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Small and Medium Sized City Regions: Phase 2

Scottish Enterprise

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Contents

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Introduction

In January 2008 Scottish Enterprise commissioned Experian to deliver a study on learning from other successful small and medium sized city regions. The focus of the study is on identifying the learning outcomes and translating this into an action plan for strategic dialogue between agencies in Aberdeen City and Shire and their counterparts in comparator city regions. Ultimately this learning will enable Aberdeen City and Shire to maximise its contribution to Scotland's economic performance and may also highlight learning for other city regions in Scotland (e.g. Dundee).

The project is proceeding in the three phases:

- **Phase 1:** this phase involved a review of the Aberdeen City and Shire economy, identification of the respective roles of the city and shire, key projects and the development of long and short lists of potential comparator small and medium sized city regions;
- **Phase 2:** this section of the work (the purpose of this report) investigates 5 of the comparator city regions in more detail to establish what key transitions took place and the role of policy interventions in effecting these transitions; and
- **Phase 3:** will build on the foregoing work by establishing an action plan for agencies in Aberdeen City and Shire to develop strategic learning relationships with agencies in other city regions.

This report presents the results from phase 2 of the research. Chapter 1 outlines the process for selecting and measuring the long list of potential comparators in phase 1 and the process for choosing the case studies. Chapters 2 to chapter 8 present the individual case studies. Chapter 9 summarises the key lessons from the case studies and identifies some lessons to be developed in phase 3 of the research.

1 Selecting and analysing the case studies

1.1 Background

This report forms phase 2 of the small and medium sized city regions research for Scottish Enterprise. The main aim of this phase of the research is to investigate five comparator city regions to:

- analyse overall economic performance;
- establish key transitions of the city region economy;
- understand the role of policy interventions in effecting these transitions; and
- highlight the lessons for Aberdeen City and Shire.

1.2 Selection process

Phase 1 of this research selected a number of potential comparator city regions based on the following criteria:

- scale;
- key industry dependency (other than oil and gas);
- oil and gas dependency;
- relative remoteness from other city regions;
- city and hinterland interaction; and
- extent to which the city region is in the process of (or has recently completed) a significant economic transition.

In order to move from the long list to a shorter list of candidate cities we applied a scoring system. The scoring system used multi-criteria analysis to score each comparator area against the selection criteria. The chosen weights for the selection criteria are as follows:

- Scale 20%
- Dependency on oil and gas 12%
- Dependency on another industry 12%
- Distance from larger city regions 12%
- City and hinterland interaction 12%
- Economic transition 20%
- Quality of life 12%

Larger weights were applied to the '**scale**' and '**economic transition**' criteria to reflect the importance of these criteria to the project outcomes. Each comparator area was scored on a scale of 1-5, (where '5' fully meets the criteria and '1' meets only certain characteristics of the criteria[1]). In consultation with Scottish Enterprise we chose the following five cities to research in more detail:

[1] For example, if a case study city region was a similar size to Aberdeen City and Shire it would score a '5'.

- **Bristol (UK);**
- **Aarhus (Denmark);**
- **Stavanger (Norway);**
- **Calgary (Canada); and**
- **Huntsville (US).**

1.3 Methodology

The method for this phase of the research has involved the following:

- Review of available statistical sources and Experian's European Regional Service data (for Bristol, Aarhus Amt, Stavanger only) to establish economic performance and evidence of economic transition;
- Desk based review of available policy and performance evidence on the case study economies; and
- Consultations with economic development agencies in each case study city region to consolidate the desk based research and fill any information gaps.

1.4 The structure of this report

The remainder of this report is structured in the following way:

- Chapter 2: Introducing the case study cities.
- Chapter 3 to 7: The individual city region case studies.
- Chapter 8: The learning agenda from the comparator areas.

2 Introducing the case study cities

2.1 The Five City Regions

As discussed in chapter one the five case study cities were selected based on a scoring system which used multi-criteria analysis. The final selection also took account of the likely learning potential from each of the cities and the application of this learning to Aberdeen City and Shire. Scottish Enterprise was also consulted over the choice of case studies and their preferences were taken into account when making the final selection.

Therefore, the selection includes other energy centres (Calgary and Stavanger), high-tech knowledge based cities (Huntsville), city regions with other economic clusters (e.g. food and drink clusters in Aarhus and Stavanger) and port-towns (Bristol, Aarhus and Stavanger). In addition, in each of the cities chosen there was evidence of a focused, public-led effort to improve place attractiveness and promote the city-region to migrant labour and mobile business. Figure 2.1 provides a brief description of each of the five comparator city regions.

Figure 2.1: The five comparator small and medium sized city regions

Benchmark region	Description
Bristol, UK 	**Bristol** (located in the south west of England) is similar in size to Aberdeen and has a considerable pull effect on wider Somerset and also has some links with South Wales. Bristol's key industry is aviation; it is home to 9 out of 12 of the largest aerospace companies in the UK including Rolls Royce and Airbus.
Aarhus, Denmark 	**Aarhus Amt** is Denmark's second largest city and is located on the east coast of Jutland (on mainland Denmark). The region is the fastest growing in Denmark and is forecast to experience continued population, employment and economic output growth. Aarhus has a major port, with much of Denmark's international trade passing through the city. As a consequence, the region has developed a number of industrial niches (e.g. logistics, packaging, manufacturing, refrigeration) in addition to its strengths in food and drink processing and growing knowledge-based service strengths.

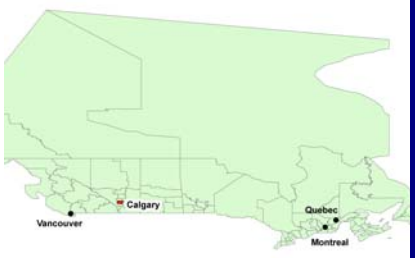
Stavanger, Norway 	**Stavanger**, has many similarities to Aberdeen, it is similar in size both in terms of population, is a port city, is geographically close to Aberdeen, and it's economy has grown up around the oil and gas sector. The city has firmly established itself as Norway's energy capital. In addition to the energy industry, the aquaculture and fish processing industries are particularly important to the economy.
Calgary, Canada 	**Calgary** is located in the western Canadian province of Alberta and with over one million residents is the third largest city in Canada and significantly larger than Aberdeen. However, its role as Canada's energy capital and the associated rapid economic growth witnessed in recent years makes Calgary a relevant case study.
Huntsville, USA 	**Huntsville** is located in the south eastern U.S. state of Alabama and has a population of 370,000. The economy is highly research and development orientated and has grown up around the U.S. army's Redstone Arsenal and NASA's Marshall Space Flight Centre. Huntsville is home to the world's fourth largest research park, which may be a useful role model for *Energetica.*

Figure 2.2 presents a summary of headline statistics for Aberdeen and the five comparator city regions. Apart from Calgary, the city regions are all around the same size in terms of population and economic output (GDP). The statistics shown in figure 2.2 for Aberdeen, Bristol, Aarhus and Stavanger all come from Experian's European Regional Service database and are therefore all consistent and directly comparable.

The statistics for Calgary and Huntsville are sourced from Statistics Canada and the U.S. Department of Commerce respectively. The historical coverage is not as good as it is for the European regions and the GDP values are in the city regions' domestic currencies. Therefore, the data for Calgary and Huntsville cannot be directly compared with the European cities or

each other. However, it is still provides a good indication of scale and rates of growth can be compared to gain an idea of economic transformation.

