers to the semiconductor industry exploiting their available opportunities (Table 0.14). 39 members responded with 72 comments. The comments were sorted into seven categories as outlined in

Table 0.14 Question F2b

Comment Category	Number of Comments	Percentage of All Comments
• competitive pressures	19	26%
• the state of investment in Scotland and the market generally	25	35%
• lack of financial/ business support for Scottish firms/ SMEs	3	4%
• market barriers e.g. poor market information	5	7%
• resource input difficulties e.g. labour, capital	3	4%
• unsure/ don't know	3	4%
• other	14	19%

Source: BiGGAR Economics Ltd

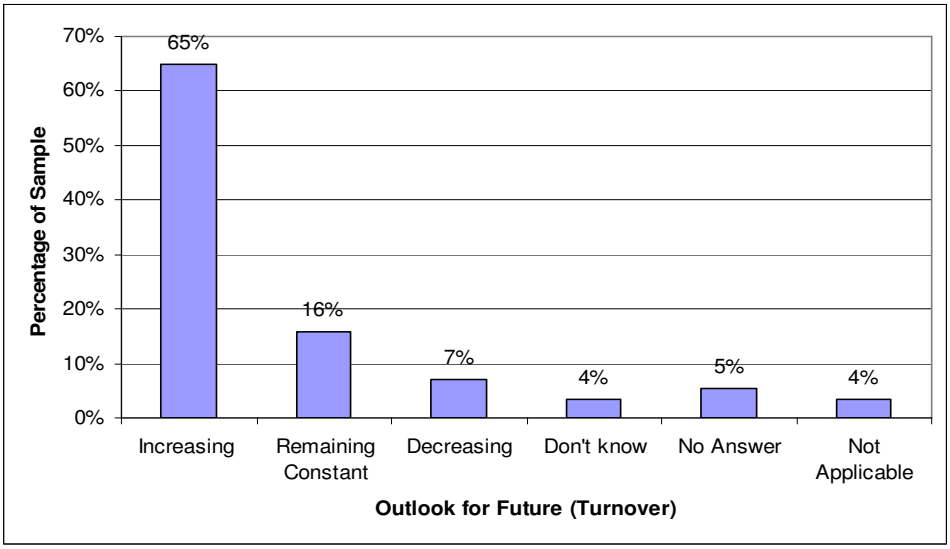
The responses categorised as 'other' in Question F2b are as follows:

- technology driven by 'one fab'. builder companies like SPS will not even get a contract as a sub-supplier (1 respondent);
- he feels they will have to diversify away from sole reliance on semicons (1 respondent);
- he thinks the only constraint to their future success will be their internal mindset (1 respondent);
- hopefully his company will constrain them by taking their market share (1 respondent);
- in semiconductors it depends on your product - if it's saleable they will be able to sell (1 respondent);
- only themselves (1 respondent);
- operating costs low (1 respondent);
- "Gambica reports" (1 respondent);

- he feels they should keep open minds to new sectors and new technologies (1 respondent);
- Euro governments funnel large sums directly to the end user, circumventing regulations (1 respondent);
- too easy to close in UK vs. Germany France (1 respondent);
- no significant investment (1 respondent);
- geography / time difference 9 hr to Far East (1 respondent); and
- British engineers are the best (1 respondent).

Interviewees were asked about the outlook for their firm in Scotland over the next five years in terms of turnover, employment and profitability. Figure 0.17 shows that in terms of turnover, just over two thirds of interviewees expected a turnover increase in Scotland in the next five years. 16% expected no change in their firm's Scottish turnover and 7% predicted a decrease.

