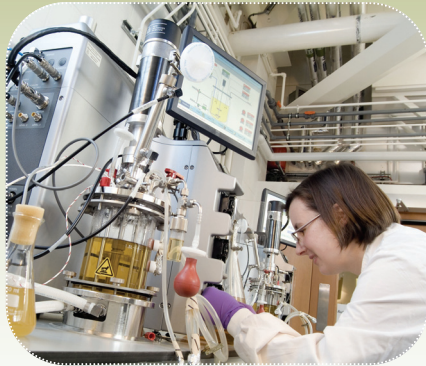


Greater Norwich Development Partnership

Greater Norwich Technopole Report A framework to inform future sector investment June 2010



Foreword - by Walter Herriot OBE



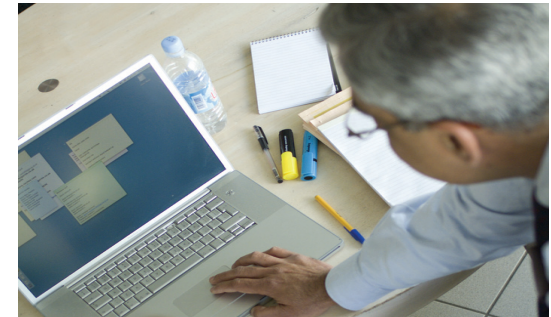
If the United Kingdom is to recover as quickly as it might from the Recession then in addition to raising taxes and cutting public spending new businesses have to be encouraged to start up and existing businesses to grow quickly and sustainably.

The last 20 years have seen the growth of a significant knowledge-based economy in the East of England. The region has built on strengths in sectors such as information technology, pharmaceuticals and environmental science to become one of the most creative and research intensive locations in Europe.

The Greater Norwich area is recognised as an international centre for research and innovation in plant and microbial science, food, diet and health and environmental science. It is the intention to grow the existing Norwich Research Park into a “Next Generation Science Park” with the creation of an

additional 5,000 jobs on the expanded site by 2021. The potential of the Greater Norwich economy is not restricted, however, to activities related to UEA and the Norwich Research Park. Indeed the sub region has been identified by government as an engine of growth capable of generating 35,000 new jobs between 2001 and 2021 with sectors such as business and professional services, the creative industries and engineering playing key roles.

The purpose of this Report is to provide a context in which growth can be stimulated so that inhabitants of the Greater Norwich sub region can enjoy increasing and sustainable standards of living whilst playing a key part in the regeneration of UK plc.



Specifically it is hoped that the Report will be used to :

- Encourage the flow of information on projects and initiatives between all those involved in business development in the sub region and encourage greater collaboration among them to the benefit of the business community.
- Stimulate investment in growth business and sectors.
- Identify organisations involved in business support and financing to enable the better signposting of business customers
- Emphasise the attractiveness of the sub region and the support available to new businesses thinking of locating in the area.
- Identify gaps in the provision of support for businesses and provide hard evidence to enable effective lobbying to take place to fill such gaps.



The Norwich sub region has great potential and can play a very significant role in the growth of the knowledge based economy in the UK. It is hoped that this Report will provide a platform to enable the sub region to achieve it's potential in all those areas which the Report identifies as being capable of growth.

A handwritten signature in blue ink that reads "W.J. Herriot".

W.J. Herriot June 2010



Walter Herriot OBE, is one of the most important social entrepreneurs in the UK and a key contributor to the Cambridge technology base. He started his career within the world of banking before making his name as the man who nurtures UK technology enterprise. He was the Managing Director for the St. John's Innovation Centre from 1990 until he retired at the end of 2008. The Innovation Centre, based in Cambridge, is regarded as a model for incubators, particularly those linked to universities, both nationally and internationally.

Walter is Chair of the Enterprise from Innovation Board of the University of East Anglia and of the Steering Committee of the Hauser Forum at the University of Cambridge. He is also Enterprise and Innovation Champion for EEDA. In 1999, Walter was awarded an OBE for services to businesses in the East of England and in 2002 was the Cambridge Evening News 'Businessman of the Year'. In 2006 he received the Queens Award for Enterprise Promotion.

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1. Introduction

Purpose

The purpose of the Greater Norwich Technopole Report is to inform future investment in local knowledge economy sectors/clusters.

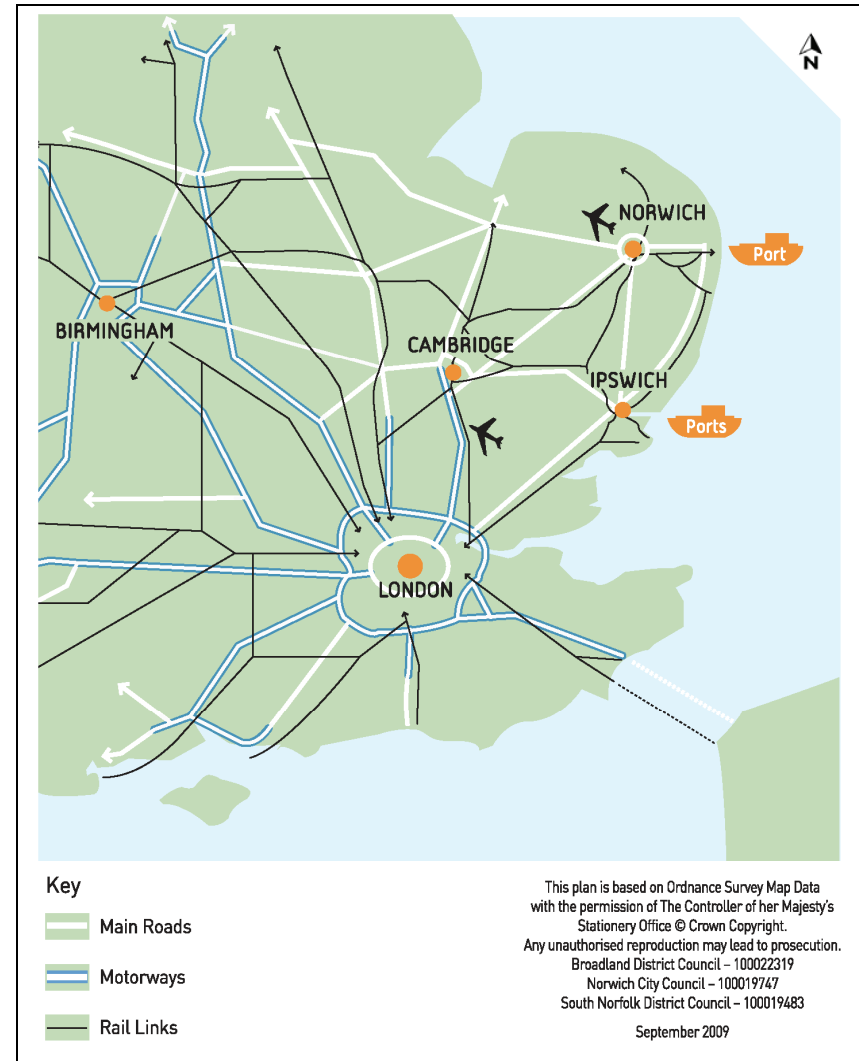
The Greater Norwich Technopole Study:

- Identifies national and international best practice in supporting innovation and the development of the knowledge economy
- Reviews the local innovation and enterprise support infrastructure to identify opportunities and needs
- Publicises the advantages and opportunities in Greater Norwich in order to attract and retain appropriate businesses
- Informs the Greater Norwich Development Partnership and Partners' priorities for supporting and lobbying for future investment in the local infrastructure required to support the development of the knowledge economy

Background

The Greater Norwich Development Partnership Economy Group (comprising Economic Development Officers from Norwich City, Broadland and South Norfolk District councils, Norfolk County Council with Shaping Norfolk's Future) has undertaken research into the local knowledge economy and participated in national research programmes into the key components needed to support a knowledge economy. The Greater Norwich Technopole Report builds on the regional Technopole Report produced by the East of England Development Agency (EEDA) focusing on the detailed needs and knowledge economy sectors of Greater Norwich.

Strategic Connections



The East of England Technopole is a group of publicly funded organisations operating in the East of England, whose mission is to support enterprise and innovation. The group includes the directors of Enterprise Hubs and managers of relevant programmes. The overall mission of the Technopole is to improve the range and quality of facilities and business support available in the Region, particularly for companies based on technology or who are perceived to be capable of fast growth.

Definition of a Technopole

A centre of innovation and enterprise activity

Definition of a Cluster

A cluster is defined as a “geographically proximate group of companies and associated institutions (for example universities, government agencies, and related associations) in a particular field, linked by commonalities and complementarities” (Professor M. Porter) From the study of ECOTEC in 2005/06 regarding the critical success factors in cluster development, the two critical success factors are “collaboration in networking partnership” and “knowledge creation for innovative technology”.

Greater Norwich Facts and Figures

Greater Norwich comprises the local authority areas of Norwich, Broadland and South Norfolk. It covers approximately 28 per cent of Norfolk’s land area and accounts for 47 per cent of the county’s working age population and 53 per cent of jobs in the county.

Around 179,000 people are employed in Greater Norwich; 53 per cent of these jobs are based in the Norwich local authority area with the remainder split almost equally between the South Norfolk and Broadland local authority areas. Three-quarters of all jobs in Greater Norwich are based in the built-up urban area.

Greater Norwich is one of the East of England’s seven “engines of growth” and was designated as a new growth point and expected to deliver 35,000 new jobs over the period 2001 to 2021. The area has a diverse economic base in a range of service and manufacturing sectors, particularly the high value-added, knowledge intensive sectors. The ‘Cities Outlook 2010’ report ranks the Norwich urban area in the top ten cities in the UK in terms of employment in knowledge intensive businesses. Key knowledge economy sectors and clusters include:

- Business and Professional Services
- Creative Industries
- Engineering
- Financial Services
- Health and Life Sciences
- Information Technology

It is widely recognised that the future success of the UK economy lies in its knowledge based industries - defined by the OECD as high to medium tech manufacturing (e.g. pharmaceuticals, aerospace and electrical engineering); financial and business services;

telecommunications; education and health. Knowledge occupations are defined as Managers and Senior Officials, Professional Occupations and Associate Professional & Technical Occupations. However, these definitions provide only broad measures and at best give a simplistic and partial view of the knowledge economy. The Work Foundation adds creative industries to the OECD definition. These knowledge economy sectors are reliant on highly technical and often specialised knowledge; their products not only influenced less by price competition but also marketed on a high value-added basis. Areas with high levels of employment in knowledge industries are more productive than those without.

Business and Professional Services: This is a significant growth sector of the economy, with output and employment both growing strongly and expected to continue to do so in the future. Many of the jobs within the sector are highly skilled and relatively high wage. In view of its size, the Norwich urban area is well placed to continue to act as a service centre for Norfolk and for parts of the rest of the East of England region. Demand will come from the local economy, and from markets elsewhere in the sub-region and the region which lack Norwich's critical mass and hence do not have their own substantial Business and Professional Services sector. Larger employers include Targetfollow, PricewaterhouseCoopers, Williams Lea and Mills & Reeve.

Creative Industries: Greater Norwich has established strengths in the Creative Industries which make this a key sector in the local economy. These strengths include a cluster of established businesses and organisations and growing smaller companies – companies in clusters, it is believed, deliver a higher rate of innovation than their non-clustered counterparts. Notable employers include BBC East, Anglia Television and Archant which form the backbone of the cluster. The presence of these companies alone has placed Norwich as the media capital of the region. In addition, these have led to the formation of a large number of small businesses, many of which now operate in a global environment and are highly innovative. Companies include East P The Click, The Works, The Point and Imago. The sector is supported by key educational institutions (Norwich University College of the Arts, the University of East Anglia and City College Norwich) and a number of public-private initiatives, including CreativeNorfolk and the East of England Production Innovation Centre (EPIC), which will help promote further growth.

Engineering: Greater Norwich's engineering sector includes a range of firms in different subsectors with particular local strengths in (but not limited to) transport, energy, materials and food manufacture. Greater Norwich is home to a number of precision engineering companies, many of which trade internationally. Lotus Group moved to Norwich in the 1960s and has grown substantially since then. It is widely recognised as one of the most innovative engineering businesses in the world, has many innovations to its name and has also given birth to dozens of spin out companies, several of which are located in the Hethel Engineering Centre. Businesses with links to the automotive/motorsports sector include F1 Beru and Carbon Fibre Technologies. The sector also has links to other industries including aerospace, defence, marine, energy, medi-tech and agriculture. Notable businesses include Precision Engineering Services Ltd, MSI Defence Systems, Miltech, Musset Engineering, Syfer Technology Ltd and ATB Laurence Scott.