Figure 2.2: Headline statistics

	UK	UK	Denmark	Norway	Canada	USA
2000	**Aberdeen**	**Bristol**	**Aarhus**	**Stavanger**	**Calgary**	**Huntsville**
Resident population (000s)	503	991	638	375	1,020	342
Area (sq km)	6,499	7,465	4,561	9,378	5,083	2,085
Pop. density (persons sq/ km)	77	133	140	40	201	164
GDP (millions)	€15,481	€27,987	€15,358	€9,110	$41,600[1]	$10,880[2]
Employment (000s)	255	461	284	149	569	166
Value added per resident	€30,799	€28,200	€24,108	€24,324	$40,784	$31,813[2]
Value added per worker	€60,769	€60,700	€54,135	€61,104	$73,111	$65,542[2]
Source: Experian from National Statistical Agencies and Eurostat						
	UK	**UK**	**Denmark**	**Norway**	**Canada**	**USA**
2007	**Aberdeen**	**Bristol**	**Aarhus**	**Stavanger**	**Calgary**	**Huntsville**
Resident population (000s)	505	1,050	663	406	1,140	359[3]
Pop. density (persons sq/ km)	78	141	145	43	224	172[3]
GDP (millions)	€16,919	€34,743	€17,558	€12,500	$52,386[1]	$16,058[3]
Employment (000s)	263	490	297	176	689[2]	186[3]
Value added per resident	€33,479	€33,100	€26,370	€30,794	$47,784[2]	$44,770[3]
Value added per worker	€64,392	€70,800	€59,175	€70,863	$78,475[2]	$86,020[3]
Source: Experian from National Statistical Agencies and Eurostat						
	UK	**UK**	**Denmark**	**Norway**	**Canada**	**USA**
Average real annual % change	**Aberdeen**	**Bristol**	**Aarhus**	**Stavanger**	**Calgary**	**Huntsville**
Resident population	0.1%	0.8%	0.6%	1.2%	2.8%	0.9%[3]
GDP (constant prices)	1.3%	3.1%	1.9%	4.6%	4.7%[1]	8.1%[3]
Employment	0.4%	0.9%	0.6%	2.4%	3.2%[2]	1.6%[3]
Value added per resident	1.2%	2.3%	1.3%	3.4%	3.1%[2]	7.1%[3]
Value added per FTE worker	0.8%	2.2%	1.3%	2.1%	1.2%[2]	5.6%[3]
Source: Experian from National Statistical Agencies and Eurostat						

* Euros reported in 2002 constant prices. GVA values for Calgary and Huntsville in national currencies.
[1] Calgary GDP is for 2001 not 2000 and 2006 not 2007. The annual growth rate refers to 2001 to 2006.
[2] Estimated by Experian.
[3] Huntsville data for 2005 not 2007. Annual growth rates refer to 2000 to 2005.

2.2 Summary of key findings

Figure 2.3 presents the key findings from the case studies. These findings are explored in more detail in the following chapters. However, it useful to draw out some general findings at this point, which are important to bear in mind when considering the case study evidence and what it means for Aberdeen City and Shire:

- All five case study city regions are high performing regional economies in *national* economies that are also performing very well – clearly **national economic performance** and economic policies have a major bearing on *regional* performance;
- All the case study areas have performed well in the past 10-15 years but there is some **variation in the pace of growth and development** – in Calgary and Huntsville growth has been very rapid whereas growth has been strong but less dramatic in Bristol, Stavanger and Aarhus;
- Although an important objective of this study has been to identify effective *policy* interventions, the evidence from these case studies is that economic success and **transformation is predominantly driven by the market**;
- **Evaluating the effectiveness of various public policy interventions** on effecting economic transformation in a study such as this is difficult – it is possible that some effective policy interventions are more subtle and less easily identifiable than, for example, projects and programmes with budgets;
- At the *passive* end of the intervention spectrum, public policy has supported economic development in all the case study city regions by **permitting physical development**; and
- There are **examples of more** *active* **support for economic development and transformation**, such as enabling regional innovation systems or use of regional fiscal powers. Such interventions appear to have had significant impacts on effecting economic change in the case study city regions and are the basis of our discussion in chapter 8.

Figure 2.3: Summary of key findings

	Growth	Key Drivers	Key Enablers	Future Direction
Bristol	Population has grown above UK average in recent years, as has economic output	- Growth of aviation and financial and business services -Waterfront redevelopment - Innovation system, university-business collaboration	- Harbour-side and city centre investment - Location of major aviation procurement agency - Enabling development through land use planning	Bristol city region is expecting considerable population growth, requiring major city and regional housing expansion. Policy aim is to develop quality of offer further.
Stavanger	The fastest growing of the European City Regions in terms of GDP and Population.	- Oil and gas reserves & high oil prices led to market driven growth - Status as Norwegian Energy Capital - Foreign Investment	- Localisation policy (policy to attract key organisations and companies) - Policies to promote technology transfer - Active development of local higher education and research capabilities	No planned change of direction is expected in Stavanger over the next twenty to thirty years – largely due to substantial North Sea oil reserves.
Aarhus	In terms of population Aarhus Amt is Denmark's fastest growing region.	- Aarhus University has grown rapidly - Quality of life, education - Cultural offer	- City investment (culture, leisure, public realm) - Public role in regional innovation system - City branding ('education' city)	Denser development to house future population growth. Policy aim to develop more knowledge-intensive niches in the economy.
Calgary	Calgary has achieved exceptional levels of GDP growth particularly between 2003 and 2007.	- Huge oil reserves & high oil prices led to market driven growth - Status as Canadian Energy Capital - Investment by oil companies and supporting services	- Low corporate and income tax rates (set at provincial level) - No provincial sales tax - Investment in infrastructure	Vast oil reserves in Northern Alberta mean the industry focus will remain constant for the foreseeable future.
Huntsville	Huntsville has achieved consistently robust growth over the last ten years and is in many ways unique as it is a centre for the U.S. Army's procurement budget.	- Location of U.S. Army's Redstone Arsenal which has a huge procurement budget – much of it spent locally - Clustering effect, high-tech aerospace and defence companies attracted to area	- Provision of first-class business accommodation in the Cummings Research Park - Carefully planned research park and supporting infrastructure - Business friendly environment - low corporation taxes, grants, land provision etc - Government, industry and university collaboration	The expansion of the U.S. Army's presence in Huntsville means the high-tech aerospace and defence cluster will remain the key driver of growth.

3 Case study: Bristol

Summary

The Bristol City Region is the principal city of the South West Government Office Region and has experienced strong population and economic growth since 2000. The economy is particularly strong in the aviation industry and the financial and business services sector. The Bristol harbour area has recently been redeveloped after the commercial harbour was re-located outside the city centre. This has contributed to the city's attractiveness and attracted a high growth creative industries sector into the harbour area.

3.1 Background and national context

The Bristol City Region encompasses the key urban areas of Bristol, Bath and Weston-super-Mare and covers the four unitary authority areas of Bristol, Bath & North East Somerset, North Somerset and South Gloucestershire. Over the last decade, the population of the Bristol City Region has increased at a faster rate than the UK, reaching just under one million in 2007. The Bristol city region is the South West's principal economic engine (generating 24% of the region's GDP) and is a leading centre for business, culture and learning in the region. Bristol's distance from other competing cities means it has a considerable pull effect on the wider Somerset area and also has some links (e.g. commuting) with South Wales.

UK economy

The UK has witnessed strong growth in recent times. Despite a decline in manufacturing, average annual growth in GVA was 2.6% between 2000 and 2007. Growth has been driven by the private services sector. In terms of individual sectors, business and other service market services, public services and construction have all been crucial to growth. This macroeconomic UK performance is reflected at the level of Bristol city region, as highlighted in the following sub-section.

Bristol – economic centre of the South West

Bristol is one of the centres of culture, employment and education in the South West region. Historically, the economic success of Bristol was linked to the commercial port (which was in the city centre but has now moved to the Severn estuary coast at Avonmouth and Portbury). In the last decade or so, Bristol city region's economy has developed strengths in knowledge-intensive and creative industries. These sectors have experienced strong growth, driven by both productivity and employment growth. Key to these developments has been the role of higher education. Higher education institutions have supported R&D activity in the region's high tech manufacturing base and are one factor behind the award of Science City status to Bristol. The region has particular research strengths in aerospace and IT. Growth of the creative industries sector in the city region has also been a significant trend and has involved the clustering of broadcast and digital media organisations in the city. The creative industries sector also has links with higher education and enjoys active support for business start-ups and for social enterprise activity. There was also a boost given by activity supporting Bristol's bid to be a European Capital of Culture in 2008.