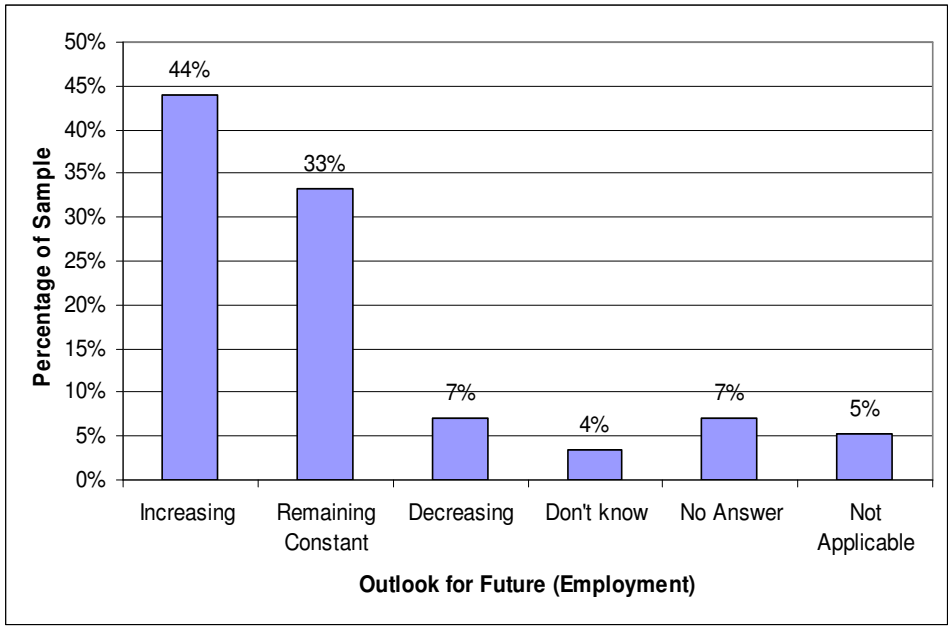
Figure 0.17 Question F3a, Turnover



Source: BiGGAR Economics Ltd

Figure 0.18 shows that in terms of employment, 44% of respondents expected an increase in Scotland over the next five years, while 33% expected employment to remain constant. Again, only 7% expected employment in Scotland to fall in the short-medium term.

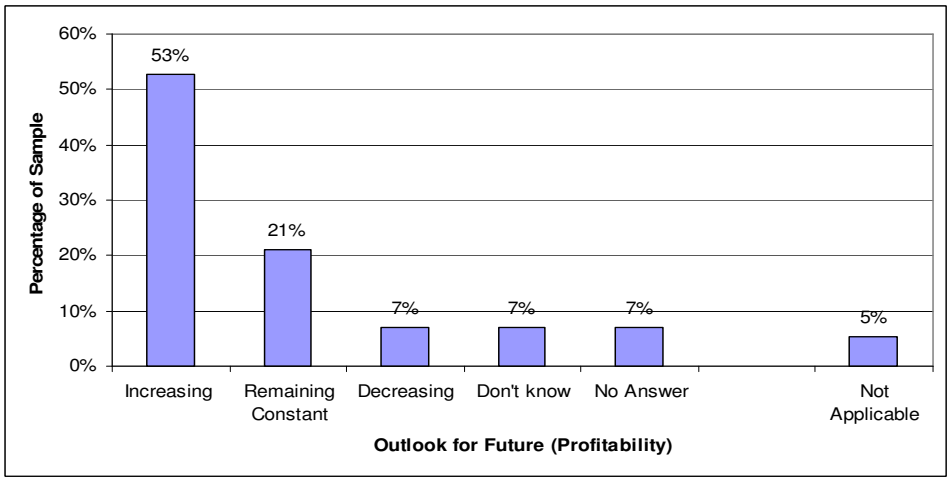
Figure 0.18 Question F3a, Employment



Source: BiGGAR Economics Ltd

Figure 0.19 shows that 53% of interviewees expected their firms' profitability in Scotland to increase in the next five years. 21% predict that profitability will be unchanged while 7% feel it will decrease over the forthcoming five-year period.

Figure 0.19 Question F3a, Profitability



Source: BiGGAR Economics Ltd

Respondents were asked to comment on the reasons for their expectations about the next five years and their comments fell into five broad categories, as outlined in Table 0.15

Table 0.15 Question F3b

Comment Category	Number of Comments	Percentage of All Comments
• optimistic because of firm's more global outlook	13	28%
• optimistic because of firm's diversification	7	15%
• optimistic other	19	41%
• pessimistic because of sectoral decline in Scotland/ Europe	4	9%
• pessimistic other	3	7%
Total	46	100%

Source: BiGGAR Economics Ltd

Interviewees were asked to state whether they thought the SSSF should consider offering any other services to support members' development in the next five years. Table 0.16 presents the results.

