Innovation Framework

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BUSINESS DEVELOPMENT INNOVATION FRAMEWORK

This matrix sets out what SEEDA sees as the building blocks of success in working with its partners to reinforce the South East economy's strengths, as well as to identify and put right any weaknesses. (ross copy for web)

RESEARCH AND TEACHING EXCELLENCE	SPIN OUT, START UP AND TECHNOLOGY TRANSFER	GROWING KNOWLEDGE BASED FIRMS	INFRASTRUCTURE AND QUALITY OF LIFE
RESEARCH EXCELLENCE RATINGS IN UNIVERSITIES (RAE)	INCUBATION SCIENCE AND TECHNOLOGY PARKS	ATTRACT/ NURTURE LARGER FIRMS, INWARD INVESTMENT	PLANNING SYSTEM SUPPORTIVE
INSTITUTES/ CENTRES OF EXCELLENCE	SEED CORN AND VENTURE CAPITAL	PRIVATE R&D	BROADBAND CONNECTIVITY
TEACHING QUALITY, GRADUATE TRAINING AND EMPLOYABILITY TEACHING ENTREPRENEURSHIP	LINKS TO PROMOTE TECHNOLOGY TRANSFER & DISSEMINATION FROM HEIs, NHS	CONTINUOUS IMPROVEMENT OF THE SKILLS BASE	HOUSING AND TRANSPORT EDUCATION AND HEALTH PROVISION
INTERNATIONAL PARTNERSHIPS AND LINKS	EXPLOITING SMART, FARADAY, LINK, TCS, FORESIGHT	NETWORKS, CLUSTERS AND SUPPLY CHAINS	CULTURE, LEISURE AND LIFESTYLE

Priority SEEDA contribution

Some SEEDA contribution

Limited/No SEEDA contribution

Research & Teaching Excellence

1.1 RAE Ratings

The Universities of Oxford, Southampton and Surrey have at least one department which has been awarded a top 5* rating for research. Between these three Universities, 16 fields of science expertise received a 5* rating. The majority of research in the region that scored highly was conducted in Life Sciences, Chemicals and IT.

As a whole, the regions universities were above average in this exercise but this was mainly down to those mentioned above. The majority of South East universities received improved RAE scores in the December 2001 assessment.

1.2 Institutions/Centres of Excellence

There is a disparity in the location of research organisations in the region. Oxfordshire has twenty-one research organisations that we know of but West Sussex and Buckinghamshire have only three and one respectively. The largest area of research is Life Sciences, particularly around Oxford. The Defence and high technologies sectors also have a large number of research organisations.

Oxford, Surrey and Southampton have the most highly regarded centres of excellence; Oxford particularly in Computer Science, Engineering science and Life Sciences; Surrey in Electronic Engineering (particularly in communication technologies); and Southampton for its work in optics.

Although the region has three main centres of excellence, SEEDA and its partners can help business and academia to work together in other areas through sector groups/networks.

1.3 Teaching quality, graduate training and employability. Teaching entrepreneurship.

The Teaching Quality Assessment (TQA) undertaken by HEFCE produced similar results to the RAE ratings results. Oxford, Reading, Southampton, Oxford Brookes and Kent all received an average TQA mark that was above the UK median. Although Surrey University, in contrast to its RAE rating success, received a lower average TQA mark than the UK median.

In 2000, 67.7% of South East first time graduates gained employment and 19.5% continued training, which is inline with the UK average of 66.2% and 20.3% respectively. The percentage of South East graduates unemployed after one year was 4.4%, which was below the UK average of 5.3%

Although teaching quality in South East universities appears to be 'average' the region produces the second highest number of graduates and the highest number of GCSE or SCE A-C grades. There are however, fewer courses that teach entrepreneurship in the South East than in other regions.

1.4 International partnerships and links

Most of the region's universities have some form of international partnership or link. Many are also involved in EU funded projects that involve collaboration with other European universities.

SEEDA will play an important role in increasing partnerships through its International Strategy work.

Spin out, Start up and Technology transfer

2.1 Incubation, Science and Technology Parks

The South East has around 20 major 'parks', which are spread unequally around the region. The majority of the parks are located in Oxfordshire but only one park is located in Kent (Sittingbourne Research Centre) and no major parks are sited in Buckinghamshire or West Sussex. Most of the parks focus on specific sectors with the majority concentrating on Life Sciences or ICT.

SEEDAs Enterprise Hubs are a top priority in this area and have been very successful so far, helping businesses to locate into other parts of the region.

2.2 Seed Corn and Venture Capital

The British Venture Capital Association (BVCA) estimate that in 2000 there were 6 not-for-profit business angel networks in the South East and no commercial networks. The 6 networks helped produce 49 investments totalling £7.8million in the South East, the highest amount of any UK region. The BVCA consider these statistics to represent only the tip-of-the-iceberg for business angel network investment but to be a useful trend guide. So it can be roughly assumed that the South East business angel networks produce one of the largest outputs of number and total value of investments in the UK.

According to figures from the Inland Revenue in 1999/00, venture capital trusts invested £76.4 million in 96 South East investments, which represents over 27% of the UK total, the highest amount in any UK region.

The South East is performing very well and this is a priority area for SEEDA.

2.3 Links to promote technology transfer & dissemination from HEI's & NHS

HEFCE have developed a new funding scheme called HEROBC – Higher Education Reach out to Business and the Community Fund. Universities apply for funds to finance projects that encourage the institution to 'interact with business, industry and other public services and in doing so contribute to economic growth and competitiveness especially in the HEI's home region.' From the results of a survey undertaken by Higher Education South East (HESE) this funding is clearly making universities consider how best to manage and encourage technology transfer. The survey also showed the varying stages of development of Universities technology transfer policy.

Most NHS providers have their own explicit budgets for R&D and many undertake R&D as part of the central NHS R&D program. The organisation does not have a specific policy for transferring its technology and expertise externally but it does issue guidance to researchers and many of the larger providers are recruiting full time R&D managers.

> *This is a high priority area for SEEDA and it's partner organisations. Some universities are more advanced in this area than others and have their own innovation centres/networks. The majority are taking advantage of HEROBC funding.*

2.4 Exploiting SMART, SBRI, Faraday, LINK, TCS, Foresight

Smart – In the period between 1988 and 1998, South East companies made the highest number of applications (2,650) and received the highest number of awards (531) but the application success rate was the 2nd lowest to London (South East 20% and London 15%). The 531 awards were made to 410 companies from an SME population of 357,000, which gives an award penetration rate of 0.11%. This is the lowest penetration rate of any UK region apart from London, which had a penetration rate of 0.04%. The average UK penetration rate of 0.14% was similar to the South East average. Around 32% of UK SME companies are located in the South East or London, if these companies were excluded, the rest of the UK average penetration rate would be much higher. In a recent sample of 211 ongoing South East awards, the majority had been awarded to companies working in ICT (19.4%), Instrumentation (15.1%), Healthcare (13.7%) and Manufacturing Technologies (10.9%).

SBRI – A procurement scheme designed to give areas of government departments R&D budget to small companies. The scheme is administered by SBS and has only been running for one year so figures are unavailable.

Faraday – Faraday partnerships are sector/technology specific interactions between the knowledge base and industry through the involvement of an intermediary. There are currently 17 established faraday partnerships in the UK of which 5 have a South East establishment as a major partner. Sectors covered by the 5 are automotive & aerospace, communications and mobile information technology, environmental technologies, industrial mathematics and system engineering and optics. Most of the partnerships have many members spread throughout the UK so several of the other 12 partnerships may have South East establishments as a minor partner.

LINK – The LINK scheme is the Government's principal mechanism for promoting partnership in pre-competitive research between industry and the research base. The scheme offers an opportunity to engage with some of the best and most creative minds in the country, to tackle new scientific and technological challenges so that industry can go on to develop innovative and commercially successful products, processes and services.

TCS – Allows companies to take UK graduates for specific projects. Of the 850 ongoing TCS projects, 120 involve companies based in the South East (14%). For the last three years the South East has had the highest number of projects of the English regions.

Foresight – provides guidance on possible future trends in various sectors and broad social and/or economic issues. SEEDA recently employed James Breen as Regional

Foresight Co-ordinator and Alan Willett is establishing a Future Think board committee, which the SEEDA sector groups will support.

SEEDA has some involvement in these initiatives, although some of them are in their early stages. The region has the highest number of applications for SMART, which indicates the importance of the initiative in the South East.

Growing Knowledge Based Firms

3.1 Attract/Nurture larger firms, inward investment

In the financial year 2000/01 the South East attracted 191 inward investment projects, the highest number in the UK (22%). These projects created 18,190 new jobs (25.4%) and 22,737 associated jobs (18.4%), which are both the highest total of any UK region. From the 191 projects, 63% originated from North America, 25% from Europe and 12% from Asia Pacific. The vast majority of the projects were ICT related companies (54%) with the rest made up of Engineering & Electronics (14%), PharmaBio (7%), Financial & Business Services (4%) and Other (21%). The majority of the function of operations opened by the projects were Service (63%) other functions opened were R&D (15%), Manufacturing (10%), HQ (6%) and assembly & distribution (6%).

This is a high priority area for SEEDA, as the region attracts a high proportion of the UK's inward investment. However, most companies tend to locate in the overcrowded Thames Valley rather than in less popular deprived or coastal areas.

3.2 Private R&D

Business Expenditure on R&D in 1999 was £2.9 billion, which was 25.8% of the UK total and the largest expenditure of any region. In 1999, R&D employment was 35,000, which was 23% of the UK total R&D workforce, the highest number of any UK region. The presence of a number of major overseas investors conducting R&D in the region, such as Pfizer, IBM and Philips, is clearly a key factor in the large value of this headline figure. In an international comparison report by Robert Huggins the South East was ranked 24th of 40 top performing knowledge based regional economies for business expenditure on R&D, although in comparison against the same regions for research expenditure by government the South East was ranked 9th.

This is a medium/high priority as, although SEEDA doesn't have a direct influence on the expenditure, it can help to attract and retain the R&D operations of major companies in the region.

3.3 Skills Base

In the international comparison report by Robert Huggins, employment levels were ranked in the same 40 regions by the number of employees in various sectors per 1,000 inhabitants. The South East was ranked 8th for IT and computer manufacturing, 6th for biotechnology and chemicals, 19th for Automotive and high-tech mechanical engineering, 10th for instrumentation and electrical machinery and 8th for high-tech service sectors.

SEEDAs Learning & Skills team have some involvement. Although the region employs a high proportion of the UKs workforce in sectors such as

biotechnology, defence and software, there are still skills shortages in some areas.

3.4 Networks and Clusters

There are key industrial sector concentrations in the life science sector (Oxford and Kent), Software (Thames Valley and Surrey), Telecoms and network infrastructure (Thames Valley and Guildford), Creative Industries (East and West Sussex - Brighton in particular) and Electronics (various subsectors across the region).

The region is world renowned for biotech in Oxfordshire and ICT in the Thames Valley. A high priority area for SEEDA which has been involved in setting up sector groups.

Infrastructure and Quality of Life

4.1 Planning System Supportive

High value added activities should be actively encouraged, including aiding where there are possible business clusters. Economic diversity should be encouraged so that an area is not over reliant on a particular sector. There are also areas of the South East that have special planning considerations: the Thames Gateway, various coastal areas in Hampshire, Isle of Wight, East Sussex, Kent and the area to the west of London (the greater Thames Valley area). The two areas that have been identified as potential growth areas are Milton Keynes and Ashford. There is dissatisfaction from UK businesses with the lack of consistency, rationality, speed and user friendliness of the planning system. (Note: the Government is shortly due to release a green paper on the planning system which is expected to lead to a large shake up of the current system)

SEEDA has limited involvement in planning but can contribute to the overall picture.

4.2 Broadband Connectivity

The main areas covered are to the west of the region, mainly Berkshire, Surrey, Hampshire and some parts of Kent. Sussex, Oxfordshire and Buckinghamshire have considerably less coverage.

A high priority for SEEDA – the South East is above the national average for ADSL coverage but there are still areas of the region will little broadband connectivity.

4.3 Housing and Transport. Education and health provision

Housing – House prices in the South East are more expensive than any other region apart from London. There are wide differences in inter-regional prices – the average price of a detached house in the UK is £186,211 and the South East is £249,155 but average house prices in the region vary between £465,829 in Windsor & Maidenhead UA and £154,612 in Isle of Wight UA. The South East has a total stock of dwellings of 3.3million, which is around 13% of the UK total. Of this stock of dwellings, 29% are detached houses, 32% are semi-detached houses, 23% are terraced houses and 11% are purpose-built flats or maisonettes. In comparison to the other regions, the south east has an above average number of dwellings in the higher (size) end of the property market (detached and semi-detached) and below average number of

dwellings in the lower (size) end of the property market (terraced houses and flats/maisonettes).

Transport – The South East has arguably the best international links of all the UK regions with the two major international passenger airports (Heathrow and Gatwick), the channel tunnel rail link and many of the UK's busiest ports – including Dover.

Education – In the South East's primary schools the average number of pupils in classes over 31 pupils is in line with the national average and in secondary schools the number of pupils in classes of over 31 is below the national average. 54.8% of South East pupils leave secondary school with 5 or more GCSE's graded A*-C, which is the highest % in England and only 5.2% leave with no graded GCSE, which is below the national average of 5.6%.

17.8% of the South East's working population holds a degree or equivalent, the second highest percentage to London (25%). 12.2% of the South East's working age population hold no qualifications, which is below the UK average of 16.4%.

Health - The South East has the highest number of patients on a hospital waiting list in the UK (189,500) and the highest mean waiting time (4.7 months).

> *SEEDA is only directly involved in education through its Learning and Skills team. Overall the region is performing well although there are skills shortages in certain areas such as IT.*

4.4 Culture, leisure and lifestyle

Income and Expenditure - South East employees have average annual earnings of £23,015, which is above the average UK earnings of £21,749. The average earnings figures are matched by average expenditure figures per person, which at £172.50 per week is again second only to London (£173.80) and well above the average UK expenditure (£148.30).

Culture - The South East has a rich mix of cultural, sports and recreational facilities. Theatres include the Yvonne Arnaud Theatre in Guildford, Chichester Festival Theatre and the Hexagon in Reading. Throughout the region there are a wide range of visitor attractions, including castles, historic houses and gardens, country parks and museums. There are also over a hundred annual festivals and events in the region including Cowes Week and the Henley Regatta.

Leisure - 31% of the South East is classed as 'Areas of Outstanding Natural Beauty', higher than any other region. Between 1997 and 2000, households in the South East spent on average, £67.60 per week on leisure goods and services, this is second highest to London. In 1999, 13.5 million UK residents and 2.3 million people from overseas visited the South East.

Lifestyle – The South East has the second lowest recorded crime rate (South West has the lowest) for 1999/00 and the region also has the highest concentration of International Schools in the UK.

> *Although the cost of living is expensive, the region offers a good quality of life. SEEDA is currently working with the Tourism industry.*

1 – Research and Teaching Excellence

1.1 RAE Ratings

The Research Assessment Exercise (RAE) assesses the quality of research in universities and colleges in the UK. The main purpose of the RAE is to enable the higher education funding bodies to distribute public funds for research selectively on the basis of quality. Institutions conducting the best research receive a larger proportion of the available grant so that the infrastructure for the top level of research in the UK is protected and developed. The following data relates to the 1996 and December 2001 assessment. (Around £5 billion of research funds will be distributed in response to the results of the 2001 RAE.)

