



Technology-based Venture Fund Demand Study

For

One NorthEast

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1 Executive Summary

In this report, commissioned by ONE NorthEast we examine the need for further publicly supported venture finance provision in the North East of England. We reviewed the recent history of equity-based funding in the NorthEast before projecting the short and medium term demand and likely supply of such funding. We conclude that, without a substantial intervention, there is likely to be a significant shortfall in availability of funds and therefore the efforts of the Centres of Excellence to create new high value-added technology businesses are likely to be frustrated. We conclude with a set of recommendations.

1.1 Questions Addressed

We were asked to address the following questions within this study:

Primary Question 1: Demand - What is the demand for Early Stage Technology Equity Finance?

Is there a £40m excess of capital demand (within the relevant technology sectors in the region and at the right funding stage and with appropriate company profiles) over the likely availability of funds supply over the next five years?

Primary Question 2: Supply - Is there a failure of funds supply that should be met by the public sector?

If there is excess demand, is it likely that the landscape of private sector funding provision will fail to evolve to meet that excess demand?

Secondary Question 1: Stimulation of Demand

What measures are needed to stimulate uptake and optimise outcomes in light of the establishment of the Centres of Excellence?

Secondary Question 2: Comparison with 'Successful' Regions

What lessons can be learned from the approaches taken in Scotland and the East of England?

We summarise our conclusions in respect of these questions in this section.

1.2 Historical Supply and Demand

We have investigated the recent history of technology equity demand, supply and deals in the North East. The equity market in the region has limited general equity dealflow and few technology deals. Most deals are Management Buyouts, with few deals for expansion capital. There is a strong reported reliance on bank and private debt finance. There are few intermediaries and a low level of clustering or networking activity. The rate of technology business formation has been low, with the regional business base generating a few opportunities each year. The University base creates about 6-8 spinouts each year.

In the technology sector, we have seen evidence of a number of Seed equity deals, and levels of funding up to £250k appear possible through grants or equity for good prospects. We have seen few deals in the range £0.5-2m and Early Stage demand has not been satisfied.

There are multiple sources of market failure¹, in particular the lack of a continuous market for technology equity provision, the lack of regional technology venture capital provision, failures in networking and investor readiness, risks of technology investment and an 'equity gap' in the level of finance that can be provided cost-effectively.

There is an equity gap², which is reported to start from about £300-500k and extends to at least £1m to £2m. The top of the equity gap is currently not measurable, as we could find no evidence of recent larger deals. The formal private equity providers will mainly participate in companies that are already

¹ See section 5.5

² We use the term 'equity gap' to refer to the amount of finance that is not regarded by private equity providers to be cost-effective to provide. We use the terms 'access to finance gap' 'demand gap' or supply / demand gap' to refer to the shortage of venture finance provision in the market.

generating revenue and will in general only participate at above £1-2m of equity. There are nevertheless a few exceptional private equity providers in the UK who will participate in pre-revenue technology deals.

1.3 Current and Projected Demand for Equity Finance

There is recent evidence³ for an increase in demand for equity finance in the technology sector in the North East. The Strategy for Success pursued by One NorthEast is creating significantly increased demand and the Centres of Excellence have sizeable pipelines that have been reported and validated in the demand study⁴. National influencing factors include the improved general economy and attitudes towards entrepreneurship in the higher education sector.

Our investigation indicates that the Universities will generate slowly increasing demand and that, provided the Universities and Centres of Excellence work together; this should yield a high quality of demand. The technology focus of the Centres of Excellence is on sectors with significant capital requirement at the pre-revenue stage. Embryonic businesses in these sectors will fail unless they have access to finance.

The demand study projects a demand for £142-280m of technology equity finance, composed of £18-36m of Seed and £124-244m of Early Stage funding over the next five years⁵.

We found technology companies surveyed to be more amenable to equity finance than expected. We thus conclude that equity aversion will be gradually broken down by the availability of finance, examples of success, and an emphasis on investor readiness and expanding networking opportunities.

1.4 Current and Projected Supply of Equity Finance

The supply side of our study indicated an availability of around £64m of equity available for Seed and Early Stage technology investment over the next five years⁶. This is composed of £11m of Seed equity and £53m of Early Stage equity, including the new NStar funds. The private equity participation is projected to be £24m, of which about two thirds will be co-investments. This represents a substantial increase in private equity participation in the region, which will depend on the success of NStar, and in particular the credibility of the dealflow presented for co-investment.

We conclude that private equity providers may be persuaded to invest alongside the COIF by developing a close working relationship with NStar. There will nevertheless be a continued reluctance to invest amounts below £1-2m, especially in technology companies at the pre-revenue stage. It is unlikely that private equity providers can be persuaded to open offices specialising in technology in the North East, although the intermediaries may add more technology specialists to support dealflow.

The intervention of NStar should create, not distort the market if it is able to work with other finance providers both within the North East and beyond.

³ For example the scale of the validated demand pipeline and the 32 applications for Proof of Concept funding received in a pilot round operated between December 2003 and March 2004.

⁴ See section 5.3

⁵ Description of this, and the low, mid and high estimates is to be found in section 5.3.5

⁶ See section 5.2

1.5 Evidence for the Gap in Access to Finance

The projections of supply and demand over the next five years show a substantial change from the past:

Figure 1: Projection of Supply and Demand

		2000-2004	2004-2009
Demand	No. Of Deals	10 completed deals pa	50 - 65 qualified prospects pa
	Value	£3-5m completed deals	£28-56m pa
Supply	Value	£3-5m	£ 13-15m

The criteria imposed by private equity providers are such that there will be viable businesses that do not meet their requirements on the basis of potential size or rate of return. These companies may nevertheless be sensible investments, given that they should generate viable businesses in the region. Prospects should thus be divided into those with potential likely to interest private equity investors (35%) and those that would result in sustainable businesses but at a level below that of interest to private equity providers (65%)⁷.

The stimulus presented by the Strategy for Success should create a demand for funding at the stage before which the private sector will invest. A fully public sector vehicle is thus needed to bring early stage pre-revenue technology prospects to an investor ready state. In the case of the companies that will potentially meet the requirements of the private equity providers, this will lead to co-investment or wholly private equity investment at the next stage. In the case of companies that would not meet the private equity investor requirements, this should lead to the generation of a range of viable businesses in the region's technology economy.

The total gap between projected demand and supply in the region from 2004 to 2009 is projected as follows:

Figure 2: Projected Demand Gap

	Low (£m)	Mid (£m)	High (£m)
Equity Demand Forecast	142	205	280
Equity Supply Forecast	74	64	61
Total Demand Gap	68	141	219
Potential funding requirement from Public Sector	24	53	88

The high, mid and low estimates were produced using a set of estimating factors.

The level of the disjuncture between past and future demand will lead to a need for care in the timing of the availability of finance, judgement of the level of finance provision required given the range of estimates in the gap as presented and a need for credibility in the quality of prospects for funding.

1.6 Comparison with Other Regions⁸

There are substantial differences between the capital-raising scenes in the North West, Scotland and East of England, although all seem easier than the North East.

The East of England, largely due to the continued successes in the Cambridge area, has developed a strong, sophisticated spectrum of finance with great depth of experienced financial managers to

⁷ See section 5.3.3 Figure 38: Growth Aspirations

⁸ See section 5.7

complement the rich flow of technological entrepreneurs and active networking. As a result, good propositions pitched at the appropriate level of finance, will generally succeed.

The North West and Scotland have acted to raise the level of funds supply substantially and are both now affected to some degree by an apparent excess of funding compared to the number of good, investor-ready, propositions and / or availability of experienced management.

The North East can learn from all three regions and the Centres of Excellence, apart from their role in stimulating technology transfer and business propositions can play a key role in developing the networking opportunities within their clusters, ensuring that those propositions are “investor-ready” and avoid equity gaps that may emerge above £2m.

1.7 Recommendations

1.7.1 Proposed Future Equity Provision

- We conclude that, despite the availability of the COIF and POC funds, there is a further need for a wholly public sector vehicle to provide a continuum of finance in the region. The structure of the vehicle will be a matter for consideration by One NorthEast.
- There is a risk of overprovision, given the novelty of NStar and its COIF and POC funds. The timing of the introduction, phasing of funds and level of the SPEV should be considered carefully in order to minimise this risk. We understand that it is likely that the approval process will be sufficiently long such that the uptake of the existing funds will be apparent before the SPEV is approved.

1.7.2 Issues for the Region

- The Centres of Excellence should be encouraged to stratify their prospects into those for which medium or high growth is expected. The prospects may then be supported accordingly, with the goal of expending resources wisely and securing the maximum potential private equity into the region.
- NStar should work closely with other regional stakeholders and market participants to ensure that networking and investor readiness are at the forefront of the regional agenda.
- The targets and operational methods of the fund manager appointed for any wholly public equity vehicle will need to be considered carefully by NStar. This should be aimed at a commercial management that is far-sighted, technology friendly, not risk-averse and recognising the overall economic gain to the region from investment.

1.7.3 Further Areas for Study

- The provision of support for networking and investor readiness in the region requires further examination. It may be that these are already suitably addressed by Entrust, NStar and the Centres of Excellence, but the success of the current and proposed funds is reliant on improvements in this area.
- Further investigation should be undertaken into the means by which grant and debt provision is combined with equity, in particular the ease of combination of funding methods
- Further work should be undertaken to understand the transition processes between the stages of company development, in particular between Seed and Early Stage. The objective of this work should be to enhance support in the region.

1.8 Acknowledgements

We are grateful for the input from over 120 people in more than 80 organisations including One NorthEast, NStar, the Government Office of the North East, the Centres of Excellence and the wide range of companies, intermediaries, finance providers, Universities and other stakeholders who provided us with so much support throughout the course of this investigation.

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Qi3, June 2004

2 Introduction

2.1 Report Structure

The structure of this report is as follows:

- Section 1 is an executive summary, which provides an overview of the study and the key findings
- Section 2 is an introduction, which describes the background, scope and limitations and methodology used in the course of the study
- Section 3 is a description of the supply of finance, demand for finance and the fundraising process
- Section 4 describes the models developed for the study
- Section 5 contains the main findings of the survey and estimate of the gap in finance provision
- Section 6 provides a set of conclusions and recommendations for further action

2.2 Background

The North East of the United Kingdom has often been characterised as a region in decline. Despite a background of prominence in the region's manufacturing and skills base, recent performance has suffered from the decline of manufacturing and the failure to develop new industries. There is much evidence to show the relatively poor status of economic output and public health⁹. Much of the region is classified as Objective 2 for the purpose of European Structural Funding.

This may be regarded as a poor foundation for the development of new enterprise, but there are other, more recent indicators to show an upsurge in the regional economy. The Regional Development Agency One NorthEast¹⁰ has developed and implemented a Strategy for Success¹¹ to stimulate technology businesses in the region. Technology companies have the potential to generate added value through higher potential margins, skilled labour and the effect of their associated supply chains. This regional strategy is managed by One NorthEast and delivered by five Centres of Excellence¹² and NStar¹³, an early stage technology venture finance company established by One NorthEast. The Centres of Excellence have attracted a number of skilled technology businesspeople into the region with the task of stimulating the 'cluster' development of existing and new businesses within their technology sectors. Although the strategy has been in place for some time, delays in staffing and mechanisms for funding have created a hiatus between announcement of the policy and its effective implementation. It is believed that the conditions for success are now in place.

Alongside this stimulus of technology businesses comes the requirement for finance, advisory and support structures to enable their development and growth. Part of this finance requirement is fulfilled by sales and part by debt or grant instruments. Nevertheless, a characteristic of technology business growth is the need for equity finance.

There is a history in the region of seed funding provision and One NorthEast has already provided two new, larger funds to NStar. One supports Proof of Concept development¹⁴ (£10m) and the second is a co-investment fund, which has £23m of European funding, and requires private sector co-investment. These

⁹ See for example <http://www.statistics.gov.uk/pdfdir/rgv0404.pdf> for a recent regional comparison of Gross Value Added in the economy. The North East was the worst performing region in 2002, adding £11,800 per head of GVA, compared with a national average of £15,300.

¹⁰ See www.onenortheast.co.uk

¹¹ See www.strategyforsuccess.info for further information

¹² The Centres of Excellence are based upon technology areas identified by earlier analysis of the strengths of the academic and industrial base in the region. They are Codeworks (Digital Technology and Digital Media)

www.codeworks.net; NaREC (New and Renewable Energy) www.narec.co.uk; Cenamps (Nanotechnology and Photonics) www.cenamps.com; Cels (Life Sciences) www.celsatlife.com; and CPI (Chemical Process Industries) www.uk-cpi.com

¹³ See www.NStarfinance.com

¹⁴ The Proof of Concept Fund (POC) www.NStarfinance.com/poc.htm and the North East Co-investment Fund (COIF) www.NStarfinance.com/news-vc-33m-05-01-04.htm

funds have attracted £27.5m European Regional Development Fund (ERDF) finance. A further £44m fund, known as the Special Purpose Equity Vehicle (SPEV) is proposed, to provide a 'continuum of finance' which NStar defines as 'a comprehensive series of financial tools to meet the funding requirements of technology businesses at all stages of their development up to the point at which the company is capable of receiving private sector venture capital investment'.

The creation of the Centres of Excellence and of NStar has substantially altered the landscape of both supply and demand for venture finance in the region. There is now a need to understand the demand for such funds before the third funding vehicle (the SPEV) is approved. This requirement is underpinned by the desire of the European Commission to see evidence of the demand for venture finance and of market failure to adequately meet the demand prior to further consideration of the SPEV.

According to One NorthEast, previous studies have been 'limited in scope and extent in terms of the sample surveyed and analysis of historic and actual investment activity'¹⁵. It is difficult to understand the effect of the stimulus of the Strategy for Success and to predict future demand where the past and future are expected to be so different.

Qi3¹⁶ specialises in the commercialisation of technology and its principals have considerable experience as practitioners in the development and growth of technology business. A number of public sector seed funds have been developed with support from Qi3 and a significant number of businesses created. Qi3 is used to understanding complex and changing markets. The specific value that Qi3 has sought to add to this demand study has thus been to understand the dynamics of the evolving landscape in terms of the real business drivers.

2.3 Terms of Reference

2.3.1 The Briefing Note

One NorthEast provided a briefing note that discussed aims and objectives, the scope and specific themes and issues to be covered by the demand study.

'The purpose of the proposed study is to identify and measure existing and potential demand for early stage venture, equity, loan and concept finance for the investigation, creation and growth of potential and existing SMEs'.

Other discussions within the briefing note and consultation with One NorthEast revealed that the scope of the study was limited to (a) technology business development, (b) equity, rather than debt instruments and (c) the North East region.

The briefing note highlighted the following specific themes and issues to be addressed by the study:

1. Clear explanation and consideration of the definitions used
2. A consideration of the finance needs of early stage technology and commercial development
3. Forms of finance available for technology development and business creation
4. Extent of uptake of these by SMEs and entrepreneurs
5. Historic availability and use of finance instruments in the region
6. Current investment activity and need/demand in the region
7. Projected future investment activity and need/demand in the region
8. Summarise the key reported views of UK and EU studies in this area
9. Place the North East situation in the national UK context

¹⁵ From the One NorthEast briefing document

¹⁶ See www.qi3.co.uk for further information

2.3.2 Primary and Secondary Questions

At the commencement of the demand study, it was agreed with One NorthEast that the briefing document should be resolved into a focused set of questions:

Primary Question 1: Demand

What is the demand for Early Stage Technology Equity Finance?

Is there a £40m excess of capital demand (within the relevant technology sectors in the region and at the right funding stage and with appropriate company profiles) over the likely availability of funds supply over the next five years?

Primary Question 2: Supply

Is there a failure of funds supply that should be met by the public sector?

If there is excess demand, is it likely that the landscape of private sector funding provision will fail to evolve to meet that excess demand?

Secondary Question 1: Stimulation of Demand

What measures are needed to stimulate uptake and optimise outcomes in light of the establishment of the Centres of Excellence?

Secondary Question 2: Comparison with 'Successful' Regions

What lessons can be learned from the approaches taken in Scotland and the East of England?

These questions were discussed and refined with the project Steering Group during the course of the study.

2.3.3 Confidentiality of Responses

All interviews were conducted according to 'Chatham House' rules in order to encourage stakeholders and other participants in the study to give open and honest input to the process. The views of individuals and specific responses involving commercial or confidential information have been aggregated or anonymised unless specific permission has been granted.

2.4 Scope and Limitations

2.4.1 Scope of the Study

The scope of this study has been developed in order to address a meaningful set of questions as posed in the previous section. The focus has been on the demand for early stage equity finance for technology businesses. This implies the following:

Technology

The meaning of 'technology' can have a narrow scope of science and 'high technology', or a broader definition as 'the application of science, especially to industrial or commercial objectives'. The study includes all activities that constitute technology in this broader sense and is not limited to those technologies addressed by the Centres of Excellence. This approach is important in classifying activity within the sector.

Equity

The emphasis has been on equity finance, rather than debt (loan) and grant funding. The survey has measured demand for funding in total and the residual requirement is thus apparent. The role of debt finance in the funding of technology businesses is discussed.

Equity Gap

It is widely recognised that there is an 'equity gap' between the upper levels of business angel finance and the lower level of finance at which private sector venture capital will participate. Participants in the survey have been asked to comment on their perception of this gap and its' applicability in the North East technology sector.

Access to Finance

There has been previous work¹⁷ undertaken to examine the ‘access to finance’ (or ‘supply/demand’, or ‘funding’) gap in the North East. This gap describes the difficulty that companies find in seeking the right source of funds. We use this expression to refer to the amount of demand that should be met by equity funding but which is in excess of the available supply.

Investment Stages

We have used an adapted version¹⁸ of the BVCA classification of investment stages with a further important modification in that Venture Capital firms distinguish between early stage investments on the basis of their achievement of third party sales. These are referred to as pre-revenue and post-revenue prospects. We describe the stages of investment as:

- **Seed:** To allow a business concept to be developed, perhaps involving the production of a business plan, prototypes and additional research, prior to bringing a product to market and commencing large-scale manufacturing. This is referred to in the briefing note as ‘concept finance’.
- **Early Stage:** To develop the company’s products and fund their initial marketing to the stage of first third party sales (pre-revenue) or to initiate commercial manufacturing and sales in companies which have completed the product development stage (post-revenue).
- **Expansion:** To grow and expand an established company. For example, to finance increased production capacity, product development, marketing and to provide additional working capital.
- **Late Stage:** May include Management Buy-Out (MBO), Management Buy-In (MBI), rescue, refinancing, bridge financing etc.

The scope of the study covers the whole of technology equity finance, although the focus is on the Early Stage as described above. We have excluded review of late stage finance for restructuring of businesses.

Time Period

The time period used for historical analysis was from approximately April 2000 to March 2004. The period used for estimation of future supply and demand for venture capital was from April 2004 to March 2009.

2.4.2 Limitations

The main limitations of the study are in scope and process. The scope of the study has been restricted in the manner described above. The process has been limited in two ways:

International Comparison

The study includes reference to the experiences of three other regions of the United Kingdom¹⁹, without extending this to comparison with other regions internationally. This is justified both on the basis of the scale of the project and because the North East is shown to have different performance to other United Kingdom regions that otherwise share common characteristics.

Process

The study has sought to build a model for the supply, demand and investment process for technology equity finance. This has been tested empirically through interviews with a wide variety of stakeholders. A sample of each type of stakeholder was interviewed in order to provide a test for the assertions developed

¹⁷ For example “Improving Access to Finance for Small and Medium Enterprises in the North East”, Deloitte & Touche April 2003. Commissioned by the Regional Access to Finance Expert Group.

¹⁸ “Funding Problems Facing Early Stage Businesses in the Cambridge Sub Region”, Walter Herriot 2002

¹⁹ Scotland, the North West and the East of England

in the model. The approach, although model-based, is empirical in nature and cannot give definitive or complete answers. It may be that individuals have widely differing opinions from the findings. Nevertheless it was clear from the study that some of the findings can be stated strongly, as the evidence is consistent from a number of sources.

2.5 Methodology

The demand study was carried out in four phases, throughout which Qi3 and the Steering Group collaborated on a regular basis:

- Phase 1 - To identify issues through consultation of the stakeholder community
- Phase 2 - To develop a working model of the supply and demand for finance, and the process through which finance is secured by technology companies
- Phase 3 - To test this model through a survey
- Phase 4 - To identify funding demand, key issues resulting from the survey and develop a set of answers to the questions posed

This work was carried out between April and June 2004. Data was gathered through a combination of desk research²⁰, face-to-face interviews, workshops and telephone interviews. There were several review meetings with the Steering Group and regular correspondence on details of the model as it was being developed and tested.

2.5.1 Stakeholder Consultation

In order to understand the future demand for finance it was necessary to understand the funding landscape. This comprises the history of the region in respect of the creation and development of technology businesses, activities of regional finance providers and the advisory community. This provided an understanding of the baseline of activity in the region.

In order to project the potential dealflow, it was necessary to understand the current and anticipated impact of the Strategy for Success implemented by One NorthEast. To this end, we consulted representatives from One NorthEast, the Government Office for the North East, NStar and the five Centres of Excellence.