3.2 Key Indicators

The key economic indicators show that Bristol's economic performance has been fairly robust as the economy has adjusted from manufacturing-based to service-based activity. The key indicators show:

- **Bristol city region's population has grown at an average annual rate of 0.8% between 2000 and 2007 to just over one million;**
- **GDP has grown by 3.1% on average each year over the period compared to average annual growth of 2.6% in the UK. Like the UK, Bristol has witnessed growth in the service sector and a contraction of the manufacturing sector. Business services has been the key sector driving growth, achieving annual average growth of 3.3% in between 2000 and 2007;**
- **Employment in Bristol has increased at an average annual rate of 0.9% over the period; and**
- **Productivity has increased in Bristol at an average annual rate of 2.2% between 2000 and 2007.**

Figure 3.1: Key Performance Indicators

	2000	2007	Annual % change
Population	991,481	1,050,219	0.8%
GDP (€ millions)	€27,987	€34,743	3.1%
GDP per head	€50,255	€58,532	2.2%
Employment Level	461,391	490,522	0.9%
Productivity per FTE worker	€60,658	€70,829	2.2%
Source: Experian			

3.3 Business Base

Key Sectors

Aviation - Like the rest of the UK, Bristol's manufacturing sector has contracted over recent times. Between 2000 and 2007 the sector's output (GVA) decreased at an average annual rate of 2.4%, compared to a decrease of 3.8% each year across the UK. However, Bristol's key industry – aviation - is in fact largely classified *within* the manufacturing sector. Nine out of the 12 largest aerospace companies in the UK have major facilities in the South West. They, in turn, are supported by upwards of 700 supply chain companies. The South West offers the cluster a workforce of 43,000 skilled engineers and designers, R&D capacity through the region's top-rated university research departments and specialist agencies and the logistics support through the West of England Aerospace Forum.

The success of the aviation sector in Bristol has been driven by key players such as Rolls-Royce (who are at the forefront of the design, development and production of jet engines) and by Airbus airliners. Other highlights include BAe Systems Advanced Technology Centre and software systems development for the pan-European guided missile company MBDA. The

collaboration between companies, universities and government in the aviation sector appears to be high. For example the Airbus Composite Structures Development Centre is an example of successful collaboration within the region, featuring an alliance of companies, universities and colleges who together offer a capability in the field of composite technologies.

The relocation of the MoD Defence Procurement Agency to Bristol, with an annual budget of over £6 billion, is also a magnet for the world's major defence companies. In addition, international investors are attracted to Bristol to invest in new high growth businesses by its high technology, advanced engineering and digital technology industries and other knowledge-based business.

The West of England Aerospace Forum is the trade association for the industry in the South West. The Forum aims to facilitate the future competitiveness and growth of the aerospace industry in the Bristol city region, by championing the interests of all aerospace companies in the region. WEAF has 700 registered companies, including the major primes and SMEs, employee organisations, universities and colleges.

The Bristol aviation industry is supported by the Aerospace Innovation & Growth Team (AeIGT), launched to ensure the UK aerospace industry maintains its global strength and develops world class technologies. The AeIGT is a partnership between UK Government, industry and academia, with the vision that by 2022: "*The UK will offer a global aerospace industry, the world's most innovative and productive location, leading to sustainable growth for all its stakeholders*."

Financial and Business Services - Bristol has witnessed a recent expansion in the business and other market services sector (which excludes financial services), which accounts for almost a third of the city's employment. Business services and financial services both grew strongly, with GVA expanding at an average annual rate of 4.4% each year between 2000 and 2007.

Figure 3.2: GDP Growth 2000-2007, Base = 2000

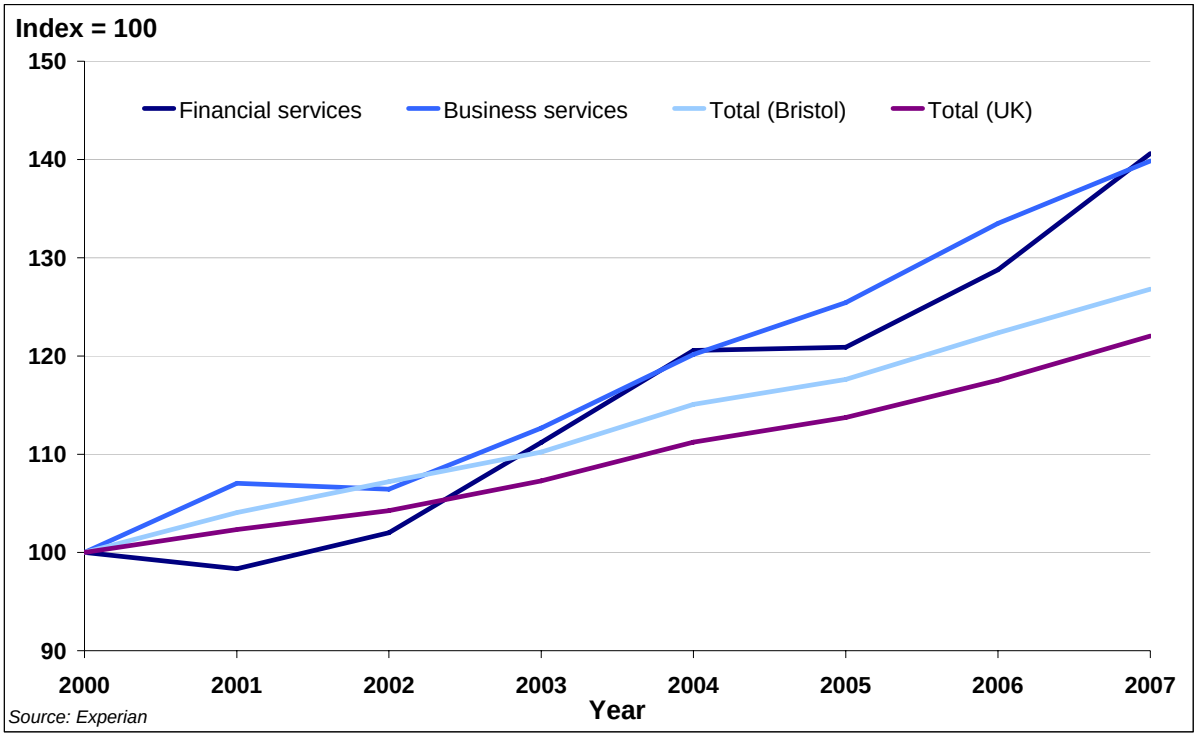


Figure 3.2 shows that growth in the financial services and business services sectors in the region has exceeded that of the Bristol city region and UK economies as a whole.

The city's financial services sector is particularly strong in insurance, monetary intermediation and financial law. Major players based in Bristol include Lloyds TSB, Bristol and West, NatWest, Axa Sun Life, Halifax/Clerical Medical. Financial services accounts for 16% of total GVA and 9% of employment.

Academic research and expertise also play a role in the region's financial services industry. Assets include the Bristol Centre for Management Accounting and Research and the Centre for Fiscal Studies at the University of Bath.

Other growth sectors - Another high growth sector is distribution and retail, with GVA growing at an average annual rate of 4% between 2000 and 2007, driven by population growth and city centre investment. Fuelled by the harbour-side development and a housing boom, the construction sector also achieved robust growth with GVA expanding by 4.1% each year on average between 2000 and 2007.

Bristol city region's **creative industries sector** is growing rapidly and employs more 'creative workers' than any other area outside London.[2] Businesses include the BBC's Natural History Unit and Oscar-winning Aardman Animations as well as small businesses and individuals. Bristol is also home to the Watershed Media Centre and the Creative Technology Network which brings together individuals and organisations from across computing, communications and the creative industries to share good practice, support innovation and enhance research. iShed, the Watershed digital sister organisation, leads cross-sector collaboration between ICT and the creative industries.