The RAE rating system is based on the following ratings between 5* and 1:

5* International excellence in a majority of the department's sub-areas and at least of national excellence in the rest
5 International excellence in some sub-areas and of national excellence in almost all others
4 National excellence in nearly all sub-areas
3a National excellence in a substantial majority of sub-areas
3b National excellence in a majority of sub-areas
2 National excellence in up to half of sub-areas
1 National excellence in none or very few of the sub-areas

The following table details South East university science/research subject areas, which scored over 3a

University	Subject	1996 Rating	2001 Rating	Category A and A* Research Active Staff (FTE) 2001
University of Brighton	Computer Science	3a	4	5.00
	Pharmacy	3b	-	-
	Other Studies and Professions Allied to Medicine	-	3b	14.80
	General Engineering	-	3b	7.00
	Civil Engineering	-	3b	20.00
	Physics	-	3a	1.00
	Applied Mathematics	-	3a	6.00
	Biomedical Sciences	-	5	18.00
De Montfort University	Computer Science	3b	4	8.50
University of Greenwich	General Engineering	3b	3a	12.00
	Computer Science	-	4	27.00
University of Kent at Canterbury	Biological Sciences	4	4	22.53
	Computer Science	4	4	30.10
	Metallurgy & Materials	3a	-	-
	Chemistry	3b	-	-
	Electrical & Electronic Engineering	4	4	20.10
	Physics	3a	3a	17.20
	Applied Mathematics	-	5	6.00

Open University	Biological Sciences	3a	4	15.00
	Computer Science	3a	3a	22.00
	Metallurgy & Materials	3a	4	6.00
	Chemistry	3b	3a	15.00
	General Engineering	3b	-	-
	Physics	3b	-	-
	Physics	-	3a	20.00
	Earth Sciences	-	5	34.18
University of Oxford	Biochemistry	5*	5	60.80
	Chemistry	5*	5*	73.75
(Dunn School of Pathology)	Clinical Laboratory Sciences	5*	5*	40.00
	Community Based Clinical Subjects	5*	5*	52.10
	Computer Science	5*	5	42.00
	General Engineering	5*	5*	77.80
	Hospital-Based Clinical Subjects	5*	5*	197.14
	Metallurgy & Materials	5*	5*	32.00
	Physics	5*	5*	155.60
(Zoology)	Biological Sciences	5	5	75.45
	Clinical Laboratory Sciences	5	5	44.87
	Pharmacology	5	5*	17.30
(Plant Sciences)	Biological Sciences	4	4	33.12
	Earth Sciences	-	5*	19.00
	Applied Mathematics	-	5	32.60
Oxford Brookes University	Biological Sciences	3a	3a	16.20
	General Engineering	3b	3b	10.40
	Computer Science	-	3b	11.00
	Applied Mathematics	-	3a	6.00
University of Portsmouth	Electrical & Electronic Engineering	3b	-	-
	Mechanical, Aeronautical and Manufacturing Engineering	3b	4	8.60
(Health Services Research)	Other Studies and Professions Allied to Medicine	-	3b	13.10
	Earth Sciences	-	3b	31.00
	Civil Engineering	-	3a	9.00
	Other Studies and Professions Allied to Medicine	-	5	33.50
	Applied Mathematics	-	5	7.20
University of Reading	Chemistry	4	4	26.00
	Computer Science	4	4	18.40
	Physics	4	4	18.30
	Biological Sciences	3a	4	34.50
(Cybernetics)	Electrical & Electronic Engineering	3a	-	-
	Mechanical, Aeronautical and Manufacturing Engineering	3b	-	-
	Earth Sciences	-	3a	8.60
(Plant Sciences)	Agriculture	-	5	23.33
	Food Science and Technology	-	5	31.60
	Electrical and Electronic Engineering	-	5	14.70
	Biological Sciences	-	4	34.50
Royal Holloway, University of London	Computer Science	4	5	13.00
	Physics	4	5	21.00
	Biological Sciences	3b	5	23.00
	Earth Sciences	-	5	18.50
University of	Electrical & Electronic Engineering	5*	5*	68.43

Southampton				
	Chemistry	5	5	37.95
	Computer Science	5	5*	26.15
	Mechanical, Aeronautical and Manufacturing Engineering	5	5*	100.09
	Biological Sciences	4	5	35.71
	Clinical Laboratory Sciences	4	5	8.18
	Hospital-Based Clinical Subjects	4	5	76.17
	Physics	4	5*	30.65
	Community Based Clinical Subjects	3b	3a	19.72
	Civil Engineering	-	5*	19.00
	Other Studies and Professions Allied to Medicine	-	3a	16.60
Southampton Institute	General Engineering	3b	-	-
University of Surrey	Electrical & Electronic Engineering	5*	5*	55.30
	Metallurgy & Materials	4	-	-
	Physics	4	5	28.00
	Biological Sciences	3a	-	-
	Chemical Engineering	3a	4	11.20
	Mechanical, Aeronautical and Manufacturing Engineering	3a	4	29.30
	Chemistry	3b	3a	20.40
	Other Studies and Professions Allied to Medicine	-	5*	62.30
(Centre For Environmental Strategy)	Chemical Engineering	-	5	9.00
	Civil Engineering	-	4	18.00
University of Sussex	Biological Sciences	5	5	76.60
	Chemistry	5	5	33.00
	Computer Science	5	5	28.71
	General Engineering	4	5	31.33
	Physics	3a	5	21.67
Cranfield University	General Engineering	-	4	61.30
	Mechanical, Aeronautical and Manufacturing Engineering	-	4	101.00
Buckinghamshire Chilterns University College	Metallurgy and Materials	-	3b	8.75
King Alfred's College, Winchester	Communication, Cultural and Media Studies	-	3a	12.00

Number of Universities

Region of the UK	Number of Universities	Higher Education Colleges
London	11	11
South East	11	8
Scotland	14	8
North West	8	7
Yorkshire & Humberside	9	5
East Midlands	6	2
Wales	7	7
West Midlands	8	3
Eastern	7	3
North East	5	
South West	6	5
Northern Ireland	3	2

Source: www.hero.ac.uk (2001)

Research Assessment Exercise Regional Comparison (For all subjects)

Region of the UK	No of Universities Departments rated as 5	No of Universities Departments rated as 5*
East Midlands	45	9
East of England	37	36
London	113	64
North East	36	10
North West	62	25
Northern Ireland	18	3
Scotland	92	19
South East	97	49
South West	52	19
Wales	34	12
West Midlands	50	19
Yorkshire & Humberside	80	19

Source: 2001 RAE

Research by Sector - all RAE scores

Region	Number of Universities Conducting Research by Sector (all RAE scores)				
	Life Sciences	Chemicals	Electronics	IT	Engineering
London	19	5	7	14	10
South East	12	6	5	10	11
North West	12	3	4	6	9
East Midlands	6	5	4	4	6
East of England	7	2	1	4	4
North East	5	3	2	5	5
South West	6	3	3	6	6
West Midlands	6	3	3	5	8
Yorkshire & Humberside	8	6	4	7	7
Northern Ireland	2	1	1	2	2
Scotland	13	7	5	12	11
Wales	2	3	2	3	3

Source: 2001 RAE

Life Science Subjects: Biological Sciences, Clinical Laboratory Sciences, Community-based Clinical Subjects, Hospital-based Clinical Subjects, Other Studies and Professions Allied to Medicine, Pharmacology, Pharmacy, Pre-Clinical Studies

Chemicals Subjects: Chemical Engineering, Chemistry

Electronics Subjects: Electrical and Electronic Engineering

IT Subjects: Computer Science

Engineering Subjects: Civil Engineering, General Engineering, Mechanical Aeronautical and Manufacturing Engineering, Mineral and Mining Engineering

Research by Sector - RAE 5* and 5

Region	Number of Universities Conducting Research by Sector (5 and 5*)				
	Life Sciences & Healthcare	Chemicals	Electronics	IT	Engineering
London	9	2	3	2	5
South East	7	4	3	4	3
North West	3	3	2	3	4
East Midlands	3	1	1	1	3
Eastern	2	2	1	1	1
North East	2	2	1	1	2
South West	3	1	1	2	2
West Midlands	3	2	1	2	4
Yorkshire & Humberside	4	3	2	3	3
Northern Ireland	2	-	1	-	2
Scotland	6	2	3	3	5
Wales	2	-	1	2	2

Source: 2001 RAE

The South East universities RAE ratings 5 and 5* - Sector Breakdown

University	Universities Conducting Research (above 5) by Sector				
	Life Sciences	Chemicals	Electronics	IT	Engineering
University of Brighton	Y				
De Montfort University					
University of Greenwich					
University of Kent at Canterbury					
Open University					
University of Oxford	Y	Y		Y	Y
Oxford Brookes University					
University of Portsmouth	Y				
University of Reading			Y		
Royal Holloway, University of London	Y			Y	
University of Southampton	Y	Y	Y	Y	Y
Southampton Institute					
University of Surrey	Y	Y	Y		
University of Sussex	Y	Y		Y	Y
Cranfield University					
Buckinghamshire Chilterns University College					
King Alfred's College Winchester					

Source: 2001 RAE

1.2 Institutes/Centres of Excellence

Name	County	Sector
Dystrophic Epidermolysis Bullosa Research Association (DEBRA)	Berkshire	Medical Research
Environmental Systems Science Centre (ESSC)	**Berkshire**	**Environmental Research**
Institute for Animal Health	Berkshire	Biotechnology
NERC Centre for Population Biology	**Berkshire**	**Environmental Research**
Transport Research Laboratory	Berkshire	Technical & Environmental Research
WRC (Water Research Centre)	Bucks	Environmental Research
Mason Medical Research Foundation	East Sussex	Medical Research Grants
Science & Technology Policy Research (SPRU)	**East Sussex**	**Technology Research**
Sussex Centre for Neuroscience	**East Sussex**	**Biotechnology**
CCLRC Chilbolton Observatory	Hampshire	Scientific Research
Defence Science & Technology Laboratory (DSTL)	Hampshire	Defence Research
Defence Science & Technology Laboratory (DSTL)	Hampshire	Defence Research
Defence Science & Technology Laboratory (DSTL)	Hampshire	Defence Research
Horticulture Research International	Hampshire	Horticultural Research
MRC Environmental Epidemiology Unit	Hampshire	Medical Research
QinetiQ	Hampshire	Technology Research
QinetiQ	Hampshire	Technology Research
QinetiQ	Hampshire	Technology Research
QinetiQ	Hampshire	Technology Research
QinetiQ	Hampshire	Technology Research
Roke Manor Research	Hampshire	Technology Research
Southampton Oceanography Centre	**Hampshire**	**Environmental Research**
Veterinary Laboratories Agency	Hampshire	Animal Health
Defence Science & Technology Laboratory (DSTL)	Kent	Defence Research

Horticulture Research International	Kent	Horticultural Research
Horticulture Research International (HOP Research Unit)	**Kent**	**Horticultural Research**
Natural Resources Institute	**Kent**	**Environmental Research**
QinetiQ	Kent	Technology Research
AEA Technology - National Non-Destructive Testing Centre (NNDTC)	Oxfordshire	Technology Research
AEA Technology Battery Systems Ltd	Oxfordshire	Technology Research
AEA Technology plc	Oxfordshire	Environmental Research
AEA Technology plc	Oxfordshire	Environmental Research
CCLRC Rutherford Appleton Laboratory	Oxfordshire	Scientific Research
Centre for Ecology & Hydrology	Oxfordshire	Environmental Research
Exitech Ltd	Oxfordshire	Technology Research
Institute of Virology and Environmental Microbiology	Oxfordshire	Biotechnology Research
MRC Anatomical Neuropharmacology Unit	**Oxfordshire**	**Medical Research**
MRC Biochemical and Clinical Magnetic Resonance Unit	Oxfordshire	Medical Research
MRC Functional Genetics Unit	**Oxfordshire**	**Medical Research**
MRC Human Immunology Unit	Oxfordshire	Medical Research
MRC Immunochemistry Unit	**Oxfordshire**	**Medical Research**
MRC Mammalian Genetics Unit inc MRC UK Mouse Genome Centre	Oxfordshire	Medical Research
MRC Molecular Haematology Unit	Oxfordshire	Medical Research
MRC Radiation and Genome Stability Unit	Oxfordshire	Medical Research
Oxford Centre for Molecular Sciences	Oxfordshire	Biotechnology
Weatherall Institute of Molecular Medicine	**Oxfordshire**	**Medical Research**
Defence Science & Technology Laboratory (DSTL)	Surrey	Defence Research
ERA Technology	Surrey	Scientific Research
Forest Research Station	Surrey	Environmental Research
Leatherhead Food Research Association	Surrey	Food Research
Marie Curie Research Institute	Surrey	Medical Research
PIRA International	Surrey	Paper & Packaging Research
QinetiQ	Surrey	Technology Research
Surrey Satellite Technology Ltd	**Surrey**	**Technology Research**
Veterinary Laboratories Agency	Surrey	Animal Health
Action Research	West Sussex	Medical Research
East Grinstead Medical Research Trust	West Sussex	Medical Research

Bold = University Locations

The following universities were awarded 5* ratings in the last Research Assessment Exercise and are considered centres of excellence.

The University of Surrey

The Department of Electronic Engineering received the top 5* research rating in the last RAE and 23/24 for teaching quality. Research is carried out within a number of centres, details of which are listed below, and the department also offers a specialised Telecommunications Systems degree.

The Centre for Communication Systems Research (CCSR) is the UK's largest and most well known research centre in mobile and satellite communications systems and has around forty European companies and university partners, including Nokia, NTL, Ericsson, Marconi and Vodafone. The centre comprises three major research groups that cover mobile communications systems, multimedia systems and communication networking. Significant breakthroughs have been made in air interface technology – a major accomplishment in making 3G mobile technology a reality and work has recently begun on 4G mobile radio systems.

The Centre for Research in Ion Beam Applications makes a significant contribution to improving technologies for communications systems, particularly those involving ion

beams. Research in electrical isolation in III-V compound semi-conductors for telecommunications applications has been sponsored by Marconi, QinetiQ and PRP Optoelectronics.

The Centre for Vision, Speech and Signal Processing has conducted research into the development of advanced signal processing techniques. The optoelectronic devices and materials research group in the Department of Physics is one of the leading centres in Europe working on the physics and applications of semiconductor optoelectronic devices. It proposed the use of strained layer quantum wells, which have led to improved diode lasers and to polarisation insensitive amplifiers. Areas of work include new device structures; quantisation to lower dimensions; new materials systems; broader wavelength range; higher frequency operation and theory and computer modelling.

The University of Oxford

Oxford University's Department of Computer Science is one of the pre-eminent university departments in this field both in the UK and world-wide. It has consistently been given the very highest ranking in the UK Government's assessments of research in universities. Current key research areas within the department's Computing Laboratory include the algebra of programming, algorithms and complexity, concurrency, foundations of computation, programming tools, software engineering and requirements and spatial reasoning. The department is working in collaboration with Microsoft Research Laboratories to develop a new kind of environment for transformational programming that permits software to be composed from a set of independent design decisions or "intentions", using domain-specific notations and optimisation strategies. Other recent industrial collaborators on research have included IBM, Fujitsu, Marconi, Sharp Laboratories and Sun Microsystems.

The world-renowned Department of Engineering Science is one of the largest unified engineering departments in the UK and received the highest possible rating for its research in the last RAE. Through its electrical engineering, information engineering and solid mechanics & materials groups the department conducts a wide range of research activities relating to the automotive industry and is supported by the Rover Group and other industrial clients. The University's Department of Materials conducts world class research into the manufacture, structure, properties and application of materials and produces scientists and engineers of the highest calibre. A number of companies have set up Advanced Technology Centres in partnership with the department to house collaborative research projects. These include AEA Technology, Infineum and Luxfer. Both of the above departments sponsor the Oxford Centre for Advanced Materials and Composites (OCAMAC) that aims to foster interdisciplinary research into the scientific and technological problem of processing, properties, design and fabrication associated with advanced materials. Industrial sponsors include Ford Motor Co and Federal Mogul Technology.

Medicine has been taught at the University of Oxford for at least eight centuries making it a major centre in the life sciences. The Faculty of Biological Sciences is recognised as an international leader for its research in a multitude of areas including genetics, immunicology, cardiac and toxicology. A large proportion of the University's Medical School is based within the John Radcliffe Teaching Hospital in Oxford, one of the UK's premier teaching and research hospital facilities.

The Medical Research Council, which aims to improve health by promoting and supporting research into all areas of medical and related science, also has a number of units at the site. The Department of Pharmacology plays a leading role in the

international pharmacological community and has consistently been given the very highest ranking in the UK Government's assessments of research in UK universities. Key research covers cardiac pharmacology, the pharmacology of smooth muscle, neuropharmacology and toxicology.

Industry collaborations have been fostered with Bristol Myers Squibb among others. The Sir William Dunn School of Pathology at Oxford University has an extensive research programme covering bacteriology and virology, cell biology, immunology and molecular biology. The Dunn School is famous for pioneering work on penicillin, which brought in the antibiotic era. The Department of Human Anatomy & Genetics conducts research in the areas of neuroscience, developmental biology, endocrinology, epithelial transport physiology and, more recently, functional genetics. Also within the Medical School, the Laboratory of Physiology focuses its research in the areas of neuroscience, human systems physiology, and cellular and molecular physiology. The Institute of Molecular Medicine carries out research in the fields of molecular and cell biology with direct application to the study of human disease.

The University also hosts the Wellcome Trust Centre for Human Genetics where all aspects of the genetic susceptibility of disease are explored. The centre houses multi-disciplinary research teams in human genetics, functional genomics, bioinformatics, statistical genetics and structural biology. The Department of Biochemistry's research focuses on molecular genetics, molecular cell biochemistry and structural biology. The department houses six units and sub-departments, namely the Genetics Unit, the Glycobiology Institute, the Laboratory of Molecular Biophysics, the Microbiology Unit, the MRC Biochemical and Clinical Magnetic Resonance Unit and the MRC Immunochemistry Unit. The Oxford Centre for Molecular Sciences (OCMS) combines the expertise of seven Oxford University science departments to tackle major problems at the interface of chemistry and biology. OCMS's interdisciplinary research activities provide fundamental knowledge and understanding of the structure, function and reactivity of protein molecules.

The University of Southampton

The university was a leader in the development of optic fibres in the 1960s and continues to enjoy a world class reputation in the field. The university offers a degree in Electronics with Telecommunications. The Optoelectronics Research Centre (ORC) is world leader in optoelectronic science and technology carrying out interdisciplinary research in many areas of optoelectronics, particularly in optical fibres, waveguides, laser devices, and optical materials. Current research projects involve co-operation and collaboration with over 40 companies world-wide. Since its formation, the ORC has made significant progress in a number of key areas. Examples include stable femtosecond optical pulses; fibre lasers providing extensive tuneable-wavelength coverage from the visible to the near infrared; practical, well engineered integrated planar waveguide lasers and amplifiers; and widely tuneable optical parametric oscillators. In particular, ORC invented and holds the patent for the erbium-doped fibre amplifier (EDFA), which led to world-wide commercial exploitation and a revolution in optical communications. Other research areas include advanced microelectronics and multimedia communications (including mobile video telephony).