2.5.2 Development of a Model

In order to describe the regional funding landscape, we created three linked models for supply, demand and the fundraising process. These models could then be populated with data and sources compared to reveal mismatches.

The starting point of this phase was to examine models used in earlier studies. This led to the development of an initial set of models that were revised several times through discussion with the Steering Group and as new evidence emerged from the survey.

It was important to identify relevant stakeholder groups and select initial interviewees with whom to test the developing models. These were chosen as follows:

- Universities
- Venture Finance providers based in the region
- Venture Finance providers based outside of the region
- Business Angels / High Net Worth individuals
- Corporate Finance houses
- Other intermediaries
- Networking and support organisations

²⁰ Sources included company and Venture Capital provider web sites, previous studies listed in Appendix C, Office of National Statistics and similar sources, press reports and our own knowledge.

The method applied was to examine the drivers in the process and represent this in the descriptive model.

2.5.3 Survey

The survey process included four elements:

- Consultation with the internal stakeholders
- Process mapping with the Centres of Excellence
- Survey of external stakeholder communities
- Investigation of other regions for comparison

The initial interviews were carried out face to face and in workshop / team formats in order to elicit detailed input to the models as they were developed. Telephone interviews were used in the second stage of the survey in order to validate the assertions generated in the first stage.

Process Mapping the Centres of Excellence

The Centres of Excellence are stimulating an increased flow of prospects that will require funding. We engaged in a five-step process to generate a 'pipeline' of prospective dealflow for the Centres of Excellence:

- Initial interviews with the Centres of Excellence in order to understand their technology domains and approach to stimulating activity in the region
- We worked through the business plans of the Centres of Excellence and met selected contacts in target companies ('prospects')
- We ran process mapping exercises with each Centre of Excellence to populate the pipeline
- These pipeline descriptions were then sent to the Centre of Excellence for verification
- The results were then validated by selection of further prospects for inclusion in the telephone survey

This approach led to some confidence in the dealflow presented by the Centres of Excellence in the process mapping exercise.

Universities

There are five Universities in the region; Durham, Newcastle, Sunderland, Teesside and Northumbria. The Universities of Durham and Newcastle were selected for interview, as it was believed that these have the greatest research intensity and capacity for generation of spinout companies. We received indirect input from the other three universities.

Regional Venture Finance Providers

There are five providers of Venture Finance with headquarters in the region:

- NStar is the entity established by One NorthEast, with £33m of funds under management in the form of a £10m Proof of Concept fund and a £23m North East Co-investment Fund
- Northern Venture Managers is a private equity firm based in Newcastle with £160m under management
- Northern Enterprise is a private equity firm that manages a number of publicly supported seedcorn funds and has about £50m of funds under management
- Entrust is a support and networking organisation for Business Angels. Its only role as a venture finance provider is through the management of the £2.5m North East Equity Matching Fund²¹
- UK Steel Enterprise provides support to SMEs in areas affected by changes in the steel industry.

Given the small size of the local Venture Capital community, we interviewed all of the players.

²¹ Enterprise Matching Funds are an initiative supported by funding from the UK Department of Trade and Industry.

Venture Finance Providers Based Outside of the Region

Over one hundred Venture Finance providers are listed by the BVCA as having interest in investment in the North East. A filtering process²² resulted in a list of 19 providers being selected as having shown interest in investment in the region. Of these, 11 participated in the survey. A further 5 providers from the longer list were selected as a control group and included in the survey.

Business Angels / High Net Worth Individuals

We identified the activity of the local business angel community through discussions with members of the Steering Group, Venture Finance providers and Entrust.

Corporate Finance Houses

Corporate Finance in the North East operates within the accountancy firms or as freestanding operations. Six of the firms in the region were selected for interview. Some were chosen because of their reputed involvement in technology venture finance; others for their strong local presence.

Other Intermediaries

We interviewed 9 banks, accountants, solicitors and other organisations that act as intermediaries in the fundraising process. Our interviews with the Universities, Centres of Excellence and the Small Business Service also covered their roles as intermediaries.

Selection of Other Regions for Comparison

There are nine regions within the United Kingdom and the selection of those suitable for comparative purposes was not easy. The devolved administration of Scotland and the North West region were chosen because they are both far from London²³, exhibit different behaviours and both have established Seedcorn and Co-investment funds in the recent past. The East of England was chosen as a region that is perceived nationally and internationally as a model of successful market behaviour and where few of the support mechanisms offered by the European Union are present.

2.5.4 Identification of Key Issues

The survey results allowed final modification of the model to the version presented in this report.

At this stage, the inputs generated by the survey and research into funding sources were combined to provide an estimate of the level of supply of equity

The sources of demand were combined in order to provide an estimate of the demand for equity.

Input gathered through the various interviews could then be analysed in order to identify and explain failures in the process of fundraising. This process also led to identification of other issues that should be pertinent to future actions in the region.

²² See section 4.4.1 for a full description.

²³ Distance from London has often been reported as a factor in the reluctance of Venture Finance providers to participate in the regions.

3 Supply, Demand and the Process of Fundraising

3.1 The Finance Needs of Technology Companies

Companies require finance for growth, restructuring, management buy out / buy-in or rescue from financial difficulty. The instruments used are generally described as grant, debt or equity finance. The variety of instruments is much greater than this, as there are many intermediate or mezzanine products that combine forms of finance. Examples are preference shares and convertible loans.

The financial instruments used by a business are a function of personal choice, availability and suitability for the business and this has been a subject of previous study in the North East and in other regions²⁴. The North East has historically been relatively unsophisticated in its use of financial instruments, with an aversion to losing control through acceptance of equity finance and a reliance on organic growth²⁵.

There are differences in the funding requirements of technology and non-technology businesses, with prospective technology businesses having some of the following characteristics:

- High risk of technical failure
- Technology development is expensive and takes a long time before first sales achieved
- There are often 'chasm' effects, which delay the adoption of new technologies and encourage inertia (alternative solutions or extension of old technology is often preferable)
- Many technology businesses are technology-led, not market-oriented

In view of these disadvantages, it is well to remember the advantages of technology business:

- Disruptive technologies enable major product-market advances
- These advances can lead to business growth at rates well above the norm
- Technology based products may reach global markets quickly
- Technology businesses should provide higher Gross Value Added to the economy and better wages for staff

These characteristics of technology businesses lead to particular behaviours in the raising of finance:

Seed

The pre-seed and seed stages of finance generally require the proof of the technical concept, assessment of the market potential for the idea and protection of Intellectual Property Rights. The amounts of money required for most technologies at this stage are limited (although some technology prospects may require very large amounts of seed finance).

Seed funding is obtained from a variety of sources, including personal loans, mortgages, Research Council grants and specialist seed funds, which offer loans or equity in various forms. There are also several products offered by the UK Department of Trade and Industry to support this stage of product development.

Early Stage (Pre-revenue)

This is perhaps the most difficult stage of fundraising for technology businesses. The amounts of money required are much higher than in the seed stage and the risk of technical and market failure is still high. There is usually limited possibility of loan finance except in support of the assets required for development. Funding is often made up of a mixture of syndicated equity, grant support and loans. Companies that require amounts of finance within the equity gap may find it even harder to secure financial support.

²⁴ See for example "Financing for Growth", a report by the Ulster Society of Chartered Accountants, 2001. This report examined the situation in Northern Ireland and mirrors the work undertaken in the North East.

²⁵ As demonstrated by the prevalence of low-risk late stage deals in the North East compared with other regions. See the BVCA data in section 5.2

There have been several attempts to work around the problem of this phase of investment through the development of co-investment funds and encouragement of improved investment readiness. Some companies have raised larger early stage rounds, with the intention of being fully financed through to the stage at which they predict a positive cash flow.

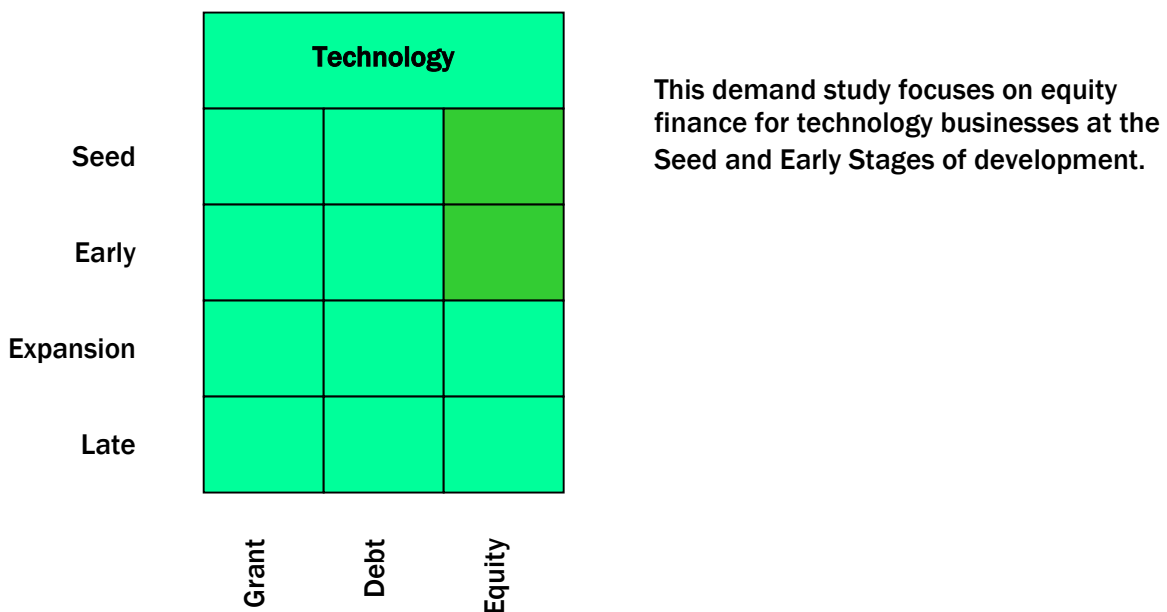
Early Stage (With Revenue)

Technology companies that can demonstrate initial sales to third parties are in a significantly better position to secure further funding for the initiation of volume manufacture and development of sales and service channels. At this stage, the capacity to secure grant funding decreases, and the availability of debt finance becomes easier.

Expansion and Late Stage

When the company is at this stage of development, its ability to secure finance is similar to that of a non-technology business. The equity gap is still present, as this relates to the cost of transaction for the investor. The business may at this stage need to raise finance to support its working capital, fund acquisitions or support development of a new product or market. This finance may be provided through any form of equity or debt. Grant finance is usually less important at this stage although it is helpful in some circumstances as it reduces the financial risk.

Figure 3: Stages and Types of Technology Funding



3.2 Other Requirements

The entrepreneurial creation of technology businesses requires more than the basic idea, business team, and funding. More, and more successful, businesses are created when the local environment is populated with people who have previously raised venture finance and people with high net worth and/or rich operational business experience and when these populations are encouraged to share ideas and experience relatively openly, especially within a 'cluster' of like-minded businesses. The phenomenon of 'clusters' has often been used to explain the accumulation of a group of businesses in a given market or technology sector within a localised area.

The Centres of Excellence in the North East form part of the strategy to develop clusters around five technology groupings within the region. For a cluster to succeed it requires a sustainable population of

companies, access to finance, support, advisory and intermediary services, transport and operational infrastructure.

The processes of idea sharing and fundraising bring additional benefits to the company. In particular:

- **Process learning:** people who have secured venture finance are more likely to be successful on future occasions, partly by knowing how to make a business 'investor-ready' and partly by presenting that business more attractively to a potential investor.
- **Support from non-operational mentors / experts:** investors will often provide non-executive support and guidance to the investee company. This will often be directed at encouraging a broader management team and strategic perspective than that of the management prior to investment.

3.3 Supply of Finance for Technology Companies

There is a multitude of sources of grant, debt and equity finance in the North East and lists of providers are published in several forms²⁶. The following examples give a summary of the types of finance available.

Grant support is available from:

- Department of Trade and Industry products (in particular the Grants for Research & Development)
- Research Councils and Universities
- Charities and prize funds
- Regional and sub-regional grants for enterprise and inward investment

Debt finance is available from:

- Personal borrowing (for example credit cards, mortgages and directors' loans)
- Friends, family and founders
- Banks
- The Small Firms Loan Guarantee Scheme and the North East Regional Investment Fund both offer loans to companies with reduced guarantee requirements
- Regional and sub-regional grants for businesses
- Selective Finance for Investment in England (formerly Regional Selective Assistance)²⁷

Equity is available from:

- Friends, family and founders
- Business Angels
- High Net Worth Individuals
- Private Equity (Venture Finance providers)
- Publicly supported funds

Public sector finance is available through funds supported by One NorthEast and the European Union, the Department of Trade and Industry and other organisations such as NESTA²⁸.

3.4 The Fundraising Process

A model representing the fundraising process is presented in section 4.3.4. This process is best understood as having mechanisms and controls on the process inputs and outputs.

It is important to note that the process appears different from the perspective of the investor from that of the prospective investee. Failures in the market are explained by the inability of supply and demand to match one another through the fundraising process.

²⁶ For example "Enterprise North East" issue 15, April 2004

²⁷ See www.dti.gov.uk/regionalinvestment for further information.

²⁸ The National Endowment for Science, Technology and the Arts www.nesta.org.uk

Participants in the fundraising process are finance providers, intermediaries, networking organisations, mentors, and public sector support organisations.

The credibility of a technology proposition is said to depend upon five requirements²⁹:

- A global, growing market
- The potential of the technology to disrupt the market
- A strong management team
- Strong Intellectual Property Rights
- A clear business model through which revenue and profit can be generated

The fundraising process has a natural tension between the needs of suppliers and consumers of funds. This process can be extended over many months and has a significant number of points at which process failures or discontinuities may occur. It is natural that companies and investors will have different perceptions of equity value and the probability of success.

²⁹ These five factors are adapted from research into the attitudes of Venture Finance providers previously undertaken by Qi3.

4 Models

4.1 The Disjuncture Between Past and Future Demand and Supply

The task of estimating future supply and demand for equity finance is made difficult due to the recent step change in activity in the region stimulated by the Strategy for Success. We looked at activity over the past four years (from April 2000 to March 2004) during which time historic levels of activity in the region have been low. Nevertheless, the Centres of Excellence all report strong pipelines of prospects for finance.

This disjuncture necessitates that the model is based upon forward indicators and that the projected demand is subjected to scrutiny in order to establish credibility.

4.1.1 Need for Forward Indicators

The model must be analytical and based upon future indicators, rather than extrapolation of past performance. In particular, the British Venture Capital Association reports³⁰ the number of private equity deals as a proportion of the VAT-registered business base. This measure is unhelpful in that it measures existing companies without taking account of the Universities, inward investment or the effect of the future stimulus provided by the Centres of Excellence.

4.1.2 Credibility of Demand

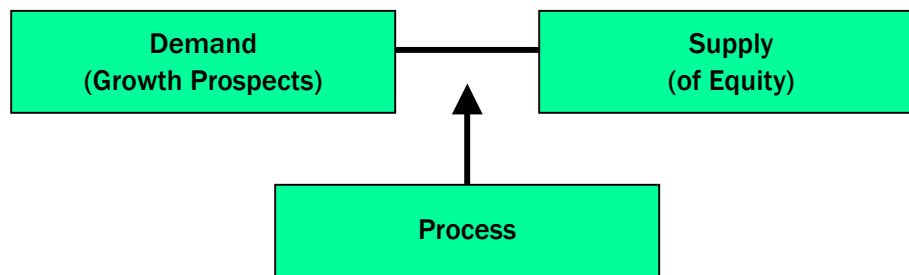
The profile of future demand is expected to be much greater than that experienced in the region in the past. The future flow of prospects for finance must be credible, and this was tested by subjecting the reported prospect pipeline to external validation.

4.2 Overview of the Models

We thus chose to develop a model based upon three linked models of supply, demand and the process of funding:

- The supply model is intended to estimate the amount of money available for investment in technology businesses, the sources of that funding and the propensity of those sources to invest at the Seed and Early Stages.
- The demand model is designed to project the amount of money that will be required for investment in technology businesses 'prospects' at the Seed and Early Stages.
- If supply and demand were perfectly matched, there would be no requirement for further funds. Thus, when demand is subtracted from the supply for Seed and Early Stage finance requirements, this will reveal the real gap in access to finance in the region.
- The process model acts as a basis for description of market failure

Figure 4: The Process Model



³⁰ The annual "BVCA Report on Investment Activity" includes this data.

4.3 Detail of the Models

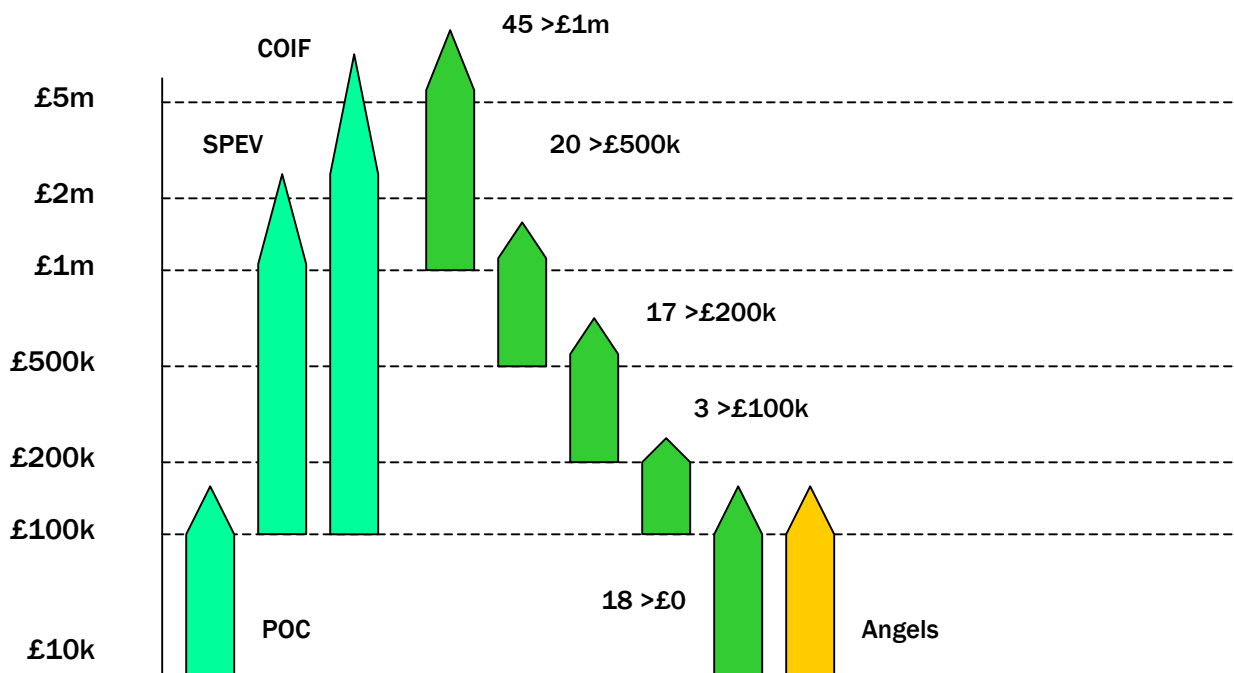
4.3.1 Supply Model

The supply of finance is represented as an estimate of total availability from all sources considered over the forthcoming five years.

Information required to populate this model is developed from publicly available sources and interviews with the finance providers. In many cases, estimates are made of the levels of finance available from particular sources.

The organisations offering private equity finance are classified according to the level of funds that they will invest.

Figure 5: Equity Finance in the North East



The first three bars show existing and proposed NStar funds. The next five bars show the stated investment ranges of 103 Venture Finance providers that advertise themselves as interested in technology investments in the North East.