Table 0.16 Question F4

Percentage of Total Respondents Who Answered…	
Yes	67%
No	19%
Don't Know	7%
No Answer	7%
Total Number of Comments Received	78

Source: BiGGAR Economics Ltd

Interviewees were also asked to comment on what activities the SSSF should consider offering to support its members' development in the next five years. Table 0.17 presents the categorised comments. They can be summarised as follows:

- 18% of the comments encouraged the SSSF to adopt a more global outlook, promote the sector outside Scotland, and help members to export to external markets;
- 22% of all comments related to a wish for the SSSF to help members diversify and exploit their capabilities in other sectors;
- 17% of the comments encouraged the SSSF to increase the type and volume of events and marketing efforts; and
- 13% urged the SSSF to provide more business/ financial support to members, and in particular SMEs.

Table 0.17 Question F4

Comment Category	Number of Comments	% of all Comments
• adopt more global outlook - too focused on Scotland	3	4%
• develop more links/ collaborations with other networks/ industry groups within and outside Scotland	4	5%
• provide help/ advice/ support to members seeking to export	7	9%
• help members diversify into other sectors e.g. pharmaceuticals, medical devices, biotechnology, optics	11	14%
• hold more events in other sectors e.g. tabletops	2	3%
• hold more events outside Scotland e.g. tabletops	4	5%
• increase marketing efforts for the sector e.g. more marketing at important industry shows	7	9%
• increase volume/ frequency/ type of events/ exhibitions	6	8%
• provide more help for firms requiring financial support	4	5%
• provide more business development support e.g. for entrepreneurs/ SMEs	6	8%
• promote more collaboration between members	3	4%
• promote more investment in Scotland / Scottish firms	3	4%
• other	18	23%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question F4 are as follows:

- is the name a handicap: having semicons in title when industry is almost dead (1 respondent);
- a lot depends on the members themselves - up to them to be active - this creates much more potential to help them (1 respondent);
- SSSF must be conduit through which Scot Exec communicates real supplier opportunities to suppliers (1 respondent);
- can't really comment because we have not been proactive (1 respondent);
- he's happy with service (1 respondent);
- they do a good job (1 respondent);
- library for members on technologies (1 respondent);
- wider market place, which means increased labour pool (semicons is a segmented market - others can bring in new ideas/benefits) (1 respondent);
- these must be coming in but members don't hear about them (1 respondent);

- integrated contact to buyers on behalf of SSSF members (1 respondent);
- the development of a database; list of companies and what they do (1 respondent);
- take s/conductor out of name (1 respondent);
- also target consultants and architects for firms products (1 respondent);
- good to court Scottish valve and fitting company as a member (1 respondent);
- in 5 years TSWC went from a shop to one of the larges chipmakers in the world; they had lots of assistance from govt. how can we compete with that? (1 respondent);
- education seminar to members and then training(1 respondent);
- more SSSF links to he institutions and understanding what technology is going on (1 respondent); and
- SSSF can provide members with approvals for entering new sectors (1 respondent).

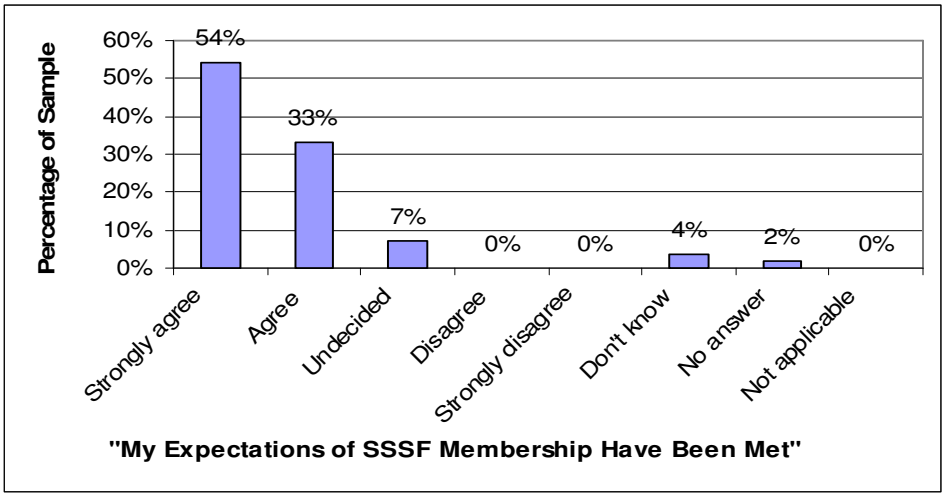
Interviewees were asked if they had any other involvement with the Scottish Enterprise network outside the SSSF. The majority 63% had not had any other involvement but 37% had. This 37% were asked to state what this involvement had been and they provided a range of answers.