1.3 Teaching quality, graduate training and employability. Teaching entrepreneurship

Teaching quality is being assessed at each university by subject area on a rolling program by the Quality Assurance Agency for the Higher Education Funding Council (HEFCE) on a scoring system between 7 and 24. *The Times* newspaper, as part of its annual league table of universities, amalgamated the Teaching Quality Assessment (TQA) ratings to produce a single mark between 7 and 24 for the standard of each university's teaching, based on results published up to August 2001.

League Rank	Institution	TQA	Campus only
2	Oxford	22	
3	London, Imperial	22	y
27	Reading	21	
38	Southampton	21	
43	Sussex	20.4	
44	Surrey	20.3	
46	Kent	20.6	
48	Oxford Brookes	21	
52	Brunel	20.5	y
66	Brighton	20.4	
69	Portsmouth	20.2	
80	Greenwich	19.9	y
85	De Montfort	19.6	y
97	Thames Valley	18.7	y
	UK MEDIAN	**20.6**	
	UK MAXIMUM	**22.4**	
	UK MINIMUM	**18.7**	

Teaching quality can also be measured by the number of exam results in schools. In 1999/2000, the number of pupils in their final year of compulsory education, with 5 or more GCSE or SCE A*-C grades was 54.8% in the South East. This was the highest figure in the UK, the lowest being 43.2% in the North East.

Although the number of pupils per teacher in secondary schools in the region is higher than average, the overall figure for all schools is only 17.2, which is the lowest and must contribute towards teaching quality.

The table below shows the destination of graduates and the percentage of students that studied in the South East was above the UK average. The figure for those believed to be unemployed was one of the lowest.

Destination of full-time First Degree Students 2000

Region of Study	Employment %	Continuing Education or Training %	Believed Unemployed %	Other Destinations %	All first degree graduates
United Kingdom	66.2	20.3	5.3	8.2	225,400
North East	65.2	20.6	5.8	8.4	11,500
North West	66.7	19.4	6.3	7.6	25,400
Yorks & Humber	69.7	17.4	5.1	7.7	24,500
East Midlands	70.8	17.6	4.1	7.6	17,000
West Midlands	65.8	21.2	5.6	7.4	18,300
East	63.4	24.8	4.0	7.8	12,000
London	64.4	20.1	6.2	9.3	31,700
South East	67.7	19.5	4.4	8.3	26,900
South West	69.3	16.7	5.3	8.6	16,300

Source: ONS Regional Trends 2001

Teaching Entrepreneurship

While searching for entrepreneurship courses based in the South East it was apparent that more of these types of courses were available in other regions. However a 1999 report 'Entrepreneurship Education in Higher Education in England' commissioned by DFEE concluded that apart from North Yorkshire there are no other obvious under-provided geographic areas.

Three course examples are detailed below:

Oxford Brookes Business School offers an MBA course in *entrepreneurship* as a one-year full time course or a two-year part-time course.

"The Business School offers this MBA course with specially designed modules to help participants understand and evaluate the process and theory of entrepreneurship. The MBA Entrepreneurship course incorporates the subjects from the School's general MBA, and benefits from input developed by specialist staff from the School's own Enterprise Centre. There are additional practical insights from entrepreneurs who contribute through guest lectures and participation in workshops to the teaching and learning offered by the Enterprise Centre

The course presents an opportunity to study the concept and practice of entrepreneurship which could lead to evaluating the whole process of transposing a business idea into a viable business project."

Southampton Institute offers a BA course in *Business with Entrepreneurship* as a four year course which includes a year in industry in the third year.

"The course integrates academic study and the development of business skills and vocational training with special emphasis of entrepreneurship. It seeks to equip students with a thorough knowledge of the business environment and the key functional roles of management, marketing, finance and human resources but in addition introduces students to the specialised skills and knowledge required in small entrepreneurial business."

"The Oxford Science Enterprise Centre is a new government and University-funded venture to enhance the entrepreneurial culture throughout the University. Hosted by the Saïd Business School, the Oxford Science Enterprise Centre offers entrepreneurship teaching and business start-up training to staff and students alike at all levels of the University."

University Departments and Initiatives Offering Entrepreneurship Support

Oxford University	• Science Enterprise Centre • Isis Innovation • University Challenge Seed Fund Scheme • Venturefest • OUTINGS • Oxford Business Alumni
University of Portsmouth	• Portsmouth Centre for Enterprise • Centre for Entrepreneurship and Innovation
University of Reading	• Centre for Entrepreneurship
University of Southampton	• New Venture Creation and Development Courses for all undergraduates
University of Surrey	• Surrey European Management School, entrepreneurship is taught in all courses • University of Surrey Seed Fund and a New Seed Fund • Mentored 'hatchery' facilities where undergraduates can develop ideas pre-funding
University of Sussex	• Career Development Unit runs workshops, has links with entrepreneurial support agencies and maintains information on the web on self-employment • Partner in a DfEE funded study of Graduate Self Employment 1998-1999 • HEROBAC funding to set up an Employability Skills Unit
University of Brighton	• The Careers Centre, Alumni and Development, Placements and Business Services work together to increase student knowledge of entrepreneurship • The Commercialisation Support Group is Co-ordinated by the Sussex Innovation Centre and Business Services • Innovation Awards • Graduate into Business - SEEDA funded project
Royal Holloway College, University of London	• Courses taught in the School of Management • Seeking funding to pilot a course in Basic Enterprise Skills for all staff and Students
University of Greenwich	• Looking at linkages with the National Enterprise Campaign and Business Link supported start-up programmes • Piloting approaches under the Enterprise Mentoring Scheme – funded by the DfEE • Development of Teaching units in Entrepreneurship and a Student Enterprise Club
Canterbury Christ Church University College	• Specialist programme in Small Business Operation has been offered by the Business School
University College Chichester	• Career Development Unit runs workshops, has links with entrepreneurial support agencies and maintains information on the web on self-employment • Partner in a DfEE funded study of Graduate Self Employment 1998-1999 • HEROBAC funding to set up an Employability Skills Unit. • Offer Business Minors to all first degree science students
Kent Institute of Art and Design	• Graduate Enterprise programme
King Alfred's College	• Enterprise Module available to combined honours

of Higher Education, Winchester	students. • Graduate Enterprise Scheme • Graduate Projects e.g. Thinkshowbiz and Other TV
Southampton Institute	• Have funding to develop graduate entrepreneurship in the region • Several modules supporting entrepreneurship can be studied both on undergraduate and postgraduate programmes • HEROBAC funding to set up an Employability Skills Unit. • Alumni Association
Surrey Institute of Art and Design, University College	• Funding under the Higher Education and Innovation Fund – 3 year creative industries project • All students take business and professional studies

Source: HESE website

1.4 International Partnerships and Links

Oxford Brookes University
No Information available

The Open University
The OU is revising and developing its research strategy, and fuller response will soon be available. Many academic staff are actively involved in research networks and scholarship collaborations in their discipline. This involvement is international and increasingly uses the medium of email and/or Internet conferences.

University of Oxford
The University of Oxford's links with overseas institutions have existed for centuries. They take a huge variety of different forms - some are based around one-to-one collaborations, others around co-operation between research groups or departments, as well as with consortia of companies and/or Universities - and are too numerous to list comprehensively. Research income from EC and overseas sources in 1999/2000 reached just under £10 million.

University of Portsmouth		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
Portsmouth Business School	Italy	Giovanni Agnelli Foundation, Torino, Italy.
Faculty of Environment	Italy, Greece, Egypt, Brazil, Romania, Slovakia, China, Norway, France, Canada, New Zealand, Belgium, India, Jamaica, Ghana, Israel, US, Spain, Taiwan, Denmark, Germany, Poland	Institute of Advanced Mediterranean Agriculture & Polytechnic University BARI, Italy. Consulting Engineers, Thesolonkia, Greece. Suez Canal University, Ismailia, Egypt. Soil & water research centre and Ain Shams University, Cairo, Egypt. Ministry of Antiquities, Egypt. University of Pernambuco and Compesa, Recife, Brazil. UNESCO, Romania. Comenius University, Slovakia. Dalian University, China. Norsk Hydro, Norway. Ministry of Antiquities, Greece. University of Caen and OECD, France. University of Guelph, Canada.

		University of Brussels, Belgium. Eastern Central Europe Development Studies, Jamaica. Algae Research Foundation, Norway.
Art & Design	Spain, Holland, Belgium, Germany, Austria	Universitat Pompeii Fabram Barcelona, Spain. Utrech, Holland. Autism Europe, Belgium. Merz Akadamie, Germany. Technical University, Austria.
Faculty of Technology	Germany, Portugal, Poland, Italy, Norway, France, Finland, Austria, Sweden	University of Kaiserslautern, Germany. Universities of Lisbon and Coimbra, Portugal. Technical University of Gdansk, Poland. University of Siera, Italy. University of Science and Technology, Norway. University of Le Harve, France. University of Jyvaskyla, Finland. Central Austrian training in technology, Austria. University of Uppsalla, Sweden.

University of Reading		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
Visits	Cyprus, Singapore, Vietnam, Thailand, China, France.	Sultanate, Cyprus. Sutan Qaboos University, Vietnam. Srinakharinwirot University, Thailand. Kazakhstani University, China. Food standards agency, France.

University of Southampton
The Universities overseas links are recorded, however the list is confidential.

University of Surrey		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
The School of Electronic Engineering, IT & Mathematics		Ericsson & Nokia
The School of Performing Arts	France, Amsterdam, Ireland.	L'Ecole de l'Image, France. Society for Old and New Media, Amsterdam. DMR Consulting, Dublin.
The School of Language, Law & International Studies	Germany, France, Italy, Spain, Tokyo.	BMW AG, Germany. International Christian University, Tokyo.
The Surrey European Management School	Hong Kong, Europe, Caribbean, Latin America.	
The School of Human Sciences	North America, S.E Asia.	
The School of Engineering and Environment	Indonesia, Canada.	Northern Telecom, Canada.
The Surrey Research Park	Argentina, Brazil, Sri Lanka, Portugal, China, South Korea, Finland.	

University of Sussex		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
School of Biological Sciences	Germany, Netherlands, Czech Republic, Spain, Egypt, Syria, Denmark, Sweden, Italy, France.	Universities: Germany, Netherlands, Czech Republic, Denmark, Sweden, and Italy. Partners: Spain, Egypt, and Syria. Funding: Human Frontier Science Program, France.
School of Cognitive and Computing Sciences	Netherlands, France, Spain, Denmark.	Partners: Netherlands, Spain, and France. University of Aarhus, Denmark.
School of Chemistry, Physics and Environmental Sciences.	Austria, Israel, Germany, France, Portugal, Japan, Mexico, China, US, Belgium, Poland, India.	Partners: Austria, Israel, Germany, and France. Universities: Germany, Mexico, China, France, USA, Belgium, Poland, India, Japan.
School of Engineering and IT	Spain, Germany, France, Sweden, Italy, Switzerland.	University of Madrid, Spain. Partner: Germany. European engine manufacturers: France, Germany, Sweden, Italy, Switzerland, and Spain. Cutler Hammer in America.
School of Mathematical Science	Poland, Germany, Australia, Japan, Italy, Moscow, China, Pakistan.	University of Zielona Gora, Poland. University of Jena, Germany. University of Helsinki. University of Western Australia. Keio University, Japan. University of Wroclaw, Poland. Universities of Basilicata, Italy. Centre for Science Curriculum, Pakistan.
Science & policy research unit (SPRU)	Holland, Ukraine, Russia	Universities: Holland, Ukraine, Russia.
Humanities and Social Sciences	South Africa, Pakistan, Malaysia, Canada, US, Italy.	Universities: Italy, South Africa, US, Canada. Health Canada.
Consultancy	USA, Italy	Culter Hammer - USA. Fiat in Italy.

University of Brighton
The University has very extensive involvement in projects involving overseas links, particularly under the EU. These include joint research; exchange of research students and staff; exchange of students and staff; exchange of good practice; links with non-governmental organisations in other countries, such as environmental agencies. The University has successfully bid for funding from the following EU programmes: the Framework Programme; ESF; the European Regional Development Fund; Socrates II and Leonardo II; INTAS; INCO-COPERNICUS. Specific projects within these programmes include the Leonardo Equality & Quality Project and the technological Innovations & Social Integration Projects.

University of Buckingham
No Information available

University of Kent at Canterbury		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
	Japan, Canada, Italy, Austria.	

Cranfield University
No Information available

De Montfort University
No Information available

Brunel University
No Information available

Royal Holloway University of London
Almost all of the college's c.320 academics have a wide range of overseas contacts through research, consultancy etc. As shown by the results of the 2001 Research Assessment Exercise, Royal Holloway has earned a world-class reputation for high quality, original research. Two-thirds of Royal Holloway's total academic staff are working in departments which have achieved the top scores of 5 or 5*, indicating research of international excellence. Furthermore, all seven departments in Royal Holloway's Faculty of Science (the school of biological sciences, the departments of computer science, geography, maths, physics, psychology) were awarded a score of 5 or 5*.

Thames Valley University
No Information available

University of Greenwich		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
	Malaysia, China, Europe, North America.	

Imperial College at Wye
No Information available

Buckingham Chilterns University College		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
The Centre for Rapid Design and Manufacture	France, Poland	Partners: Toulouse and Lycee Polyvalent Decazeville, France. Bialystock Technical University and Elektrociplownia Bialystok SA, Poland.
The Forest Products Research Centre	Greece, Germany, Sweden, Romania, Hungary, Portugal.	Collaborating regions: Evia, Greece. Thuringia, Germany. Jonkoping, Sweden. Partners: Transilvania University, Romania. Sopron University, Hungary. Estacao Florestal Nacional, Portugal.
The Faculty of Leisure and Tourism	Finland, Portugal, Spain, Hong Kong, USA.	Partners: North Karelia Polytechnic, Finland. Lingnan University, Hong Kong. Penn State University, USA.
The Buckinghamshire Business School	Hungary, Slovenia, Australia, USA.	Budapest University of Economic Sciences, Hungary. University of Ljubljana, Slovenia. Monash University, Australia.
Centre for Health Education and Research	China, Belgium, Finland, Germany, Greece, Slovenia, Netherlands, Mexico, India, Japan, Australia.	

University College Chichester		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
	Japan, China.	
Social Studies	South Africa.	
Religious Studies	Central Europe	
Theology	Baltic Countries.	

Kent Institute of Art & Design		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
	Korea, Japan, China, Ireland, Turkey, Sweden,	

King Alfred's College of HE		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
	Canada, US, Lithuania	Grant Awards from Canada and US.
The School of Education	Ghana, Bangladesh, Nigeria, the Gambia, Palestine, Gaza.	

Surrey Institute of Art & Design University College		
Faculty/Centre/Department Research Group/School	**Country Links**	**University/Organisational Links**
The Centre for Sustainable Design	Sweden and Australia.	Delft University, Sweden. RMIT, Australia.

2 – Spin out, Start up and Technology Transfer

2.1 Incubation, Science and Technology Parks

Name	County	Type of Park	Main Sectors
Begbroke Innovation Centre	Oxfordshire	Innovation Centre	
Cherwell Innovation Centre	Oxfordshire	Innovation Centre	IT, electronics
Chilworth Science Park	Hampshire	Science Park	Biotech, Software design, Aerospace, Satellite technology and materials research
Colin Sanders Innovation Centre	Oxfordshire	Innovation Centre	Software, IT, multimedia & communications
Crowthorne Enterprise Centre	Berkshire	Innovation Centre	
Culham Innovation Centre	Oxfordshire	Innovation Centre	
Culham Science Centre	Oxfordshire	Science Park	Environmental technologies, nuclear power
QinetiQ Cody Technology Park	Hampshire	Innovation Centre	Engineering, electronics, IT, Aerospace
Harwell Innovation Centre	Oxfordshire	Innovation Centre	
Harwell International Business Centre for Science & Technology	Oxfordshire	Science Park	Atomic energy
QinetiQ Haslar Marine Technology Park (formerly DERA)	Hampshire	Science Park	Marine
Milton Park	Oxfordshire	Science Park	Pharmaceutical, Biotech, IT, electronics, chemistry
Milton Park Innovation Centre	Oxfordshire	Innovation Centre	
Oxford Centre for Innovation	Oxfordshire	Innovation Centre	Pharmaceutical, healthcare, software
Science & Technology Centre (Reading University)	Berkshire	Innovation Centre	
Sittingbourne Research Centre	Kent	Research Park	Biotech and agricultural
Surrey Research Park	Surrey	Research Park	IT, software, telecoms
Sussex Innovation Centre	East Sussex	Innovation Centre	Pharmaceutical/healthcare, software, internet, multimedia
The Oxford Science Park	Oxfordshire	Science Park	Biotech, IT software/hardware, electronics

2.2 Seed Corn and Venture Capital

Business Angels – (From the British Venture Capital Association)

Business Angels are widely recognised as playing an important role in the provision of smaller amounts of risk capital to small and medium-sized businesses. They invest in the 'gap' at the bottom end of the business financing spectrum, which is often too small to be economical for the professional venture capital firms. Business angels provide more than just money. They normally also play a 'hands on' role in the businesses in which they invest, contributing to strategy (e.g. as sounding board or consultant), mentoring and coaching and using their personal contacts to the benefit of their investee businesses.