Innovation

Bristol was recently ranked as the leading city in innovation compared to the other English Core Cities[3]. The city has experienced a 9.3% growth in new VAT registered businesses since 1996, double the national average, which is indicative of the entrepreneurial dynamism present in the economy. A number of higher education institute initiatives have driven Bristol's success in innovation particularly by developing links between universities and industries in aerospace, ICT and media/creative industry, and digital technology. Innovation initiatives include:

- The University of Bath set up one of the UK's ten **Innovative Manufacturing Research Centres** in 2001 with public and private funding;
- The University of Bristol has recently launched **3 C Research Ltd**, a centre of excellence for computing, communications and content with £12 million of public funding;
- The University of the West of England (UWE) and the University of Bristol's **Aerospace Manufacturing Research** facility engages with the industry globally;
- The Universities of Bristol and Bath provide a range of business incubator facilities within their cities and under the 'SET squared' (**Southern England Technology Triangle**) project with the Universities of Southampton and Surrey a 'pre-incubator' unit

[2] Source: Culture South West
[3] Bristol, Nottingham, Newcastle, Leeds, Manchester, Birmingham, Sheffield, Liverpool

has recently been established. The units link into Bristol University's **Research and Enterprise Development Division**, which includes the Bristol Enterprise Centre;

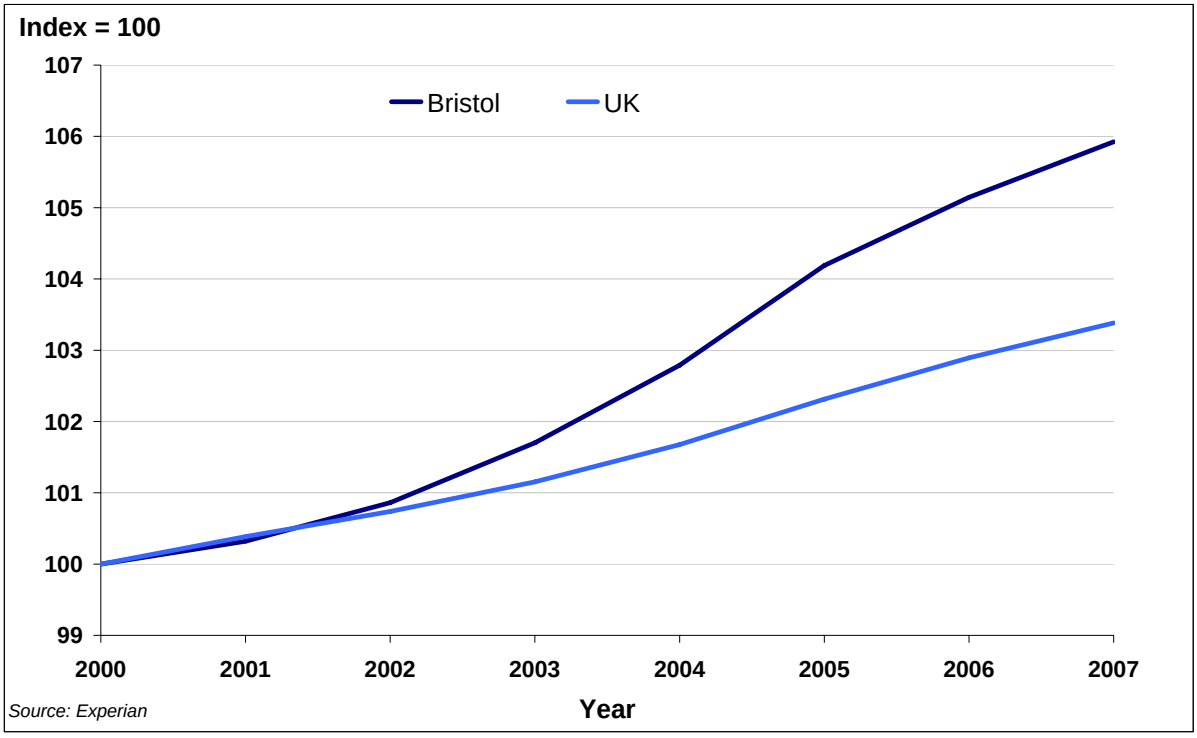
- The **University of Bath Innovation Centre** provides business start-up and growth facilities, often for businesses spinning out from the University; and
- UWE provides **incubator facilities** focusing on media and ICT spinout businesses, run by the University's Centre for Research, Innovation and Graduate Studies.

The **Knowledge West** project is a consortium formed with the objective of increasing economic growth in the West of England. The project is led by the University of the West of England but is a collaboration of Business West and *six* higher education institutions in the region[4]. Knowledge West project provides access to academic and commercial expertise and in particular aims to establish collaborative arrangements between higher education institutions and businesses around innovation.

3.4 People

Bristol's population has expanded by an average annual rate of 0.8% between 2000 and 2007 to 1,050,000, faster than the UK as a whole as shown in figure 3.3. The city has an equal gender split. A total of 67.5% of the population are of working age (71.1% male, 64.1% female).

Figure 3.3: Population Growth 2000-2007, Base = 2000

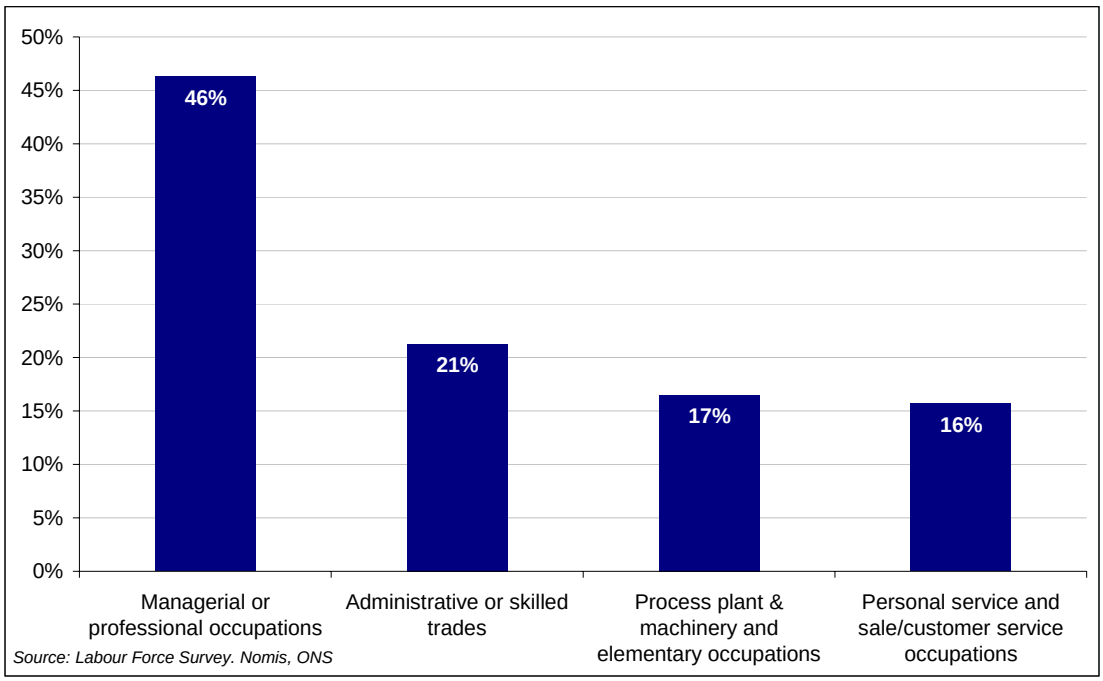


[4] Bath Spa University, Royal Agricultural College, University of Bath, University of Bristol, University of Gloucestershire and University of the West of England

Almost half (46%) of Bristol's working population are in managerial or professional occupations, 21% in administrative or skilled trades, 16% in personal service and sale/customer service occupations and 17% in process plant & machinery and elementary occupations. This profile reflects the significance of the demand for skilled workers from financial and business services in particular.

In-migration to the South West region[5], principally from London and the South East totalled 143,900 people in 2004 with 110,000 moving out. Typically, the South West gains in excess of 30,000 people from within the UK annually; this scale of net immigration is expected to continue for the foreseeable future.

Figure 3.4: Occupation Classification in Bristol



Almost 90% of Bristol's population has some form of educational qualification (NVQ1 and above or other). Over a third (37%) of Bristol's population has an undergraduate degree (NVQ4) or above, half have NVQ3 or above, 66% NVQ2 and above. Only 12% have no qualifications. Bristol draws students to the city via its two universities, Bristol University and the University of West of England, attracting 22,780 and 29,760 students respectively in 2006/07. Bristol Universities also attract students from outside the UK. A total of 8% of undergraduate students at the University of Bristol are from out with the UK (2% EU, 6% non-EU) and 12% of undergraduate students studying at the University of the West of England originate from outside the UK (3% EU and 9% non-EU).

The city also has two further education institutions, City of Bristol College and Filton College, and three theological colleges, Trinity College, Wesley College, & Bristol Baptist College. The University of Bath and Bath Spa University College are a further two higher education institutes in the Bristol City Region. The city region therefore possesses a **skilled workforce** and a sound **educational capacity** for the future supply of skilled workers to the regional economy.