Respondents were asked to state their level of agreement with a series of statements about the SSSF as follows:

- Statement One – "my expectations of SSSF membership have been met";
- Statement Two – "the SSSF network is adequately resourced";
- Statement Three – "SSSF membership has provided value for money"; and
- Statement Four – "we would consider paying more for SSSF membership".

The results for statement one are presented in Figure 0.20. 87% strongly agreed or agreed that their expectations of their membership of SSSF had been met. None of the interviewees disagreed or strongly disagreed with the statement.

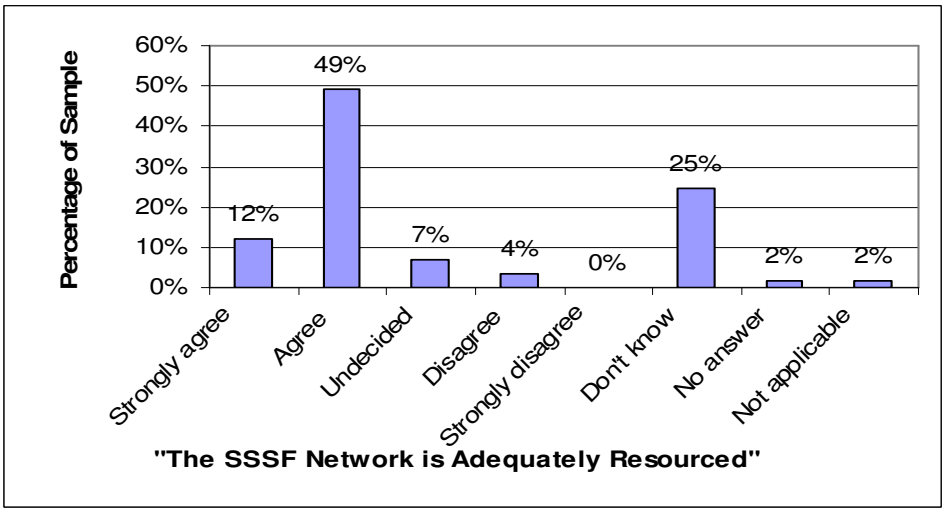
Figure 0.20 Question G2, Statement One



Source: BiGGAR Economics Ltd

Figure 0.21 shows that 61% of interviewees strongly agreed or agreed that the SSSF is adequately resourced. A quarter of respondents stated that they did not know and 4% disagreed with the statement.