Business angels themselves are not listed in any directories and there is no comprehensive record of their investment activity. This has two consequences:

- The total size and structure of the business angel market is unknown.
- It is often difficult for entrepreneurs to identify business angels to approach for funding.

Business angel networks provide an 'introduction' service for entrepreneurs and business angels, overcoming the difficulties that each party often has in identifying the other. Investments made through business angel networks are the only visible part of the business angel market place. However, even though they represent the tip-of-the-iceberg, statistics on such investments provide a valuable source of information with which to monitor trends in the business angel market.

The following tables are based on data from Business Angel networks

Location of local/regional business angel networks 2000

RDA Region	Not-for-profit networks	Number of networks Commercial networks	Total
London	3	0	3
South East	**6**	**0**	**6**
Eastern	7	2	9
South West	2	0	2
East Midlands	1	0	1
West Midlands	1	1	2
Yorkshire and The Humber	3	0	3
North West and Merseyside	1	0	1
North East	1	0	1
Wales	1	0	1
Scotland	1	1	2
Northern Ireland	0	0	0
Total: local and regional networks	**27**	**4**	**31**
Total: national networks	**2**	**13**	**15**
Total	**29**	**17**	**46**

Investment activity by region

	Number of Investments			%		
RDA Region	**99/00**	**98/99**	**97/98**	**99/00**	**98/99**	**97/98**
London	37	34	32	17	18	14
South East	**49**	**29**	**52**	**22**	**15**	**23**
Eastern	19	28	32	8	14	14
South West	19	20	26	8	10	12
East Midlands	14	11	12	6	6	5
West Midlands	6	9	13	3	5	6
Yorkshire and The Humber	11	9	4	5	5	2
North West and Merseyside	19	16	10	8	8	4
North East	7	7	8	3	4	4
Wales	15	10	3	7	5	1
Scotland	28	19	33	13	10	15
Northern Ireland	0	0	0			
Total	**224**	**192**	**225**	**100**	**100**	**100**

Amount Invested

	Amount (£000)			%		
RDA Region	**99/00**	**98/99**	**97/98**	**99/00**	**98/99**	**97/98**
London	5,231	6,530	4,279	18	33	18
South East	7,806	2,326	4,653	28	12	20
Eastern	2,645	3,274	4,170	9	16	18
South West	3,608	1,669	4,144	13	8	18
East Midlands	1,405	1,000	465	5	5	2
West Midlands	615	585	1,997	2	3	9
Yorkshire and The Humber	556	678	230	2	3	1
North West and Merseyside	2,143	773	827	8	4	4
North East	560	265	245	2	1	1
Wales	1,172	986	115	4	5	*
Scotland	2,566	1,876	2,243	9	9	9
Northern Ireland						
Total	**28,307**	**19,962**	**23,368**	**100**	**100**	**100**

Average Size of Investment

RDA Region	Average size of investment (£000)
London	141,4
South East	159,3
Eastern	139,2
South West	189,6
East Midlands	100,4
West Midlands	102,5
Yorkshire and The Humber	50,5
North West and Merseyside	112,8
North East	80,0
Wales	78,2
Scotland	91,6
Northern Ireland	
UK	**126,4**

Venture Capital Trusts & Enterprise Investments - (from the Inland Revenue)
As part of government policy to help alleviate problems faced by SME companies in raising equity finance two Inland Revenue schemes were introduced to encourage investment in small unquoted and higher risk trading companies. These are the Enterprise Investment Scheme and Venture Capital Trusts:

Enterprise Investment Scheme (EIS)
The scheme provides income tax relief for new equity investment by external investments and business angels in qualifying unquoted companies, and capital gains tax exemption on disposals.

Companies and amount of investment by Govt office region *(Amounts £ million)*

	1996-97		1997-98		1998-99	
	Number	Amount	Number	Amount	Number	Amount
United Kingdom	643	59.6	615	56.7	464	40.5
England	554	51.9	533	48.4	427	37.4
North East	16	1.2	15	1.1	13	0.7
North West & Merseyside	36	2.2	38	2.2	28	2.4
Yorkshire & Humberside	42	2.3	29	1.7	25	1.1
East Midlands	30	7.4	22	1.7	17	1.1
West Midlands	44	3.0	35	1.9	28	1.7
Eastern	52	4.8	48	4.1	43	3.3
London	178	17.8	188	22.1	143	15.8
South East	**101**	**9.0**	**104**	**9.4**	**85**	**7.3**
South West	55	4.2	54	4.2	45	4.0
Wales	14	1.0	11	0.7	*	*
Scotland	64	5.9	62	6.9	28	2.1
Northern Ireland	11	0.8	9	0.7	*	*

** Figures omitted to ensure that details of individual investments cannot be identified or derived.*

Venture Capital Trusts
The Venture Capital Trust scheme is designed to encourage individuals to invest indirectly in unquoted small high risk trading companies through Venture Capital Trusts which are often (but not always) listed on the Stock Exchange and provide such trading companies with funds to enable them to develop and grow. Individuals investing in VCT's are eligible for a variety of tax incentives.

Number of Companies[1] and amount of investment by region *(Amount: £ million)*

	1997-98		1998-99		1999-2000	
	Number	Amount	Number	Amount	Number	Amount
United Kingdom	181	130.5	277	244.4	312	281.4
England	147	110.6	219	204.0	254	237.0
North	2	0.4	5	3.2	5	3.5
North West	19	11.0	34	25.8	33	28.8
Yorkshire & Humberside	13	7.5	19	17.9	24	20.3
East Midlands	15	12.2	16	21.2	21	22.9
West Midlands	14	3.8	19	15.5	19	16.2
East Anglia	14	12.3	22	18.6	20	20.5
London	27	23.4	47	39.9	56	50.0
South East	**43**	**36.7**	**71**	**63.4**	**96**	**76.4**
South West	17	12.1	19	23.7	13	28.4
Wales	4	2.6	6	3.8	5	2.3
Scotland	12	8.4	18	11.0	19	11.7
Northern Ireland	1	0.1	1	0.4	1	0.4

[1] *Unlisted companies in which VCTs have made investments*

2.3 Links to promote technology transfer & dissemination from HEI's & NHS

HEI's

Higher Education Reachout to Business and The Community Fund (HEROBC)

The Higher Education Funding Council for England (HEFCE) allocates funds to Higher Education Institutions (HEI's) for teaching and learning (T) and for research (R) but recognises that universities provide many other services and facilities of benefit to the nation and the region. Examples of the wide range of provision include technology transfer schemes and licensing, consultancy, business support services, continuing professional development (CPD) and other short courses, access to laboratories, equipment and "know-how" and student projects and placements. These have not been directly funded by HEFCE in the past.

To rectify this position, HEFCE has, in partnership with the DTI, DHFETE, and the DfEE, initiated a new stream of funding which is intended to become a permanent third stream of funding, complementing the Council's existing grant for teaching and research. The objective is to reward and encourage HEIs to enhance their interaction with business, industry and the public services and in so doing contribute to economic growth and competitiveness especially in the HEIs home region. The funds will provide a platform of core funding to help HEIs put into practice organisational and structural arrangements that will develop and implement strategic approaches to their relations with business, industry and the public services and improve the transfer of knowledge and skills. The scheme is called the Higher Education Reachout to Business and the Community Fund with the shorthand acronym HEROBC

South East Universities and HESE

Higher Education South East (HESE) recently undertook a survey of universities and HEI's, which included a number of questions on the theme of technology transfer. A summary of the responses are as follows:

Buckingham Chilterns University College

Numerous technology transfer initiatives have been centrally collated with a designated UC Research Advisor. Knowledge and technology transfer is now recognised as a significant service to local and regional businesses. For example, within CRDM over 600 companies have benefited from its prototyping bureau activities, consultancy and technical services to ensure company growth or sustainability. These services are promoted through regular newsletters and business seminars, which may be in collaboration with other agencies such as Business Link.

Kent Institute of Art and Design (KIAD)

Technological transfers are occurring via the Creative Industries Development Unit (CIDU) and more generally via its preparation of undergraduates and the development of alumni networks. The Graduate Enterprise programme will also contribute to the development of new businesses.

The Institute is presently involved in the development of facilities with a research focus. KIAD would expect its new Creative Industries Development Unit to make a

material contribution in time. The Institute was awarded £275,000 for its HEROBC initiative.

King Alfred's College of Higher Education, Winchester

HEIF funding will enable the College to support initiatives especially in the cultural industry sector. Through academic, technical and administrative support, the College has supported the growth of Wired Wessex and facilitated the development of the Broadband Winchester project.

New spin-out projects are currently under development.

Royal Holloway, University of London

Royal Holloway has, in the past, operated a policy of shadow 'companies' (early stage ventures are being nurtured within existing space) acting as a business unit within the College as opposed to formally spinning this activity out. Examples of this include, the Centre for Ethnic Minority Studies, the Electron Microscopy Unit, Porosity Imaging and Pro-biotics.

However, recent HEROBC monies have allowed Royal Holloway to unlock its ever-increasing portfolio of innovative and exciting Intellectual Property (IP) allowing further investigation on how to take such entities and bring them rapidly to a wider marketplace through a formal spin-out. Subsequently, there are now 3 spin-out companies ready to come on-line in 2002 - these developments are independent from the creation of an Incubation Centre on Royal Holloway's Surrey campus.

While Royal Holloway has institutional policies and guidelines to manage the above processes it has only been since the introduction of HEROBC monies that it has been able to fully exploit its potential. In terms of the formation of new firms - currently the Research & Enterprise Office, working with external consultants, offer a comprehensive service to spin-out companies. Royal Holloway did not seek to produce formal spin-outs until it had the resources to gain full commercial advantage from such activity. The creation of the Royal Holloway Incubation Centre will increase the College's capacity and expertise in this area.

Transfer new technologies and knowledge - Royal Holloway works with Barker Brettel (and other Patent Agents) on specific projects, to protect its intellectual property and bring it to the marketplace. Over the past 16 months the issue of institutional IP has been promoted and detailed to academic colleagues. Royal Holloway offers a comprehensive service for technology transfer, aided by specialist staff.

Mentoring and encouragement - Royal Holloway has built an increasingly proactive relationship with experts in this area and aspects of the Surrey Enterprise Hub to enrich this network.

The first step towards systemising the transfer of technologies is the proposed establishment of an Innovation Centre.

University College, Chicester

The Business and Community Unit has the role of technology transfer. The strategy (detailed in the HEROBC proposal) is to stimulate interest and commitment from academics and companies. This is supported by buying-in specialist expertise (e.g., patent attorneys, lawyers, public relations experts and sector specialists) when required. A commercialisation and incentives policy and a set of procedures for staff and students has been produced to clarify issues and give a framework for the commercialisation of ideas.

Part of the strategy is to set up earned-income activities (or small businesses within the University), which have specialist knowledge of the markets within which they operate. The commercially run operations will complement the generic commercialisation support of the Business and Community Unit.

Part of the Business and Community Unit's strategy is to support spin-out companies. The Unit works very closely with the Sussex Innovation Centre in identifying routes to market – licensing, formation of an earned-income activity trading within the University, consultancy, training, etc. The Sussex Innovation Centre provides tailored business support for company formation and incubation of early-stage companies.

Spin-out companies include Genpak, Epicell, Vega Science and Protenix.

University of Brighton

The University's Business Services Office is central here, providing support, information, advice, and facilitating networking. The university also provides Board membership of spin-out companies, handles licence agreements & patents and has appointed Business Managers to work with Schools & Faculties.

The Brighton 'STAR' centre, an innovation centre on the University's Moulsecoomb campus is currently being pursued.

University of Greenwich

The main vehicle used for spin-out ventures at the University of Greenwich is that of UGMT which is structured around the seven following activity areas: ACOL/BIOTOL (Analytical Chemistry by Open Learning/Biotechnology by Open Learning), analytical services, conferences and short lettings, LARST, research and consultancy and other activities.

Technology Transfer is a complex and broad ranging issue for the University and the Teaching Company Scheme provides and important platform for activities. A University representative sits on the board of the Kent Technology Transfer Centre (KTTC) and they are developing a project under SRB to apply the TIESU (Technology innovation & Environment Support Unit) model in their western region. Learning from this will be transferred across the University. The Medway Innovation Centre and interactions with enterprise hubs in the region are being worked up.

University of Kent at Canterbury

The University encourages the commercialisation of its research, including financial incentives, such as procedures to share income from inventions with inventors.

They work with BTG to licence University technology to industry and other

technology transfer agencies on an ad hoc basis.

The University has an in-house unit, the Unit for Regional Innovation and Enterprise, supported by funding (£0.55m) from the HEROBC initiative. The Unit will provide systematic and co-ordinated interaction with business and industry and with local and regional development agencies. The Unit will be responsible for negotiation exploitation deals, and has resources to call in specialist financial and legal expertise where necessary.

Work is currently underway on improving the management of intellectual property at the University, to allow more effective transfer to the region.

Spin-outs include, EHC Viridian, Excyte, PSINET (previously GBNET LTD), and ASRU.

University of Oxford

The University established Isis Innovation Ltd in 1988. The company now employs 23 people (11 with PhDs in a relevant science discipline) managing the commercial development of intellectual property arising from the University's research activities. Within the University the Research Services Office manages the process of establishing ownership of University intellectual property and its transfer to Isis. The strongest examples of successful technology transfer are the University's various spin-out companies (www.isis-innovation.com).

Between 1959 and 1997 there were approximately 10 spin-out companies from the University, of which five are quoted, with an aggregate value in excess of £1 billion. Since 1998, Isis Innovation has helped with 24 more having a total current value estimated at £200 million. In addition, they have issued about 80 licences, some regional, some global.

University of Portsmouth

Commercialisation of research occurs only on an individual basis but it is co-ordinated and supported by the Research and Development Service within the University.

University of Reading

The University is committed to promoting the formation of new firms, and supporting their establishment. They are developing an Enterprise Strategy that will underpin and support the University's objective to be recognised as a research-intensive institution.

The University provides a support infrastructure to promote the formation of new firms and to assist the process of spin-out. Internally, Research and Enterprise Services offers advice on protecting ideas, making the choice between licensing or forming a company and patenting. This technology transfer/commercialisation capability is about to be further strengthened and a Technology Transfer manager will be recruited in early 2002. They aim to strengthen their patent, licensing and intellectual property infrastructure. The Business Development Team will help with identifying ideas that are possible spin-outs, and in developing early-stage Business Plans. The Finance Director and Director of Research and Enterprise Services assist in company formation (legal & financial) and connect the academics with the business support structure, acting as facilitators.

Support for spin-outs will also come through "Cascade", a £4m seedcorn fund to be launched with partner Universities, Surrey, Sussex, Brunel and Royal Holloway, in March 2002 to finance the development and commercialisation of the universities' IP. The fund will focus on digital technologies, material and physical sciences, bio-sciences and industrial design, but will not preclude funding well-conceived proposals outside these areas. The fund will be a limited partnership and will employ professional fund managers.

Further support will come through the proposed Reading Enterprise Hub

University of Southampton

Southampton Innovations Limited (SIL) was set up in 1996 by the University of Southampton to provide investors (corporate and individual) with a 'shop window' into the University's technology. SIL is an autonomous company with a Board of Directors comprising the three main faculties and high profile representatives from industry.

Southampton Innovations (SIL) aims to facilitate the transfer of innovation and technology into the commercial arena from any of the University's research departments. It also aims to provide a source of revenue from spin-out companies or from equity holdings with corporate partners and create a portfolio of investments. It will develop a hub of innovation and technology transfer around the University by putting equity investors and managers in touch with the inventors and their technologies and lever value out of the University's IP by pooling related IP with other UK research-led institutions and corporate R&D departments. SIL also works closely with the University's Centre for Enterprise and Innovation (CEI) that was set up using HEROBC funds to determine the most appropriate route to commercialisation. CEI maintains protection of the University's intellectual property rights.

The new Centre will be the key body for continuing to achieve the above objectives, expanding on the work of the former Office of Innovation and Research Support and Southampton Innovations.

University of Surrey

The University has, until recently, kept companies based on its IP and know how in house. Examples of this include Surrey Satellite Technology Limited and Clifmar Associates Limited.

Now there is a change of philosophy and would-be entrepreneurs are being supported and encouraged to form spin-out companies. As a result, a small number of small spin-outs have now been launched and a substantial number are in prospect. These include; Cybersense, Toric, IECOS and Creative X-Rays.

The University Innovation Forum is now well established and is expected to play a part in systematic technology transfer in due course. In addition, in partnership with the University of Sussex, UniS has also been successful in the Biotechnology Exploitation Platform bid, which will systemise technology transfer in the bioscience sphere in both institutions.

An Innovation forum exists to facilitate knowledge transfer, co-operation, mutually beneficial initiatives and partnerships between the business community and the University of Surrey. Bi-monthly evening meetings are held which bring together

academics, local and regional businesses within a stimulating and interactive environment to encourage co-operation and networking.