[5] Comparable data is not available for Bristol city region.

Graduate retention in Bristol is good, contributing significantly to Bristol having such a high proportion of its workforce educated to degree and above. Bristol has a good record on graduate retention and also attracts graduates from other universities. Quality of life has a major role in retaining graduates – Bristol attracts a skilled work force because it is perceived as a location which has good service, cultural, retail and leisure facilities and there are many skilled career opportunities.[6]

Graduate retention and attraction rates are some of the achievements of the South West's previous Regional Development Strategies[7] which is supported by programmes such as GRAD –SW. Launched in 2001, GRAD-SW offers a free online recruitment service and is used by over 10,000 employers and over 40,000 jobseekers. The programme was developed by a partnership of university careers services across the South West and is funded by the SWRDA as part of the region's graduate retention strategy.

Another important skills initiative is the South West Regional Skills Partnership. This partnership brings together the region's business and learning community to create a demand-led approach to improving the South West skills base. In particular, the partnership aims to improve the coordination of post 16 skills activity in the region.

3.5 Infrastructure

Transportation

Bristol is at the hub of the national rail network in the West of England. Local, regional and inter-city services operate from the main station at Temple Meads. There are two major rail stations serving Bristol – Bristol Temple Meads on the eastern edge of the city centre and Bristol Parkway to the north of the city in South Gloucestershire. From these stations there are fast inter-city trains to most parts of the country including London (1 hour 30 mins), the Midlands, South Wales and the South West.

Bristol International Airport (BIA) is the UK's fastest growing regional airport.[8] It is situated eight miles south of the city centre. The airport has a new £27m terminal, a new £3.5m air traffic control tower and can cater for over 3.5m passengers per year. After the recent introduction of 31 new destinations, the total number of scheduled routes stands at 77 with an additional 59 charter destinations (totalling 122 destinations across 29 countries). In summary, Bristol city region enjoys a broader range of direct access to international cities than Aberdeen City and Shire and has a more developed terminal infrastructure.

Bristol city council will invest more than £356 million over the next three years in new infrastructure. The investment includes provision for initiatives to tackle traffic congestion, more reliable public transport and the promotion of 'smarter' ways to travel e.g. walking, cycling and travelling during non-peak times.

Other

Bristol's harbour area is now an important tourist attraction area with museums, galleries, exhibitions, bars and nightclubs. Many former workshops and warehouses have now been

[6] South West Regional Development Agency.
[7] South West Regional Economic Strategy, 1999 and 2003
[8] Source: British Aviation Authority.

converted or replaced by cultural venues, such as the Arnolfini art gallery, Watershed media and arts centre, Bristol Industrial Museum and the @Bristol science exhibition centre, as well as a number of residential apartment buildings. Bristol City Council also financially supports an early morning and late afternoon tourist ferry service.

The South West Regional Assembly (SWRA) are providing nearly £10 million to improve the infrastructure in Hengrove Park, South Bristol. The Hengrove Park development will deliver a wide range of new opportunities and facilities for the South Bristol area, helping to tackle deprivation and connect local people to the city economy.

3.6 Quality of life

Quality of life and place attractiveness are regarded as crucial to Bristol's success and are a distinct element of the city's brand, alongside connectivity with London (helping to differentiate Bristol from the other core cities).[9] Bristol has consciously built upon the natural advantage of its city centre waterfronts and was one of the first British cities to begin to regenerate its city waterfront areas as cultural and public realm assets. Regeneration of the waterfront was led by the development of the Watershed and Arnolfini cultural centres over 20 years ago and, subsequently, by the first major office developments on the harbour-side, including Lloyds TSB. More recent harbour-side developments have been mixed use developments – office space, commercial and housing. These developments are now progressing westwards from the city centre along the floating harbour. The waterfront development is also inextricably linked with the development of the creative industries sector, which has been a key feature of the commercial developments (including new HQ for Aardman Animations).

There has been significant investment in Bristol's cultural assets in recent years. This is exemplified by the fact that Bristol was short listed to be European Capital of Culture in 2008 and is now regarded as a centre for cultural excellence. In summary, the city has a number of distinctive cultural offerings including:

- Bristol's Harbourside - lined with attractions, cinemas, boats, restaurants and museums;
- Medieval castles and grand houses and gardens;
- Family attractions – zoo, wildlife park, etc;
- Art Centres and Art Galleries; and
- Museums and visitor centres.

3.7 Governance Structures

Regional

The South West Regional Assembly (SWRA) exists to promote the economic, social and environmental well-being of those who live and work in the region. It reviews and develops strategies at the regional level to provide an over-arching vision for the South West.

The SWRA has three main functions:

- Scrutiny of the South West Regional Development Agency;

[9] South West Regional Economic Strategy, 1999 and 2003

- Regional Planning; and
- Integrating Regional Working and Strategies.

The South West Regional Development Agency aims to deliver the Regional Economic Strategy[10] (RES) for the South West of England. The RES provides the focus for all of the South West Regional Development Agency's work. The SWRDA has a total budget of £596 million for the next three years, 2008 to 2011.

Bristol City

Bristol City Council is responsible for providing council services to the residents of Bristol. The £328 million Bristol City Council will spend on services during 2008/2009 is made up of £19 million grant from the government, £139 million in business rates, £2.5 million collection fund surplus and £167 million from Council tax.

The Bristol Partnership is the city's Local Strategic Partnership, a partnership of over 30 organisations (voluntary, businesses and public agencies) working together with the aim of making Bristol a better city to live in, work in and to visit.

3.8 Economic strategy and delivery

The current economic strategy in the South West and in Bristol in particular is reviewed in this section. The particular strands of strategy or initiatives that are most relevant to Aberdeen City and Shire are highlighted.

South West Regional Economic Strategy

The Regional Economic Strategy (RES) highlights how the West of England, and in particular Bristol, aims to be a city-region of international, national and regional significance. There is also recognition within the RES that the city region can use its status as a national Science City to strengthen its economic base. Issues around the importance of connectivity and access to markets and how they affect productivity and inward investment are also central to the RES.

The strategic objectives of the SW RES are grouped into five key drivers for the region:

- Investment;
- Enterprise;
- Skills;
- Competitive Environment; and
- Innovation.

The SW Regional Economic Strategy sets 3 overall objectives for the region:

- Successful and Competitive Business;
- Strong and Inclusive Communities; and
- An Effective and Confident Region.

[10] http://www.southwestrda.org.uk/downloads/sub-section.asp?SubSectionID=13&lang=#19

The South West Regional Spatial Strategy (RSS) identifies future development areas for the South West region. The RSS is a regional framework about 'where things go', what the scale of development should be, and the links between broad issues like healthcare, education and crime, as well as basic infrastructure such as transport. It specifically highlights the following issues in Bristol:

- Recent investment levels in Bristol's business property portfolio have been significant and the city is the region's principal commercial and office centre. With over one million m^2 of office space Bristol is considered the 'office capital' of the region and is ranked above the other regional centres (Swindon, Bournemouth/Poole, Exeter, Cheltenham, Plymouth and Gloucester);
- A major strategic objective is to regenerate the south Bristol area, requiring investment across a number of policy areas including education, health and transport; and
- A key priority for Bristol is to improve the quality of life offer. The RSS highlights the need to redevelop city centre sites, to maximise their potential for a range of mixed use development and thereby continue the city's urban renaissance.

The Bristol Partnership

The Bristol Partnership is the city's Local Strategic Partnership (LSP). The LSP brings together leaders across all sectors of the economy to develop a shared economic and civic vision for Bristol. The Bristol Partnership's strategic vision is to:

- Sustain a thriving economy by growing business investment, jobs, skills and enterprise across the city;
- Maintain and develop a competitive economy;
- Ensure that all people and neighbourhoods in Bristol can contribute to and benefit from that thriving economy; and
- Make Bristol one of the most attractive places in Europe to live, work and visit.