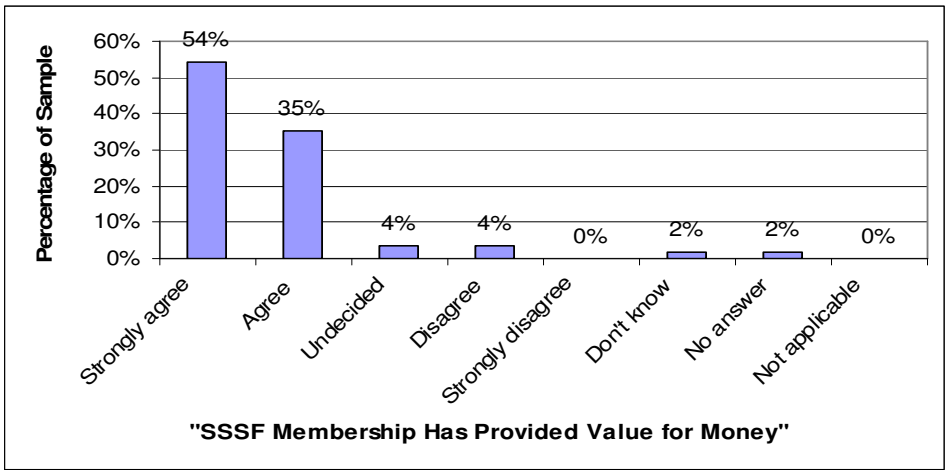
Figure 0.21 Question G2, Statement Two



Source: BiGGAR Economics Ltd

Figure 0.22 shows the results for statement three. The vast majority (89%) of respondents felt the SSSF provides value for money and only 4% disagreed.

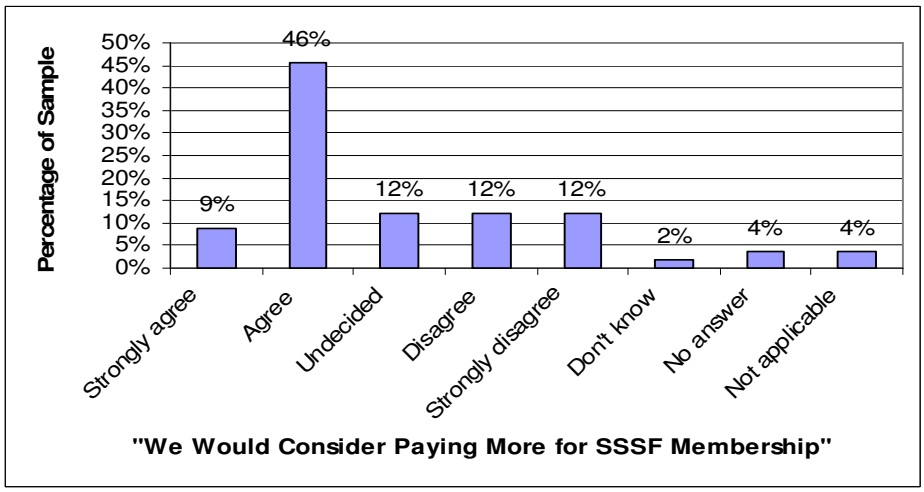
Figure 0.22 Question G2, Statement Three



Source: BiGGAR Economics Ltd

Finally, Figure 0.23 depicts the results for statement four. 55% of interviewees strongly agreed or agreed that they would be willing to pay more for their membership. 12% were undecided about this statement but almost a quarter (24%) stated that they disagreed or strongly disagreed with it.

Figure 0.23 Question G2, Statement Four



Source: BiGGAR Economics Ltd

Interviewees were also asked about how much they currently pay for their membership and how much they would be prepared to pay with the following results:

- when asked about how much they currently pay for membership 67% of the total stated an amount;
- of the replies received the average amount paid for membership was £181;
- when asked about how much they would be prepared to pay for their membership 37% of the total named an amount; and
- of these amounts the average figure was £369.

Respondents were invited to make comments about any potential fee increase and 22 firms made specific comments. These comments fell into seven categories as shown in Table 0.18. The main comments involved placing a caveat on their willingness to pay more for membership. 23% reported that they would only be prepared to pay higher membership fees if it involved an increase in services. 18% stated that any rise in membership fees should be modest and 14% reiterated that they would be unwilling to pay more.

Table 0.18 Question G3, Comments

Category	Number of Responses	% of All Responses
willing to pay more conditional on seeing strategic goals of SSSF	2	9%
willing to pay more conditional on seeing increased services/ benefits	5	23%
pay increase must not place undue financial burden on SMEs	2	9%
reiterated willingness to pay more	2	9%
reiterated unwillingness to pay more	3	14%
any increase must be modest	4	18%
Other	4	18%

Source: BiGGAR Economics Ltd

The responses categorised as 'other' in Question G3 are as follows:

- contributions on an event by event basis (1 respondent);
- must pay something. Something for nothing has no intrinsic value within a level (1 respondent);
- but if moving towards JEMI levels. Questions asked (1 respondent); and
- too early to say (1 respondent).