University of Sussex

Part of the Business Services Unit's (BSU) strategy is to support spin-out companies. The BSU works very closely with the Sussex Innovation Centre in identifying routes to market, licensing, formation of an earned-income activity, trading within the University, consultancy, training, etc. The Sussex Innovation Centre provides tailored business support for company formation and incubation of early-stage companies.

Part of the strategy is to set up earned-income activities (or small businesses within the University), which have specialist knowledge of the markets within which they operate. The commercially run operations will complement the generic commercialisation support of the BSU.

Spin-outs include Genpak, Epicell and Vega Science

A Biotechnology Exploitation Platform (BEP) contract for £0.25 million has been awarded by the DTI to Sussex as lead partner. The BEP is being set up with in collaboration with the University of Surrey to commercialise biotech IP. This will employ a biotech specialist to give focus to an important market sector and further supplement the generic commercialisation offices at Sussex and Surrey.

From these responses it is clear that the HEROBC funding scheme is having a large affect on university plans for technology transfer. Also a number of the traditionally strong research universities have set up specific departments & organisations to facilitate the technology transfer of academic research and to look after associated intellectual property issues.

NHS

Many NHS providers (NHS Trusts and independent providers of NHS services) have their own explicit budget, R&D Support Funding, to carry out R&D. In addition, these providers, and others contracted to do so, undertake R&D as part of the NHS R&D programme. An essential requirement for those providers receiving R&D Support Funding is high quality management of their R&D in order to achieve best value for money for the NHS.

Some NHS Trusts and independent providers of NHS services with significant R&D activity have a full time R&D Manager, in others with smaller activity this position is filled part time. This person will have ultimate responsibility for managing intellectual property, and may retain the necessary day-to-day management or delegate it to an Adviser (who could be internal or external to the organization).

The NHS seems to be keen to adopt a university model of maximizing commercial involvement in research but still keep a hold of key IP rights. This would involve frequently using external (or potentially NHS based) technology transfer organizations to market research and attract industry collaboration and take up of research.

2.4 Exploiting SMART, SBRI, Faraday, LINK, TCS, Foresight

Foresight
www.foresight.gov.uk

Business, the science base, Government, the voluntary sector and others work through thirteen Foresight panels to think about what might happen in the future and what we can do about it now to increase prosperity and enhance the quality of life for all.

Panels are at the heart of the Foresight programme. They bring together representatives from business, the science base, the voluntary sector and government to consider the future and make recommendations for action. Each panel is supported by a number of [*task forces*] which look in more detail at specific areas.

There are two kinds of panel:

- *thematic panels* address broad social and/or economic issues which might drive wealth creation and affect quality of life in the future. Current Thematic panels are Ageing Population, Crime Prevention and Manufacturing 2020

- *sectoral panels* focus on business sectors or broader areas of activity and carry forward the work of existing panels, as well as tackling new issues. Current sectoral panels are Built Environment & Transport; Chemicals; Defence, Aerospace & Systems; Energy & Natural Environment; Financial Services; Food Chain & Crops for Industry; Healthcare; Information, Communications & Media; Materials; Retail & Consumer Services.

- Every panel considers two *underpinning themes* Education, Skills & Training and Sustainable Development

The South East is just beginning its development of a Foresight programme. The Chairman of the South East's Regional Development Agency (SEEDA) is establishing a Future Think Board committee to look at trends and develop long term scenarios for the South East as a whole. Individual sector groups are being set up to conduct SWOT analysis and scenario development for particular industries and services within the region. National and other regional Foresight work will be a key tool for the activities of both Future Think and the sector groups. SEEDA is working closely with the Government Office in the South East to consider how best to take forward support for small business forward planning.

SEEDA have also recently employed James Breen as regional foresight Co-ordinator.

-> This is not a funding scheme it is an advisory 'think tank' which should affect future public sector policy & funding (e.g. The link scheme will address areas which the foresight program have highlighted as a priority)

Small Business Research Initiative (SBRI)

The Small Business Research Initiative is designed to increase the success of smaller firms in obtaining contracts from Government bodies to conduct research and development.

SBRI is a procurement measure designed to stimulate and increase the demand for Research and Development from small firms, and to give small firms the opportunity

to demonstrate that they have the ability to undertake and deliver high quality R&D in response to the strategic needs of Government.

-> This scheme is only recently been started, it was announced in the Science and Innovation White Paper of July 2000 and introduced by the Small Business Service (SBS) in April 2001. SBS administer the scheme centrally (nationally) rather than locally.

TCS Scheme

The TCS scheme enables businesses to access the skills and resources of the UK knowledge base for strategic advantage with high quality graduates working in companies on technology transfer projects.

Of the 850 current TCS schemes, 120 involve south East Companies (14%). A database produced by TCS can be searched to give information on the South East companies involved at: http://www.tcd-db.npl.co.uk/web_user/pkg_npl.p_quick_search

TCS Programmes by Region

	31 March 1999		31 March 2000		31 March 2001	
Region	No.	% of UK Total	No.	% of UK Total	No.	% of UK Total
East of England	48	7%	51	7%	39	5%
East Midlands	39	6%	41	6%	54	7%
London	33	5%	33	5%	47	6%
North East	26	4%	31	4%	38	5%
North West	59	9%	82	12%	82	11%
South East	103	16%	105	15%	111	14%
South West	62	9%	69	10%	73	9%
West Midlands	52	8%	63	9%	59	8%
Yorkshire & Humber	58	9%	57	8%	65	8%
Total for England	480	73%	532	76%	568	73%

Source: TCS Annual Report 2000/2001

SMART

SMART (Small Firms Merit Award for Research and Technology) awards are Government grants, given to establish the feasibility of innovations and inventions and to help the development of products through to the pre-production state. SMART Awards have proved to be a great support for inventors, especially now that the scheme has been extended to cover the costs of producing prototypes and intellectual property.

The SMART Competition grant scheme consists of 6 elements of support: -

Basic details

- Technology Reviews - Grants of up to £2,500 for individuals and small and medium sized firms (fewer than 250 employees) towards the cost of expert reviews against best practice.

- Technology Studies - Grants of up to £5000 for individuals and small and medium sized firms (fewer than 250 employees) to help identify technological opportunities leading to innovative products and processes.
- Micro Projects - Grants of up to £10,000 are available to help individuals and micro-firms (fewer than 10 employees) with the development of low-cost

prototypes of products and processes involving technical advances and/or novelty.

- Feasibility Studies - Individuals and independent small businesses with fewer than 50 employees and either an annual turnover not exceeding ECU 7 million or an annual balance sheet total not exceeding ECU 5 million may submit proposals for support for a project to determine the technical or commercial feasibility of a concept. Assistance will be 75% of eligible project costs up to a maximum grant of £45,000. Eligible costs of feasibility studies must exceed £30,000 and expect to last for 6 to 18 months to be considered for support.

- Development Projects - Independent businesses with fewer than 250 employees and either an annual turnover not exceeding ECU 40 million or an annual balance sheet total not exceeding ECU 27 million may apply for development project support. The award in this case will be 30% of eligible project costs up to a maximum grant of £150,000 (less any feasibility studies support for the same project). Development projects must exceed £60,000 and last from 6 months to 3 years to be eligible for support.

- Exceptional Development Projects - A very small number of exceptional development projects which are viewed as of national strategic importance to the industry sector, may apply for greater support at a variable percentage of total eligible costs (with a maximum rate of 30%). Eligibility is the same as for standard Development projects (above) except that award in this case will be negotiable up to a maximum of 30% of eligible project costs and to a maximum grant of £450,000

South East Smart Awards by Sector

Aerospace	3	1.42%
Agriculture	1	0.47%
Automotive	4	1.90%
Biotechnology	15	7.11%
Chemicals	1	0.47%
Construction	3	1.42%
Electronics	4	1.90%
Engineering	18	8.53%
Environmental Technology	18	8.53%
Food & Drink	1	0.47%
Healthcare	29	13.74%
ICT	41	19.43%
Instrumentation	32	15.17%
Logistics & Distribution	1	0.47%
Manufacturing Technology	23	10.90%
Marine Technologies	10	4.74%
Materials	5	2.37%
Motorsports	2	0.95%
Total	**211**	**100.00%**

Source: www.smartwise.org.uk

Number of applications and success rates, 1988-1998

	(a) No. of applications	(b) No. of awards	(c) No. of unsuccessful applications	(d) Application success rate, (b) as % of (a)
By region:				
South East	2,650	531	2,119	20
Eastern	1,347	378	969	28
Greater London	1,228	182	1,046	15
South West	1,369	380	989	28
West Midlands	1,261	408	853	32
East Midlands	1,132	335	797	30
Yorks & H'side	1,126	371	755	33
North West	1,589	450	1,139	28
North East	545	173	372	32
Wales	916	340	576	37
Scotland	1,298	395	903	30
Northern Ireland	309	91	218	29
By period:				
1988-92	6,563	1,291	5,272	20
1993-95	5,119	1,384	3,735	27
1996-98	3,088	1,359	1,729	44
By size of firm:				
Micro	11,049	2,175	8,874	20
Small	3,021	1,405	1,616	47
Medium	700	454	246	65
Total	**14,770**	**4,034**	**10,736**	**27**

Source: Evaluation of Smart (including SPUR) 2001 report, published September 2001

Regional Breakdown of Award Winners and Market Penetration

Region	(a) No. of award Winners '88-'98	(b) No. of SME Establishments, 1998 (000's)	(c) Penetration rate (a) as % of (b)
South East	410	357	0.11
Eastern	294	225	0.13
Greater London	139	380	0.04
South West	283	203	0.14
West Midlands	328	193	0.17
East Midlands	263	154	0.17
Yorkshire & Humberside	297	173	0.17
North West	375	238	0.16
North East	135	69	0.19
Wales	260	95	0.27
Scotland	297	173	0.17
Northern Ireland	63	47	0.13
All UK	**3,144**	**2,307**	**0.14**

Source: Evaluation of Smart (including SPUR) 2001 report, published September 2001

Faraday

www.faradaypartnerships.org.uk

The Department of Trade & Industry (DTI) runs the *Faraday Partnership* initiative in conjunction with the Research Councils and other Government Departments. The DTI is committed to establishing a UK-wide network of 24 Faraday Partnerships by 2002.

Faraday Partnerships promote improved interactions between the UK science, engineering and technology base and industry through the involvement of intermediate organisations. Faraday Partnerships are expected to be business-friendly, knowledge base/industry partnerships that are recognised regionally and nationally as centres of expertise and collaboration in their sector or technology.

There are currently seventeen Faraday Partnerships that have been established.

- Advanced Biotechnology for the Chemical and Pharmaceutical Industries (Pro-Bio) - *Chester*
- **Automotive and Aerospace - *Oxford***
- Colloid chemistry (IMPACT) - *Bristol*
- **Communications and Mobile Information Technology (COMIT) – *Southampton***
- Digital Imaging – *Glasgow*
- Electronics and Photonics Interconnection and Packaging (EPPIC) - *Cambridge*
- **Faraday Partnership for Remediation of the Polluted Environment - O*xford***
- Faraday Plastics - *Coventry*
- Food Processing - *Nationwide*
- Green technology for the chemical and allied industry (CRYSTAL) - *Rugby*
- **Industrial mathematics and system engineering (Smith Institute) - *Guildford***
- Integration of New and Renewable Energy in Buildings (INREB) - *Watford*
- Intelligent Sensors (INTErSECT) - *Middlesex*
- Smart Products (PRIME) – *East Midlands*
- **Smart Optics Faraday Partnership – *Kent & Surrey***
- Technical textiles (Technitex) - *Scotland*
- White Rose Faraday Packaging Partnership - Yorkshire

A national network of about 24 Faraday Partnerships is expected to be established by 2002-03 as a result of the commitment in the Science and Innovation White Paper to fund eight Partnerships each year. DTI is spending £3.5million rising to £10million in 2 years time on the Partnerships.

-> Although the key geographic areas have been highlighted above, most of the partnerships have partners spread right across the country.

LINK

www.dti.gov.uk/ost/link/

The LINK scheme is the Government's principal mechanism for promoting partnership in pre-competitive research between industry and the research base. It aims to stimulate innovation, wealth creation and improve the quality of life. The scheme offers an opportunity to engage with some of the best and most creative minds in the country, to tackle new scientific and technological challenges so that industry can go on to develop innovative and commercially successful products, processes and services.

LINK focuses on areas of strategic importance for the future of the national economy. All new programmes address priorities under the Government's Foresight programme. LINK encourages innovative research well ahead of the market but with good potential for eventual commercial exploitation, and offers opportunities for researchers from industry and academia to acquire knowledge and develop new technologies together which will help shape the 21st century.

3 – Growing Knowledge Based Firms

3.1 Attract/Nurture larger firms, inward investment

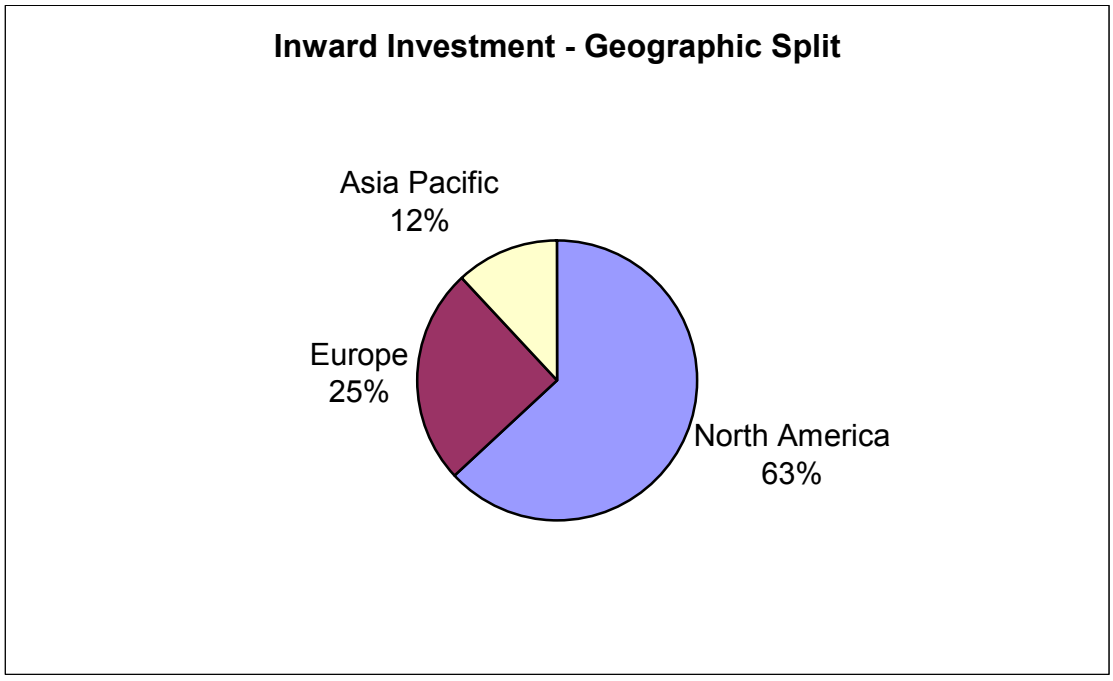
Inward Investment in the UK

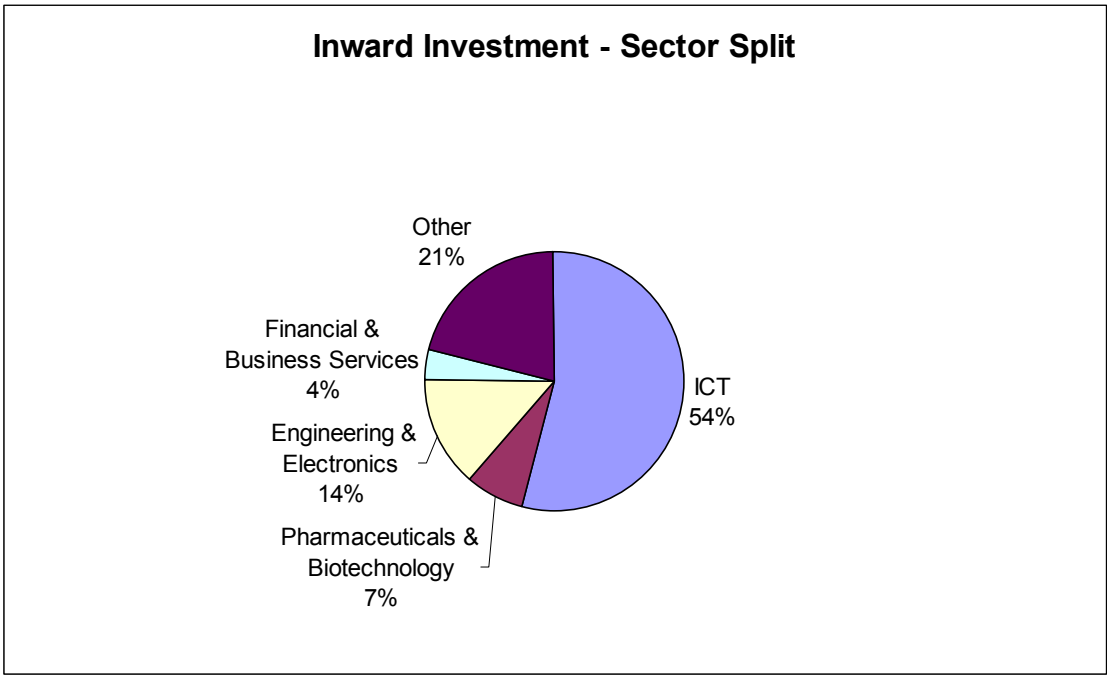
UK Successes 2000/01 - Breakdown by UK Regions								
Region	Number of Projects	%	Total New Jobs	%	Total Safe Jobs	%	Total Associated Jobs	%
East	56	6.4	3094	4.3	7898	15.1	10992	8.9
East Midlands	17	2.0	2065	2.9	2287	4.4	4352	3.5
London	220	25.3	8282	11.6	2274	4.3	10556	8.5
North East	34	3.9	4959	6.9	2859	5.5	7818	6.3
N Ireland	22	2.5	4906	6.9	909	1.7	5815	4.7
North West	39	4.5	3187	4.5	1610	3.1	4797	3.9
Scotland	72	8.3	9274	13.0	4231	8.1	13505	10.9
South East	**191**	**22.0**	**18190**	**25.4**	**4547**	**8.7**	**22737**	**18.4**
South West	38	4.4	4109	5.7	2182	4.2	6291	5.1
UK Wide	5	0.6	0	0.0	20	0.0	20	0.0
Wales	39	4.5	4520	6.3	1833	3.5	6353	5.1
West Midlands	103	11.9	4867	6.8	20226	38.7	25093	20.3
Yorks & Humber	33	3.8	4035	5.6	1415	2.7	5450	4.4
All Regions	**869**	**100.0**	**71488**	**100.0**	**52291**	**100.0**	**123779**	**100.0**