In order to achieve this vision the Bristol Partnership has a number of major initiatives that currently being delivered:

- The Bristol Partnership has launched a new initiative to help **Bristol to become a Green Capital**, featuring a low carbon economy, sustainable communities and a high quality of life;
- **Stapleton Road Action Plan** is a project which aims to bring derelict and degraded properties back into use thus attract investment and create employment opportunities; and
- The **Integrated Employment & Enterprise Initiative** aims to develop and implement an integrated model of employment and enterprise support in key areas of the city. The initiative targets 3 areas of Bristol (North, East & Central and South). The aim of this intervention is to provide a range of business support measures and advice to new businesses and individuals.

Transport Plan

The West of England Joint Local Transport Plan 2006/07-2010/11 covers the Bristol city region area and sets out plans for improving transport over the five year period. The four councils are working in partnership to plan and deliver transport improvements in the city region area.

The JLTP outlines a Tackling Congestion Strategy which is made up of individual Action Plans, shown below:

- Part One: Providing alternatives to the car to make it more attractive to use other modes of travel;
- Part Two: Influencing travel behaviour to encourage people to reduce car use – promoting car sharing; and
- Part Three: Managing demand to optimise use of the road network - making the most efficient use of existing resources, parking controls and accessible new developments and parking standards.

Other Strategic Interventions/Initiatives

Since 1999 the **Pathways to Work** project has helped over 1,100 people in Bristol and South Gloucestershire to gain employment. The project works with the private sector to help people into employment across the two localities. The project aims to provide support and opportunities for people who are not currently served by government programmes.

West at Work is a partnership between the Learning and Skills Council, the South West of England Regional Development Agency, Jobcentre Plus, Business West, Connexions, Bath and North East Somerset Council, Bristol City Council, North Somerset Council and South Gloucestershire Council. The city region-wide programme offers support and training in order to meet the requirements of people from deprived communities and from employers.

Cabot Circus is a significant city centre regeneration project being developed by the Bristol Alliance, which is a partnership between Land Securities Group PLC and Hammerson UK Properties. The extension to the Broadmead shopping centre will increase floor space by around 103,600m^2 and is due to be completed in 2008. The Alliance's project aims to ensure that Bristol becomes a top-five ranked UK retail destination by 2010. The development which is private sector-led, will feature:

- An expanded shopping district including a landmark department store;
- A wide range of leisure uses, including a 13-screen cinema;
- Over 200 new homes, including 24 affordable homes;
- Over 2,600 spaces of car parking; and
- Three new pedestrian streets.

Maintaining a skilled workforce is important to the continued success of the aviation industry in Bristol. The South West of England Regional Development Agency (RDA) is working with representatives from the South West's leading aerospace companies to help employers meet their skills and training needs. The project's goal is to improve the performance of region's aerospace companies by identifying and developing the skills needed for the future. The project's steering group aims to determine the future skills needs and will be working with key

industry players to achieve a common understanding of these skills needs across the industry. This will highlight the training that will be needed from public and private sector providers.

3.9 Potential lessons for Aberdeen City and Shire

The success of Bristol's economy is linked to the expansion of the financial services, business services and the aviation sector, driven by companies relocating to the Bristol City Region. These sectors are appear to be effective at retaining staff, evidence of the city-region's success in developing a competitive quality of life offer. The attractiveness of the city has also been improved through the development of the Harbourside. The city's office space, retail and housing offer also continues to be enhanced via developments such as the Hengrove Park and the Cabot Circus developments and the Bristol's new Science Park.

This case presents a number of key learning issues for agencies in Aberdeen City and Shire:

- There is considerable involvement from the city region's universities and colleges in the city region's key niche industry – **aviation**. This involvement is extensive and supported by the public sector and offers learning for **university-business-public sector collaboration** in Aberdeen City and Shire. Collaboration to support the aviation sector also extends to ensuring that current and emerging skill shortages are identified and addressed, a key issue for many sectors in Aberdeen City and Shire;
- There are a broader range of **regional innovation initiatives** which serve to develop other sectors in the region, including IT and media industries. Universities are actively involved in these initiatives and they are supported by regional economic strategy and funding;
- Moving the commercial harbour helped create the opportunity for **waterfront re-development** in the city centre, development of the creative sector and improvement of the public realm, all contributing to developing the *city's* competitiveness and attractiveness;
- The **growth of the financial and business services** sectors in the region has helped to drive overall economic growth and jobs creation in the region. Key to this development has been the **investment in modern office space** in desirable locations in the city centre, which has gone hand in hand with the city centre's cultural and retail investment; and
- The city region's **economic inclusion** programmes are extensive helping to ensure that economic opportunity and need are matched, to promote economic equity and to achieve higher rates of employment. These interventions have resonance with efforts to link opportunity with need in parts of Aberdeen, such as in the proposed South of the City URC area.

4 Case study: Stavanger

Summary

Stavanger is Norway's fourth largest city and has experienced strong population growth in recent years. The city has many similarities with Aberdeen in terms of geographical location, size and economic fortunes. Pre-oil, Stavanger's economy was focused on shipbuilding, fishing, agriculture, and the canning industry. Together they formed the backbone of the Stavanger economy. A thriving fishing and food processing industry still exists today. However, as with Aberdeen, the discovery of North Sea oil transformed the economy. Stavanger has firmly established itself as the Norwegian 'Energy Capital'. The national, regional and local approach to economic development from the oil and gas industry has been very different in Stavanger compared to Aberdeen. An effective localisation policy has benefited the Stavanger economy hugely and the collaborative innovation systems now in place provide good examples of best practice in this area. Land use planning and the re-location of the industrial harbour away from the city centre are also interesting policies for Aberdeen City and Shire to learn from.

4.1 Background and national context

Stavanger is located in the county of Rogaland on the South West coast of Norway. With a population of 405,900[11] in 2007, it is the fourth largest city in Norway after Oslo, Bergen and Trondheim. Oslo, Norway's capital city is approximately 250 km to East of Stavanger; Bergen, second largest big city on the West coast, is 200 km north of Stavanger. Historically, the city has close trading links with the UK, particularly with north east Scotland and today close links are maintained via the mutual offshore interests. The city is experiencing a sustained period of robust growth.

The Norwegian economy –prime beneficiary of oil boom

Norway's recent economic performance compares favourably with other OECD countries. Since 2000 the economy has grown an average annual rate of 3.5%, faster than the UK economy which grew at an average annual rate of 2.6% over the same period.[12] The economy benefits hugely from being a major exporter of oil and gas and has benefited from commodity price booms in recent years. Sizable labour migration inflow and solid growth in productivity have kept inflation under control.

Norway's emergence as a major oil and gas producer in the mid-1970s transformed the economy. Today, Norway is the third-biggest oil exporter, behind Saudi Arabia and Russia. In 2005, the energy sector accounted for 25% of GDP and contributed one third of government revenue. Although the direct employment in the sector is less than 1% of total employment, when investment and linkages between the energy sector and the national economy are accounted for, Norway is to some extent dependent on the energy sector. Norwegians have one of the highest GDP per head in the world. The United Nations Development Programme (UNDP)'s Human Development Index which measures quality of life also rated Norway as highest in the world in 2006.

[11] Stavanger is defined at the NUTS3 region of Rogaland.
[12] Experian, 2008.

Stavanger – Norway's energy capital

Stavanger is Norway's energy capital and has many similarities with Aberdeen; their physical proximity (Aberdeen and Stavanger are roughly 230 miles apart), they both served as important regional economic centres before the discovery of oil, each began their rise as oil centres following the discovery of major oil resources in the North Sea in the 1960s-70s, the oil industries employ roughly the same number of people and comprise comparable numbers of oil and gas companies.

Before the discovery of North Sea oil, fishing, shipbuilding, agriculture, and the canning industry formed the backbone of the Stavanger economy. However, the oil and gas industry transformed the city's economy and has driven population and economic growth since the 1970's. The fishing and fish processing industries are also still important to the Stavanger economy; Stavanger is Norway's largest fish-food producer and also houses the largest fishing port. In recent years, the service sector has grown strongly and there is a cluster of finance and wealth management companies.