Respondents were asked about their membership of other industry organisations and the results are found in Table 0.19. They were also asked to comment on what the SSSF does better or less well in comparison with the other industry organisations of which they are members. The comment were categorised and are summarised in Figure 0.24.

Table 0.19 Question G4

		Percentage of 'Yes' Who Are a Member of…						
Total Number who Answered 'Yes'	Number who are a Member of More Than One	JEMI	S2C2	SEMI	FSB	Scottish Optoelectronics Associates Photonics Cluster	NMI	Other
28	5	43%	21%	7%	7%	4%	4%	32%

Source: BiGGAR Economics Ltd

Figure 0.24 Question G4, Comments

Category	Number of Responses	% of All Responses
• SSSF good value for money	5	15%
• SSSF has better/ more activities and services	1	3%
• SSSF More relevant for firm's operations	2	6%
• Better networking within SSSF	2	6%
• Other positive	4	12%
• Other organization costs less	0	0%
• Other organization has more global outlook	2	6%
• Other organization operates in different/ more sectors	2	6%
• other organization offers better/ more services and activities	7	21%
• other	9	26%
Total	34	100%

Source: BiGGAR Economics Ltd

APPENDIX D – NON-BENEFICIARIES SURVEY

The non-beneficiaries survey was based on a population of 31 firms who were non-members of former members of SSSF, drawn from the SSSF Baseline Rev 7 database, and with semiconductors listed as 'primary'.

Of the 31 firms on the list, 18 were unobtainable because of incorrect or obsolete contact details, 5 could not be reached after repeated attempts to contact and two declined to participate.

Five firms were successfully interviewed. The following is a summary of the results:

- 3 respondents had never been a member of the SSSF while 2 were former members;
- when asked why they were no longer members the two former members gave a number of reasons: one had ceased trading and was now trading as a new firm and said that he would consider renewing his membership of SSSF. The other had allowed his membership to lapse during a period overseas but stated that he did not see the benefits of being a member of SSSF;
- of those who had been members, none had any recent knowledge of SSSF activities/ services;
- of the respondents who had never been members, all of them had heard of the SSSF, but only one knew anything about its activities and services;
- when asked why they had not joined the SSSF before, two stated that this was primarily because they knew nothing about it. The other interviewee's firm had attempted to join the SSSF previously, but had been refused membership on the objection of an existing member;
- two of the firms derive 100% of their turnover from the semiconductors sector, while the remaining three derive between 10 and 20% of their turnover from the sector;
- three of the firms are members of other industry/ trade networks and these include SEMI, the BFTA and the FSB;
- the average number of employees in Scotland among the firms was 7.8 and the average turnover was £675,000;
- the interviewees were asked about the opportunities/ threats that exist for their firms in the next 5 years. All respondents stated that they will retain some focus on semiconductors, but four stated that they expected to see decline in the semiconductors sector over the next five years. Three of the five firms stated that they are engaging in a policy of diversification in order to remain successful; and
- when asked what services they feel could help their businesses develop in the next five years, the five firms delivered a number of responses. Two stated that financial support and investment would be most helpful, one felt that assistance with marketing would be particularly useful and one stated that additional sectoral information/ intelligence would be of most help to his firm. One respondent declined to reply to this question.

APPENDIX E – MEMORANDUM OF ASSOCIATION

THE COMPANIES ACT 1985

_____

PRIVATE COMPANY LIMITED BY GUARANTEE
WITHOUT SHARE CAPITAL

_____

MEMORANDUM OF ASSOCIATION

of

THE SCOTTISH SEMICONDUCTOR SUPPLIER FORUM LIMITED

_____

1. The Company's name is "THE SCOTTISH SEMICONDUCTOR SUPPLIER FORUM LIMITED".

2. The Company's Registered Office is to be situated in Scotland.

3. The Company's objects are:-

   (a) To promote and develop the semiconductor supplier infrastructure in Scotland;

   (b) To act as an influencing and lobbying body to Scottish, United Kingdom and European governmental and other authorities;

   (c) To assist, where appropriate, the promotion of Scotland and the United Kingdom in inward investment opportunities;

   (d) To support, where possible, indigenous company growth and development;