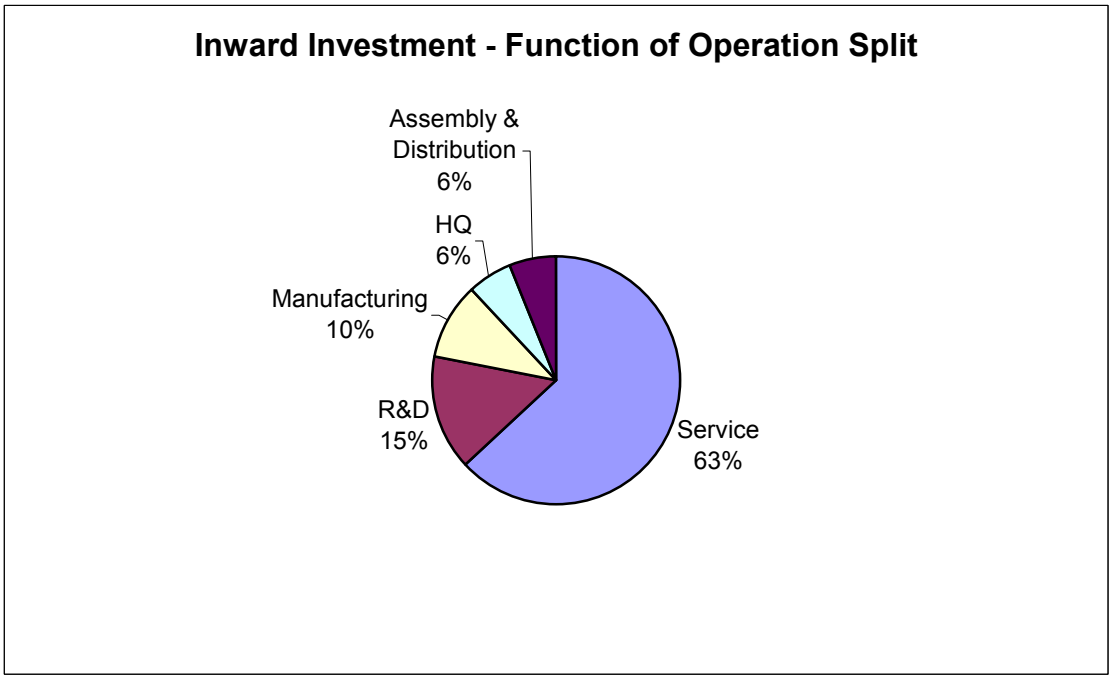
Source: InvestUk

Inward Investment in the South East

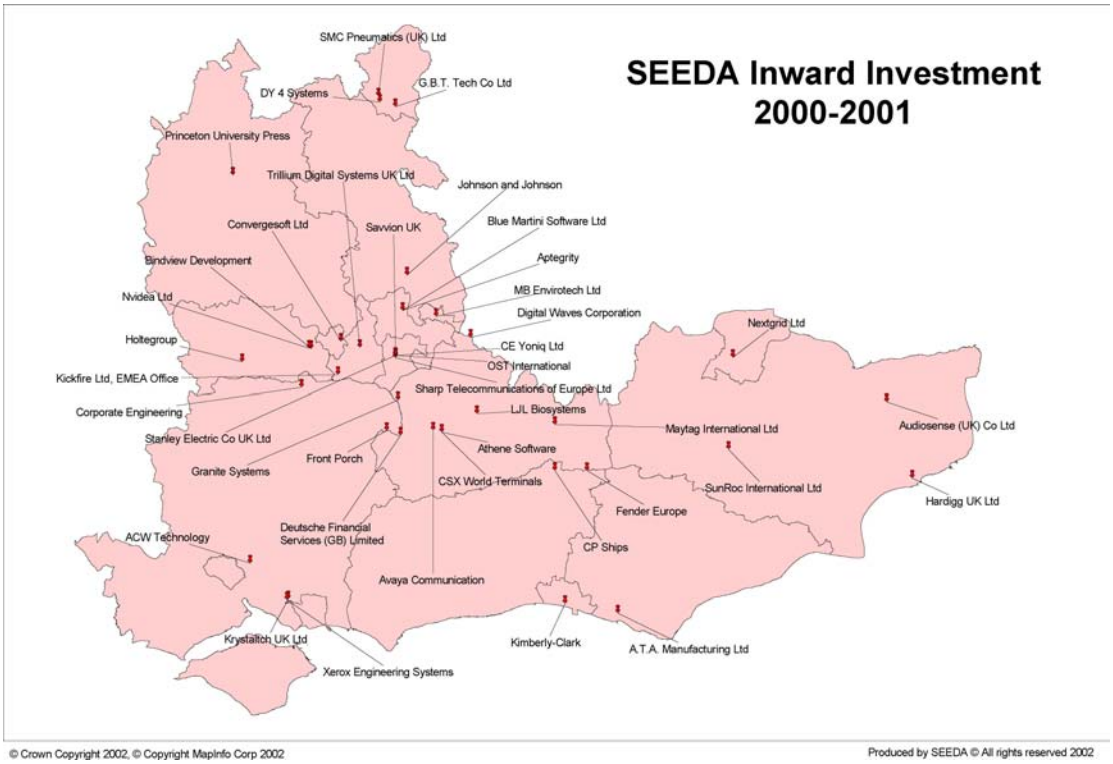
The following charts show all known inward investment for the 2000/2001 financial year in the SEEDA region (including those which the inward investment team of SEEDA were not involved in). There were 191 inward investment successes in the period, which created 18,190 jobs and safeguarded 4,547.







The following map illustrates the locations of inward investors that SEEDA helped during 2000-01. The majority located in the Thames Valley and were from the ICT sector.



3.2 Private R&D

The latest figures show that in 1999, the total R&D expenditure in the South East was almost £4 billion, the highest in the UK and almost a quarter of the UK total. This accounted for 2.8% of regional GDP, which was well above the UK average of 1.8%.

The region also has the highest business R&D expenditure in the UK, with £2.9 billion and the highest employment in R&D by business, with 35,000 people.

R&D Expenditure and Employment 2000

	Business Expenditure (£'s million)			% of total	Employment (FTE in thousands)		
	1998	**1999**	**2000**	**2000**	**1998**	**1999**	**2000**
United Kingdom	10,133	11,302	11,510	100	148	153	145
North East	178	164	164	1.4	3	3	3
North West & Mersey	1,216	1,476	1,451	12.6	18	18	17
Yorkshire & Humber	287	309	304	2.6	6	6	6
East Midlands	775	838	933	8.1	12	12	16
West Midlands	708	724	576	5.0	13	12	10
Eastern	2,367	2,559	2,758	24.0	28	30	30
London	643	735	810	7.0	9	10	10
South East	2,497	2,910	2,964	25.8	34	35	33
South West	898	887	867	7.5	13	13	12
England	9,569	10,607	10,827	94.1	137	141	135
Wales	125	203	144	1.3	3	3	2
Scotland	358	393	400	3.5	6	7	6
Northern Ireland	81	99	139	1.2	2	2	2

Source: ONS (Aug 2001)

A number of companies have their own research facilities in the South East, some of these are listed below:

- Sharp Laboratories of Europe (SLE)
- Hewlett Packard
- Amersham International
- WS Atkins Science & Technology
- Alcan International
- Pfizer central Research
- Philips Research Laboratories
- Plessey Research
- IBM Research
- Zeneca Research
- Merck Ltd
- Canon Research Centre Europe

A section of the Robert Huggins report 'Global Index of regional Knowledge Economies' which was produced for SEEDA, measured 40 knowledge based regions expenditure on R&D by business and government as a % of the mean expenditure of the group of 40.

Rank	Region	R&D Expenditure by Government	Rank	Region	R&D Expenditure by Business
1	Washington DC, US	598.2	1	Boston, US	278.7
2	Hong Kong, China	350.5	2	Seattle, US	236.1
3	Berlin, Germany	224.6	3	Stockholm, Sweden	198.9
4	Boston, US	202.5	4	Los Angeles, US	195.0
5	Uusimaa, Finland	195.9	5	San Francisco, US	194.4
6	Île de France, France	157.6	6	Philadelphia, US	179.6
7	Los Angeles, US	154.5	7	Hartford, US	170.7
8	San Francisco, US	153.9	8	New York, US	155.9
9	**South East, UK**	**142.4**	9	Kanagawa, Japan	135.0
10	Hamburg, Germany	139.1	10	Baden-Württemberg, Germany	131.9
11	Norway	112.5	11	Île de France, France	131.7
12	Baden-Württemberg, Germany	112.5	12	Tokyo, Japan	122.4
13	Luxembourg	104.5	13	Eastern, UK	120.4
14	Singapore	103.3	14	Uusimaa, Finland	118.5
15	Zuid-Nederland, Netherlands	82.0	15	Chicago, US	101.0
16	West-Nederland, Netherlands	81.9	16	Bayern, Germany	95.8
17	Seattle, US	81.5	17	Brussels, Belgium	92.4
18	New South Wales, Australia	81.0	18	Switzerland	89.3
19	Eastern, UK	77.8	19	Osaka, Japan	88.4
20	Denmark	74.0	20	Hessen, Germany	87.3
21	Chicago, US	70.4	21	Raleigh-Durham, US	82.3
22	Ostösterreich, Austria	65.7	22	Hamburg, Germany	82.1
23	Bayern, Germany	63.9	23	Austin, US	81.8
24	Ontario, Canada	62.3	**24**	**South East, UK**	**80.6**
25	British Columbia, Canada	58.8	25	Luxembourg	78.3
26	Brussels, Belgium	50.5	26	Kyoto, Japan	78.2
27	Philadelphia, US	48.9	27	Ontario, Canada	78.1
28	Raleigh-Durham, US	46.3	28	Berlin, Germany	61.1
29	Hessen, Germany	42.3	29	Denmark	52.8
30	New York, US	42.2	30	Washington DC, US	50.0
31	London, UK	38.9	31	Ostösterreich, Austria	49.2
32	Austin, US	38.0	32	British Columbia, Canada	48.0
33	Switzerland	35.1	33	Zuid-Nederland, Netherlands	46.5
34	Atlanta, US	33.9	34	West-Nederland, Netherlands	46.4
35	Stockholm, Sweden	29.6	35	Singapore	36.9
36	Hartford, US	13.2	36	Norway	35.8
37	Kyoto, Japan	10.9	37	Atlanta, US	34.7
38	Kanagawa, Japan	8.8	38	New South Wales, Australia	28.0
39	Osaka, Japan	6.9	39	London, UK	24.4
40	Tokyo, Japan	5.2	40	Hong Kong, China	1.9
	Global High-Performing Mean	100.0		Global High-Performing Mean	100.0

The report also commented:

"Data from the OECD finds that within the UK as a whole there is a relative reliance on R&D expenditure from foreign-owned, as opposed to indigenous, firms. For instance, only Sweden and Ireland has a higher proportional share of expenditure (compared to domestic product) by foreign affiliates, while Sweden, Finland, the United States, Japan, Germany, the Netherlands and France all have a higher proportion of R&D expenditure, as a share of domestic product, than the UK. Although the necessary data is not available, the situation would appear to be similar or even accentuated for the South East given the relatively high levels of foreign investment within the region."

3.3 – Skills Base

From analysing SIC codes in the NOMIS database the following table has been produced to show South East and UK employment levels by sector.

Broad Sector	Sub- Sector	Sector Total SE	Sector Total UK	SE- Sector % of UK
Automotive	Automotive	43704	384930	11.35%
Chemical	General Chemical	21273	177526	11.98%
	Plastics	26756	232223	11.52%
Creative Industries	Multi-media	4267	37796	11.28%
	TV and Radio	3762	68169	5.52%
	News and Advertising	19436	93890	20.7%
Defence and Aerospace	Defence	6342	14710	43.11%
	Aerospace	13146	111493	11.79%
Electronics and Engineering	General Electronics	62296	373711	16.67%
	Engineering	146506	1061630	13.8%
Environmental Technologies	Environmental Technologies	898	11612	7.73%
Financial and Professional Services	Financial Services	147807	1075083	13.75%
	Professional Services	107131	679736	15.76%
Food and Drink	Food and Drink	74799	739705	10.11%
Information and Communication Services	Software	86084	296158	29.07%
	Hardware	53060	279731	18.97%
	Telecommunications	67886	397278	17.09%
Marine Technologies	Shipbuilding	6792	34730	19.57%
Oil and Gas Utilities	Oil	1522	29033	5.24%
	Gas	3554	21775	16.32%
	Utilities	11347	95708	11.86%
Paper, Printing and Packaging	Paper	14160	99602	14.22%
	Printing	47303	354469	13.34%
	Packaging	1710	20906	8.18%
Pharmaceuticals, Biotechnology and Healthcare	Pharmaceuticals	15408	62379	24.7%
	Biotechnology	28907	91243	31.68%
	Medical Devices	7245	29759	24.35%
	Healthcare	204336	1604419	12.74%
Property and Construction	Property	58248	330342	17.63%
	Construction	151152	1118715	13.5%
Tourism and Leisure Industries	Tourism	4921	38202	12.88%
	Leisure Industries	291365	1603529	18.17%
Transport and Logistics	Transport	98956	618193	16%
	Distribution	45422	538672	8.43%
Research and Development	General R & D	30011	96472	31.1%

A further section of the Robert Huggins report measured the same 40 knowledge based regions employment levels as a % of the mean for that sector for the group of 40 regions.