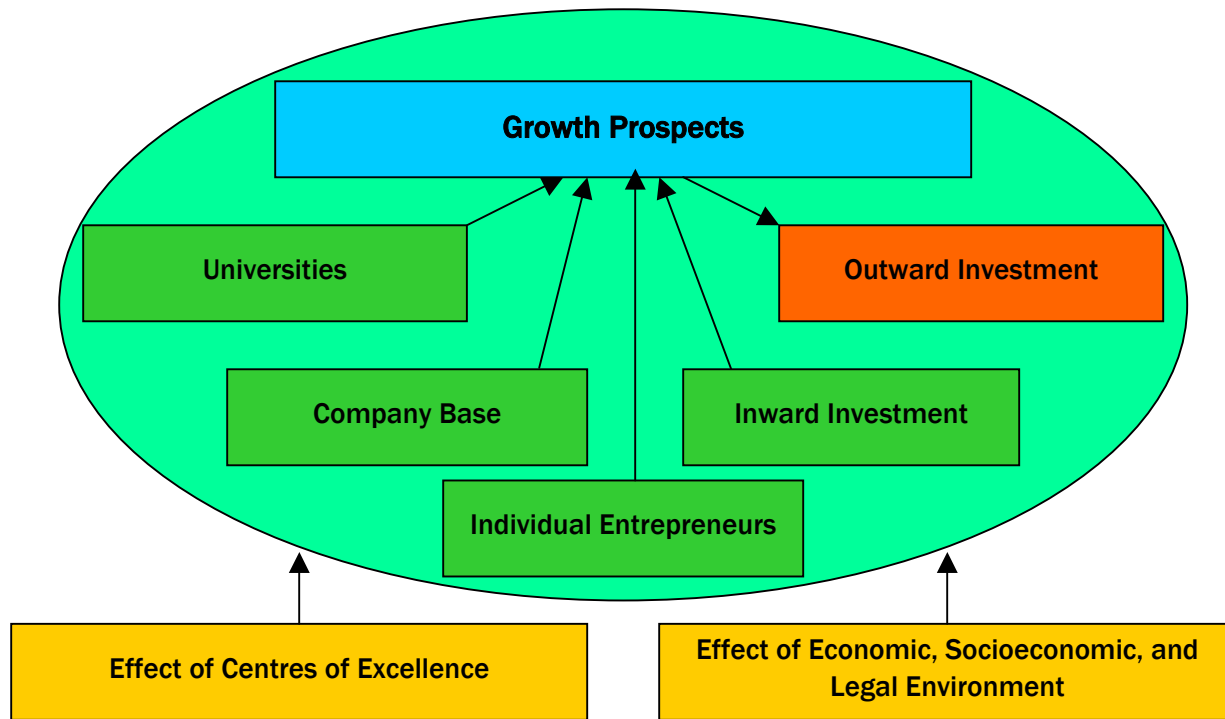
4.3.2 Demand Model

We are concerned in this study with the demand for venture capital by technology companies. This demand arises from businesses that show prospects for growth. The demand for finance is made up of several constituents:

- Spinout companies formed from Universities
- Start-up companies formed by individuals
- Prospects generated by existing companies in the region. These include SMEs and new companies formed by the divestment of business from larger companies.
- Companies attracted into the region ('inward investment')

The scale of generation of prospects is influenced by regional effects, including the effect of the stimulus provided by the Centres of Excellence and external environmental effects, including economic performance, legal and socioeconomic changes in the environment.

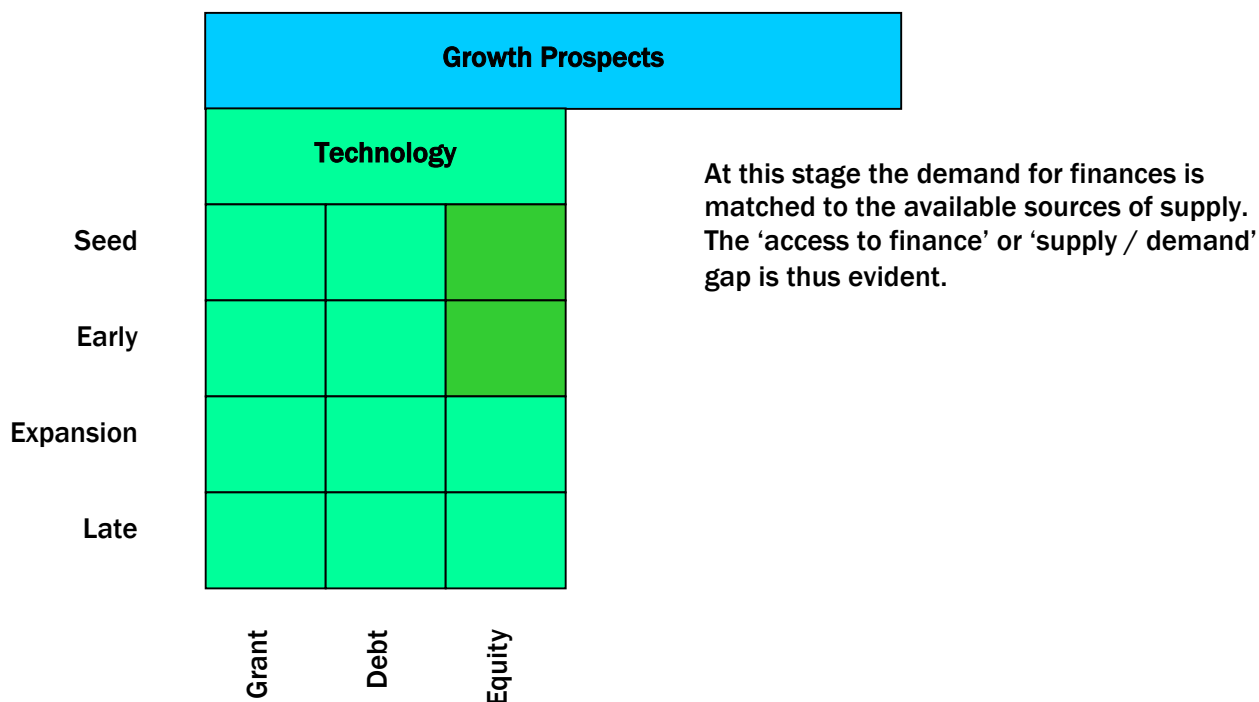
Figure 6: The Demand Model (Sources of Demand)



4.3.3 Matching Supply and Demand

The growth prospects generated by the activities pictured above are then matched to the supply of funds:

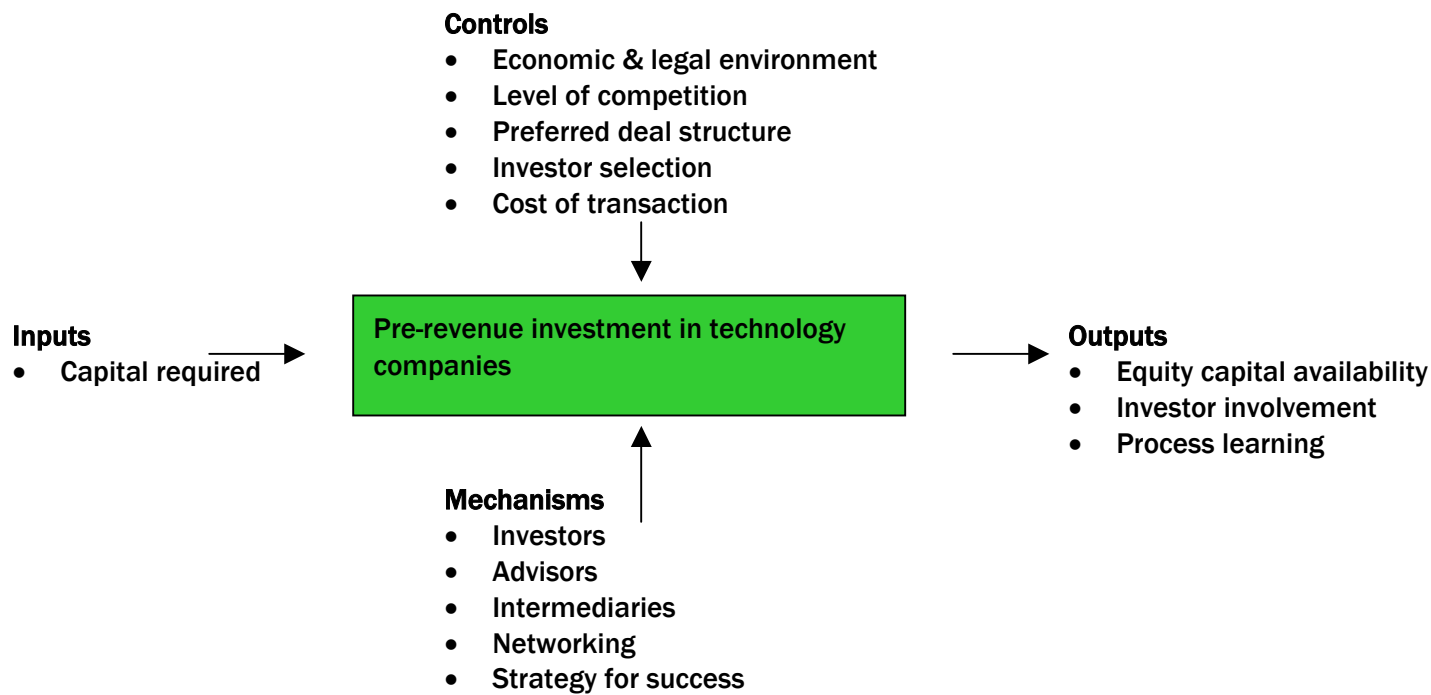
Figure 7: Stages and Types of Technology Funding



4.3.4 Process Model

Previous studies have examined the process of fundraising³¹ and the barriers and discontinuities in the process as seen by the investors and investee companies. This process is best understood as having mechanisms and controls on the process inputs and outputs:

Figure 8: The Process Model



The model is used to systemise and describe the findings of the survey in respect of market failure.

4.4 Testing the Models

In this section we describe the methodology used to populate and validate the supply and demand models.

4.4.1 Supply Model

Grant Provision

There are hundreds of grant awarding bodies, ranging from sub-regional authorities to regional and national bodies. We were most concerned with grant sources that are often used for the development and commercialisation of technology and those sources that would provide substantial grants. Selection of grant sources that would award over £50k reduced the scope substantially. This selection is sensible, as we were primarily seeking sources of funding that would be used by technology companies to support Early Stage equity investment.

In order to build the supply landscape map, we asked key providers about their provision of grants in the region:

- One NorthEast - Selective Finance for Investment in England (formerly Regional Selective Assistance)
- Small Business Service – DTI Grants for Research & Development

³¹ For example “Processes used by SMEs to raise Equity Finance”, a study for the East of England Development Agency by Scientific Generics in April 2003.

Grants from Research Councils were included but not quantified. We regarded most of this investment as being 'pre-seed' development funding. Most Research Council grants are for the development of underpinning rather than applied technology, and industrial mode awards are granted on a national basis, according to scientific merit. It is thus hard to quantify that proportion of funds which are available to University spinouts to support their technology development.

Sources of Debt Finance

We listed the sources of debt finance, and discussed their uptake and availability during the course of the survey.

Business Angels and High Net Worth Individuals

These communities of 'informal venture capital' are particularly difficult to quantify. Most Business Angels and High Net Worth individuals do not join networks listed by the National Business Angels Network³² and investments will often be unreported. The only regional Business Angel network is coordinated by Entrust. The community in the North East is small and its investment in technology prospects is likely to be sporadic.

In order to estimate the volume of investment by business angels and high net worth individuals, we made an assessment of the number of participants and their propensity to invest in technology businesses. This estimate was then compared with deals reported by participants in the survey. The local intermediaries were especially supportive, as they are often involved in constructing such deals.

Venture Capital Provision

The supply survey consisted of personal interviews with four Venture Capital firms based in the North East region and a telephone survey that extended the total sample set to 16. The method of selection of the firms was as follows:

1. The Venture Capital firms based in the North East were all interviewed.
2. The British Venture Capital Association web site database³³ was searched for firms that indicated an interest in investment in the North East. There were 140 such firms.
3. These were then filtered to exclude those Venture Capital providers that do not invest in technology. This reduced the list to 106.
4. We questioned NStar, the local Venture Capital providers and intermediaries as to which of these companies had been present in the region since January 2000. This list is thus based upon individuals' impressions of the activity and interest of other players and comprised 19 companies.
5. Our survey was then extended to these 19 companies and a selection of the remaining 87 companies as a control. A series of simple questions were posed in order to establish the attitude of the companies towards investment in the North East.
6. These responses were combined to provide a summary of Venture Capital provision both in quantity and evidence of market performance or failure.

Public Sector Supported Venture Capital

The existing public sector supported funds managed by Northern Enterprise, NStar and Entrust were included in the supply provision. The Proof of Concept fund and the North East Co-investment Fund managed by NStar were both included in the forward supply of venture finance as both of these funds are approved and were projected to become available soon after the publication of this study.

³² See www.nban.co.uk for further details (the web site was being upgraded at the time of publication).

³³ The BVCA database at www.bvca.co.uk includes most active Venture Capital providers in the United Kingdom, and was thus chosen as the basis for modelling provision of Private Equity.

4.4.2 Demand Model

The demand model was first populated, and then tested:

1. The underlying (past) activity in the region could be estimated by reference to the level of venture finance deals that could be expected from the VAT-registered business base.
2. The underlying level of inward investment was determined through discussion with One NorthEast.
3. The level of University spinout creation was determined by discussion with the responsible offices in the Universities. Further discussions revealed the approximate number of start-up companies formed outside of University support.
4. It was apparent early in the course of the study that the majority of prospects for technology venture capital are now being generated or supported through the Centres of Excellence. The model was populated by holding process mapping discussions with each Centre of Excellence in order to create a populated pipeline of specific and anticipated prospects, together with the amount, type and timing of anticipated finance required for growth.
5. A series of face-to-face interviews was undertaken in order to provide a detailed check on the basic tenability of the model and to cross check the finance requirements as reported by the Centres of Excellence with that reported by the companies.
6. This pipeline was then tested through a series of 43 personal and telephone interviews, where companies were selected to represent each Centre of Excellence and also to indicate the level of potential prospects within the technology domain but not supported by a Centre of Excellence.
7. This data was used to develop the correction factors later used in the quantification of the residual demand.

4.4.3 Process Model

The process model was enhanced through the incorporation of input from the survey.

4.4.4 Mapping the Gap Between Supply and Demand

The method of mapping the gap between supply and demand was as follows:

1. The level of supply from the sources listed above was mapped into a common format and projected over the five years in question. It was assumed that funds raised would be expended if there is sufficient high quality demand for funds.
2. This provided a map of funding availability which could be divided by Grant, Debt and Equity, and by Seed and Early / Expansion stages.
3. There is considerable uncertainty in the Grant and Debt availability, as these are not easily measured.
4. The demand map was constructed from the pipeline of opportunities with which the Centres of Excellence are currently engaged and a projection of these into the future. The method was as described in section 4.4.2 above.
5. An uplift factor was applied to the demand as measured by the Centres of Excellence. This uplift measures the total demand for technology finance compared with the 'market share' addressed by the Centres of Excellence. The Centres of Excellence cover a proportion of the total technology domain, and the prospects that they support represent a proportion of their potential coverage. The uplift factor was chosen after examination of the applications to the trial round of Proof of Concept funding in December 2003 and by reference to our understanding of the likely proportion of technology supported by the Centres of Excellence.

Figure 9: Relationships Between Growth Prospects and the Centres of Excellence



6. There will be significant attrition in the prospects over time for a wide range of reasons. This attrition rate should be low because of the activities of the Centres of Excellence in screening companies and preparing them for investment. Because of this we have assumed an attrition rate of 35%.
7. The next correction factor applied was the proportion of equity to total funding. This proportion is relatively high for Early Stage funding, as explained in section 3.1.
8. The resulting demand was then subtracted from the supply of funding to provide an estimate of the 'access to finance gap', being the shortfall in supply required to meet the total demand over the time period.
9. A final correction factor was then applied to suggest the proportion of the access to finance gap that should be met by public funds to avoid the potential for crowding out of private equity. The assumption was that NStar should intervene only at the level that would attract private equity in to develop a technology equity market in the region.
10. The application of these correction factors was made using a high, a probable and a low estimate for each in order to derive a range of outcomes. The uncertainty inherent in the correction factors resulted in a wide range of estimates for the size of the gap.

5 Findings

5.1 The Disjuncture Between Past and Future Demand and Supply

Figure 10: The Disjuncture in the Supply and Demand for Venture Finance

		Historical	Future Estimates
Demand	No. Of Deals	10 pa completed + unknown number of failed attempts	50 – 65 qualified prospects p.a. (see section 5.3.1)
	Value	£3–5m + unknown number of failed attempts	£28–56m (see section 5.3.5)
Supply	Value	£3–5m	Existing - £3-5m POC - £2m COIF - £8m Total - £ 13–15m

If the activities of the Centres of Excellence achieve their forecasts then there will be a step change in the demand for venture finance. The forecasts indicate that the supply of funds will fail to match this change in demand by a large margin, even with the funds recently allocated to NStar.

5.2 Supply of Venture Finance

5.2.1 Local Participants in the Market

Venture Capital Sources

There are five organisations managing venture capital funds in the North East. They are Northern Venture Managers, Northern Enterprise Ltd, NStar, Entrust and UK Steel Enterprise. Of these only Northern Venture Managers solely manages private equity funds. The others manage public equity funds for investment. In addition to these companies there are a number of Business Angels and High Net Worth Individuals who invest their own equity.

A number of other organisations are involved in the process of bringing together the funds providers and the companies requiring funding. These include:

Corporate Finance Houses

These are the primary intermediaries and are either independent companies or departments within the major accounting firms. Five companies are involved in corporate finance in the North East but only two deal actively in technology companies as part of their portfolio.

Banks

The two banks most active in providing debt as part of corporate finance deals are Barclays and Bank of Scotland. They are mainly involved in MBO / MBI expansion deals which have assets and revenues against which to secure the borrowings.

Other Professionals

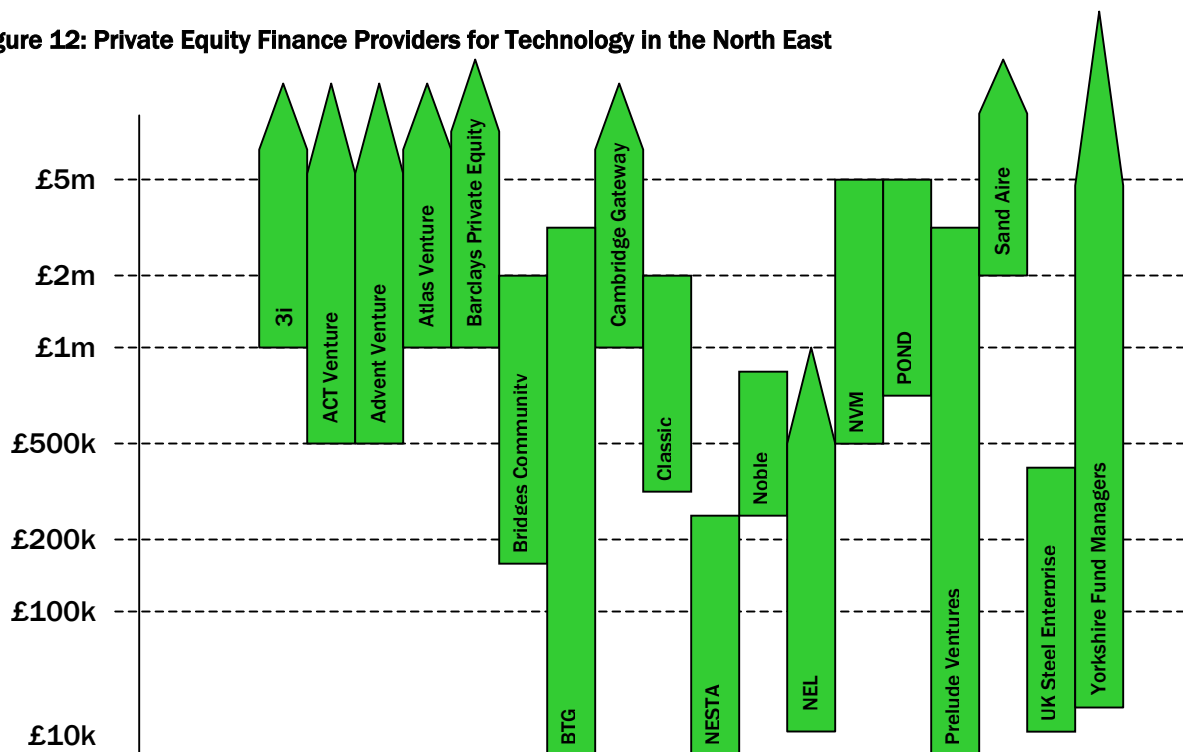
The major legal firms are involved in the completion stages of a deal. Two of them specialise in technology investments and, using their own contacts with venture capital funds, will act as brokers as well.

5.2.2 Landscape of Funding Provision

Figure 11: Sources of Equity 2004-2009

Source	Estimated investment April 2004 to March 2009
Proof of Concept Fund (POC)	£10.0m
Co-investment Fund (COIF)	£23.0m
Other regional seed capital	£6.6m
Business Angel / High Net Worth Individual	£4.0m
Private Equity	£20.3m
Total	£63.9m

Figure 12: Private Equity Finance Providers for Technology in the North East



Venture Finance providers selected for interview based upon stakeholders' impressions of their interest in the region. Most of the private equity providers have not recently participated in known deals in the region.