Financial Services: The urban area is home to major businesses within the Financial Services sector, which serve the UK and the world from Norwich and include Aviva (formerly Norwich Union), Marsh, Swiss Re Central Trust, Virgin Money and Moneyfacts. The sector is recognised as a genuine national financial services cluster and the city is the largest general insurance centre in the UK. It is also the largest private sector employer in Norfolk. It is a UK leader for financial websites. It has developed an important hub of niche, hi-tech fast-growing national financial businesses. Cluster development is led by the Financial Industry Group, and the National Skills Academy for Financial Services acts as a business development centre and enterprise hub for the cluster. Notable in particular because of the numbers employed – such concentrations of financial services employment are usually found only in much larger cities in the UK. There is further scope to increase employment through the growth of existing companies and through inward-investment attraction.

Health and Life Sciences: Norwich Research Park has 2,700 dedicated research scientists – many of whom are global leaders in their respective fields. They are part of a community of 9,000 people who work at the Norwich Research Park; one of Europe’s largest single-site concentrations of research in Health, Food and Environmental Sciences with an annual turnover of £275 million. NRP is home to four research centres; the John Innes Centre, the Institute of Food Research, the Sainsbury Laboratory and The Genome Analysis Centre. NRP has already generated a number of high-value spin-out companies (e.g. in drug development, DNA profiling, genomics and software development).

Information Technology: Greater Norwich has a growing cluster of web development and technology businesses with national and international clientele with specialisms covering search engine optimisation, internet marketing, web usability, user research and web consultancy, e-commerce, technology applications and software development. Foolproof, Further, OMG and Silvertap are four international companies specialising in marketing and usability. LiftShare is a national company providing an online network to enable more people to share lifts to and from work. The Customer Feedback Company and Service Tick both work with national clients providing user research. Proxama (Glue 4 Technologies) is a company highly advanced in ‘Near Field Communications’ software.

Emerging sectors: Other business sectors, currently in their infancy, will begin to emerge more strongly in the future, led by the knowledge economy sectors which are already strong in Greater Norwich. These include: renewable energy - building on the existing energy/engineering sector; low carbon manufacturing/engineering technologies building on current sector strengths and low carbon expertise at UEA; innovative financial services products e.g. climate change costs and new forms of healthcare insurance - based on current strengths in financial services (particularly insurance).

Note: Organisations that provide a service to the knowledge economy sectors, under one of the section headings that follow, should contact the GNDP for inclusion in this report: info@gndp.org.uk

2. Enterprise Hubs and Innovation Centres

Greater Norwich's Enterprise Hubs are publicly funded initiatives designed to support innovation and enterprise in early stage growth businesses. They consist of:

- Specialist property: This can either be focused on the needs of start-up growth businesses with small units and flexible rental arrangements or can comprise specialist laboratory space for clients.
- Management on site: Management is responsible for the property and can also provide direct business advice to the tenant and other businesses in the locality, which require specialist understanding of their needs if they are to grow.
- Networking ability: Hubs operate alongside and refer to other organisations, locally, nationally and internationally, as appropriate in the best interests of their clients.
- Equipment. Many Hubs can provide access to specialist capital equipment. Examples include the flow cytometry suite at Norwich Research Park (NRP); highly specialised production equipment at the East of England Production Innovation Centre (EPIC) and a range of premium specification machine tools for the development of engineering and manufacturing solutions at Hethel including Rapid Prototyping.
- Support – targeted business support, aimed at high growth potential enterprises

The EEDA-supported network of Enterprise Hubs is a key component of the regional strategy of support for innovation and enterprise. The Hubs are focused on bringing together the region's knowledge-based industries by:

- Developing and growing a network to support the region's key knowledge-based sectors.
- Encouraging the development of networking groups in these key sectors and clusters.
- Supporting the development of a select number of incubators, innovation centres and science parks.
- Encouraging knowledge transfer and ensuring the delivery of leading edge innovation and enterprise support across the region.
- Supporting innovative businesses as they seek access to finance to accelerate growth and development.

The Enterprise Hubs are networked with each other and with other centres of innovation in the region as well as in the rest of the UK and internationally.

Enterprise Hub/ Innovation Centre	Flexible Accommodation	Sector Specialisation	Advice Available on site?	Network Links	URL	Description
East of England Production Innovation Centre (EPIC)	Office space & production facilities	Creative industries, digital media	Specialist advice available	Yes	www.epic-tv.org	Centre for development of digital communications including one of the most advanced HD production facilities in Europe. Offers space and incubator facilities for creative industry/digital media businesses.
	<p>EPIC – the East of England Production Innovation Centre in Norwich is one of the most advanced broadcast production facilities in Europe, hiring HD studios and post production facilities to broadcasters and production companies</p> <p>EPIC is a key strategic site and a crucial player in developing the digital technology economy, a growing knowledge based sector. EPIC seeks to understand and address the needs of businesses in the digital / ICT sector, working in partnership with stakeholders in Norwich, Norfolk and across the region. EPIC as an innovation hub focuses on the key priorities of Innovation, Enterprise and Skills ensuring strategic fit with government, regional and sub-regional strategies and policies:</p> <ul style="list-style-type: none"> • Innovation – exploiting hi-tech ideas / invention • Enterprise – providing incubation space and bespoke business support • Skills – delivering / facilitating training & development of the future high skilled workforce <p>EPIC seeks to become a national centre of excellence with global reach and at the heart of nationally and internationally recognised clusters</p>					

Enterprise Hub/ Innovation Centre	Flexible Accommodation	Sector Specialisation	Advice Available on site?	Network Links	URL	Description
Hethel Engineering Centre	Offices & workshops	High Performance Engineering / Manufacturing	Yes	Yes	www.hethelcentre.com	Enabling businesses in the advanced engineering and manufacturing centres to realise the benefits of the knowledge based environment
	<p>Hethel Engineering Centre is dedicated to supporting the growth and success of high performance engineering and manufacturing companies and individuals throughout the region. HEC's priorities are innovation, enterprise and skills and as an exemplar innovation hub is focused on:</p> <ul style="list-style-type: none"> • Innovation – exploiting hi tech ideas / invention • Enterprise – providing incubation space and bespoke business support • Skills – deliver / facilitate training & development of the future high skilled workforce <p>HEC is developing as a key strategic employment site through a proposed Science & Technology Park within Greater Norwich. Going forward, HEC is seeking to build an advanced engineering Centre of Excellence with specific focus on low carbon vehicles that is at the heart of a nationally and internationally recognised cluster.</p>					