4.2 Key Indicators

Across a range of key indicators, Stavanger's economic performance is very robust:

- **Stavanger's population has grown at an annual average rate of 1.2% between 2000 and 2007 and is now 401,100.**
- **GVA grew at an average of 4.6% per year between 2000 and 2007 which is higher than the Norwegian average of 3.5%.**
- **Between 2000 and 2007, the economy created 27,300 full-time equivalent jobs.**
- **Measuring by GVA per head (a widely accepted measure for living standard) Stavanger has one of the highest standards of living in Norway. GVA per head is growing at a robust 3.4% per year.**
- **As would be expected with the dominance of the capital-intensive energy industry, productivity levels are high at €70,900 per FTE worker.**

Figure 4.1: Key Performance Indicators

	2000	2007	Annual % change
Population	374,500	401,100	1.2
GVA (€ millions)	9109.5	12,499.8	4.6
GVA per head (€)	24,300	30,800	3.4
Employment	149,100	176,400	2.4
Productivity per FTE worker (€000s)	61,100	70,900	2.1
Source: Experian March 2008			

4.3 Business Base

Key Sectors

Stavanger has three sectors that can be identified as being of key importance to the continued growth of the economy, Energy, Fishing and fish processing and financial and business services.

Energy - Stavanger is firmly established as Norway's energy capital. It is the centre of oil and gas activities connected with the extraction of North Sea oil, which has made Norway one of the world's richest countries. Well over 45,000 people in the Stavanger region are working within the energy industry, which accounts for over 50% of all energy related employment in Norway.

The city is home to a large number of major energy companies including the state owned oil company (StatoilHydro), as well as the national regulatory bodies namely, the Norwegian Petroleum Directorate and The Petroleum Safety Authority.

The collaboration between companies, universities and government to pursue research and development in the oil and gas industry stands out as being particularly strong. The policies which led to the success of the collaborative innovation system in Stavanger are discussed in the 'economic strategy and delivery' section. There are a number of good examples:

- **The International Research Institute of Stavanger** (IRIS) brings together large companies and the University of Stavanger to develop the local innovation system and provide applied research and education capabilities that are tightly linked to the industry. The IRIS has recently been expanded to include a full-scale offshore drilling rig and wells for testing and improvement of drilling equipment.

- In 2002, the **Centre for Oil Recovery** (COREC) was established and is a partnership between the University of Stavanger, IRIS and ConocoPhillips and the other Ekofisk license companies: Total, ENI, Petro, and StatoilHydro.

- The **Schlumberger Stavanger Research Centre** was established in 1999. The aim of the centre is to collaborate with local oil and gas companies, perform research, and develop solutions to problems related to oil and gas fields on the Norwegian Continental Shelf. Key research themes focus on seismic strati-graphic interpretation, multi-component seismic, and reservoir monitoring.

The Stavanger energy sector is expected to outgrow that of Aberdeen because the Norwegian's oil reserves are several times larger (in spite of more than 30 years of production, only approximately 35% of the expected total resources on the Norwegian continental shelf have been produced) and production is not expected to peak before end of this decade whereas Aberdeen has recently reached the peak in oil production.

Although the oil and gas industry will remain vital to the Stavanger economy for the foreseeable future, the Norwegian government recognised that the North Sea oil fields would eventually become depleted and extraction no longer economically viable. In response they developed a set of hands-on policies to manage the process of oil industry development. In the early phase of development key location decisions were made to concentrate industry-related institutions in

Stavanger. Special attention was also given to the development of domestic technological capabilities that can be applied to a variety of industries.

With oil and gas activity in the region still at a high level, local companies have not generally seen the need to diversify as yet. When the oil and gas supply sector experiences a decrease in the demand for its products and services, these firms will be more likely to do so. However, the general approach in Stavanger appears to be changing from a focus on oil and gas focus to an energy focus as there is a substantial increase in activities related to alternative energy sources like wind, solar, and wave power.

Aquaculture, fishing and fish processing – The fishing industry has historically been important to Stavanger. As the city grew and became more industrialised around the end of the 19th Century it was the fishing and fish processing and canning business that drove development. Despite the advent and eventual dominance of the energy sector in Stavanger the fishing and fish processing industry have remained important.

Aquaculture and fishing is of great important to the Norwegian economy in general and fish farms are located along the entire coast. Fish farming has become one of Norway's largest industries and the Norwegian fisheries and aquaculture industry is currently one of the world's largest exporters of seafood, and in recent years just over 3 million tonnes of fish and seafood have been harvested from the sea each year. Stavanger is a hub for the Norwegian aquaculture industry.

A number of large food and drink companies are located in the Stavanger city region. As with the energy industry the collaborative innovation system for the fishing and fish processing sector appears to be strong. There a number of innovative food research institutes and partnerships located in the city, bringing together food and drink companies, government and university research departments. A brief description of each of these is given below:

- The **Culinary Institute of Norway** aims to contribute to the value creation, innovation and improved competitive edge in Norwegian food and drink industry companies; supplying excellent research and advisory services on the subjects of food, food processing and consumer behavior.

- The **Norconserv Seafood Processing Research Centre** is an independent institute working for the food processing industry. The key activities are research, development and training in industrial production of food with extended shelf-life.

- **Bio-Marin Vekst** is a cooperative organisation for enterprises within the bio-marine industry. This includes fishing, aquaculture, food production, biotechnology, and equipment and services used within these industries. The organisation builds networks, represents the bio-marine cluster and administrates projects on behalf of its members.

- **Blue Planet AS** was established in 2004 dedicated to develop the global aquaculture industry and is owned by the major companies of the industry. Blue Planet works to shed light on the vast possibilities offered through ocean exploration. Blue Planet manages the **European Seafood Centre** which organises an important international business conference on aquaculture (**Aqua Vision**) and undertakes other important research and business support activities related to the development of the aquaculture industry.

Financial and business services – this sector has been experiencing robust growth in recent years and is only second to Oslo in the number of fund management businesses. The combined sectors output have increased by 44% between 2000 and 2007. In Stavanger, the financial sector has built strong links with the energy sector and has benefited from being in close geographical proximity to international oil companies which have limited financial function on site, and thus rely on local-based banks for transaction and fund transfers. There is also an active venture capital community which support business start-ups.

Innovation

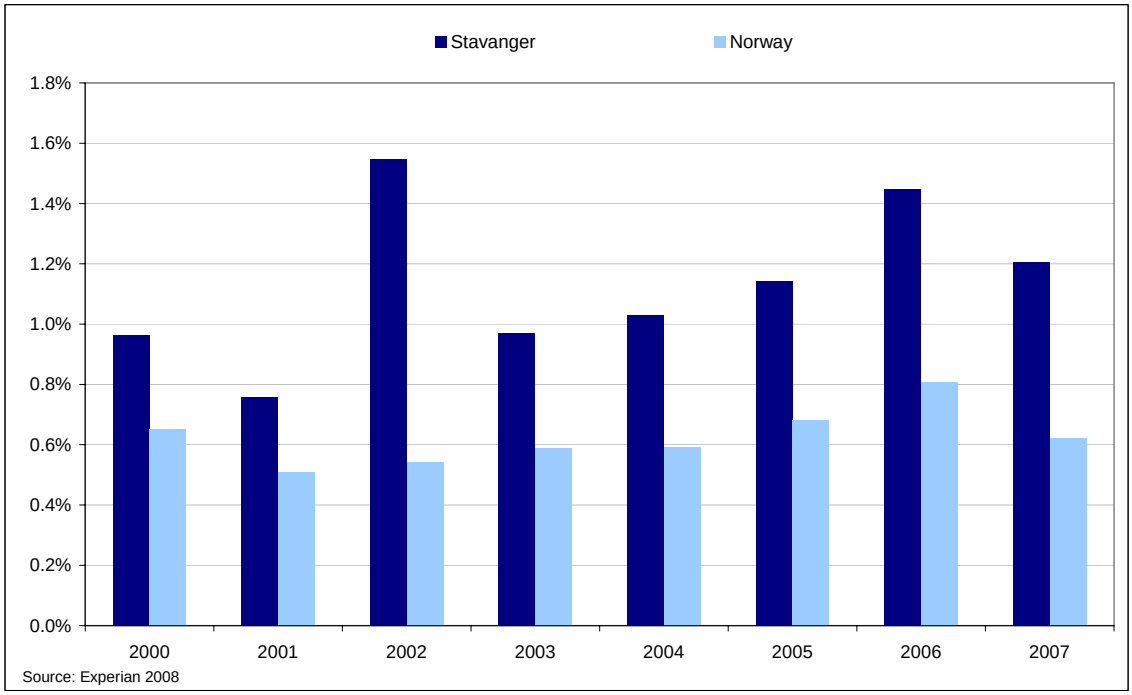
Stavanger's approach to increasing research and development levels and innovation levels in the economy can be characterised by strong collaborations between public and private institutions with strong support from the local and national governments. There are numerous examples (some mentioned above) in both the energy and food or fish processing sectors of research institutes where companies collaborate with universities and government to undertake research and development activities and deliver industry relevant educational programmes. In addition to the various industry research institutes that are discussed above, Stavanger has a number of research parks that foster innovation in the economy by locating businesses, government and educational establishments in close proximity (these are outlined in the infrastructure section below).