Index of Regional Employment in the IT/Computer Manufacturing and Biotechnology/Chemical Sectors (Employees per 1,000 inhabitants)

Rank	Region	IT and Computer Manufacturing	Rank	Region	Biotechnology and Chemicals
1	Austin, US	567.1	1	Hessen, Germany	305.4
2	San Francisco, US	372.3	2	Philadelphia, US	230.0
3	Kanagawa, Japan	228.4	3	Raleigh-Durham, US	193.6
4	Zuid-Nederland, Netherlands	200.1	4	Zuid-Nederland, Netherlands	164.3
5	Boston, US	175.8	5	Hamburg, Germany	142.6
6	Stockholm, Sweden	152.5	**6**	**South East, UK**	**142.6**
7	Uusimaa, Finland	142.4	7	Switzerland	139.4
8	**South East, UK**	**133.6**	8	Osaka, Japan	135.6
9	Kyoto, Japan	122.9	9	Norway	132.5
10	Baden-Württemberg, Germany	119.2	10	Stockholm, Sweden	124.5
11	Singapore	115.0	11	Bayern, Germany	119.8
12	Hong Kong, China	104.1	12	Baden-Württemberg, Germany	117.8
13	Hessen, Germany	98.0	13	Ostösterreich, Austria	112.5
14	Ostösterreich, Austria	95.8	14	Île de France, France	112.4
15	Raleigh-Durham, US	93.5	15	Denmark	110.9
16	Eastern, UK	90.9	16	New York, US	110.5
17	New South Wales, Australia	90.4	17	Uusimaa, Finland	110.3
18	Switzerland	81.0	18	Chicago, US	108.1
19	Osaka, Japan	80.0	19	New South Wales, Australia	98.7
20	Norway	77.0	20	West-Nederland, Netherlands	98.5
21	Bayern, Germany	76.8	21	Eastern, UK	93.2
22	Île de France, France	76.7	22	Tokyo, Japan	90.2
23	Berlin, Germany	71.9	23	Singapore	85.2
24	Los Angeles, US	66.2	24	Berlin, Germany	81.7
25	Denmark	64.5	25	Brussels, Belgium	77.4
26	Chicago, US	54.8	26	Hong Kong, China	77.2
27	Hamburg, Germany	48.0	27	Kanagawa, Japan	75.9
28	Philadelphia, US	44.6	28	Ontario, Canada	69.5
29	Hartford, US	44.5	29	London, UK	58.3
30	Atlanta, US	40.8	30	Kyoto, Japan	57.6
31	London, UK	40.2	31	Boston, US	56.9
32	New York, US	38.1	32	Los Angeles, US	53.5
33	Seattle, US	38.0	33	San Francisco, US	52.7
34	Ontario, Canada	37.7	34	Atlanta, US	51.5
35	Brussels, Belgium	29.4	35	Hartford, US	47.2
36	British Columbia, Canada	21.2	36	Austin, US	41.6
37	West-Nederland, Netherlands	19.6	37	British Columbia, Canada	39.1
38	Washington DC, US	17.2	38	Washington DC, US	35.8
39	Tokyo, Japan	15.1	39	Luxembourg	29.2
40	Luxembourg	15.0	40	Seattle, US	16.2
	Global High-Performing Mean	100.0		Global High-Performing Mean	100.0

Index of Regional Employment in the Automotive/High-Tech Mechanical Engineering and Instrumentation/Electrical Machinery Sectors (Employees per 1,000 inhabitants)

Rank	Region	Automotive and High-Tech Mechanical Engineering	Rank	Region	Instrumentation and Electrical Machinery
1	Baden-Württemberg, Germany	295.8	1	Bayern, Germany	250.9
2	Philadelphia, US	267.4	2	Baden-Württemberg, Germany	236.1
3	British Columbia, Canada	223.8	3	Boston, US	167.2
4	Bayern, Germany	202.2	4	San Francisco, US	158.7
5	Seattle, US	200.5	5	Uusimaa, Finland	152.4
6	Ontario, Canada	169.5	6	Kyoto, Japan	149.8
7	Hartford, US	158.9	7	Hessen, Germany	132.9
8	Hessen, Germany	149.2	8	Tokyo, Japan	129.6
9	Switzerland	119.0	9	Raleigh-Durham, US	128.2
10	Kanagawa, Japan	116.8	10	**South East, UK**	**126.4**
11	Eastern, UK	113.5	11	Hartford, US	117.2
12	Norway	113.1	12	Osaka, Japan	116.8
13	Austin, US	112.1	13	Kanagawa, Japan	113.0
14	Osaka, Japan	107.9	14	Eastern, UK	112.8
15	New South Wales, Australia	97.1	15	Berlin, Germany	110.1
16	San Francisco, US	96.5	16	Switzerland	110.0
17	Singapore	94.1	17	Singapore	109.6
18	Denmark	93.7	18	Los Angeles, US	109.3
19	**South East, UK**	**91.8**	19	Ostösterreich, Austria	105.3
20	Hong Kong, China	85.2	20	Norway	104.6
21	Hamburg, Germany	82.8	21	Hong Kong, China	99.3
22	Boston, US	79.4	22	Chicago, US	98.1
23	Uusimaa, Finland	76.5	23	New South Wales, Australia	91.3
24	Chicago, US	74.5	24	Austin, US	91.2
25	Île de France, France	74.1	25	Île de France, France	89.6
26	Kyoto, Japan	73.7	26	Hamburg, Germany	88.7
27	Zuid-Nederland, Netherlands	72.4	27	Denmark	87.6
28	Los Angeles, US	70.4	28	Stockholm, Sweden	69.9
29	Tokyo, Japan	67.5	29	Philadelphia, US	67.6
30	Berlin, Germany	65.0	30	Seattle, US	64.8
31	Ostösterreich, Austria	60.2	31	Atlanta, US	62.1
32	Atlanta, US	59.9	32	New York, US	60.6
33	West-Nederland, Netherlands	42.9	33	London, UK	52.8
34	Stockholm, Sweden	42.9	34	Zuid-Nederland, Netherlands	51.4
35	Raleigh-Durham, US	36.7	35	Ontario, Canada	45.7
36	London, UK	30.1	36	Washington DC, US	31.8
37	New York, US	24.2	37	Brussels, Belgium	30.7
38	Washington DC, US	22.7	38	West-Nederland, Netherlands	30.1
39	Luxembourg	20.2	39	British Columbia, Canada	25.7
40	Brussels, Belgium	15.8	40	Luxembourg	20.4
	Global High-Performing Mean	100.0		Global High-Performing Mean	100.0

Index of Regional Employment in High-Tech Service Sectors

(Employees per 1,000 inhabitants)

Rank	Region	High-Tech Services
1	San Francisco, US	179.5
2	Washington DC, US	173.7
3	Tokyo, Japan	170.8
4	Uusimaa, Finland	169.0
5	Stockholm, Sweden	153.3
6	Atlanta, US	153.3
7	Raleigh-Durham, US	152.6
8	**South East, UK**	**136.0**
9	Boston, US	135.7
10	Seattle, US	126.1
11	Île de France, France	125.4
12	London, UK	120.7
13	Austin, US	118.8
14	Eastern, UK	111.4
15	Singapore	102.5
16	New York, US	102.2
17	Denmark	101.5
18	Chicago, US	100.9
19	Ontario, Canada	95.4
20	West-Nederland, Netherlands	95.2
21	New South Wales, Australia	92.9
22	Hong Kong, China	92.8
23	Switzerland	87.7
24	Philadelphia, US	84.1
25	Norway	83.4
26	Hartford, US	82.3
27	Berlin, Germany	78.2
28	Osaka, Japan	76.4
29	Kanagawa, Japan	74.9
30	British Columbia, Canada	72.2
31	Hessen, Germany	71.2
32	Hamburg, Germany	70.2
33	Ostösterreich, Austria	67.4
34	Los Angeles, US	67.2
35	Bayern, Germany	66.7
36	Luxembourg	65.7
37	Baden-Württemberg, Germany	65.5
38	Brussels, Belgium	64.6
39	Zuid-Nederland, Netherlands	58.2
40	Kyoto, Japan	34.1
	Global High-Performing Mean	100.0

3.4 Networks and Clusters

Regional Strengths & Clusters

Aerospace
The major geographical cluster of aerospace related companies is located within the counties of Hampshire, Berkshire, Surrey and Kent. Local concentrations of employment in the industry are found in Farnham, Eastleigh, Rushmoor and the Isle of Wight, the latter specialising in light aircraft and gliders.

The regions major aerospace cluster centres around Farnborough, home to QinetiQ Cody Technology Park and the Farnborough Aerospace Consortium (FAC), with other clusters based around the major airports of Gatwick and Heathrow. Smaller clusters have built up around some of the industries larger companies.

Automotive
Automotive companies are spread throughout the region but particular concentrations of companies are located in Hampshire, Kent and Oxfordshire.

One of the region's key strengths is motorsport. A recent report by the UK Government's Department of Trade and Industry (DTI) estimated that 60% of the UK motorsport workforce is based in the South East. Five Formula 1 teams are currently located in the South East, with the teams housing most, if not all, the necessary departments and sections that are needed for a successful season campaign.

Many of the world's largest automotive producers have their UK headquarters in the region such as BMW, DaimlerChrysler, Volvo, Toyota, Fiat and Volkswagen. Honda also has its European headquarters in the South East.

Biotechnology
The South East region was recently rated as the third best overall location of bioscience in Europe (Source: Corporate Locations). The driving force behind this success are the clusters of companies located in Oxford and Kent.

The Oxfordshire cluster is one of the most pre-eminent bioscience clusters in Europe and amongst the most famous in the world. The area has over 70 research companies and an estimated 200 supply, service or bioscience-related businesses. The region is a hotbed of innovation, which has lead to numerous Bio start-ups, several of which have now grown into large multinational companies. Oxford Glycoscience, for example, was formed as a spin out company from Oxford University in 1988 and today is valued at over $1.1billion. Other key 'home grown' companies include Oxford Biomedica Plc, Oxford Molecular Plc and British Biotech Plc.

Creative Industries
East and West Sussex are home to over 350 media companies, most of which are involved in digital media content and technologies with a strong new media cluster based in the Brighton and Hove area. East Sussex alone employs over 3,000 people in new media. Other clusters continue to develop and expand in Hampshire and North Oxfordshire. There is a network of interactive leisure software micro-businesses in Guildford, Surrey.

Electronics (inc ICT – Hardware)

There are a large number of clusters representing the various sub-groups of the industry in the South East. Opto-electronics is an embryonic cluster and the main locations of companies are East Hampshire, West Kent, West Berkshire, Oxfordshire, Buckinghamshire and parts of Surrey. Companies include Opsys Ltd in Oxford, Trident Displays in Surrey and Bookham Technologies in Oxfordshire.
There is clustering of semiconductor companies in Berkshire, Hampshire and Surrey. In particular, close to Newbury and Reading in Berkshire and Camberley in Surrey. Hampshire also has clusters of independent design houses, including Philips Semiconductors design centre in Southampton and Sony Semiconductor Europe in Basingstoke.

The defence industry, which has clusters in Kent and Hampshire, has encouraged the related development of very high quality electronics companies such as BAe Systems Avionics in Southampton, Portsmouth and Rochester.
Electronic components and electrical equipment make up part of the extensive hardware cluster in the region. There are a number of hardware companies in Berkshire, Hampshire and Buckinghamshire. These include major companies such as Fujitsu, Hewlett-Packard and Dell.

In Hampshire, the areas of greatest concentration are around Basingstoke, Fleet, Farnborough, Havant and Portsmouth with companies like Acal and Murata Electronics in Fleet, and IBM in Portsmouth. In Kent there is a cluster in and to the south of Rochester, Chatham and Gillingham.

Surrey, Berkshire and Buckinghamshire all have high tech electronics presence along with significant Information Technology sectors including companies like Toshiba in Camberley, EPCOS (part of the Siemens group) in Bracknell and Matsushita in Milton Keynes

Financial & Professional Services

The South East has:

- 30% of the UK consumer credit and hire purchase industry with about 10,700 employees in 270 establishments.
- 46% of the UK factoring industry and 35% of the UK leasing industry, with about 5,500 employees in both industries. Key companies include Griffin Credit Services (a HSBC Subsidiary) and BNY International (a subsidiary of the Bank of New York).
- 27% of the UK mortgage finance industry.
- Around 21% of the UK total for both life insurance and non-life insurance industries, employing 25,650 and 19,450 employees respectively.

The South East has various regional concentrations, or clusters, particularly in towns surrounding outer London:

- Reigate/Redhill (Surrey): Life insurance and leasing (Reigate accounts for 75% of the South East's leasing industry).
- Brighton (East Sussex): Consumer credit & hire purchase
- Milton Keynes (Bucks): Consumer credit & hire purchase
- Tunbridge Wells (Kent): life and non-life insurance
- Reading (Berks): life insurance
- Worthing: non-life insurance

Software

The software industry is remarkably concentrated in the area west of London in places such as Reading, Slough, Bracknell, Wycombe and Woking. The counties of Surrey and Berkshire have 55% of the South East's software workforce. The Thames Valley corridor has an especially outstanding cluster of companies. These are also the areas in which the regions other ICT related industries are concentrated.
Other areas of the region with a strong software industry include Oxford (e.g. Lynx Group – Provider of financial software), Hampshire (e.g. IBM) and the area surrounding Brighton, East Sussex (e.g. Optology- Data management software).

Telecomms & Network Infrastructure

A key strength of the region is the quality and number of companies that have facilities in the region - both multinational 'global telecomms companies', which encompass most sub-sectors of the telecommunication sector, and the multitude of smaller, specialised companies that operate in niche areas of the telecomms market.

There is a major geographic cluster of telecomms and network related companies along the M4 corridor in Berkshire including Energis and Global Crossing in Reading; Nortel in Maidenhead; Siemens in Bracknell; and Vodafone in Newbury.
Berkshire employs over 19,750 people in the sector, over 29% of the South East's telecomms workforce.

Another key cluster is in the Surrey area, particularly in Guildford. Companies in the cluster include major international companies, such as Ericsson, and a wide variety of small and medium companies – a key driver for the development of this cluster is the world-renowned research carried out by the University of Surrey and its associated science park.

Marine Technologies

The South East has an internationally significant marine cluster that provides a large and expanding level of employment throughout the region. It is naturally concentrated along the coast particularly around the ports of Southampton and Portsmouth.

Southampton is the foremost centre of marine excellence with marine related companies employing over 30,000 people in the area. It is known as the "Gateway to the World" – it is the home port of some of the world's greatest cruise liners - and the "Home of Ocean Sailing" – it is the homeport of Volvo Around the World Race and the BT Global Challenge. It is the heart of the UK's maritime leisure industry, particularly in the yacht sub-sector.

The Solent, the broad stretch of sheltered water between the Isle of Wight and the mainland, is the world's premier yachting venue and is recognised as one of Europe's premier leisure sailing locations. This international status has help boost the yachting sub-sector around the region and helped the marine associated tourist industry flourish around the Solent area. There are major marinas throughout the Solent and Southampton, particularly around Shamrock Quay, Cowes, Town Quay and Ocean Village. The area has a mass of supporting industries such as marine engineers, chandlers, yacht brokers, naval architects and boat builders and repairers.

The central south axis (including Solent Gateway, Isle of Wight and the western portion of coastal West Sussex) is home to over 600 mainly small leisure craft businesses employing 10,000 people, with a further 5,000 employed in marina and related service activities.

4 – Infrastructure and quality of life

4.1 Planning system supportive

The land use planning system, and the decision-makers within it, determine where and in what form development can occur, protect key environmental assets, and establish the location of essential infrastructure. The planning system thus has a direct impact on business competitiveness and productivity. It affects the ability of individual business to expand or change their property use in response to market conditions. It also has an indirect – but just as important – effect through its impact on transport infrastructure development and the provision of housing (and so availability of labour and skills).

There is though real business dissatisfaction with the performance of the planning system. Business people see the system as failing to make decisions consistently in a rational, speedy and user-friendly way.
Source: CBI - Planning for Productivity

The South East's planning system is greatly affected by the land make up of the region. Much of the South East countryside outside London (which includes areas in the EEDA region to the North of London) is subject to major environmental, culture and planning designations. For example, there are a number of World Heritage Sites and other heritage features. Outside the urban area, over 50% of all land is covered by national or international designations including 24% by Green belts. Together with strategic and local level designations of land, over 80% of the region's non-urban land is subject to one or more policy designations or constraints.

Because of these constraints relating to non-urban land a key policy in the RPG9 paper (Regional Planning Guidance) is that urban areas should become the main focus for development, which needs to involve making them more attractive, accessible and better able to attract investment. Greenfield development (namely, on previously underdeveloped land) should normally take place only after other alternatives have been considered, and should have regard to the full social, environmental and transport costs of location.

Other key planning principles in the document are:

- Development should take full account of local economic development strategies, which will need to reflect local capacity in terms of labour, land availability and transport infrastructure, build upon local strengths, including skills, local research strengths and strong business clusters.

- High value-added activities should be actively encouraged, including the grouped location of such activities in business clusters where this is economically beneficial and environmentally acceptable.

"Development plans should include policies which serve to encourage existing and emerging clusters and which promote the diffusion of innovation throughout the region, particularly in the Thames Gateway and PAERs. This might include, identifying science and technology parks that are well served by sustainable modes of transport and close to universities or research facilities, identifying networks of sites linked by telecommunications, proposing sites for incubator units, proposing sites for small and growing businesses and identifying potential locations for corporate headquarters."

- Economic diversity should be encouraged, facilitating small and medium enterprises, and supporting the growth of a variety of economic sectors including manufacturing.

- Industry and business development needs to be sustainable, both in the ease of access by walking, cycling and public transport, and in the layout and design of development.

Particular areas of the South East have specific planning policies, which are normally part of a greater special economic strategy for that area:

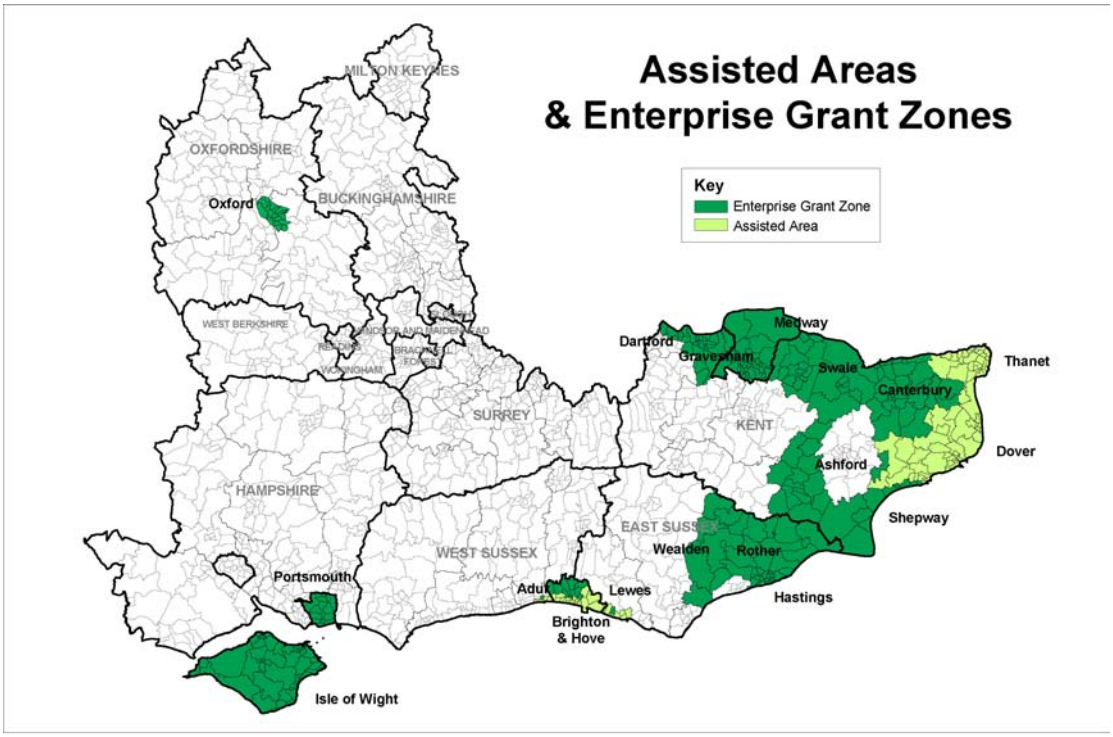
Thames Gateway

The regeneration of the Thames Gateway is a regional and national priority. (Thames Gateway is the area east of London that encompasses some areas of the SEEDA region in North Kent, including Sittingbourne and Gillingham). The Thames Gateway planning policy is covered in RPG9a (*Thames Gateway Planning Framework*).