-  Can invest further
-  End limit of investment

Figure 13: Major Funds Available In the North East (offering more than £50k)

Name of Fund	Code
Innovation Action Fund (IAF)	IAF
DTI Grant for Research and Development - Research Projects	DRP
Northumberland Enterprise Grant	NEG
PPARC - PIPSS	PIPSS
Proof of Concept (POC) Fund	POC
North East Seed Capital Fund	NESCF
DTI Grant for Research and Development - Development Projects	DDP
NERIF3	NEIF3
Small Firms Loan Guarantee Scheme	SFLGS
The Brian Mercer Senior Award for Innovation	BMSAI
The Carbon Trust R&D Grant	CTRDG
Capital North East (Regional Venture Capital Fund)	CNE
DTI Grant for Research and Development - Exceptional Development Projects	DEDP
Special Purpose Equity Vehicle (SPEV)	SPEV
Co-investment Fund (COIF)	COIF
North East Equity Matching Fund (NEEMF)	NEEMF

Figure 14: Sources of Finance by Type and Amount

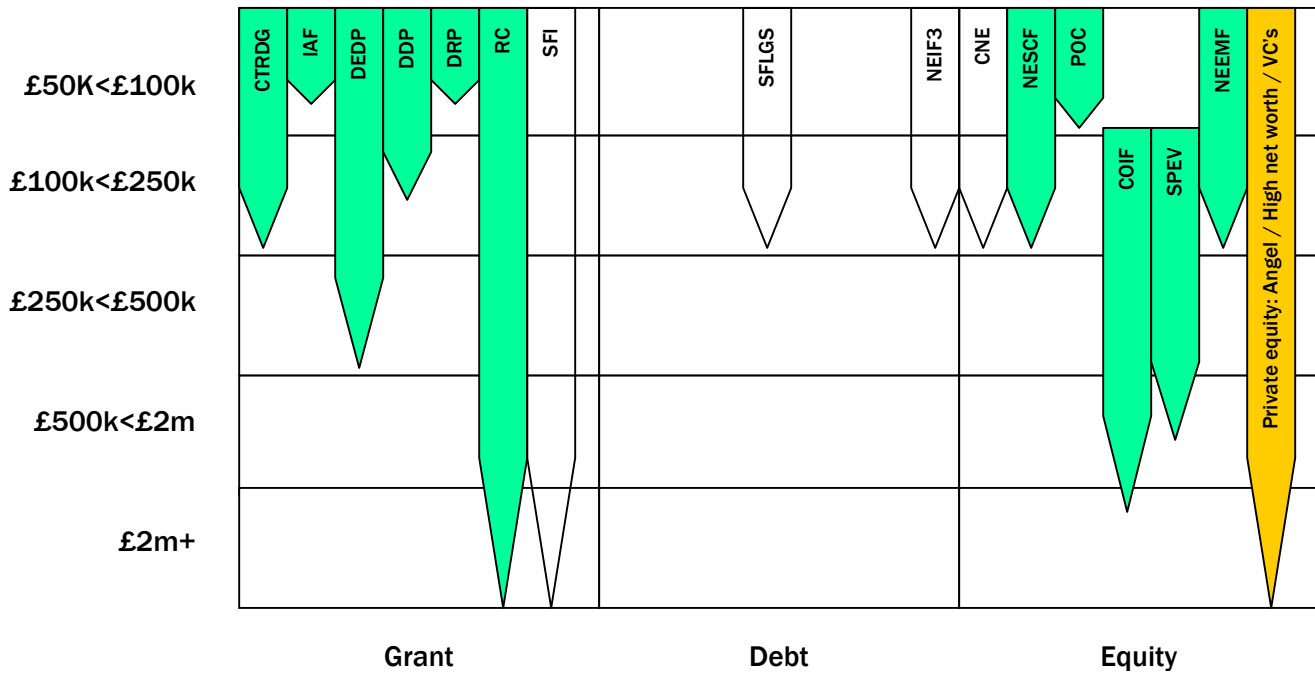
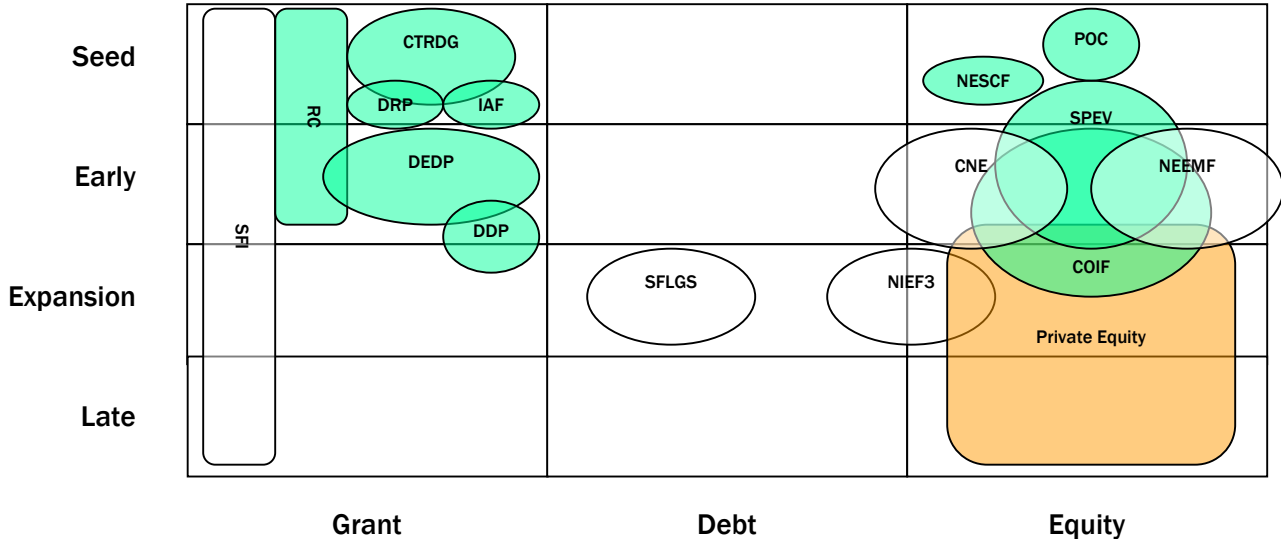


Figure 15: Sources of Finance by Stage and Type



5.2.3 Survey of Private Venture Finance

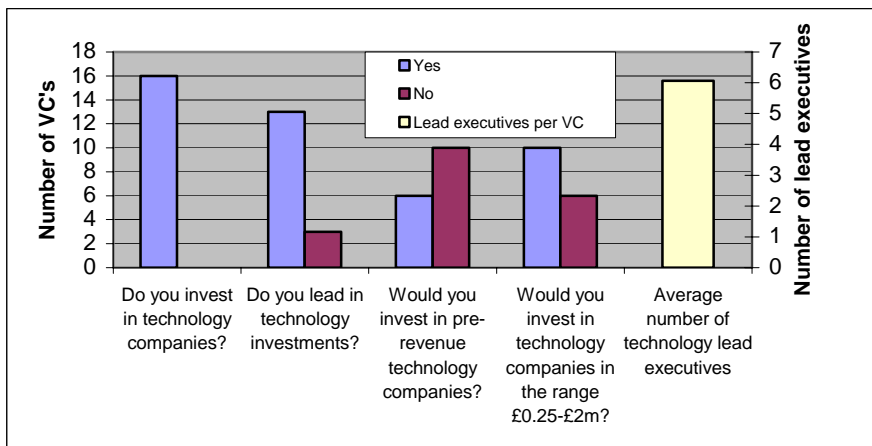
The supply survey included 16 Venture Capital providers.

It was clear from the responses of the North East Venture Capital providers that the regional market is small, with about 40 deals being done per year. The majority of these are small (sub £2m) management buy-outs of family firms. Very few deals (perhaps of order 10 per year) have been in technology companies and most of these are at the seed stage, with regional public finance and / or Business Angel investment.

In this sense, there has been no continuous market for early stage technology venture finance in the period we examined. We have found 11 examples of technology equity deals above £500k, although we suspect that there may have been several more unreported.

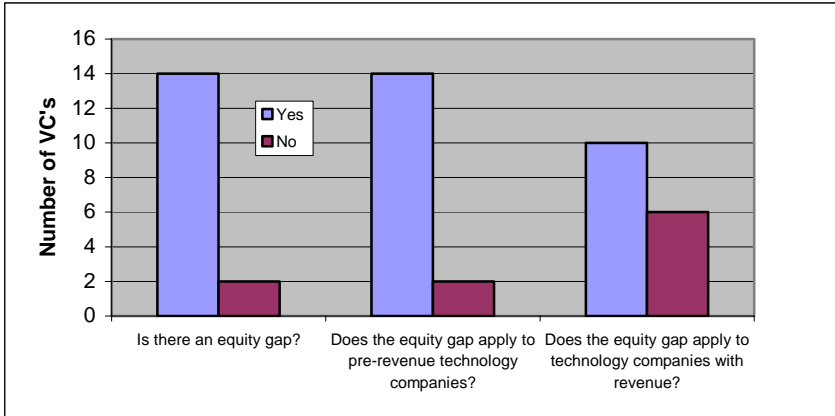
Whilst 106 firms had indicated their willingness to invest in technology businesses in the North East, our survey revealed only a handful who had been involved in deals during the time period considered. The survey indicated 4 such firms, three of which were the regional investors. We are aware of another three firms involved in deals in 2001. Few of the finance providers questioned will invest in pre-revenue technology companies.

Figure 16: Attitudes Towards Technology Investments



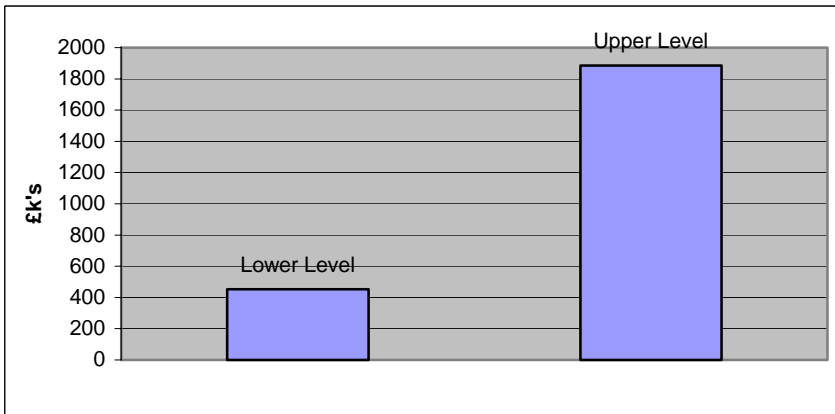
The finance providers interviewed were selected on the basis of their interest in technology investments. The providers located in the North East were all included in the survey. Respondents were generally from the larger technology equity companies and will thus evaluate and lead technology investments.

Figure 17: The Equity Gap



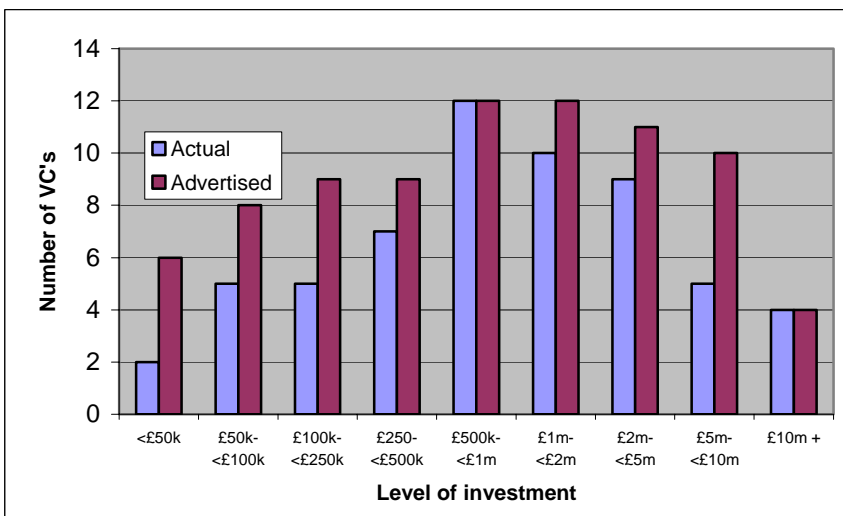
Most respondents believe that there is an equity gap. Of interest is that many state that they will invest within the gap if there is the prospect of building a larger total stake in their portfolio following subsequent rounds of funding.

Figure 18: Average Perceptions of the Equity Gap



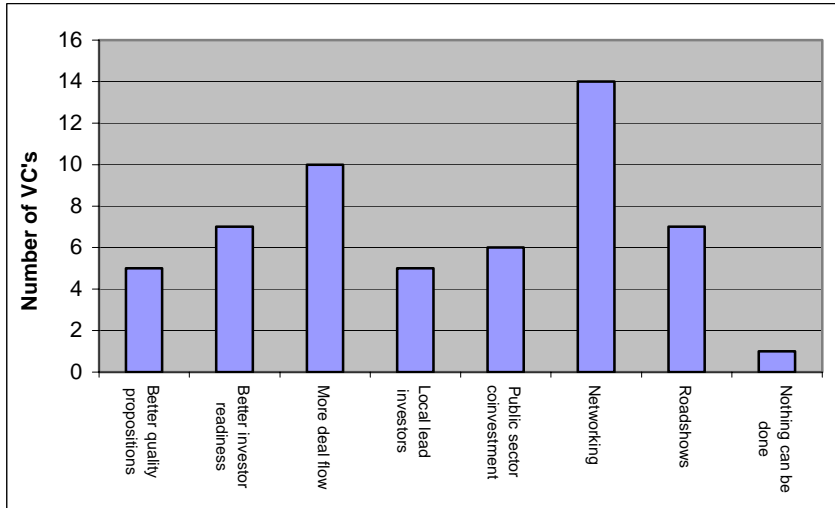
The figure shows the average perception of the lower and upper levels of the gap reported by the 14 respondents who perceived the gap to exist. It is important to note that the average figure is indicative. It was noted that several respondents claimed that the equity gap was immediately above or below the level at which they would invest.

Figure 19: Actual Versus Advertised Investment Levels



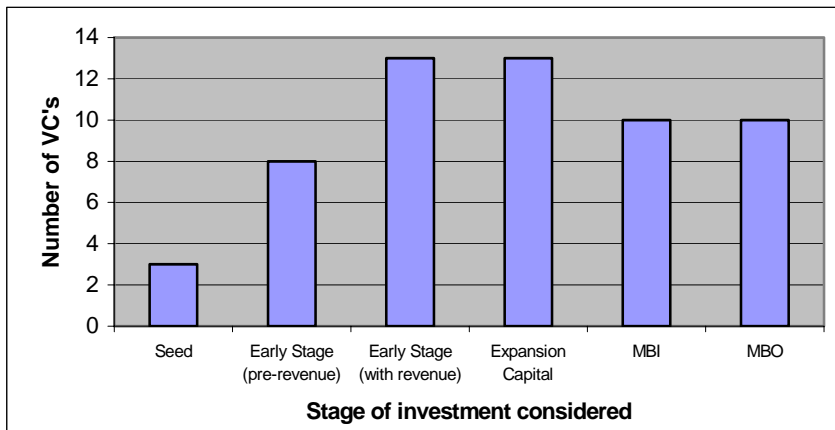
The selection of investment companies was not representative of venture capital provision in the UK as a whole. It was nevertheless instructive to compare the levels of investment actually made by the companies with the levels advertised on the BVCA web site. The chart shows that, in general, companies advertise an interest in levels of investment rather broader in range than they actually undertake.

Figure 20: Factors Affecting Technology Equity Investment in the North East



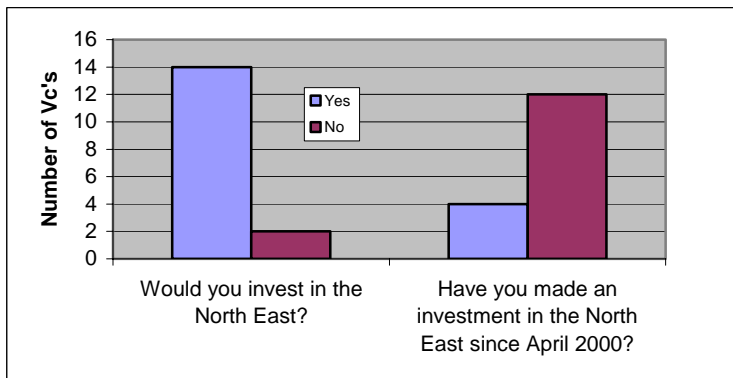
Respondents were asked to list three factors that would encourage them to invest in the region. The figure shows that qualified dealflow and networking activities / roadshows were seen as the most relevant incentives. The need to have local lead investors was noted more by the intermediaries (not included in this figure).

Figure 21: Stages of Investment Addressed by Providers



The choice of investors for inclusion in the survey led to a high representation of firms that will make Early Stage investments. It is notable that only 8 of the 13 Early Stage investors would invest before the target company receives its' first orders.

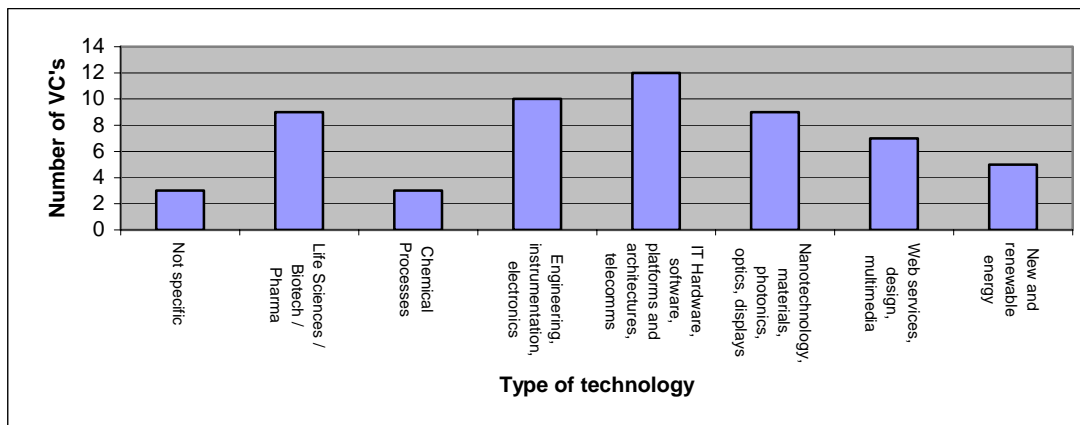
Figure 22: Investment Intentions and Outcomes



This figure illustrates the dichotomy between investors' interest in the region and reported outcome. Separate analysis of deals in the region³⁴ indicate that 4 - 7 formal Venture Capital investors from outside the region have participated in technology equity deals between April 2000 and March 2004.

³⁴ From information provided to us by the regional Venture Capital and intermediary companies.

Figure 23: Investment Interest by Technology



The spread of technology interest from the providers was broad.

The survey thus reinforced the perceived dichotomy between a private equity investment community that claims a lack of dealflow, and technology businesses that claim to be underserved and unable to access this type of finance.

Comments received from the venture finance providers contacted included the following:

- The larger firms have moved to manage technology investments from one national location. It is doubtful that they would be encouraged to open new regional offices. In most of these cases, respondents indicated a willingness to invest in the North East if the right propositions are available.
- The smaller investors tend to be opportunistic and would only invest in the North East if they had professional connections in the region
- All interested participants rely on local intermediaries or the regional investors for their local knowledge of prospective deals
- There is currently sufficient prospect dealflow from the main technology clusters (Cambridge, Scotland, M4 corridor), so investors will need to be actively attracted to the region
- Total investment potential is more important for the larger funds than the level of initial investment. For an investment to be of interest, it should thus have the potential for demanding further tranches to bring the total investment up to a desirable level relative to the total portfolio.
- Most respondents agreed that there is an 'equity gap'. Responses tended to indicate a gap from £250k to £2m. It was noticeable that several firms claimed to invest at this level, or suggest that the gap was at the stage immediately below or above the levels of investment that they would usually support.
- There was considerable scepticism about the capacity of the region to generate a substantial number of deals that would be of interest to private equity investors.
- Seedcorn and public sector early stage funding was welcomed by most respondents as a means of preparing companies for a first institutional round of funding.
- Of the respondents who were interested in investing in the North East, all commented on the need for the region to market itself more actively through roadshows and networking activity.