Enterprise Hub/ Innovation Centre	Flexible Accommodation	Sector Specialisation	Advice Available on site?	Network Links	URL	Description
Norwich Research Park	Laboratory and office space and land/ buildings for science park development	Health, food, plant, environmental sciences, information technologies, chemistry & materials.	Yes	Yes	www.nrp.org.uk	Home to six world leading Higher education and research institutions, The Norwich Research Park has mixed laboratory and office space and land for new build to suit.
	<p>The Norwich Research Park science base is described in detail in section 6. Norwich Research Park is also an Enterprise Hub promoting:</p> <ul style="list-style-type: none"> • Innovation – exploiting hi tech ideas / invention • Enterprise – providing incubation space and bespoke business support • Skills – deliver / facilitate training & development of the future high skilled workforce, particularly in health and life sciences <p>It hosts the Norwich BioIncubator and the NRP Innovation Centre and has over 30 early stage innovative businesses. The development plan for NRP has allocated 55 ha for growth of the Science Park. It plans to further develop a thriving community of health, life science and technology based businesses with an additional 5000 jobs over the next 10-15 years. A new Enterprise Centre is planned for 2013 and 4 ha of land with outline planning permission is available for new build. The NRP is also home to three other Enterprise Hubs/Innovation Centres.</p>					
Norwich BioIncubator	Laboratory and office space	Health and life science related, biotechnology, IT	Yes	Yes	www.norbio.co.uk	Supporting start-up and spin-out science and technology based businesses, with scientific and business advice. Benefit from the thriving research base and trained staff
NRP Innovation Centre	Laboratory and office space	Health and life sciences related, biotechnology, IT	Yes	Yes	www.nrp-pic.com	30 state-of-the-art office and laboratory units in a customised 4,000 m ² Centre to house innovative science based companies.

Enterprise Hub/ Innovation Centre	Flexible Accommodation	Sector Specialisation	Advice Available on site?	Network Links	URL	Description
InCrops Enterprise Hub	No	Crop derived bio-renewables	Yes	Yes	www.incropsproject.co.uk/	Based on Norwich Research Park InCrops is a regional enterprise hub promoting crop derived bio-renewable near market research, supply chain and product development through to destination with local businesses and entrepreneurs
Low Carbon Innovation Centre	No	Carbon reduction across sectors	Yes	Yes	http://tinyurl.com/2uadawb	The strategic and administrative umbrella for all UEA's low carbon and climate change innovation activities including a knowledge transfer hub encouraging and investing in low carbon innovation.
Renewables East	No	Renewable Energy (low carbon energy solutions)	No	Yes	www.renewableseast.org.uk	Based on Norwich Research Park, Renewables East is a gateway to sources of further information on renewable energy for investors, business owners and academics with an interest in renewable energy

3. Innovation Funding Packages

The need for funding and financial assistance to help innovative businesses start-up and grow far outstrips the supply provided by private sector organisations. The Government's aim is for more UK entrepreneurs and businesses to be able to access the finance they need to enable greater levels of enterprise.

Name	Overview	URL
Business Link	BusinessLink publish an online searchable directory of grants and support schemes.	http://tinyurl.com/37saq4g
EEDA	EEDA (the East of England's Regional Development Agency), through the Access to Finance programme, provides an online searchable directory of regional grants and support schemes.	http://tinyurl.com/3xtbru4
Screen East	Screen East distributes National Lottery funding on behalf of the UK Film Council through RIFE (Regional Investment Fund for England).	http://tinyurl.com/2vxw2gl

4. Venture Capital, Business Angels and Investor Networks

Venture Capital, Business Angels and Investor Networks are all forms of private equity providing long-term, committed share capital to help unquoted companies grow and succeed.

Business Angels

Business Angels are high net worth individuals who invest their own money either individually, or as part of a syndicate with a lead investor or "archangel", in high growth businesses, normally to gain a financial return. As it is their own money, their commitment is often very strong and long term. It is therefore essential that the management team and the business angel are compatible and their skills should match the company's needs. Typically, business angels provide between £10,000 and £750,000 per investment in return for shares with flexible repayment terms against profit rather than cash flow regardless of profit. In addition to money, business angels often make their own skills, experience and contacts available to the company. Business Angels tend to provide first round funding and help, enabling high growth potential businesses to set-up and expand. Some key intermediaries, as listed in section 9, are an established route to business angels. Examples of business angels that can help are listed below:

- Angels Den www.angelsden.co.uk
- British Business Angels Association (BBAA) www.bbbaa.org.uk
- Beer and Partners www.beerandpartners.com
- C2Ventures www.c2ventures.com
- Cambridge Angels www.cambridgeangels.net
- Cambridge Capital Group www.cambridgecapitalgroup.co.uk
- E-Synergy www.e-synergy.com
- Great Eastern Investment Forum www.geif.co.uk

Venture Capital

Venture Capital investments are generally made for the launch, early development or expansion of a business, usually with a particular emphasis on entrepreneurial undertakings rather than on mature businesses. Typically, venture capitalists invest in businesses with a minimum investment need of £2m although many smaller regional venture capital organisations may invest from £50,000. Like business angels, venture capitalists can bring a wealth of expertise to a business. There are several Venture Capital organisations:

- British Private Equity and Venture Capital Association <http://www.bvca.co.uk>
- European Private Equity and Venture Capital Association <http://www.evca.eu/default.aspx>
- Icení Seedcorn Fund www.icenifund.com

Investor Networks

Dunstable Management Group is a specialist executive group of independent and senior professionals providing solutions to a wide range of funding and management problems facing SMEs. The Norfolk-based Group advises on solving funding problems, and finds business funding for companies requiring seed or development capital to accelerate organic growth of their business. This may be in the form of equity, debt or asset finance. <http://www.dunstablemanagement.co.uk/>

5. Specialist Advisory Services

A range of cross-cutting programmes are available to all knowledge intensive businesses in the region. They are business focussed and are accessible direct from Enterprise Hubs or Government Agencies. Programmes include:

Name	Overview	URL
Understanding Finance for Business	Funded by EEDA, the Understanding Finance for Business Programme (UFFB) was launched in June 2009 to help SMEs identify the right type of finance for their stage of development. The programme takes firms through a structured programme according to their needs, from an introductory half-day workshop in understanding the basics of finance to a full day specialising in topics such as operational funding, equity, grants and business planning.	http://tinyurl.com/3x5jmh6
Manufacturing Advisory Service	Funded by EEDA, the Manufacturing Advisory Service (MAS) works to increase the productivity of manufacturing companies across the Eastern region. Since 2005 MAS has helped over 1,500 businesses and generated GVA growth in the region of £10 million. MAS' services are open to any company, regardless of size, provided that it is engaged in manufacturing - MAS provides free support for SMEs. Since mid 2009 the Manufacturing Advisory Service has been widened to provide design and innovation advice to businesses.	http://www.mas.bis.gov.uk/
Screen East:	Funded by the UK Film Council and by the East of England Development Agency (EEDA) Screen East is the regional screen agency for the East of England dedicated to developing, supporting and promoting the film and media industries and culture in the region. Screen East distributes National Lottery funding on behalf of the UK Film Council through RIFE (Regional Investment Fund for England).	http://www.screeneast.co.uk

6. Higher Education Institutions and other specialist post-16 education organisations

The table below gives details of organisations in Greater Norwich offering HE and specialist courses in knowledge economy subjects

Name	Overview	URL
University of East Anglia	The University of East Anglia (UEA) leads the world in environmental science research, growing its knowledge base through the Low Carbon Innovations Centre which houses programmes such as Carbon Connections and CRed. The Faculty of Science has particular expertise in the agrifood,biomedical sciences, biodiversity and ecology, chemistry and materials, energy and the environment and climatic change. UEA also has faculties of Health, Social Science and Arts and Humanities. It is home to more recently established Medical and Pharmacy Schools which enables the NRP to integrate health research into its spectrum of life sciences and clinical expertise. The Social Science Faculty is home to Norwich Business School and its highly regarded economics and law schools with particular expertise in risk analysis and health economics.	www.uea.ac.uk
Norwich University College of the Arts	Norwich University College of the Arts (NUCA) provides art, design and media education from a unique campus in the heart of the city, with considerable interaction with local and regional business and not-for-profit communities. A programme of Continuing Professional Development provides short courses in subjects ranging from high-end software training in Photoshop and Final Cut Studio, to creative thinking and management. NUCA is an Apple Authorized Training Centre for commerce and industry. The College is closely linked to the creativity enterprise hub – EPIC.	www.nuca.ac.uk
City College Norwich	City College Norwich is one of the largest and most comprehensive colleges of further and higher education in the UK. The college offers a wide range of courses from foundation studies and entry level to post-graduate and professional qualifications for school leavers, adults and businesses.	www.ccn.ac.uk
The National Skills Academy for Financial Services	The National Skills Academy for Financial Services is the gold standard for training for the sector, aiming to improve productivity and tackle skills shortages across England. It is led and sponsored by employers in that sector and has a national reach. It offers employer-led training at all levels to hundreds of people in the sector each year.	www.nsafs.co.uk

Name	Overview	URL
Easton College	Easton College provides Foundation Degrees in Sustainable Engineering covering Construction Technology and Climate Change and Power Generation and Vehicle Dynamics	www.easton-college.ac.uk
Centre for Contemporary Agriculture (CCA)	The CCA is a collaboration between the University of East Anglia and Easton College supported by partner institutes including the John Innes Centre, the Institute of Food Research, and The Sainsbury Laboratory on NRP and, the National Institute for Agricultural Botany and The Arable Group (NIAB-TAG) in Cambridge. The CCA offers a wide range of educational and training opportunities: diplomas, continuing professional development, apprenticeship schemes, BSc/MSc degrees and PhDs	http://tinyurl.com/39uqwf
EAGIT	EAGIT is a training organisation for the industrial and commercial sectors in engineering. EAGIT Ltd has been awarded Centre of Vocational Excellence and Beacon status for Engineering. It provides training up to level 4 (Advanced Apprenticeships)	www.eagit.org
Norfolk and Norwich University Hospitals	The Norfolk and Norwich University Hospitals, with the UEA, train doctors, nurses and a wide range of health care professionals	www.nnuh.nhs.uk

7. Research and Technology Institutions, Science Parks

The Greater Norwich area is home to a number of Research and Technology Institutions based on Norwich Research Park which cover a number of sectors and specialisms.

Name	Overview	URL
Norwich Research Park including:	<p>The Norwich Research Park is a collaboration between the University of East Anglia (described above in this section), the Norfolk and Norwich University Hospital, and four research centres; the John Innes Centre, the Institute of Food Research, the Sainsbury Laboratory and The Genome Analysis Centre. The six partner institutions work together in integrated, multidisciplinary teams. Norwich Research Park leads the world in research in agrifood, health and environmental sciences according to independent analysis - with the John Innes Centre/Sainsbury Laboratory, Institute of Food Research and School of Environmental Sciences being placed first, second and third globally in their respective fields. With over 2,700 scientists working on the Norwich Research Park it has one of Europe's largest single-site concentrations of research in Health, Food and Environmental Sciences. The NRP is home to a growing number of science and IT based companies. Scientific and technology transfer services, accounting and legal advice are available for occupiers.</p>	<p>www.nrp.org.uk</p>
John Innes Centre	<p>JIC is an institute of the BBSRC and an international centre of excellence in plant science and microbiology. JIC and The Sainsbury Laboratory have together topped a survey ranking the most influential papers of the last ten years in plant and animal sciences. (Ranked 1st of 88,000 plant and microbial research centres worldwide). Scientists at JIC investigate the fundamental biological principles that control the growth and development of plants and microbes, their adaptation to environmental stresses and to disease and their capabilities in synthesising the huge range of natural compounds that may be advantageous to human health either through diet or as active pharmaceutical ingredients.</p>	<p>www.jic.ac.uk</p>

Name	Overview	URL
The Institute of Food Research	The Institute of Food Research (IFR) is an Institute of the BBSRC. It leads Europe in food research and is second only to Tufts University in the USA as the top institution world-wide in agricultural and food sciences, based on the scientific impact of its scientists (2009 measure).. Together with colleagues at UEA, IFR is pioneering research aimed at understanding the relationship between food, diet and human health. IFR scientists work closely with those from the John Innes Centre, the Faculties of Science and Health at UEA, and clinicians from the Norfolk and Norwich University Hospitals to deliver innovative approaches to improve the nutritional qualities of food and to understand how food and diet can promote health.	www.ifr.ac.uk
The Sainsbury Laboratory	The Sainsbury Laboratory (TSL) is a charitable company of approximately 70 research scientists and support staff and a world leader in plant-microbe interactions. TSL is dedicated to making fundamental discoveries about plants and how they interact with microbes and viruses and favours daring, long-term research over work that could be equally well carried out elsewhere; through TSL+ it is delivering science solutions that reduce crop losses to important diseases.	www.tsl.ac.uk
The Genome Analysis Centre	The Genome Analysis Centre (TGAC) is a national BBSRC centre. The Centre analyses plant, animal and microbial genomes. It provides genome sequencing to underpin advances to improve food security, protect UK agriculture from exotic animal disease and exploit weaknesses in microbes to develop new ways to kill superbugs. A centre of excellence in bioinformatics, it ensures that the data generated by its genome analysis and that of other facilities, can be effectively collected and analysed.	www.tgac.bbsrc.ac.uk
Norfolk and Norwich University Hospitals	The Norfolk and Norwich University Hospitals carry out research and innovation through their R&D office. They have a Clinical Trials Unit joint with the University of East Anglia's Medical School. A number of research clinicians have joint or honorary appointments with the University	www.nnuh.nhs.uk