Priority Areas for Economic Regeneration (PAERs)

Small pockets of deprivation are dealt with at a local level but a number of areas of regional significance for their level of deprivation are identified as PAERs. Current PAERs are South Hampshire, Southampton and Portsmouth; the Isle of Wight: the Sussex coastal towns from Shoreham harbour to Hastings: and the former coalfields and coastal towns of East Kent.

The following map shows Assisted Areas and Enterprise Grant Zones in the South East.



Western Policy Area

The western policy area is the area to the west and south of London, ranging broadly from the M1 and Watford in the North, Reading in the west and Gatwick to the South. In the SEEDA region it covers parts of Berkshire, Buckinghamshire, Oxfordshire, Hampshire and Surrey together with areas around Heathrow and Gatwick airports. The area is considered to be economically very buoyant which has lead to pressures and constraints in the labour market, housing and property markets and transport issues.

Potential Growth Areas

Two potential growth area have been identified in the South East – Milton Keynes and Ashford, which may in the longer term may be used as an area to focus new development so growth can be concentrated in a sustainable and planned way.

4.2 Broadband connectivity

In a report produced by UK Online, the forcast proportion of population passed by different broadband access technologies by 2003, showed the South East with around 45% ADSL and cable modem, 30% ADSL, not cable modem and 25% nothing. The UK as a whole was projected to have around 50% ADSL and cable modem, 25% ADSL, not cable modem, 10% BFWA only and 15% nothing.
Source: 'The Broadband Future', UK Online (Feb 2001)

Latest information shows that:
- ADSL connectivity in the South East is above the national average.
- The M4 Corridor has the best broadband connectivity in the country, excluding London.
- Redstone is pioneering the roll-out of SDSL services, starting in Portsmouth and then moving towards Southampton. *Source: Peter Waller, SEEDA*

The number of BT ADSL Enabled Exchanges varies across the region as shown in the table below.

County	**Number of ADSL Enabled Exchanges**
Berkshire	17
Buckinghamshire	18
Hampshire	40
Kent	34
Oxfordshire	8
Surrey	37
East Sussex	37
West Sussex	18

Source: www.broadband1.BT.com

NTL currently have residential broadband services available in the following areas.

County	**Towns**
Berkshire	Bracknell, Marlow, Newbury and Reading
Hampshire	Aldershot, Andover, Basingstoke, Farnborough, Fleet and Romsey
Oxfordshire	Abingdon, Bicester, Oxford, Wallingford and Wantage
Surrey	Camberley, Guildford and Woking

Source: www.ntl.com

4.3 Housing and Transport. Education and health provision

Housing

House prices in the South East are more expensive than any other region apart from London. The Government is making £250 million available over the next three years through its Starter Home Initiative. This will help key workers in high demand, high price areas like London and the South East to buy their own homes, where they might otherwise have been priced out of the communities they serve.

The Housing Investment Programme (HIP) round is conducted by the Government Office in partnership with the Housing Corporation. It's two main outcomes are to provide an assessment of the authority's performance against a regional average and provide resources to support its housing programme. The link between the two outcomes is intended to encourage local authorities to maintain a high standard of performance.

Average House Prices Q3 2001

County or Unitary Authority	Detached	Semi-Detached	Terraced	Flat/ Maisonette	Average Price
Bracknell Forest UA	261,444	168,759	125,578	107,446	167,493
Brighton and Hove UA	278,542	169,589	165,893	116,057	152,984
Isle of Wight UA	154,612	96,147	78,366	62,789	105,230
Medway UA	174,529	104,613	76,559	63,957	95,818
Milton Keynes UA	182,282	95,660	81,838	52,067	115,716
Portsmouth UA	207,010	135,044	95,120	80,227	97,973
Reading UA	317,655	156,618	122,084	118,480	150,201
Slough UA	231,262	141,664	122,766	85,074	125,091
Southampton UA	163,646	113,139	93,097	81,228	104,333
West Berkshire UA	331,640	165,323	128,760	111,766	209,160
Windsor & Maidenhead UA	465,829	217,798	196,110	151,060	278,260
Wokingham UA	274,602	173,020	145,831	125,562	200,803
Buckinghamshire	341,574	164,865	133,501	106,775	208,918
East Sussex	215,283	123,947	105,594	70,209	132,668
Hampshire	243,250	138,238	110,985	85,282	157,879
Kent	227,514	124,877	94,719	76,280	134,896
Oxfordshire	282,018	155,361	135,948	116,230	180,444
Surrey	398,317	189,333	163,770	128,842	235,890
West Sussex	251,796	142,259	112,367	85,407	152,863

*Note figures **exclude** property sales below £10,000 and over £1 million*

Region	Detached	Semi-Detached	Terraced	Flat/ Maisonette	Average Price
North	116,068	60,876	45,730	49,656	66,613
North West	140,440	71,735	44,223	72,313	75,810
Yorks & Humber	118,580	63,851	47,317	71,652	72,581
Wales	109,916	62,875	49,109	63,322	72,654
West Midlands	157,346	79,591	62,063	67,777	93,726
East Midlands	126,350	66,455	52,287	64,036	84,732
South West	175,186	103,026	86,280	85,945	117,140
South East	249,155	136,692	109,662	92,228	149,062
Greater London	402,266	227,759	204,550	180,101	204,938
England & Wales	186,211	106,193	93,833	122,058	123,856

*Note figures **include** property sales below £10,000 and over £1 million Source: HM Land Registry 2001*

Stock of dwellings

	Stock of dwellings		Households by type of dwelling: 1999- 00 (%'s)				
	2000 (thousands)	% Increase 1991-2000	Detached house	Semi-detached house	Terraced house	Purpose-built flat or maisonette	Other
United Kingdom	25,229	7.1	23	32	28	12	5
North East	1,128	5.1	11	44	32	10	4
North West	2,955	5.9	17	39	32	9	2
Yorkshire & Humber	2,143	6	19	38	32	9	3
East Midlands	1,776	8.7	29	40	21	7	3
West Midlands	2,207	6.2	21	40	25	10	3
East	2,285	9.1	32	33	22	10	3
London	3,053	4.8	5	21	29	31	15
South East	3,333	7.6	29	32	23	11	5
South West	2,127	8.1	28	28	28	8	7
England	21,008	6.8	21	34	27	13	5
Wales	1,267	7	28	33	32	6	1
Scotland	2,305	8.5	21	23	16	35	4
Northern Ireland	649	13.3	33	23	36	7	1

Source: ONS Regional Trends 2001

Transport

Expenditure on public roads in the South East for 1998/99 was the highest in the UK. Motorway and trunk road costs totalled £181.3m and local roads costs totalled £436.6m. Around 20% of the UK's motorway network serves the South East region.

Two of the UKs major airports, Heathrow and Gatwick, are located in the region. In 2000, the total number of passengers passing through Heathrow was 64.2 million and through Gatwick was 32 million. These were higher than any other UK airport.

Dover handled the highest number of International sea passenger movements in the UK with 18.5 million.

"The geography of the South East creates a number of specific transport problems and opportunities. As the largest Region in the UK with a generally prosperous economy, close to neighbouring European countries, the impacts of high car use, through traffic and congestion are significant. At the same time the Region enjoys the benefits of proximity to wider markets. The influence of London is substantial and means that in general the Region's transport routes to London are well developed while orbital routes are less so."

Source: RPG9 for the South East, GOSE

Education

Class sizes for all classes, 2000/01

	Primary Schools						Secondary Schools	
	Key Stage 1		Key Stage 2		All primary schools			
	Average number in class	Percentage of classes with 31 or more pupils	Average number in class	Percentage of classes with 31 or more pupils	Average number in class	Percentage of classes with 31 or more pupils	Average number in class	Percentage of classes with 31 or more pupils
Great Britain	25	3.7	27.5	28	26.5	17.3	22.1	
North East	24.5	1.8	27.2	25.6	25.9	15.2	22.2	7.4
North West	25	3.4	28.3	36.7	26.8	21.7	22.1	8.9
Yorkshire and the Humber	25.1	3.9	28	30.4	26.8	19.5	22.3	8.6
East Midlands	24.8	2.8	28.3	34.3	26.8	20.6	22.2	8.4
West Midlands	25.1	3.6	27.8	29	26.5	17.6	22.1	9.2
East	25.2	3.3	27.8	28.5	26.5	16.6	21.9	7.7
London	26.8	3.8	27.7	18.2	27.2	12.2	22.2	6.4
South East	25.8	4	28.2	30.8	27	18.8	22	7.7
South West	25.4	3	28.3	35.8	26.8	20.4	22.3	10.4
England	25.4	3.4	28	29.9	26.8	18.1	22.1	8.3
Wales	24.1	4.7	26.7	23.6	25.4	14.9	21.3	
Scotland	22.4	5.1	23.9	14.8	24.3	11.1		
Northern Ireland	23.1	2.6	24.6	10.4	23.7	5.8		

Source: ONS Regional Trends 2001

Pupils in their last year of compulsory education 1999/00

	% achieving GCSE or SCE standard grade / national qualifications (NQ)						
	5 or more grades A*-C	1-4 grades A*-C	Grades D-G only	No graded GCSE's/ SCE's	total (100%) (thousands)	pupils/students in education achieving 2 or more A levels/ 3 or more SCE/NQ Highers (%)	Average A/AS level point scores
United Kingdom	50.3	24.4	19.7	5.6	703.1	30.2	18.4
North East	43.2	24.4	25.7	6.7	31.9	22	17.2
North West	47.5	25	21.7	5.8	85.9	27.6	19.2
Yorkshire and the Humber	43.6	24	25.6	6.8	61	25.3	19
East Midlands	47.8	24	22.6	5.7	49.7	28.8	18.1
West Midlands	46.5	25.1	22.7	5.7	65.2	27.8	18.1
East	53	23.9	18.5	4.6	63.2	33.9	18.5
London	48.1	27	19.2	5.7	74.9	30.1	17.3
South East	54.8	22.7	17.3	5.2	92.1	35.6	18.9
South West	54	23.3	18.2	4.5	56.6	32.8	19
England	49.2	24.4	20.8	5.6	580.4	30	18.5
Wales	49.1	23.7	19.5	7.7	35.6	27.2	16.9
Scotland	58.3	25.8	10.3	5.6	62.3	31.4	
Northern Ireland	56.9	22.9	16.5	3.6	25.4	37.7	

Source: ONS Regional Trends 2001

Population of working age: by highest qualification, Spring 2001

	Degree or equivalent	Higher Education Qualifications	GCE A level or equivalent	GCSE grades A*-C or equivalent	Other Qualifications	No Qualifications	Total - thousands (=100%)
United Kingdom	15.2	8.3	24	22.3	13.7	16.4	36,554
North East	10.4	7.9	24.9	23.8	13.9	19.1	1,573
North West	12.9	8.9	25.8	24.1	11.4	16.9	4,185
Yorkshire and the Humber	12.2	8.2	25	21.3	14.7	18.6	3,087
East Midlands	12.6	7.5	23.9	23.4	14	18.6	2,587
West Midlands	11.9	8.2	22.2	23.3	14.6	19.8	3,246
East	14.4	7.7	24.7	24.8	14.5	14	3,324
London	25	6	18.9	17.5	18	14.7	4,707
South East	17.8	8.1	24.1	23.9	13.8	12.2	4,956
South West	15.5	9.2	24.2	25.8	13.4	11.9	2,945
England	15.6	7.9	23.5	22.9	14.4	15.7	30,609
Wales	12.3	9.2	21.8	24.1	11.8	20.8	1,758
Scotland	14.1	12.5	30.2	15.9	10.5	16.8	3,164
Northern Ireland	12.8	6.2	24.2	21.7	8.4	26.7	1,023

Source: ONS Regional Trends 2001

Healthcare

NHS hospital waiting lists: by patients' region of residence and NHS Regional Office area, at 31st March 2001
NHS hospital activity: by NHS Regional Office area, 1999-00

	NHS Hospital Waiting lists							NHS Hospital Activity	
	Percentage Waiting:							In patients (all specialties)	
	Less than 6 months	6 months but less than 12	Less than 12 months	12 months or longer	Total waiting (=100%) (thousands)	Mean waiting time (months)	Median waiting time (months)	Average Daily available beds per 1000 population	Cases treated per 1000 population
Northern and Yorkshire	78.8	20.5	99.4	0.6	118.7	3.8	2.8	4.2	187
North West	78	18.3	96.3	3.7	156.2	4	2.7	4.1	203
Trent	80.2	18.4	98.6	1.4	99.1	3.7	2.7	3.8	184
West Midlands	80.2	17.4	97.5	2.5	84.1	3.7	2.7	3.6	174
Eastern	73.9	20.9	94.7	5.3	116.9	4.4	3	3.3	153
London	71.6	22.4	94	6	135.1	4.6	3.2	4	168
South East	70.7	22.6	93.3	6.7	189.5	4.7	3.4	3.1	144
South West	76.3	19	95.3	4.7	95.6	4.2	2.9	3.9	182
England	75.6	20.2	95.8	4.2	995.1	4.2	2.9	3.7	173
Wales	66	20.2	86.2	13.8	65.6			5	176
Scotland	83.7	15	98.7	1.3	82	3.2	2.1	6.8	190
Northern Ireland	58.6	19.6	78.2	21.8	52			5.1	196
United Kingdom								4.1	175

Source: ONS Regional Trends 2001

4.4 Culture, leisure and lifestyle

Culture

- The South East has a rich mix of cultural, sports and recreational facilities. Theatres include the Yvonne Arnaud Theatre in Guildford, Chichester Festival Theatre and the Hexagon in Reading. Museums include the Mary Rose Trust and the Gurkha Museum in Hampshire, Fishbourne Roman Palace in West Sussex and the Battle Museum in East Sussex. There is also an endless list of Art Galleries.

- Throughout the region there are a wide range of visitor attractions, including castles, historic houses and gardens, country parks and museums. Windsor Castle, Canterbury Cathedral, Dover and Leeds Castles, are among many of the internationally-known visitor attractions.

- There are over a hundred annual festivals and events in the region including Cowes Week, the Henley Regatta and a range of festivals.

Leisure

- 31% of the South East is classed as 'Areas of Outstanding Natural Beauty', higher than any other region.

- The number of households with internet access was the highest outside of London in 1999/00

- Between 1997 and 2000, households in the South East spent on average, £67.60 per week on leisure goods and services, this is second highest to London.

- One of the best selections of golf courses in the country, including the world renowned venues of Wentworth, Sunningdale and Sandwich.

- In 1999, 13.5 million UK residents and 2.3 million people from overseas visited the South East.

Lifestyle

- The amount of recycled waste is higher in the South East than in any other region.

- The second lowest recorded crime rate (South West has the lowest) for 1999/00.

- The number households receiving benefits was 66% in 1999/00, London was lowest with 65%.

- The highest concentration of International Schools in the UK

Average Gross Annual Earnings

Area	Average Gross Annual Earnings
Bracknell Forest UA	-
West Berkshire UA	£24,795
Reading UA	£25,333
Slough UA	£28,410
Windsor and Maidenhead UA	£26,773
Wokingham UA	£25,874
Brighton and Hove UA	£19,770
East Sussex	£20,134
Milton Keynes UA	£22,863
Buckinghamshire	£25,059
Portsmouth UA	£20,835
Southampton UA	£21,385
Hampshire	£22,465
Isle of Wight UA	£18,401
Medway Towns UA	£20,957
Kent	£21,241
Oxfordshire	£22,943
Surrey	£25,658
West Sussex	£21,791
South East	**£23,015**
England	£22,183
United Kingdom	£21,749

(Source: Labour Market, New Earnings Survey 2000)

Average expenditure per person, 1997-2000

Region	Average expenditure per person (per week)
United Kingdom	£148.30
North East	£126.80
North West	£140.00
Yorkshire and the Humber	£138.30
East Midlands	£141.50
West Midlands	£136.20
East	£154.10
London	£173.80
South East	£172.50
South West	£144.60
England	£151.20
Wales	£131.70
Scotland	£139.70
Northern Ireland	£117.30

Source: ONS Regional Trends 2001