The lessons learned from this survey are thus:

- There is limited general equity dealflow
- There was hitherto no 'continuous market' for seedcorn and early stage technology equity
- The private equity sector is sceptical about the quality and volume of dealflow that can be generated by the region
- One NorthEast and in particular NStar should consider adopting a leading role in promoting networking, road shows and investor readiness programmes

5.2.4 Public Sector Support

Figure 24: Public Sector Venture Capital Funds Available in the North East

Provider	Fund
NEL	NEIF 3 North East Seed Capital Fund Capital North East (the Regional Venture Capital Fund)
NStar	Proof of Concept Fund (POC) Co-investment Fund (COIF)
Entrust	North East Equity Matching Fund
UK Steel Enterprise Ltd	UK Steel Enterprise Fund

5.3 Demand for Venture Finance

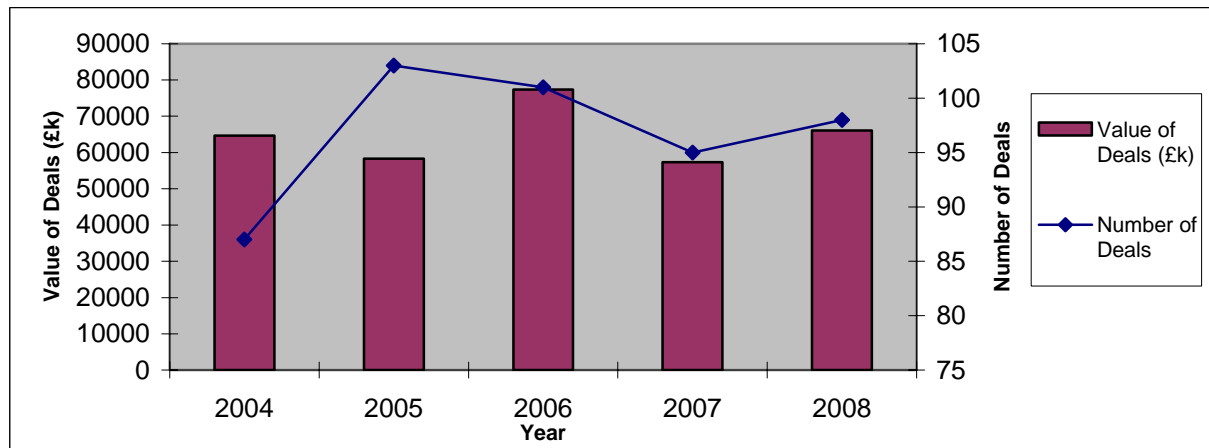
The Demand Model for Venture Finance and the methodologies for testing and populating it have been detailed in Sections 4.3.2 and 4.4.2. The demand model was created using the following inputs:

- Demand projections for each the Centres of Excellence
- Estimates of demand from technology sectors not covered by the Centres of Excellence
- Validation of the demand projections by field research
- Identification of correction and sensitivity factors

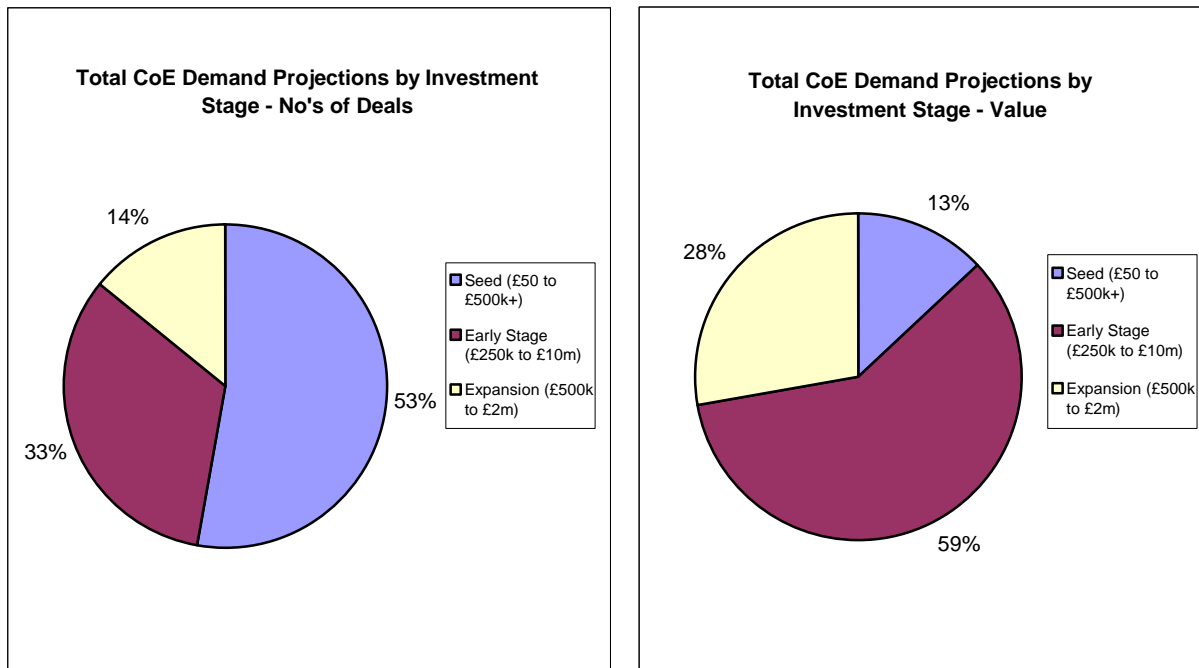
5.3.1 Demand Projections by the Centres of Excellence

The demand projections for the Centres of Excellence were built up from two sources; the estimated funds requirements of companies currently being supported, and the projections of new dealflow over the next five years. The resulting demand projection for the five-year period 2004 to 2008 is £324m. The projections of number of deals and total value by year are given in the graph below.

Figure 25: Annual Demand Projection by Number and Value of Deals

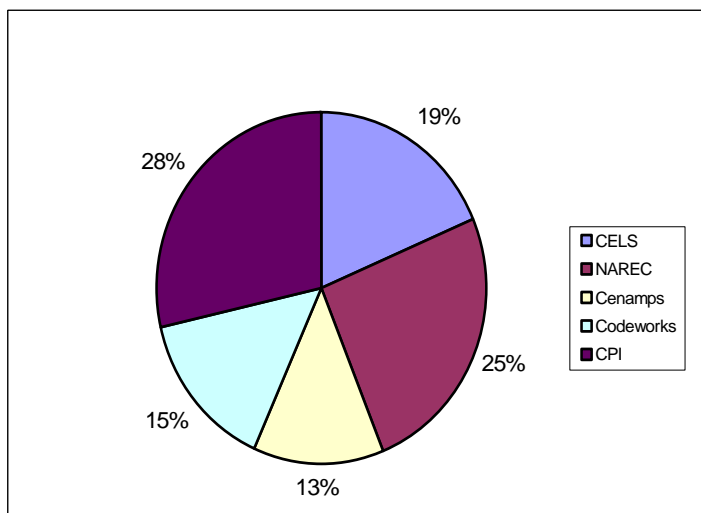


Figures 26 and 27: Total Demand Projections by Investment Stage – Number and Value of Deals



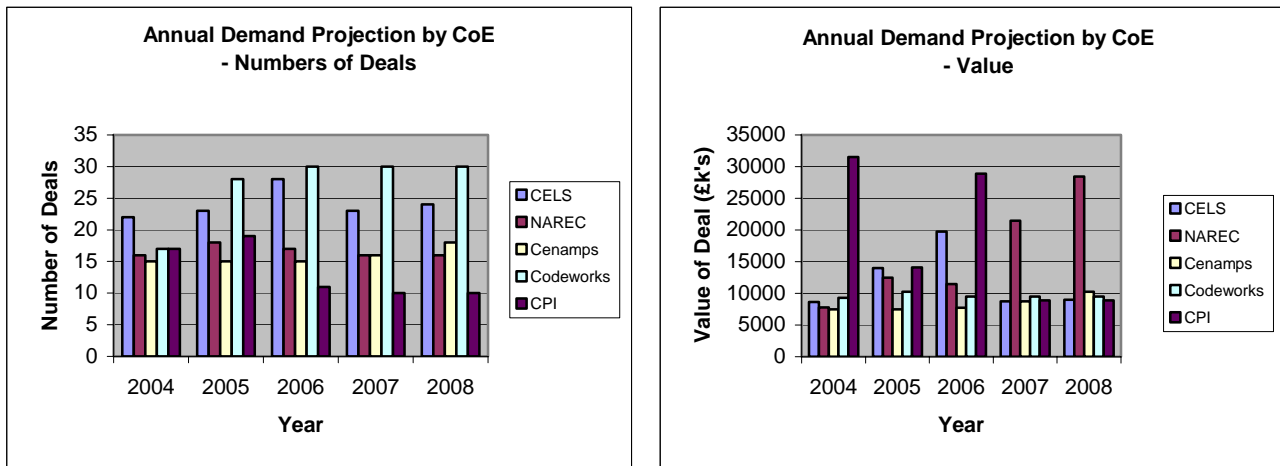
The profile of demand by investment stage is as expected. The largest number of deals (53%) is forecast to be in the Seed Stage, while the largest value of investments (59%) is forecast in the Early Stage.

Figure 28: Total Demand Projections by Centre of Excellence



The demand projections for each of the Centres of Excellence are of the same order of magnitude. It can be seen from the graphs below that while the numbers of deals projected for each of the Centres of Excellence is similar; the value of the individual deals for NAREC and CPI is forecast to be much larger, because of the technologies being developed.

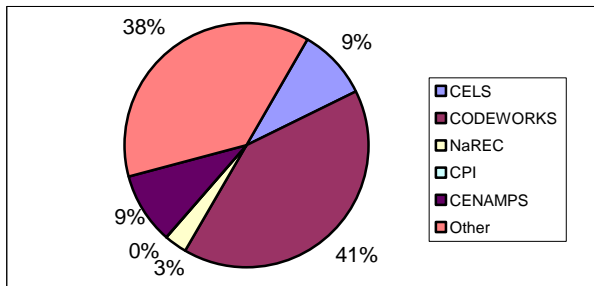
Figures 29 and 30: Demand Projections by Centre of Excellence – Number and Value of Deals



5.3.2 Demand From Other Technology Sectors

The Centres of Excellence cover the majority, but not all of the technology sectors that will create businesses potentially requiring equity funding (see Sections 4.4.2 and 4.4.4). These additional sectors will be an important source of demand for Venture Finance but no independent forecasts exist for the level of potential demand.

Figure 31: Distribution of Applications to POC Fund by Technology Sector

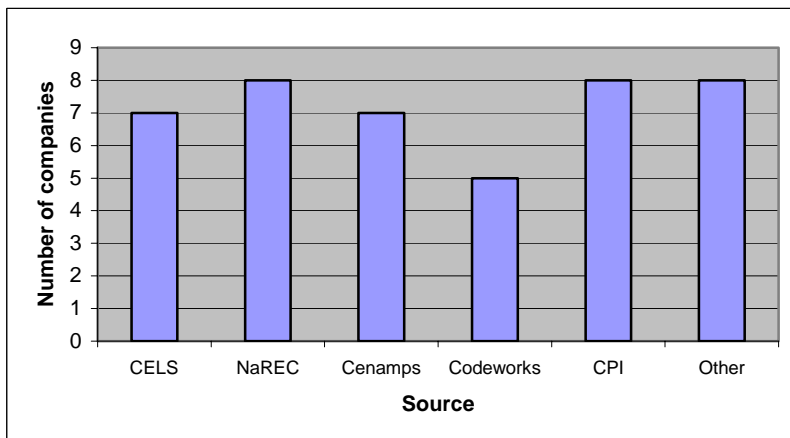


In order to create an adjustment factor to include this potential demand, applications to the new Proof of Concept Fund were analysed by technology sector. The chart shows that 38% of the applications fall outside of the current technology areas of the Centres of Excellence. As the Centres of Excellence are taking a proactive stance in stimulating new and growing companies, we expect this proportion to fall to 30%.

5.3.3 Field Research

A market survey was undertaken to validate the demand projections from the Centres of Excellence and to confirm that companies from the other technology sectors have similar funding requirements.

Figure 32: Number of Interviews from each Centre of Excellence

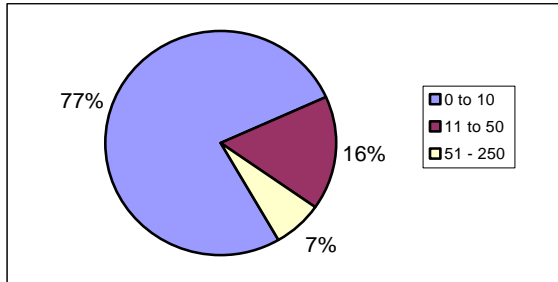


43 companies were interviewed directly or by phone. 35 companies were in the technology sectors covered by the Centres of Excellence and accounted for 60% of their known prospect list. A list of other technology companies was collated from a range of sources incl. University Technology Transfer Offices, internal stakeholders other than the Centres of Excellence, and Smart Award winners. Eight of these were interviewed by phone.

The survey contained eight questions designed to establish a clear picture of the company's needs and attitudes to Venture Finance.

Question 1) Company Size

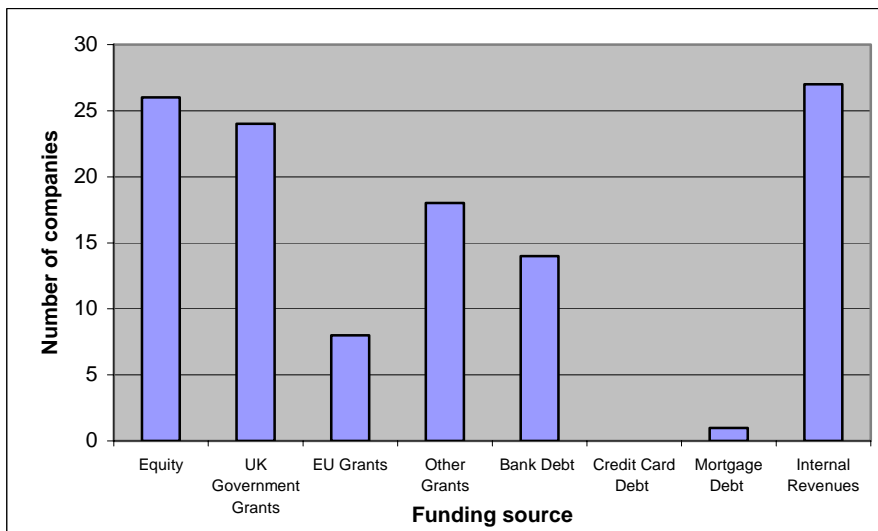
Figure 33: Number of Interviews by Size of Company – Number of Employees



All the companies interviewed were SMEs with the majority having 10 or fewer employees.

Question 2) Sources of Existing Funds

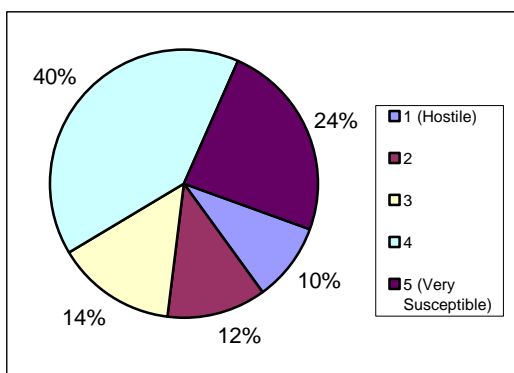
Figure 34: Sources of Existing Funds



The sources of funds used to finance the business to date were surveyed. Many companies establish an early revenue stream by selling services such as consultancy. However this distracts time and effort from the goal of developing the core business. Most businesses reported difficulty in obtaining bank loans, and this has only been successful where these alternative income streams or asset purchases have been available to secure the loan.

Question 3) Susceptibility to Equity Funding

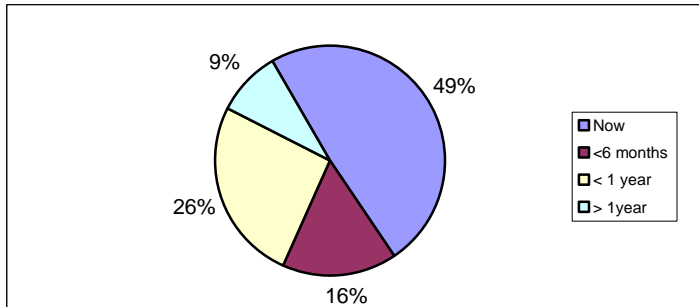
Figure 35: Susceptibility to Equity Funding



Some company owners are reluctant to give up part or any of their business to equity investors, even if this means constraining the growth prospects of their business. The survey showed that this is not a significant constraint in technology companies to the adoption of equity as a funding vehicle for expansion. 78% of respondents were happy or enthusiastic about accepting equity investments. However, most emphasised that the deal had to be right, and they would only consider investors who brought other contributions such as industry or functional expertise in addition to the money.

Question 4) Timescales for Next Funding Requirement

Figure 36: Timescales for Next Funding Requirement

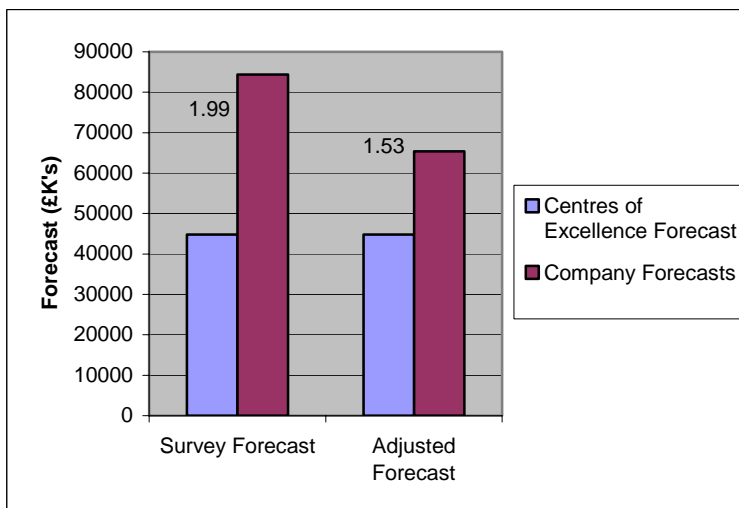


Nearly half the companies surveyed are currently looking for funds and the majority will need further funding within the next 12 months.

Question 5) Funding Amounts

The purpose of this question was to calibrate the forecasts of funds demand from the Centres of Excellence by comparing them with the company's own forecasts.

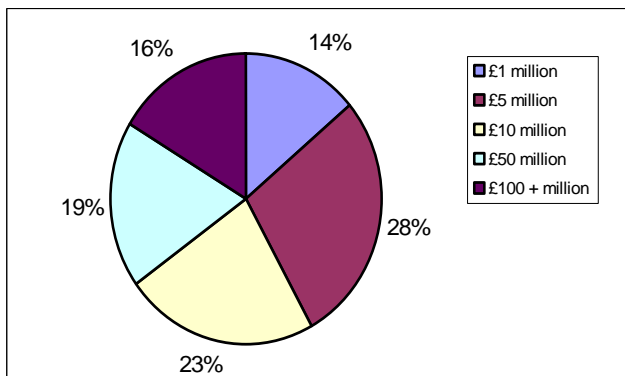
Figure 37: Comparison of COE and Company Forecasts for Funds Demand



The results show that the Centres of Excellence have applied a strong 'realism' factor to the forecasts from the Companies for future funds requirements. In one case, the difference between the two forecasts was an order of magnitude on a multi million pound requirement, which significantly distorted the results. When the data is adjusted to remove this anomaly, the 'realism factor' applied is still significant. If there is an inherent level of optimism in the majority of the company demand forecasts, we believe that the projections from the Centres of Excellence have compensated for this.

Question 6) Growth Aspirations

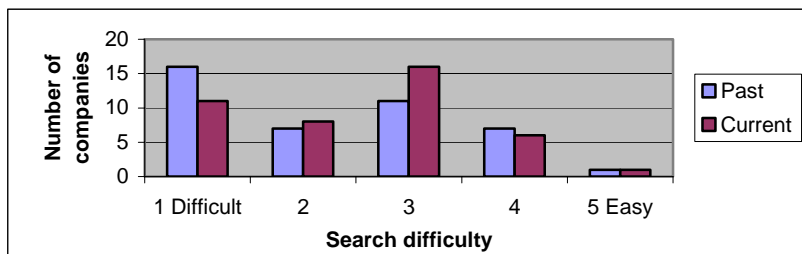
Figure 38: Growth Aspirations



Venture Capitalists prefer to invest in businesses with sales potential of more than £50m. The survey showed that 35% of respondents see their business having a turnover of more than £50m in five years time, indicating that a reasonable proportion will have the ability to attract Venture Capital funding. However, the majority of businesses will not meet investors funding criteria even though their business plans may be valid.

Question 7) How Difficult is Finding Additional Funding

Figure 39: Funding Search Difficulty



It is difficult for companies to find the funds required to expand, although the survey responses indicate that it has become slightly easier over the last year. However, there was some variation in the responses.

Question 8) Other Issues Raised

The final question was freeform and investigated any other issues with raising funds. There was a wide range of responses, which have been amalgamated into the overall themes:

- In the Biotech sector, the long development times make it much harder to raise Venture Capital. Overseas investors better understand the lead-time issue, and it is easier to raise money from the USA than it is from the UK.
- Fund raising consumes a considerable amount of time from the senior management of the company and cost. If this can be streamlined, this will have a considerable benefit.
- Most small businesses need quality advice on how and where to raise funds at the beginning of the process, but do not have the money to pay for expert advisors until they have received the funds. Some method of bridging the gap would significantly improve the success rate and reduce the time spent on fund raising.
- Most respondents feel that Venture Capitalists are very risk and technology averse. Finding pre-revenue funding is difficult, and reported to be almost impossible in the £500k to £2m range.
- Comments were made about local and national grants concerning their perceived complexity, inflexibility and cash flow timing issues.
- There were a number of positive comments about the role and activities of the Centres of Excellence and NStar.

5.3.4 Correction and Sensitivity Factors

The demand projections from the Centres of Excellence give their expected requirements for funds to support new and growing technology companies in the North East. To obtain the final projection for equity demand in the region, these projections need adjusting for a number of factors:

Uplift Factor For Other Technology Areas

As discussed in Section 5.3.2 30% of the total demand for Venture Finance will come from technology areas not covered by the Centres of Excellence.

Adjustment Factor For Prospect Attrition

There will be significant attrition in the prospects over time for a wide range of reasons. This attrition rate should be lower than normal because of the activities of the Centres of Excellence in screening companies and preparing them for investment. Because of this we have assumed a lower attrition rate of 35%.

Adjustment Factor For Alternative Funding Methods

Wherever possible, companies will try to use alternative methods of funding such as grants or debt, as these are considerably cheaper. However, the ability of pre-revenue, technology companies to use these sources is severely restricted, and we have assumed that only 25% of funds will be available through these routes. See sections 3.1 and 4.4.4.