8. Knowledge Networks

Networking is a critical part of the success of clusters in the knowledge based economy and is an integral part of the offering of enterprise hubs. Knowledge networks encourage interaction and mutual learning and bring different cultures and expertise together – local examples are given below.

Network	Description	URL
Shaping Norfolk's Future Creative Industries Group	The Creative Industries Group covers a diverse group of activities including media, literature and publishing, visual arts, multimedia, performing arts and general culture bringing together a mix of large and small firms	www.creativenorfolk.com
EEEEGR (East of England Energy Group)	EEEEGR is a business led regional energy industry association with a membership comprising commercial businesses and organisations, public sector agencies, not-for-profit bodies and academic institutions.	www.eeegr.com
ERBI	ERBI is a not-for-profit membership organisation for international life science and healthcare companies.	www.erbi.co.uk
ERFI (Eastern Region Food Initiative)	ERfi was established to assist in achieving the vision of enhanced competitiveness and sustainability in the food and drink industry.	www.erfi.co.uk
Shaping Norfolk's Future Financial Industries Group (FIG)	The Financial Industries Group supports and co-ordinates the local banking, insurance and finance sector, aided by major corporate partners including Aviva, Marsh, Swiss Re and Virgin Money.	www.fignorfolk.co.uk

Network	Description	URL
Shaping Norfolk's Future Advanced Engineering and Manufacturing Group	The Engineering sector group has strong networks and many businesses are members of engineering groups across the county. Manufacturing Excellence Clubs/ ANGLE groups are a way for businesses, that are keen to share their experiences, to meet and work together	http://tinyurl.com/37yjsht
Food East	Food East provides networking for the food industry in the East of England	www.foodeast.com
Food and Health Network	The Institute of Food Research's Food & Health Network bridges the gap between IFR research and its application within the food and related industries. It is a forum for knowledge transfer and collaboration. Membership is open to all food and food-related companies, regardless of size.	http://tinyurl.com/32h3dp9
One Nucleus	One Nucleus is a not-for-profit membership organisation for international life science and healthcare companies in London and the Eastern Region.	www.onenucleus.com
Norfolk Network	The Norfolk Network is for innovative, ambitious businesses, scientists and entrepreneurs who want to grow, or who are already growing, a successful company in Norfolk. Membership is open to any business with high growth potential.	www.norfolknetwork.com
Norfolk Knowledge	Norfolk Knowledge is a membership network for experienced individuals who are interested in helping local organisations overcome challenges. Norfolk Knowledge also provides mentoring services.	http://tinyurl.com/332a787

9. Knowledge Sector/Technology Consultancies

A large number of knowledge sector/technology consulting firms act as facilitators and catalysts in the commercialisation of knowledge and technology. The importance of these firms should not be underestimated as they form an important link between academia and industry. Many have matured into research and technology organisations, developing and commercialising their own technology and know-how and spinning out successful high technology companies. Examples of local consultancy firms are given below.

Name	Overview	Location	URL
Genome Enterprise Limited	GEL is a genomics and bioinformatics company, delivering bespoke service and collaborative projects, training and consultancy as well as a range of standard genomics services. It is a wholly owned subsidiary of The Genome Analysis Centre.	Norwich	www.genome-enterprise.com
Hethel Consultants	Hethel Consultants offer a number of consultancy specialists ranging from in-house training to cost reductions	Norwich	http://tinyurl.com/3x5cfkh
IFR Extra	IFR Extra is a wholly-owned subsidiary of the Institute of Food Research. It undertakes short-term applied food research, trouble-shooting and specialist analysis by food experts on a consultancy basis.	Norwich	www.ifr-extra.com
IP21	IP21 provides Intellectual Property services specialising in fields such as bio-technology, electronics, chemical engineering and computer science.	Norwich	http://tinyurl.com/37yk5t7
John Innes Enterprises	JIE is a wholly owned subsidiary of the John Innes Centre and undertakes contract research and provides services to a range of life science and agricultural sectors	Norwich	www.jic.ac.uk
Norwich University College of the Arts: Right Brain Thinking	Right Brain Thinking is a Norwich University College of the Arts consultancy for organisations that need to resolve issues around internal and external communications, image and branding, design and marketing	Norwich	http://tinyurl.com/33r9jdu
PBL	Early stage technology investment, IP management and licensing, technology investment services for public sector researchers, IP management and patent advisory service for bioscience companies and investors	Norwich	www.pbltechnology.com

Name	Overview	Location	URL
UEA Consulting Ltd	UEA's expert knowledge base can deliver practical, independent, business focussed solutions to provide answers to specific technical problems/issues resulting in improvements to business systems.	Norwich	http://tinyurl.com/39cwbmf
UEA Enterprises Ltd	UEA Enterprises Ltd acts as a bridge between industry and the academic community, managing and translating both the technology and research from within the UEA direct to commercial applications	Norwich	http://tinyurl.com/38h5qhw
UEA School of Computing: SYS Consulting	SYS Consulting offers a range of expertise in the areas of research in which the School of Computing Sciences has a strong reputation: Avatars; Data Mining; Haptics; Image & Video Analysis; Security & Network Forensics; Sound & Voice Analysis and Urban Modelling.	Norwich	http://tinyurl.com/32fl2wt

10. Professional Service Providers to Knowledge Economy Sectors

The Greater Norwich area is well supplied with Professional Service providers in areas such as accountancy, legal services, information technology, property management, architecture, advertising and management consultancy. Greater Norwich is home to a wide variety of Professional Service providers, from international and national companies to regional businesses and strong independent local firms. The following providers have been taken from Legal 500 2010 or Top 50 accountancy firms 2010 (Accountancy Age).