   (e) To encourage co-operation among individual companies on matters of common interest and to develop, in conjunction with Scottish Enterprise, a joint approach to such matters;

   (f) To develop linkages with other industry bodies;

   (g) To communicate and share industry knowledge and information amongst member companies;

(h) To provide direction to appropriate bodies in matters relating to the development of the semiconductor industry;

(i) To carry on any other business which may seem to the Company capable of being conveniently carried on in connection with any business which the Company is authorised to carry on or may seem to the Company calculated directly or indirectly to benefit the Company;

(j) To purchase, take on lease or in exchange, rent, hire or by any other lawful means acquire and to hold for any estate or interest any lands, buildings, hereditaments and any heritable or moveable, real or personal property of any kind; and to take or by any lawful means to acquire any easements, rights, privileges, concessions, options and licences of any kind which are or may be necessary or convenient for any of the company's business;

(k) To enter into any partnership or arrangement with any company, firm or person carrying on or proposing to carry on any business within the objects of this Company, and to acquire and hold, sell, deal with or dispose of shares, stock or securities of any such company, and to guarantee the contracts or liabilities of, or the payment of the dividends, interest or capital of any shares, stock or securities of and to subsidise or otherwise assist any such company, firm or person;

(l) To purchase, subscribe for or otherwise acquire, and to hold the shares, securities or obligations of any company in the United Kingdom or elsewhere;

(m) To invest the monies of the Company in or upon such shares, securities and investments and in such manner as may from time to time seem expedient;

(n) To borrow or raise or secure the payment of money in such manner and upon such terms as the Company may think fit;

(o) To draw, make, accept, endorse, discount, execute and issue cheques, promissory notes, bills of exchange, bills of lading, warrants and other negotiable or transferable instruments;

(p) To lend money to such persons, upon such terms and subject to such conditions, as may seem expedient;

(q) To enter into any arrangements with any government or authority, supreme, municipal, local or otherwise, and to obtain from any such government or authority any rights, concessions and privileges that may seem conducive to the Company's objects or any of them;

(r) To establish and maintain or procure the establishment and maintenance of any non-contributory or contributory pension, provident or superannuation funds for the benefit of, and to give or procure the giving

of donations, gratuities, pensions, allowances or emoluments to any persons who are or were at any time in the employment or service of the Company;

(s) To promote or to join with any other person or company in promoting any company or companies for the purpose of its or their acquiring all or any of the property, rights and liabilities of the Company, or for any other purpose which may seem directly or indirectly calculated to benefit this company and to pay all the expenses of or incidental to such promotion;

(t) To amalgamate with any other Company;

(u) To do all such other things as the Company may deem incidental or conducive to the attainment of any of the above objects of the Company.

The objects set forth in any sub-clause of this clause shall not be restrictively construed but the widest interpretation shall be given thereto, and they shall not, except when the context expressly so requires, be in any way limited to or restricted by reference to or inference from any other object or objects set forth in such sub-clause or from the terms of any other sub-clause or by the name of the Company. None of such sub-clauses or the object or objects therein specified or the powers thereby conferred shall be deemed subsidiary or ancillary to the objects or powers mentioned in any other sub-clause, but the Company shall have full power to exercise all or any of the powers and to achieve or to endeavour to achieve all or any of the objects conferred by and provided in any one or more of the said sub-clauses.

4. The liability of the members is limited.

5. Every member of the Company undertakes to contribute such amount as may be required (not exceeding One Pound) to the assets of the Company, if it should be wound up while he is a member, or within one year after he ceases to be a member, for payment of the debts and liabilities of the Company contracted before he ceases to be a member, and of the costs, charges and expenses of winding up, and for the adjustment of the rights of the contributories among themselves.

6. If, on the winding up of the company, any monies remain after the satisfaction of all the Company's debts and liabilities, such monies, if they be unspent funding contributions made by Scottish Enterprise or any other body will be refunded to these bodies and any remaining monies shall be distributed equally amongst the members and associate members of the Company.

We, the subscribers to this memorandum of association, wish to be formed into a company pursuant to this memorandum; and we agree to take the number of shares shown opposite our respective names.