Sensitivity Factors

All forecasts are inherently inaccurate. To assess the likely variation in the demand projections each of the adjustment factors has a high and low limit as well as the median. See section 4.4.4.

5.3.5 Demand Forecast for Equity Funds

Figure 40: Total Demand Forecast for Equity Funds

Total Demand Forecast - £m	Low	Mid	High	Spread Low- High
Demand Forecast by Centres of Excellence (CoE)	324	324	324	
Uplift for technology prospects outside of the CoE	1.25	1.3	1.35	108%
Adjustment factor for prospect attrition	0.5	0.65	0.8	160%
Proportion of equity to total funding requirement	0.7	0.75	0.8	114%
Adjusted Equity Demand Forecast	142	205	280	197%

Figure 41: Demand Forecast By Investment Stage

Seed Stage Funding Demand Forecast - £m	Low	Mid	High	Spread Low- High
Demand Forecast by Centres of Excellence (CoE)	42	42	42	
Uplift for technology prospects outside of the CoE	1.25	1.3	1.35	108%
Adjustment factor for prospect attrition	0.5	0.65	0.8	160%
Proportion of equity to total funding requirement	0.7	0.75	0.8	114%
Adjusted Equity Demand Forecast	18	27	36	197%

Early and Expansion Stage Funding Demand Forecast - £m	Low	Mid	High	Spread Low- High
Demand Forecast by Centres of Excellence (CoE)	282	282	282	
Uplift for technology prospects outside of the CoE	1.25	1.3	1.35	108%
Adjustment factor for prospect attrition	0.5	0.65	0.8	160%
Proportion of equity to total funding requirement	0.7	0.75	0.8	114%
Adjusted Equity Demand Forecast	124	178	244	197%

5.4 'Access to Finance' Gap

5.4.1 Total Demand Gap

Figure 42: Total Demand Gap

£m	Low	Mid	High	Spread Low- High
Demand Forecast by Centres of Excellence (CoE)	324	324	324	
Uplift for technology prospects outside of the CoE	1.25	1.3	1.35	108%
Adjustment factor for prospect attrition	0.5	0.65	0.8	160%
Proportion of equity to total funding requirement	0.7	0.75	0.8	114%
Adjusted Equity Demand Forecast	142	205	280	197%
Supply forecast from Private Equity market	64	64	64	100%
Sensitivity Factor for funds supply	1.15	1	0.95	83%
Adjusted Supply	74	64	61	83%
Total Demand Gap	68	141	219	322%

5.4.2 Will Sufficient Prospects be Available for VCs to Invest In?

The projections for the supply of Venture Capital funds indicate that £64m will be available over the five-year period³⁵. However, the criteria imposed by investors are such that there will be viable businesses that do not meet their requirements. (See section 3.4). The survey found that 35% of the companies plan to grow turnover to greater than £50m over the next five years (see Section 5.3.3) Assuming that these companies can be meet the investment criteria discussed, then the projected demand for funds from Venture Capital Funds is £72m with a sensitivity range of £50m to £98m. The analysis indicates that there should be sufficient investment opportunities for the Venture Capital funds available.

5.4.3 How Much Of The Finance Gap Should The Public Sector Fill?

If the public sector is not to crowd out the opportunities for private equity to participate in filling the Finance Gap in the future then it should consider funding only a proportion of the Gap. If we assume that 35% to 40% is an appropriate proportion, then the public sector needs to fund £24m to £88m of the Finance Gap with a mean of £53m. The proportion of funding provision chosen will be a matter for the region to decide.

Figure 43: Public Sector Proportion of the Demand Gap

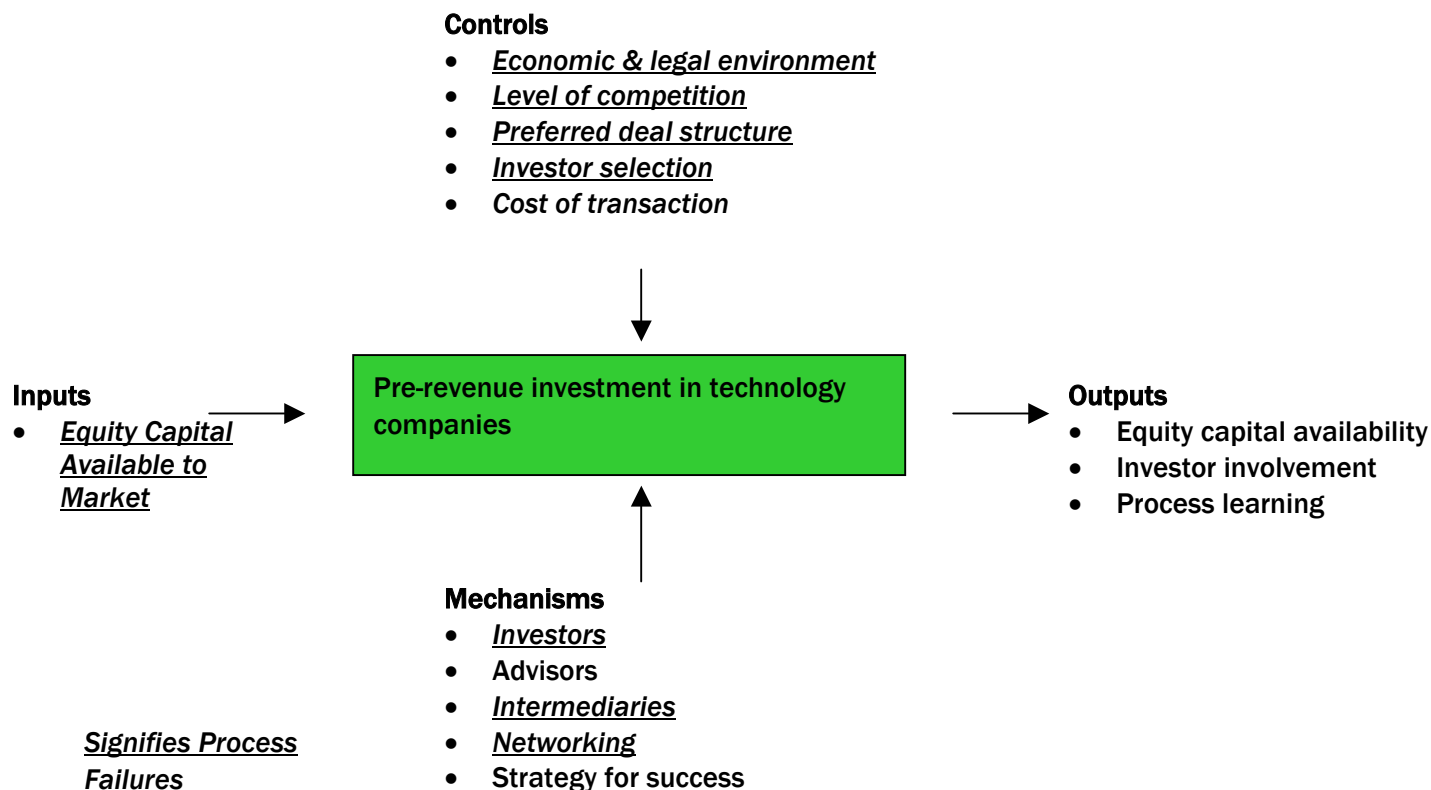
£m	Low	Mid	High	Spread Low - High
Total Demand Gap	68	141	219	322%
Proportion of demand that should be filled by Public sector supply	0.35	0.375	0.4	114%
Potential Funding requirements from Public Sector	24	53	88	367%

³⁵ See section 5.2.2 Figure 11: Sources of Equity 2004-2009

5.5 Existence of Market Failures

The market research has identified a number of market failures in the supply of Venture Finance. These can be understood in terms of the Process Model discussed in Section 4.3.4. The parts of the process, which are failing in the North East, are highlighted in the process model below.

Figure 44: The Process Model showing Market Failures



5.5.1 Inputs

Equity Capital Available to Market

The activities of the Centres of Excellence are significantly changing the level of Venture Finance required in the North East. Section 5.4 has identified a gap between the demand and provision of funds of £141m over the next five years.

5.5.2 Controls

Legal Environment

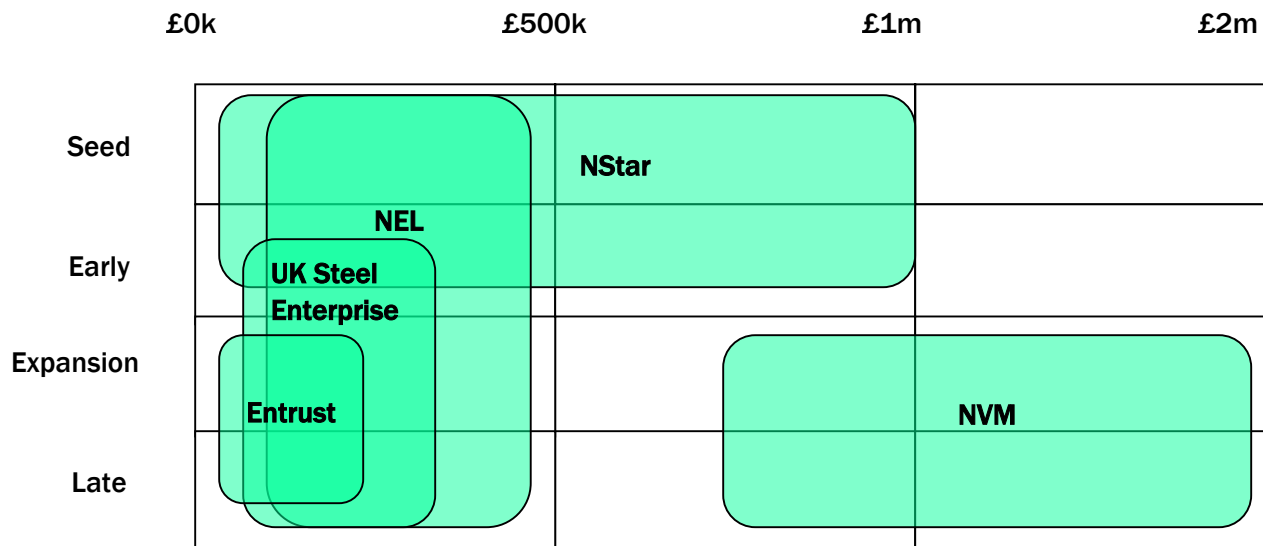
University spinout activity is currently being adversely affected by the unresolved impact of Schedule 22 of the Finance Act 2003. This measure creates an early valuation and tax liability on spinout companies. The response of the Universities has been to curtail spinout formation.

Level of Competition

While there are five providers of venture capital in the region³⁶ there is little competition between them in the range of £500k to £2m. Neither are venture capital providers from outside the region significantly active in this range (see section 5.2.4). As a result, there is no healthy, competitive market for the supply of venture finance.

³⁶ Northern Venture Managers, Northern Enterprise, NStar, Entrust and UK Steel Enterprise

Figure 45: Map of Regional Equity Finance Providers



Preferred Deal Structure: Equity Aversion

The BVCA has reported that there is a relatively higher aversion to equity finance in the North East compared to the rest of the country. The market research with intermediaries confirmed this view for the general finance market in the North East. For most finance packages, debt is maximised and equity kept to a minimum.

However, the field market research with technology companies showed a much lower aversion to equity finance in this market sector (see Section 5.3.3). 64% of respondents were positive or very positive while 14% were neutral in their attitude to equity finance. Only 22% expressed aversion. However, nearly all-positive respondents added the caveat that the deal and the investor must be right for the business.

Risks of Technology Investment

Investment in technology businesses carries additional risk as investors face more difficulties in assessing technically innovative or risky projects and the information available is imperfect.

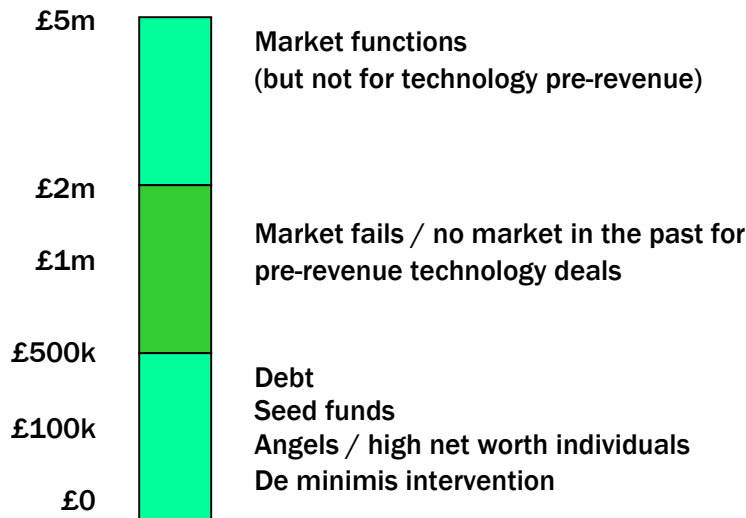
Cost of Transaction: Equity Gap

In a recent report³⁷ HM Treasury stated: ‘Individual investors, including friends, family and business angels, are an alternative source of capital, but are limited by the extent of their personal wealth. This leaves an equity gap for investments that are beyond the financial means of most informal investors, but too small to attract venture capital funding. The gap appears to be most acute for investments between £250k and £1m, but is also severe for businesses seeking up to £2m – and, for some businesses, it may extend even higher. This equity gap is a barrier to productivity growth, as it can stifle the development of innovative start-up and early-stage businesses, and can constrain the supply of capital for some established businesses that are seeking to modernise or diversify their activities’.

The market research supported these findings in the North East (see sections 5.2.4 and 5.3.3) The equity gap reported by the sources in our survey starts from about £300k to £500k and extends to at least £1m to £2m. The top of the equity gap is currently not measurable, as we could find no evidence of recent larger deals. The formal private equity providers will mainly participate in companies that are already generating revenue and with few exceptions, will in general only participate at above £1-2m of equity. There are nevertheless a small number of private equity providers who will participate in pre-revenue technology deals.

³⁷ Bridging the Finance Gap, HM Treasury

Figure 46: Summary of the Equity Gap



5.5.3 Mechanisms

Investors: Lack of Continuous Market for Technology Equity Provision

Whilst there is a limited market for equity transactions, there has been no 'continuous market' for seedcorn or early stage technology equity:

- There is evidence of a number of <£500k deals, satisfied from public sector funds and angels
- There is evidence of only about 11 Early Stage technology deals in the £500k - £4m range over the period considered. When we checked this finding with regional market participants, it was felt to be an underestimate, but not by a great factor.
- This volume of deals has been insufficient to attract advisors, lead investors and business support, resulting in the limited, segmented market
- There is a low rate of follow-on from seed to early stage investment
- We thus conclude that whilst a market is present, it lacks the critical mass to be continuous

Investors: Lack of Regional Technology Venture Capital Provision

There are five providers of venture capital in the region of which only one manages mostly private equity. NStar has substantial funds available for Early Stage technology investment through the recently created COIF. There is one identified deal above £500k in which a regional private equity provider has participated, although we suspect that there are deals which are unreported or not included in our survey.

Regional Corporate Finance firms and other intermediaries have been successful in bringing together several deals involving high net worth individuals and some participation from venture finance providers not located in the North East.

Intermediaries

There are a limited number of intermediaries (corporate finance houses, solicitors, accountants, etc) active in the venture finance process and still fewer involved in technology deals. Many reported that they are actively reducing the work they do in this area for a number of reasons, including:

- In many cases they can only do the work on contingency (payment by results)
- The difficulty in finding equity funds means that the majority of deals fail
- Of those that succeed, the higher costs due to the complexity of the deals cannot be recovered
- The high level of failure may adversely affect their reputation

As a result most intermediaries are focusing on simple corporate finance deals such as Management Buyouts and Buy-ins, or large technology deals above £2m.

Networking

There is a lack of networking opportunities for technology companies, business angels, venture capital providers, intermediaries and business support organisations in the region. There has also been a lack of support for investor readiness. The Centres of Excellence and Entrust are now addressing this through recent initiatives.

5.6 Stimulation of Equity Take-up

The market research identified a range of areas where effective action will stimulate the take up of equity funds by technology companies in the North East.

5.6.1 Companies

Signposting and Brokering

There was widespread criticism on the quality of advice available on sources of funds and brokering contacts. The current advice was criticised by interviewees for its lack of depth, breadth, and the ability to relate the sources to the company funding needs. The provision of a high quality advisory service that could analyse a company's funding requirements and quickly focus on the viable sources would save the companies significant time and money, and increase their use of venture finance. Most of the companies interviewed had not paid for professional advice from one of the leading corporate finance, accounting or legal companies in the region.

Investor Readiness

Of the five elements of investor readiness (section 3.4), companies often require support with selection of the right management team, protection of Intellectual Property rights, and preparation of an appropriate business plan. The Centres of Excellence are providing support in this area.

Mentoring

Good mentoring can be invaluable to executives facing the difficult challenge of growing a company and finding the funding to finance the growth. This is an area being addressed by the Centres of Excellence.

Examples of Success

Examples of success provide good role models that will stimulate others to consider venture finance for their businesses. Good publicity on a wide range of successful venture finance projects is essential to create awareness.

5.6.2 Intermediaries

Reduction in Deal Complexity

The adequate provision of venture finance in the region will reduce the complexity and failure rates in funding deals for technology companies, which should encourage more intermediaries to recommend this form of finance to their clients.

Funding of Early Professional Advice

Like the companies most professional advisors felt that there is a significant lack of quality advice on appropriate funding sources for companies early in their search for funds. From the advisors' perspective, this is because most companies lack the resources to pay for quality advice at this early stage. Many recommended that grants for early professional advice would overcome this issue.

5.6.3 Venture Capital Providers

A number of actions were suggested to improve the opportunities of Venture Capital Funds to provide equity finance to technology companies in the North East.

Improvement in the Quality of Proposals

Venture Capital Funds are discriminating in the proposals that they consider, and a substantial improvement in the quality as well as the quantity of proposals from technology companies in the North East will increase the take up of private equity. This is an area that the Centres of Excellence are working on.

Road Shows and Networking

Venture Finance investment is a personal process and is dependent on individual contacts. Other regions of the UK such as Cambridge actively use networking events and road shows for companies to create and strengthen such relationships. It was clear from the market research that the venture capital funds, especially those based outside the North East, would like to see a significant increase in this activity.

Local Lead Technology Fund Manager

The presence of a credible local fund management organisation that takes the lead in technology investments in the North East will stimulate higher levels of investment from Venture Capital Funds outside the region. The risk and cost to these external investors will be reduced through the credibility of the local fund manager in understanding the technologies involved, being local to the company being invested in, and leading the investment process. There is an opportunity for NStar to fill this role.

5.7 Comparison With Other Regions

5.7.1 Introduction

There are substantial differences between the capital-raising scenes in the North West, Scotland and East of England, although all seem easier than the North East.

The East of England, largely due to the continued successes in the Cambridge area, has developed a strong, sophisticated spectrum of finance with great depth of experienced financial managers to complement the rich flow of technological entrepreneurs. There are also a range of active networks within which financiers, technologists, entrepreneurs and advisors meet. As a result, good propositions pitched at the appropriate level of finance, will generally succeed.

The North West and Scotland have acted to raise the level of funds supply substantially and are both now affected to some degree by an apparent excess of funding compared to good, investor-ready, propositions and / or availability of experienced management.

The North East can learn from all three regions and the Centres of Excellence, apart from their role in stimulating technology transfer and business propositions can play a key role in ensuring that those propositions are “investor-ready” and avoid funding gaps that may emerge above £2m.

5.7.2 Venture Capital Providers

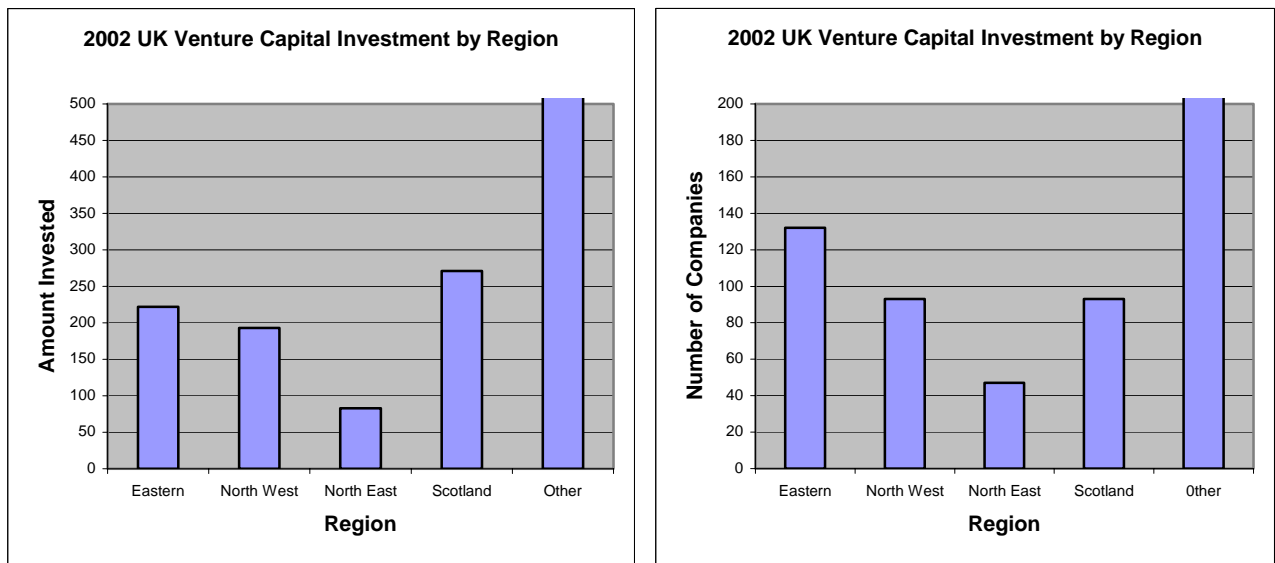
The amount of private equity invested in the North East in 2002 was £83m according to the BVCA³⁸; this represents only 2% of the total amount (£4,480m) invested in the UK. The North West and Scotland had £193m (4%) and £271m (6%) invested in the region respectively. Although only representing 2% of the total amount invested in the UK the North East did experience a growth of 118% from £38m in 2001. The only other two regions to experience any growth were the West Midlands and Northern Ireland.