Name	Sector	Specific areas of expertise	URL
Birketts LLP	Legal	Intellectual Property; Licensing; Insolvency; Employment; EU and competition; Corporate tax; Banking and Finance	www.birketts.co.uk
Chambers and Co	Legal	Franchising	www.chambersandco.co.uk
Cozens-Hardy LLP	Legal	Real estate	www.cozens-hardy.com
Fosters	Legal	Dispute resolution	www.fosters-solicitors.co.uk
Greenland Houchen Pomeroy	Legal	Dispute resolution; Real estate; Employment	www.greenland-houchen.co.uk
Hansells	Legal	Dispute resolution; Insurance; Specialist aviation practice	www.hansells.co.uk
Hatch Brenner	Legal	Dispute resolution; Real estate; Employment	www.hatchbrenner.co.uk
Howes Percival LLP	Legal	Intellectual Property; Licensing; Insolvency; Employment; EU and competition; Corporate tax; Banking and Finance	www.howespercival.com
Kester Cunningham John	Legal	Intellectual Property; Licensing; Insolvency; Employment; Banking and Finance	www.kcj.co.uk
Leathes Prior	Legal	Intellectual Property; Licensing; Insolvency; Employment; Banking and Finance	www.leathesprior.co.uk/
Mills & Reeve	Legal	Intellectual Property; Licensing; Insolvency; Employment; EU and	www.mills-reeve.com

Name	Sector	Specific areas of expertise	URL
		competition; Corporate tax; Banking and Finance	
Rogers and Norton	Legal	Licensing; Dispute resolution; Real estate	www.rogers-norton.co.uk
Steeles Law LLP	Legal	Intellectual Property; Licensing; Insolvency; Employment; EU and competition; Corporate tax; Banking and Finance	www.steeleslaw.co.uk/
Grant Thornton UK LLP	Accountancy	Audit and assurance; Tax; Consulting; Business recovery; Corporate finance; Human Resources; Transaction services; Strategy; Forensic services; Actuarial; Entrepreneurial Advisory Services; R&D tax relief; Renewable Energy and Environment Services	www.grant-thornton.co.uk
LarkingGowen	Accountancy	Audit and assurance; Tax; Consulting; Business recovery; Corporate finance; Human Resources; Transaction services; Strategy; Forensic services; Actuarial; R&D tax relief	http://larking-gowen.co.uk
Lovewell Blake	Accountancy	Accountancy and Audit; Starting in Business; Business Advisory; Funding Solutions; Taxation; Corporate Finance; Business Recovery; Financial Planning; Outsourcing; Human Resources; Management; Benchmarking; Forensic Accountancy; Media and Creative sector specialisms	www.lovewell-blake.co.uk/
PKF (UK) LLP	Accountancy	Assurance and advisory; Business support services; Corporate finance; Corporate recovery and insolvency; Financial planning; Forensic Management consultancy; Taxation	http://www.pkf.co.uk/
PricewaterhouseCoopers LLP	Accountancy	Audit and assurance; Tax; Consulting; Business recovery; Corporate finance; Human Resources; Transaction services; Strategy; Sustainability and climate change; Forensic services; Actuarial	www.pwc.co.uk
TaxAssist Accountants	Accountancy	Small business accounts	http://www.taxassist.co.uk/

11. Support for Growing Ventures

The table below provides a sample of key organisations offering support to growing businesses in Greater Norwich.

Organisation	Overview	URL
Chambers of Commerce	The Norfolk Chamber of Commerce is an independent member organisation which provides a voice for their membership and provides services and networks for their members	www.norfolkchamber.co.uk
EEIDB	A regionally based government funded service that supports enterprise. Serving the pre-start up to SME market with independent advice through information, diagnostic and brokerage, and trade and investor development services.	www.businesslinkeast.org.uk
Enterprising Women	Enterprising Women specialises in growing women-owned enterprise, offering mentoring, start-up, and high growth training, networking, online resources and information, ask the expert, and loan fund.	http://enterprising-women.org
Federation of Small Businesses	The Federation of Small Businesses is the UK's largest campaigning pressure group promoting and protecting the interests of the self-employed and owners of small firms.	www.fsb.org.uk
Institute of Directors (IoD)	The IoD is Europe's largest membership organisation for business leaders - the Norwich branch has its own member hub premises in the city centre. The IoD offers a professional development programme including the Chartered Director qualification and members benefit from high profile networking events and integrated regional support.	http://tinyurl.com/2u48rgh
Norfolk Knowledge	Norfolk Knowledge, led by Norwich Business School (UEA) allows retired business people or those heavily experienced in running departments or voluntary organisations to share their knowledge with small businesses, public bodies and voluntary organisations based in Norfolk.	http://tinyurl.com/332a787
Norfolk Network	The Norfolk Network offers advice, mentoring and networking to innovative, ambitious businesses, scientists and entrepreneurs who want to grow or who are already growing	http://tinyurl.com/2vrt8w7
NWES	NWES (Norfolk and Waveney Enterprise Services) specialise in business start-ups offering services such as professional advice and a start-up business training programme	www.nwes.org.uk

12. Creating the Entrepreneurs and Innovators of the Future

Innovation is a major economic driver - “an idea converted into value”. Future entrepreneurs will need to be more flexible, they will need improved communication skills and have a willingness to take responsibility and show initiative. In other words they will need to be “enterprising”. The following table gives examples of current activity aimed at embedding enterprise and innovation in the future workforce.

Activity	Overview	URL
Extra-curricular activities promoting enterprise and enterprising behaviour	A wide range of extra curricular initiatives are delivered in schools in Greater Norwich - either by the schools themselves or by external organisations. Initiatives range from personal development to team working and creative skills development to running a real company and business-led research. Examples are given below:	http://tinyurl.com/2v55xv2
	Young Chamber - The Young Chamber programme enables school students in school to understand the skills needed to be enterprising and ultimately be better prepared for the world of work. This is led by the students themselves through a Young Chamber Council who work with the Young Chamber Coordinator based at the Norfolk Chamber of Commerce	http://tinyurl.com/32d2mhh
	Young Enterprise – The YE Company Programme provides school students with a chance to set up and run their own company throughout the school year as part of a national competition. YE also run a business start-up initiative for HE students	http://tinyurl.com/322tuhp
	Nuffield Science Bursaries – provides 4-week research opportunities in the Science and Technology sector including placements at Norwich Research Park organisations, and coordinated locally by The Exchange.	http://tinyurl.com/2wdrylc
	H-STEM – promoting careers in the science, technology and engineering sectors. H-STEM covers a wide range of activities including after school engineering clubs, student conventions and a monthly “project of the month” initiative. Young people are also given the opportunity to meet with industry experts.	http://www.hstem.co.uk

Activity	Overview	URL
Professional development and curriculum development	In recent years significant moves have been made to embed enterprise and the development of enterprising skills and behaviours into the school curriculum.	http://tinyurl.com/2wkvouy
	Schools in Norwich are supported by the Norfolk Enterprise Learning Partnership coordinated by Aylsham High School and supported by the national Specialist Schools and Academies Trust.	http://tinyurl.com/2ukaes4
	Individual schools have also developed their own vision around enterprise and seven schools in Norwich have achieved the nationally recognised Excellence in Enterprise Education Award from Warwick Centre for Education and Industry.	http://tinyurl.com/3xghzvn
	Beacon East – provide professional development opportunities for teachers to improve their understanding of the world of business and enterprise.	www.beacon-east.co.uk/
Business support for young people	Princes Trust – Business Support Programme provides young people with business start-up advice and guidance, loan and grant finance and ongoing mentoring (aimed at vulnerable/disadvantaged young people).	http://tinyurl.com/32bhh7b

13. Best Practice

This section identifies some examples of national and international best practice in supporting innovation and the development of the knowledge economy.

Organisation	Overview	URL
<p>The International Association of Scientific Parks</p>	<p>The International Association of Scientific Parks (IASP) considers that the term “Science Park” could include all “Technology Parks”, “Technopole” or “Research Park” and defines a Science Park as “an organization managed by specialized professionals, whose main aim is to increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions”.</p> <p>The main lessons learnt at the international level are that:</p> <ul style="list-style-type: none"> • There is no single model for the establishment of technology parks: they can be specialised, semi-specialised or generalist. In terms of size, they may be small, medium, or large; • They offer multiple services including logistics, financial and business, technological, social, events management, and incubation; • Management is generally entrusted to a private company; • They are located near or created around a university campus. <p>A study carried out by IASP came to the conclusion that the success of many parks is due to successful marketing of flagship (golden) products, which are multi-let accommodation and are fully serviced sites for single-occupier buildings. The factors that attract most companies to move into a technology park are:</p> <ul style="list-style-type: none"> • Essentially, the image and profile of the site, space expansion possibilities, transportation and cost of premises; • On-park companies achieve overall better performances than off-park companies. <p>IASP defines a business incubator as "an organization designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services that could include physical space, capital, coaching, common services, and networking connections". They come into play starting from the project idea, its translation into a marketable product or service and the creation of a start-up. This support continues to accompany the new organisation in its infancy.</p> <p>Lessons learnt:</p> <ul style="list-style-type: none"> • The creation of business incubators is a response to a variety of needs ranging from the commercialisation of university research results in increased employment in the economic zones in difficulty by acting as a catalyst for investment; • Most incubators are non-profit organisations whose primary objective is economic development; • The foundations of successful incubators are linked to investment in a feasibility study that determines the strength of the market and the financial viability of the project as well as the strong support of the community. 	<p>http://www.iasp.ws/</p>

Organisation	Overview	URL
<p>Colworth Science Park</p>	<p>Colworth Science Park, in Bedford, has a world-class reputation for business relevant science and the development of innovative products. On site is a diverse and open community where collaboration and interaction are part of the campus culture. The site is host to a number of R&D organisations that benefit from access to a significant range of specialist services directly relevant to the science industry.</p> <p>Colworth Science Park has been the location of one of Unilever's foremost R&D centres for over 55 years. Now Unilever and Goodman, the UK's leading business park specialist, are working together, to create a new kind of science park – a place where the choice of property solutions, level of support and exceptional working environment will make Colworth Science Park a destination of choice for science practitioners.</p> <p>Colworth Science Park is owned, developed and managed under a Joint Venture between Unilever and Goodman. The Joint Venture has received planning permission for a replacement Catering / Conferencing building, a new Innovation Centre to provide laboratory and office accommodation for academics and start-up R&D businesses and Grow-on space for medium sized companies. The new development will enhance the services available at Colworth Science Park for current and future occupiers. They will largely replace existing facilities and will provide modern accommodation in keeping with the attractive campus environment. The development at Colworth will allow IFR Extra to establish an additional site outside its base on NRP.</p>	<p>www.colworthpark.com</p>
<p>Liverpool Science Park Innovation Centre (Best Practice ERDF structural funds)</p>	<p>Critical to the SMEs in the Innovation Centre is the ability to move to 'grow-on' facilities which are of the same physical quality as the Innovation Centre and which is able to deliver the same level and nature of business support. Unless this is achieved then the operating model of the Innovation Centre will be compromised and the risk of ultimate failure will be increased. The public funding of the next ('grow-on') facility is critical to enduring and sustainable success.</p>	<p>http://www.liverpoolsciencepark.co.uk/</p>
<p>Financial and Professional/ Business Services (DTI/NWDA)</p>	<p>According to DTI research, a critical success factor for industry sectors or cluster initiatives is 'networking partnership'. The Financial Services cluster in Norwich was identified in that research as a recognised cluster. There are opportunities to strengthen and stimulate the development of local networks to enable them to take advantage of new growth sectors e.g. low carbon, leisure/culture and develop niche specialisms (intellectual property law, disaster law)</p>	

Organisation	Overview	URL
<p>Helsinki School of Creative Entrepreneurship</p>	<p>Helsinki School of Creative Entrepreneurship (HSCE) was established in late 2005 to act as a catalyst to develop the entrepreneurial capacity and to stimulate and support research commercialisation efforts in the Helsinki region. HSCE draws upon the talent pool of Finland’s leading design, business and technical universities. Start-up funding and support has been provided by Technology Industries of Finland Centennial Foundation (Teknologiateollisuuden 100-vuotissäätiö), the cities of Helsinki, Espoo, Vantaa and Kauniainen, the Ministry of Interior, and from the Helsinki Metropolitan Development Agency.</p> <p>In describing this collaborative initiative as a “school”, the network firmly establishes the importance of education as the primary mission. Operating in close cooperation with, but at arm’s length from the universities, HSCE is able to experiment with high impact approaches to entrepreneurial education that would be difficult to undertake or finance within the current framework in which universities operate. HSCE students benefit from the insights of leading “thinkers” and “practitioners” of entrepreneurship.</p> <p>The aim of the HSCE is to increase academic entrepreneurship and mobility across university and campus borders, and to attract foreign students interested in entrepreneurship to the Helsinki Metropolitan Area.</p>	

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