³⁸ BVCA Report on Investment Activity 2002)

Figure 47: UK Private Equity Investment by Region (2002)

Region	Number of Companies	% of Companies	Amount Invested £m	% of Amount Invested
Eastern	132	11	222	6
North West	93	8	193	4
North East	47	4	83	2
Scotland	93	8	271	6
Other	831	69	3711	82
Total	1196	100	4480	100

Figures 48 and 49: UK Venture Capital Investment by Region (2002)



The North East also experienced a growth in the number of new companies invested in during 2002; growing from 33 companies in 2001 to 47 companies in 2002. The South East, Wales and Northern Ireland were the only other regions to experience such a growth. The North West and Scotland both experienced decreases, dropping from 113 to 93 new companies and 122 to 93 new companies invested in respectively.

The following table shows the level of private equity activity in the UK regions in 2002 in relation to the number of possible investment opportunities (VAT registered businesses).

Figure 50: UK Investment Activity by Region Compared with Number of VAT Registered Businesses

Region	Number of VAT Registered Businesses	Number of Private Equity Backed Companies	Companies Invested in per 1000 of Total VAT Registered Businesses
East of England	165,245	132	0.80
North West	163,170	93	0.57
North East	41,865	47	1.12
Scotland	119,475	93	0.78
Other	1,187,365	831	0.69
Total	1,677,120	1,196	0.71

The table above clearly indicates that the North East has substantially less VAT registered businesses than other UK regions. Correspondingly the number of companies invested in per 1000 of total VAT registered businesses is very high even though the number of actual investments is low.

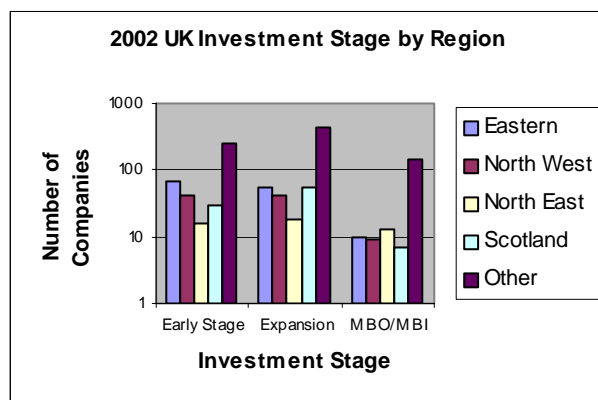
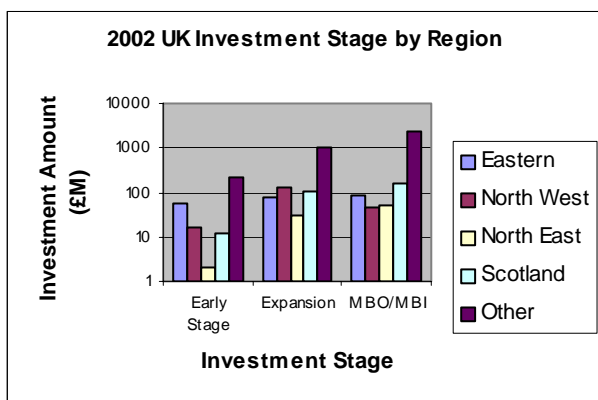
Figure 51: UK Investment by Finance Stage – New Companies (2002)

	Early Stage		Expansion		MBO/MBI	
	Number of Companies	% of Companies	Number of Companies	% of Companies	Number of Companies	% of Companies
Eastern	67	17	55	9	10	6
North West	41	10	43	7	9	5
North East	16	4	18	3	13	7
Scotland	30	8	56	9	7	4
Other	244	61	447	72	140	78
Total	398	100	619	100	179	100

Figure 52: UK Investment by Finance Stage – Amount Invested (2002)

	Early Stage		Expansion		MBO/MBI	
	Amount Invested £m	% of Amount Invested	Amount Invested £M	% of Amount Invested	Amount Invested £m	% of Amount Invested
Eastern	57	19	79	6	86	3
North West	17	6	132	10	44	2
North East	2	1	31	2	50	2
Scotland	12	4	101	7	158	6
Other	207	70	1031	75	2473	87
Total	295	100	1374	100	2811	100

Figures 53 and 54: UK Investment Stage by Region (2002)



According to the BVCA the North East has the fewest investments made in early stage companies in the North. However, it is apparent that it would take only a small increase for the North East to catch up with the North West and Scotland.

The average amount invested in early stage companies is around £740k. The average amount of investments made in early stage companies in the North East is well below this national average being just £125k. It is worth noting that the averages for both the North West (£415k) and Scotland (£400k) also fall short of this national average.

5.7.3 Business Angels

The United Kingdom angel market is the most developed in Europe. Based on the Benchmarking Business Angels survey conducted by the European Commission the UK business angel market looks like the following.

- The number of networks is stable, around 50;
- In the financial year 1999/2000, 386 registered business angels invested over £28m (€44m) in 215 UK based companies;
- Almost one third of the businesses supported by a business angel attracted other sources of finance as well (from banks, venture capital funds, governments, and other business angels). The additional investment sources increased the invested amount by £51m (€80m);
 - Most of the money went into seed, start-up and early stage companies in a wide range of sectors;
- One in five investments in the UK had an average annual return of 50% or more; 33% of investments involved a total loss; and 13% of investments either generated a partial loss or broke even in nominal terms;
- 40% of all investments are written off as a loss, 26% are sold to another company, 16% are sold to other stakeholders, 10% are sold to a third party, and only 8% are ever floated in the stock markets;
- Publicly supported UK angel networks have an average angel investment of £95k (€149k), whereas the average for commercial networks was £182k (€285k). Furthermore, 70% of the investments of the publicly supported not-for-profit networks were for start-up and early stage, whereas this figure was only 40% for the commercial networks.

5.7.4 East of England

Over £70m was raised across the funding spectrum in Venture Capital for Cambridge and East Anglia firms in 2003, according to a recent Ernst & Young / Venture One report, with many more deals expected in 2004. Many Cambridge technology start-ups with experienced management go for substantial initial funding to overcome a perceived funding gap - between the upper threshold of Angel Finance and the lower threshold of Venture Capital interest - then draw down tranches of this scale against milestones. In practice, firms in the East of England with the right proposition do raise funds, even in the target £500k to £2m band.

Examples of recent fund-raising in the target band include:

- Nanomagnetics - nanotechnology - raised £1.1m in March 2004 from existing investors including Prelude
- Nujira - power amplifiers - raised £540k in November 2003 from Cambridge Gateway Fund, Amadeus Mobile Seed Fund, Cambridge Capital Group and the Cambridge Angels
- Saviso - Internet technology - raised ~£1m in July 2003 from Pentech Ventures, Cambridge Gateway Fund, and Business Angels
- StyleCats Limited - novel chemical entities - raised £1.1m in September 2003 from Cambridge Gateway Fund and existing investor Octel Corp.
- Alphamosaic added £540k in 2004 from existing investors, including Prelude

There are also many examples of technology firms raising funds beyond our range:

- Plastic Logic – organic semiconductors – added around £2.45m in November 2002 to its first round finance of £6.3m which was led by Amadeus Capital Partners and Polytechnos with many other investors, including Business Angels
- Antenova – smart antennae – raised ~£6m in August 2002 as follow-on funding
- ARKeX Ltd – oil & gas exploration technology - raised £4m from SEP (£1.5m), RWE Dynamics (£1.5m) et al, including Sir Martin & Lady Wood.
- TeraView – terahertz technology – raised £6m in January 2004 from a consortium led by Amadeus Capital Partners and including Cambridge Gateway Fund, whose contribution was £975k
- Ionix Pharmaceuticals raised £10m in 2003 from VCs
- Lorantis – semiconductors – raised £25m in 2003 from VCs
- CSR – wireless technology – raising £89m in a recent IPO

The Venture Capital scene in Cambridge is very strong and access to London and international locations is also straightforward creating a wide choice for fund-raising.

The relative ease of funding is perhaps due to the rich supply. Local players with technology funds include:

- 3i Cambridge is their global centre of excellence for technology ventures
- Amadeus Capital Partners (Herman Hauser) manages nearly £300m invested in ICT and biotechnology firms
- Prelude Technology Investments (Robert Hook) manages around £50m invested in ICT and biotechnology firms
- N W Brown (Nigel Brown) manages several funds, including Cambridge Gateway Fund (£35m) and GEIF Ventures Fund (£5m)
- Merlin Ventures (Chris Evans) manages over £300m of investments in bioscience start-ups
- Avlar Bioventures (Alan Goodman) manages over £100m in biotechnology ventures within two funds

There are also several active Business Angel networks including:

- Cambridge Angels – a small group of Cambridge entrepreneurs and angels
- Cambridge Capital - around 20 private investor members who syndicate with other investors
- Great Eastern Investment Forum (GEIF) has 500 members; the forum attracted around 170 approaches last year of which about 50% were in our target funding band

5.7.5 North West

The North West has over 350,000 firms, 75% of the UK's top businesses, mostly in manufacturing, with the largest University concentration in Europe, including the strong technology-oriented University of Manchester and UMIST. Many international technology businesses have operations in the region that has a significant number of entrepreneurs and high net worth individuals.

Deals in the range of £1m to £2m are sometimes taken on by VCs in the region but they are smaller than ideal and a number of regional funds have been set up to close the gap.

- NW Equity Fund (£35.5m) co-investment fund is usually limited to £250k per transaction and £500k total per investee; the fund has made 21 investments in 15 companies in various sectors – “opportunities are scarcer than the funds”
- NW Business Investment Scheme applies Objective 2 Funding (£17.5m leveraging another £57.5m from other sources); the fund has broader objectives than technology and co-invests up to £500k alongside Angels and other investors; 9 (2 are technology) deals made in year 1 with £2m invested alongside £11.4m from elsewhere
- RisingStars Growth Fund (£19m) is a commercial fund (<50% of funds are government sourced) that can invest across range of £30k to £1m – usually <£500k but can go to £975k - and often syndicates with NWEF and NWBIS); this fund has experienced significant demand in the range of 500 enquiries per annum

Some of the recent deals facilitated in our target range of £500k to £2m include:

- DxS Limited – pharmacogenomic technology – raised £1.1m in April 2004 from investors including the NW Business Investment Scheme (£260k)
- L3T technology Ltd – cholesterol measurement – raised £1.2m in April 2004 from a syndicate led by Enterprise Ventures' RisingStars Growth Fund and including NW Equity Partners and the Rainbow Seed Fund
- Provexis – thrombosis treatment – raised £825k in March 2004 from a syndicate led by Enterprise Ventures' RisingStars Growth Fund and including NW Equity Partners (£250k) and existing shareholders (£325k)
- Tepnel Life Sciences – automated DNA purification – raised over £600k in December 2003 from investors including NW Business Investment Scheme (£160k)

Two key issues are said to remain:

- Raising £1m to £2m for a technology start-up can still be difficult in the NW; £750k to £1m only buys between 12 and 18 months operation – what happens next?
- Co-investment can make decision-making difficult due to the necessary complexity of “last minute” deal-broking when decisions are often needed quickly; a commercially-managed fund including 20% to 40% public-sector “priming” funding is thought to be able to be sufficiently agile without interfering unduly with the private sector.

The region has many venture capital businesses and has raised nearly £400m – mostly MBOs - for 100 companies in a single year (NE comparable is £71m for 48 companies):

- 3i (Keven Parker) reputed to have transacted £250m in NW deals during 2003 – one of its best years
- Acorn Capital Partners Ltd (breakout from BDO Stoy Hayward)
- Altium Capital (formerly Apax Partners Corporate Finance)
- Bridgepoint Capital (formerly NatWest Venture Partners)
- Yorkshire Fund Managers manages the NW Business Investment Scheme
- Enterprise Ventures manages the RisingStars Growth Fund
- W M Enterprise Ltd manages the NW Equity Fund

There are also several established or embryonic Angel networks:

- Private Capital Club
- Richard Mitchell
- Ford Campbell
- TeChINVEST – a financial introduction service operated by NWDA for businesses and investors

5.7.6 Scotland

Funding in the target range of £500k to £2m is tough but achievable for investor-ready businesses in Scotland. There may be a residual funding gap between £2m and £10m.

Scotland, despite lower investment overall, has an above average per-capita share of early-stage venture capital investments due to the presence of the largest number of Scottish-based VC Funds, the largest concentration outside London and the South-East.

KPMG's Bruce Walker adds “Scotland has a good base of financial and legal advisors and a good supply of entrepreneurial talent”

In the last year or so, Scotland has seen approximately 50 venture capital deals, totalling around £50m - mostly (£40m) from Business Angels. Around 50% of these were first-time investments. The share taken by Angels has increased recently as even Scottish-based Venture Capitalists are now less willing to invest

in this range, sometimes preferring to invest on a larger scale in English companies (e.g. Scottish Equity Partner's substantial pre-IPO investment in CSR).

The shift in interest, combined with limits on the reach of Angel finance seem to support the view of Andy MacNair (Connect Scotland Chief Executive in Scotland on Sunday 29 February 2004) that their funding gap is now "between £2m and £10m".

Active Private Equity players include:

- 3i, despite downgrading their Glasgow office and selling some stock on, still claim to have more staff in Scotland than their competitors
- Close Brothers (Sean Dinnen) – planning to invest £100m in Scotland, although mostly in MBOs of family-owned businesses and, although London-based, Close staff "willingly get on a plane"
- Penta Capital (Torquil Macnaughton), whose later stage Penta Fund 1 specialises in £3m-£15m deals for MBOs etc, set up a £22.5m early-stage technology fund – Pentech Ventures – from institutions (including European Investment Fund) and high net worth individuals.
- Scottish Equity Partners (Calum Paterson) is seeing an upturn in opportunities this year and expects to make several investments
- Albany Ventures (Raymond Abbott), dormant since 2001, but re-investing this year

Angels are also very active, investing over £40m in 2003 with average deal sizes around £800k, mostly in follow-on funding rounds:

- Archangel Informal Investment (Peter Shakeshaft) 15+ deals totalling around £6m in 2003
- Braveheart Syndicate
- Linc Scotland

Scottish Enterprise operates (since Summer 2003) a £45m co-investment fund that has been active and attributed with the increase in the number of deals below £1m. The fund was set up to close an investment gap said (by David Grahame, Linc Scotland's Chief Executive) to be anywhere between nothing and £2m. 'Investor-readiness' may be the limiting factor where many fewer deals are done, despite the availability of cash, than the number of firms that appear desperate for funding.

The annual 'Connect Investment Conference' attracted 20 early stage technology companies to Edinburgh in October 2003. The firms hoped to raise around £33m from attending VCs

Ian MacDonald – former Connect Scotland Chief Executive – quoted in Edinburgh Evening News 27 October 2003 "... funds and funders are interested in doing deals at all stages, but the issue is whether the companies are at the right stage for investment."

Connect Scotland survey:

32% of technology firms are looking for around £1m from a VC or institutional investor while 21% are looking for around £750k from business angels.

Recent 'in-range' deals (listed by Young Company Finance) include:

- Denfotex – dental care technology – raised £650k
- Lab901 – biological sampling technology – raised £1m+
- Nallatech – electronic FPGAs – raised £2m follow-on finance from 3i and SEP
- Petrodata – Oil & Gas software – raised £800k from VCs
- Point 35 Microstructures raised £1m+ for MNT processes

Other recent deals include:

Cascade Technologies (April 2003) – gas detection - raised £1m+ in private investment (Synergy Fund – managed by SEP), grants (Scottish Executive), and loans (Scottish Enterprise Business Growth Fund).

Despite concerns about a gap above £2m, there have also been deals in this range:

- Photonic Materials Ltd raised £3.75m 3rd-round finance from 3i, RBS, and SEP
- Wolfson Microelectronics IPO
- Scottish Equity Partners SEP II Fund raised £100m in 2001; partners include Standard Life, European Investment Fund (EIF), Martin Currie, HBOS, RBS, and Lloyds TSB; investees included two recent IPO's – Wolfson Microelectronics and CSR.

5.8 Issues of State Aid

5.8.1 Background

The European Union has issued statements indicating that it is in favour of promoting risk capital in the Community. It has furthermore issued guidance on State Aid and Risk Capital³⁹. This guidance, known as 'SARC' will be applied by the EU in its assessment of the proposed SPEV.

SARC assesses whether a proposed measure constitutes State Aid and then gives guidelines as to the manner in which a measure that is deemed to constitute State Aid will be deemed compatible or incompatible with the common market.

We examined the Commission's decisions in respect of the Viridian Growth Fund⁴⁰, the Regional Venture Capital Funds⁴¹ and the Small and Medium Enterprise Venture Capital and Loan Fund⁴². These provided us with guidance on the consideration given to aspects of the assessment that would be made of the Special Purpose Equity Vehicle proposed by One NorthEast.

We cannot provide One NorthEast with legal advice in support of its preparation of a submission and answers to questions from the Commission in respect of these regulations. However, following our study and consultation with informed sources, we list some of the key issues to address in this section. Please note that we refer to the SPEV as notified to the Commission, whilst recognising that it may require modification before it is accepted.

5.8.2 Applicability of Article 87(1) to Risk Capital Measures

One NorthEast has notified the SPEV to the European Commission to cause the Commission to confirm that under the Market Equity Investor Principle there is no aid, or to receive clarification that there is aid, which can be authorised by applying the principles of SARC.

The SPEV would constitute aid if it meets the cumulative criteria of section IV.3 of SARC for the measure to fall within the scope of Article 87(1) of the Treaty. The cumulative criteria are the use of state resources, distortion of competition, selective advantage and whether the measure affects trade between member states. The Commission considers the possibility that the measure may confer aid to investors, to the fund itself and to the companies in which the fund invests.

5.8.3 Basis for Authorising Risk Capital Measures

The basis for authorising risk capital measures is described in section VI of SARC.

We conclude that technology SMEs in the North East face severe difficulty in obtaining capital and credit. This is primarily the result of three identifiable market failures:

- There was hitherto no continuous market for seedcorn and early stage technology equity in the North East. The absence of a technology private equity market in the region and the historic lack of dealflow has resulted in the inability of technology companies to attract venture finance on any

³⁹ OJ 2001/C 235/03

⁴⁰ OJ 2001/406/EC

⁴¹ OJ 2001/712/EC

⁴² Letter of 4.2.03 regarding State Aid N 620/2002

consistent basis. Whilst the Commission sees no general risk capital failure in the Community⁴³ it was clear from the evidence gathered that the supply of technology venture capital does not flow freely into the North East region and there is thus a market failure. We have found evidence of a number of early stage technology equity deals that have been financed in Scotland, the North West and the East of England, the three regions of the UK chosen for comparison with the North East. We believe the market failure in the North East to be the result of a past lack of dealflow, networking and support organisations and the particular disadvantages of the region in respect of its relative lack of funding for Research and Development in academia and industry.

- There is an equity gap which is reported by the sources in our survey to start from about £300k to £500k and extends to at least £1m to £2m. The top of the equity gap is currently not measurable as we could find no evidence of recent larger deals. The private sector will only participate in companies that are already generating revenue and with few exceptions, will only participate at above £1-2m of equity.
- The technology business prospects for which funding is sought are highly innovative and risky, and information is imperfect in assessing the risks for technology businesses.

SARC states⁴⁴ that amounts of up to €750k may be invested in the regions qualifying under Article 87(3)(a) of the Treaty and up to €500k elsewhere, in the case that only investors or the investment vehicle is a beneficiary. Nevertheless, we are satisfied that there is sufficient evidence that the funding gap extends to at least £1m-£2m and the upper limit of investment in any tranche should be set in this range in order to address the equity gap.

The demand for early stage equity funding for technology companies is projected to exceed supply by between £68m and £219m over the period from April 2004 to March 2009. This is despite the provision of the Co-investment fund for early stage investment. There are a significant number of prospective businesses for which a wholly publicly funded investment is the only viable approach at the early stage of funding. A proposed equity vehicle such as the SPEV would address this market failure in part by providing early stage finance for technology businesses up to the stage at which the private sector would be willing to invest through the Co-investment Fund or alone.

5.8.4 Reasons For Controlling Public Funding To Risk Capital Measures

The risks of public funding⁴⁵ are mitigated as follows:

- The risk of distortion of competition is present for the enterprises invested in. There is no risk of distortion of competition in the regional market for equity provision as there is no effective market in technology equity. The only other regional providers of venture finance are either not present in technology equity finance or managing other public investment funds.
- The risk of 'dead-weight' or lack of incentive effect will be mitigated through the management of the fund according to the market equity investor principle. This will mean that companies that receive investment will be expected to make a return commensurate with the expectations of a market equity investor.
- The risk of 'crowding out' is mitigated by the proposal that the SPEV should only fill 35% of the projected gap in demand. This should provide an incentive for private equity providers to invest in the region.

5.8.5 Criteria For Assessing Compatibility

The criteria for assessing the compatibility of the proposed SPEV with the common market are described in section VIII of SARC.

⁴³ SARC VI.4

⁴⁴ SARC VIII.2

⁴⁵ SARC III.1

Market failure has been discussed and evidence provided elsewhere in this study. Once market failure has been established, the Commission will examine a number of positive and negative elements in respect of the compatibility of the measure with the Treaty:

Restriction of investments to small or micro enterprises, or to medium-sized enterprises in their start-up or other early stages or in assisted areas.

This is regarded as a positive element and is present in the proposed SPEV

Restriction to smaller investments of €750k, or to a given level of demonstrated market failure.

It is necessary to allow investments at above €750k given the evidence provided for an equity gap at levels significantly above this. Such investment will provide a 'continuum of funding' to the stage of development of a business at which private equity investors will participate.

Measures should be focused on risk capital market failure (in the form of equity or quasi equity)

The proposed SPEV is an equity measure

Decisions to invest should be profit driven.

SARC lists the following factors:

- A link between investment performance and remuneration of the fund manager.
- The decision to invest is made solely by market economy investors
- The measure has significant involvement (>30%) of market economy capital being invested on a commercial basis
- Representation of market investors in the decision-making
- Application of best practice and regulatory supervision in the management of funds

We understand that these aspects are included in the application, with the exception of the 30% market economy capital, as the proposed SPEV is wholly publicly funded.

Minimisation of the distortion of competition between investors and between investment funds.

The lack of competition in the North East for provision of venture capital is the cause for the requirement for the SPEV. Consultation with regional and UK-wide venture finance providers has shown that the provision of Early Stage funding by the public sector is welcomed, given that it is in the equity gap and at the stage before the private sector would consider investment. The private equity providers consulted in the demand study regarded this action as an incentive to enter the market.

If the risk of loss is borne entirely by the public sector, this is negative

The proposed SPEV is an entirely public sector fund.

Sectoral focus is acceptable if there is a commercial as well as a public policy logic

The emphasis on technology equity finance has commercial and public policy logic. The commercial logic is that technology businesses offer the opportunity for above average commercial returns. The public policy logic is that technology businesses should enhance Gross Value Added in the regional economy, utilise skills and infrastructure already available and create a cluster of technology companies together with their supply chain in the region.

Investment on the basis of business plans

We understand that all investments will be made on the basis of business plans. The Centres of Excellence in the region are able to provide support for the development of the prospective investee companies as viable propositions for funding.

Avoidance of cumulation of aid measures in a single enterprise.

We understand that this will be the case.

6 Conclusions and Recommendations

6.1 Restating the Questions

At the commencement of the demand study, it was agreed with One NorthEast that the briefing document should be resolved into a focused set of questions:

Primary Question 1: Demand

What is the demand for Early Stage Technology Equity Finance?

Is there a £40m excess of capital demand (within the relevant technology sectors in the region and at the right funding stage and with appropriate company profiles) over the likely availability of funds supply over the next five years?

Primary Question 2: Supply

Is there a failure of funds supply that should be met by the public sector?

If there is excess demand, is it likely that the landscape of private sector funding provision will fail to evolve to meet that excess demand?

Secondary Question 1: Stimulation of Demand

What measures are needed to stimulate uptake and optimise outcomes in light of the establishment of the Centres of Excellence?

Secondary Question 2: Comparison with 'Successful' Regions

What lessons can be learned from the approaches taken in Scotland and the East of England?

We summarise our conclusions in respect of these questions in this section.

6.2 Historical Supply and Demand

We have investigated the recent history⁴⁶ of technology equity demand, supply and deals in the North East. The equity market in the region has limited general equity dealflow and very few technology deals. The market has the following characteristics:

- Limited equity dealflow
- Few technology deals
- Most deals are Management Buyouts
- Few deals for expansion capital
- Reported reliance on bank and private debt finance
- Few intermediaries
- Low level of clustering or networking activity

The Venture Capital market in the region is limited and effectively segmented between Northern Venture Managers, Northern Enterprise Limited and Entrust. The UK-based Venture Capital providers active in the technology market have low interest in the region and have participated in very few deals in the region. A considerable proportion of the available equity funds that are applied to technology deals are provided by the public sector.

The rate of technology business formation has been low, with the regional business base generating a few opportunities each year. The University base creates about 6-8 spinouts each year.

6.3 Evidence of Market Failure

We conclude that there is significant evidence of market failure in the provision of technology equity finance in the region:

⁴⁶ By the past, we refer to the period from April 2000 to March 2004. By the future, we refer to the period from April 2004 to March 2009.

6.3.1 Lack of a Continuous Market for Technology Equity Provision

Whilst there is a limited market for equity transactions, there has been no 'continuous market' for seedcorn or early stage technology equity:

- There is evidence of a number of <£500k deals, satisfied from public sector funds and angels
- There is evidence of only about 11 Early Stage technology deals in the £500k - £4m range over the period considered. When we checked this finding with regional market participants, it was felt to be an underestimate, but not by a great factor.
- This volume of deals has been insufficient to attract advisors, lead investors and business support, resulting in the limited, segmented market
- There is a low rate of follow-on from seed to early stage investment
- We thus conclude that whilst a market is present, it lacks the critical mass to be continuous

6.3.2 Lack of Regional Technology Venture Capital Provision

There are five providers of venture capital in the region⁴⁷ of which only one manages mostly private equity. Only NStar has substantial funds available for Early Stage technology investment through the recently created COIF. There is only one identified deal above £500k in which a regional private equity provider has participated, although we suspect that there are deals which are unreported or not included in our survey.

Regional Corporate Finance firms and other intermediaries have been successful in bringing together several deals involving high net worth individuals and some participation from venture finance providers not located in the North East.

6.3.3 Failures in networking and Investor Readiness

There is a lack of networking opportunities for technology companies, business angels, venture capital providers, intermediaries and business support organisations in the region. There has also been a lack of support for investor readiness. The Centres of Excellence and Entrust are now addressing these through recent initiatives.

6.3.4 Risks of Technology Investment

Investment in technology businesses carries additional risk as investors face more difficulties in assessing technically innovative or risky projects and the information available is imperfect.

6.3.5 The Equity Gap

There is an equity gap which is reported by the sources in our survey to start from about £300k to £500k and extends to at least £1m to £2m. The top of the equity gap is currently not measurable as we could find no evidence of recent larger deals. The formal private equity providers will mainly participate in companies that are already generating revenue and with few exceptions, will in general only participate at above £1-2m of equity. There are nevertheless a small number of private equity providers who will participate in pre-revenue technology deals.

6.3.6 Conclusion

In summary, there has been a limited level of demand for Seed and Early Stage equity finance by technology companies. The Seed requirement has been generally matched by supply in the past. The demand for Early Stage funding has not been met by supply. There are multiple sources of market failure, in particular the lack of a continuous market for technology equity provision, the lack of regional technology venture capital provision, failures in networking and investor readiness, risks of technology investment, and an 'equity gap' in the level of finance that can be provided cost-effectively.

⁴⁷ Northern Venture Managers, Northern Enterprise, NStar, Entrust and UK Steel Enterprise

6.4 Current and Projected Demand for Equity Finance

There is recent evidence⁴⁸ for an increase in demand for equity finance in the technology sector in the North East. The Strategy for Success pursued by One NorthEast is creating significantly increased demand and the Centres of Excellence have sizeable pipelines that have been reported and validated in the demand study. National influencing factors include the improved general economy and attitudes towards entrepreneurship in the higher education sector.

Our investigation indicates that the Universities will generate slowly increasing demand and that, provided the Universities and Centres of Excellence work together, this should yield a high quality of demand. The technology focus of the Centres of Excellence is on sectors with significant capital requirement at the pre-revenue stage.

The demand study projects a demand for £142-280m of technology equity finance, composed of £18-36m of Seed and £124-244m of Early Stage funding over the next five years.

We found technology companies surveyed to be more amenable to equity finance than expected. We thus conclude that equity aversion will be gradually broken down by the availability of finance, examples of success, and an emphasis on investor readiness and expanding networking opportunities within the region.

6.5 Current and Projected Supply of Equity Finance

NStar has recently been established and has significant funds under management. A Proof of Concept Fund of £10m provides seed funding of up to £60k (£90k for Universities) for the development of technical and market potential of ideas. A Co-investment Fund has £23m of public support and must attract a minimum of £15m of private equity into the region if its funds are to be committed.

The supply side of our study indicated an availability of around £64m of equity available for Seed and Early Stage technology investment over the next five years. This is composed of £11m of Seed equity and £53m of Early Stage equity, including the new NStar funds. The private equity participation is projected to be £24m, of which about two thirds will be co-investments. This represents a substantial increase in private equity participation in the region which will depend on the success of NStar and the credibility of the dealflow presented for co-investment.

We conclude that private equity providers may be persuaded to invest alongside the COIF by developing a close working relationship with NStar. There will nevertheless be a continued reluctance to invest amounts below £1-2m, especially in technology companies at the pre-revenue stage, which require similar or higher levels of due diligence and oversight than established revenue-generating operations. It is unlikely that private equity providers can be persuaded to open offices specialising in technology in the North East, although the intermediaries may add more technology specialists to support dealflow.

We thus conclude that the intervention of NStar should create, not distort the market if it is able to work with other finance providers both within the North East and beyond.

6.6 Evidence for the Gap in Access to Finance

The projections of supply and demand over the next five years lead us to estimate a gap in provision of between £68-219m, with a probable estimate of £141m. Some proportion of this gap should be filled by a publicly funded vehicle that we suggest should total £24-88m with a probable investment of £53m.

The criteria imposed by private equity providers are such that there will be viable businesses that do not meet their requirements on the basis of potential size or rate of return. These companies may

⁴⁸ For example the scale of the validated demand pipeline and the 32 applications for Proof of Concept funding received in a pilot round operated between December 2003 and March 2004.

nevertheless be sensible investments, given that they should generate viable businesses in the region. Prospects should thus be divided into those with potential likely to interest private equity investors (35%) and those which would result in sustainable businesses but at a level below that of interest to private equity providers (65%).

The stimulus presented by the Strategy for Success should create a demand for funding at the stage before which the private sector will invest. A fully public sector vehicle is thus needed to bring early stage pre-revenue technology prospects to an investor ready state. In the case of the companies which will potentially meet the requirements of the private equity providers, this will lead to co-investment or wholly private equity investment at the next stage. In the case of companies that would not meet the private equity investor requirements, this should lead to the generation of a range of viable businesses in the region's technology economy.

The level of the disjuncture between past and future demand will lead to a need for care in the timing of the availability of finance, judgement of the level of finance provision required given the range of estimates in the gap as presented and a need for credibility in the quality of prospects for funding.

6.7 Comparison with Other Regions

There are substantial differences between the capital-raising scenes in the North West, Scotland and East of England, although all seem easier than the North East.

The East of England, largely due to the continued successes in the Cambridge area, has developed a strong, sophisticated spectrum of finance with great depth of experienced financial managers to complement the rich flow of technological entrepreneurs and several networks within which different communities can freely interact. As a result, good propositions pitched at the appropriate level of finance, will generally succeed.

The North West and Scotland have acted to raise the level of funds supply substantially and are both now affected to some degree by an apparent excess of funding compared to good, investor-ready, propositions and / or availability of experienced management.

The North East can learn from all three regions and the Centres of Excellence, apart from their role in stimulating technology transfer and business propositions can play a key role in ensuring that those propositions are "investor-ready" and avoid funding gaps that may emerge above £2m.

6.8 Recommendations

Proposed future equity provision

We conclude that, despite the availability of the COIF and POC funds, there is a further need for a wholly public sector vehicle to provide a continuum of finance in the region.

It is clear that the structure of the proposed vehicle and its position relative to the other funds will need to be examined by One NorthEast both in terms of the apparent demand and compatibility with the common market.

There is a risk of overprovision, given the novelty of NStar and its COIF and POC funds. The timing of the introduction, phasing and level of the SPEV should be considered carefully in order to minimise this risk. We understand that it is likely that the approval process will be sufficiently long such that the uptake of the POC and COIF funds will be apparent before the SPEV is approved.

6.8.1 Issues for the Region

We recommend that the Centres of Excellence should be encouraged to stratify their prospects into those for which medium or high growth is expected. The prospects may then be supported accordingly, with the goal of expending resources wisely and securing the maximum potential private equity into the region.

We recommend that NStar should work closely with other regional stakeholders and market participants to ensure that networking and investor readiness are at the forefront of the regional agenda. The targets and operational methods of the fund manager appointed for any wholly public equity vehicle will need to be considered carefully by NStar. This should be aimed at a commercial management that is far-sighted, technology friendly, not risk-averse and recognising the overall economic gain to the region from investment.

6.8.2 Further areas for study

We recommend that One NorthEast should examine carefully the provision of support for (a) networking and (b) investor readiness in the region. It may be that these are already suitably addressed by Entrust, NStar and the Centres of Excellence, but the success of the current and proposed funds is reliant on improvements in this area.

We recommend that some further investigation should be undertaken into two aspects of finance provision for technology companies (a) the means by which grant and debt provision is combined with equity, in particular the ease of combination of funding methods and (b) the transition processes between the stages of company development. The causes of gaps between Seed and Early Stage prospects were not clear from our study.

Appendix A Glossary of Terms

Business angels	Entrepreneurs who will invest in a private business and may provide part time executive support to develop the business
BVCA	British Venture Capital Association, an industry association that represents the vast majority of UK based private equity and venture capital firms
Centres of Excellence (CoE)	The principal function of the Centres of Excellence is to "condition" technologies arising from the research base to a form whereby these technologies can be utilised for commercial purposes. Five Centres of Excellence have been set up in the North East: 1. Nanotechnology, Photonics and Microsystems (CENAMPS) 2. Life Sciences (CELS) 3. Digital Technology & Media (Codeworks) 4. New & Renewable Energy (NaREC) 5. Process Industries (CPI)
Chatham House rule	When a meeting, or part thereof, is held under the Chatham House rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed
Co-investment Fund (COIF)	The Co-investment Fund was established by One NorthEast and is managed by NStar
Corporate Finance Houses	Companies that specialise in securing mainly debt and equity finance. They also commonly advise on tax and structure issues. They may be part of accountants or other businesses.
Early Stage Funding	Funding to develop the company's products and fund their initial marketing to the stage of first third party sales (pre-revenue) or to initiate commercial manufacturing and sales in companies which have completed the product development stage (post-revenue).
Entrepreneur	Someone who pursues new business opportunities and is willing to assume the responsibility, risk and rewards of starting and operating a business
Equity Gap	A persistent capital market imperfection preventing supply from meeting demand at a price acceptable to both sides. We apply this term to a level of funding (an amount of money) that is perceived as being not cost-effective to provide by investors.
Expansion Funding	Funding to grow and expand an established company. For example, to finance increased production capacity, product development, marketing and to provide additional working capital.
High Net Worth Individuals	Individuals investing their own funds in businesses.
Internal Stakeholder	A stakeholder can be defined as an individual or group with an interest in the success of a particular activity. In this report where internal stakeholders are mentioned we are referring to The Government Office of the North East, One NorthEast, NStar, and The Centres of Excellence
Inward Investment	Companies establishing or relocating to a region or locality.
Late Stage funding	May include Management Buy-Out (MBI), Management Buy-In (MBI), rescue, refinancing, bridge financing etc.
Management Buy-In	Management Buy-in or MBI is the purchase of a business by an

	outside team of managers who have found financial backers and plan to manage the business actively themselves.
Management Buy-Out	Management Buy-out or MBO is the term used for the funds provided to enable operating management to acquire a product line or business, which may be at any stage of development, from either a public or private company.
Mezzanine Funding	Has characteristics of debt and equity. Interest is charged at high rates and the loan will rank after senior debt for security purposes. Conversion rights to equity cover default on repayments and allows the lender a possible upside gain on realisation.
Micro Enterprises	Micro enterprises are defined by the European Commission as businesses that have fewer than 10 employees, and an annual turnover not exceeding €2m or a balance-sheet total not exceeding €2m
North East	North East England is one of the regions of England. It includes the following local government areas: Northumberland, Newcastle upon Tyne, Tyne and Wear, Tyneside, Sunderland, County Durham, Darlington, Stockton-on-Tees, Hartlepool, Redcar and Cleveland, and Middlesbrough
Pipeline	This term refers to the total flow of prospects for funding.
Preference Shares	Preferred shareholders always receive their dividends first and, in the event the company goes bankrupt, preferred shareholders are paid off before common stockholders. Also unlike common stock, preference shares pay a fixed dividend that does not fluctuate, although the company does not have to pay this dividend if it lacks the financial ability to do so.
Private Sector	The part of a nation's economy that is not controlled by the government.
Proof of Concept Fund (POC)	The Proof of Concept Fund was established by One NorthEast and is managed by NStar.
Prospects	Companies or individuals seeking finance for growth.
Public Sector	The part of the economy concerned with providing basic government services.
Quasi Equity	Financial instruments that are close to equity in their characteristics.
Research Councils	There are seven UK Research Councils each established under Royal Charter. Statutory control of the Councils is exercised by the Department of Trade & Industry, and the Office of Science & Technology. The UK Research Councils are: <ul style="list-style-type: none"> • Biotechnology & Biological Sciences Research Council • Council for the Central Laboratory of the Research Councils • Engineering & Physical Sciences Research Council • Economic & Social Research Council • Medical Research Council • Natural Environment Research Council • Particle Physics & Astronomy Research Council
Seed Capital / Funding	A source of funding for the early stages of a start-up venture where the product, process, or service is in its conceptual or development phase and money is needed to allow a business concept to be developed, perhaps involving the production of a business plan, prototypes and additional research. This is referred to in the briefing note as 'concept finance'.

Small and Medium Sized Enterprises (SMEs)	Small and medium sized enterprises are defined by the European Commission as independent enterprises that have fewer than 250 employees, and an annual turnover not exceeding €40/£25m or a balance-sheet total not exceeding €27/£17m
Special Purpose Equity Vehicle (SPEV)	The Special Purpose Equity Vehicle was established by One NorthEast and is managed by NStar
Spinouts	Spinouts occur when an established company transfers, or 'spins out', a technology or business activity to a company which is set up for the purpose of acquiring said technology or business activity
Start-ups	The earliest stage of business, typically with no operating history. It is the first stage in the growth cycle of a business, from initial conception to typically the point when the business has a product or service in place and is beginning to generate revenue
Venture Capital / Finance	The process by which investors fund risk orientated business endeavours. A venture capital funding arrangement will typically entail relinquishing a proportion of the ownership and control of the business. Offsetting the high risk the investor takes, is the expectation of a high return on the investment.

Appendix B Sources Consulted

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ACT Venture Capital
Advent Venture Partners
Amadeus Capital Partners
Arjuna Technologies
Barclays Bank
Biofresh
Bioprofiles
Biotransformations
Bulldog Partners
Business Press
Cancer Dynamics
Caspian Learning
Christison Particle Technology
Classic Fund Management
Creative Gene Technology
Deloitte & Touche
Dickinson Dees
Digital Asset Solutions
Durham Pipeline Technology
Durham Scientific Crystals
Durham University
Engineering Business
Enterprise Ventures
Entrust
EST
ET Capital
Eutecnyx
Eversheds

Evolving Generation
Exwold
Fake Believe
FarField Photonics
Global Point Technologies
Government Office of the North East
Great Eastern Investment Forum
High Force Research
IDA Powder Services
Intesym
Lyrachem
Mirratech
Newcastle University

Northern Enterprise Limited
Northern Venture Managers
North West Development Agency
NStar
NW Brown
One NorthEast
Orla Protein Technologies
Owel
Pond Venture Partners
Procentricity
Prochem
Progressive Energy
Protensive
Quantum Corporate Finance
Redut
Reinervate
RMT – Accountants and Corporate Finance
SAL
Scottish Enterprise
Securis
SHIN
Sigma Technology Management
Small Business Service
Soil Machine Dynamics
Stephen Morgan
Tait Walker
Team Link
The Centre for Process Innovation (CPI)
The Centre of Excellence for Nanotechnology, Micro and
Photonic Systems (CENAMPS)
The Centre of Excellence in Life Sciences (CELS)
The Digital Centre of Excellence (Codeworks)
The New and Renewable Energy Centre (NaREC)
Trackerphone
UK Haptics
UNW Chartered Accountants and Corporate Financiers
Venture Plastics
Ward Hadaway
Waste Exchange Services
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