4.4 People

Stavanger's population has grown steadily between 2000 and 2007, expanding by 8.4% (31,400) to 405,900 –almost double Norway's average population growth (4.4%)[13] for the same period (Figure 4.2). The strong population growth reflects large inflows of migrants rather than natural change.

[13] Experian, European Regional Service 2008

Figure 4.2: Stavanger and Norway – Annual percentage population growth



Stavanger has a large and young labour pool available at its disposal, nearly 70% of the population can be considered as working population.[14] A large proportion of the city's population are in the 25-44 age group.

The labour market is fairly robust and this is reflected in high employment participation rate (78% of the population) and low unemployment. The booming economy also creates a considerable pull of people from neighbouring areas with many choosing to commute to work (although average commuting distances are very low). The city has a highly educated population with a third of those aged 16 or over holding a university degree (or equivalent) compared to Norway national average of a quarter.

The economic prosperity of the city benefits residents of Stavanger, who can expect a gross income 26% higher than the national average. There is also a considerable gender wage gap with a female employee earning only 52% of male colleagues.

4.5 Infrastructure

Transport

Stavanger's Airport Sola is located less than 15 minutes drive from Stavanger. The airport has 25 destinations, with direct departures to many European cities such as Frankfurt, London, Aberdeen, Amsterdam, Rome, Paris and Copenhagen. In addition, there are several daily domestic departures. Travel time to Aberdeen is just over one hour and under two hours to Amsterdam, Paris, London and Berlin.

The railway infrastructure appears to be good. A main rail line connects Oslo and Stavanger along the southern coast, and has both passenger and cargo traffic. The Stavanger region has an extensive road network with a motorway that runs from Stavanger via Oslo to Stockholm.

[14] Working population here means those age between 16 and 65

Maritime transport is important to Stavanger. The city is located in a large natural harbour and the port has maritime bases for supply and service ships that serve the oil industry based in the North Sea. However, the ports of Risavik and Dusavik are modern facilities which now have taken over from Stavanger as the major industrial ports and have the heaviest oil industry port traffic in Norway. Stavanger is also the ferry hub for local maritime traffic with both tourists and commuters going to the northern part of the municipality, the fjords and the small villages and islands.

Physical

Stavanger has redeveloped the harbour front in recent years. The industrial harbour and other industry that was located close to the city centre was re-located further away from the city centre. This provided land for dense residential and leisure development on the harbour front, close to the city centre. Given the large population growth in recent years this additional housing capacity was much needed and has allowed a concentration of people very close to the city centre.

The city hosts many important international conferences throughout the year especially those related to the oil and gas industry. The city has four conference halls with the largest able to accommodate 1,800 guests. A new concert hall is currently under construction. Office space is plentiful and the rent is low compared to other major Norwegian cities. Stavanger also has a number of research parks offering business accommodation including the Stavanger Innovation Park, Forus Business Park which is home to over 1000 companies and Oksnevad Industrial Park. The country's leading oil, entrepreneurial, production and computer companies are based in the Forus Business Park. Retail and service organizations are also being established on Forus to meet the growing demand from the area's businesses and work force.

Communications

Stavanger benefited from an extensive network of fibre-optic cable covering most of the North Sea oil fields enables a high standard of communication capacity between the head offices and operation sites. Telecommunication cost is also low compared to other OECD countries.

4.6 Quality of life

The United Nations Development Programme (UNDP)'s Human Development Index which measures quality of life rated Norway as highest in the world in 2006 indicating Stavanger will have a relatively high quality of life. The following are some of the attributes the city offers in terms of quality of life:

- High income levels;
- Easy access to the countryside both beaches and the Norwegian fjords;
- Along with Liverpool, Stavanger was chosen as the European Capital of Culture 2008 by the Council of the European Union;
- Stavanger appears to have a varied retail offer and is home to Norway's largest shopping centre;
- Compact city centre and good transport infrastructure – therefore commuting times are very low for most workers;
- 12th century Cathedral and attractive marina waterfront; and

- Stavanger has several lakes, which are popular recreation areas, close to the city centre.

4.7 Governance Structures

Norway has a relatively centralised political system. The powers of the municipal councils for self-government have been delegated from the State and set out in legislation. The municipalities are responsible for primary and lower secondary education, social services, municipal roads, water and sewerage and land use regulation.

4.8 Economic strategy and delivery

Oil and gas economic strategy

Despite the similarities of Aberdeen and Stavanger, the development of the oil and gas sector in Stavanger has differed somewhat in the two cities, especially in exploiting the opportunities for local economic development created by the oil and gas. The Norwegian authorities at the national, regional, and local levels made concerted and sustained efforts to develop local capabilities in the oil and gas sector.

Norwegian government policies included:

- the creation of a national oil company (now StatoilHydro);
- the active use of licensing terms and other measures to promote technology transfer from foreign companies to local organisations;
- a localisation policy that led to the establishment of major governmental institutions including StatoilHydro and the Norwegian Petroleum Directorate in Stavanger; and
- the development of local higher education and research capabilities.

Such policies aided domestic firms in existing industries like construction and shipbuilding to enter the oil and gas industry, as well as helping new local firms to grow and become competitive internationally.

StatoilHydro has played an important role in stimulating local industrial innovation and the development of innovative supplier firms. It has done so as a major customer, as a sponsor, and as a broker of information and expertise, and it has promoted technological collaboration between firms in Stavanger. ConocoPhillips and Schlumberger and major contractors such as Aker, ABB and Kvaerner have also played significant roles in developing the local innovation system.

The Stavanger authorities took early action to build new education and research institutions in the region to support the emerging oil and gas industry. RF-Rogaland Research and the University of Stavanger have been systematically developed to provide applied research and education capabilities that are tightly linked to the industry – the International Research Institute of Stavanger for example. There was no systematic effort to develop education and research capabilities in the Aberdeen City and Shire. Such capabilities did emerge in Aberdeen as well as elsewhere in the UK, but mainly as a result of initiatives taken by the educational institutions themselves, or even by individual academics, rather than through planned or coordinated approaches involving the government at any level.

General economic development strategy

Greater Stavanger Economic Development (GSED) is the economic development agency for the city and focuses on the following six areas of investment; knowledge, innovation, internationalisation, quality of life, infrastructure and public services. GSED has developed a strategic plan for economic development which aims to develop the Stavanger region into Norway's foremost urban region in terms of competitiveness and value-creation by 2020. For the first-time the fourteen municipalities of Stavanger joined forces to develop the plan at a city-region level. The agency focuses on the development of the three main industrial clusters outlined above: energy, aquaculture and fish processing and financial and business services. There is expected to be no major change of focus for the agency in coming years as the substantial oil reserves off the coast of Norway mean that the industry will remain important for at least the next thirty years.

GSED actively markets the Stavanger Region and understand the importance of effectively marketing the city both in terms of attracting inward investment and selling products and services in overseas markets. The agency has a website in English that contains information on key clusters, living and working in Stavanger, industrial parks and locating a business in Stavanger. It also contains literature and a video promoting the city. GSED has an office in Houston, Texas, which markets the city in the US and keeps up to speed with key developments in the energy sector. The Houston office was established in 2004 and is operated by a joint partnership between Stavanger University Hospital, University of Stavanger, IRIS, the Offshore Northern Seas and GSED.

GSED assists internationally focused business leaders with relevant market information, arrange seminars on a variety of issues and organise delegation trips to locations worldwide to promote the city. GSED organises receptions and conferences for young people and students who are living in the region or from the region and studying abroad to communicate the career opportunities available to them in the Stavanger city region. This recognises the emphasis placed on retaining talented and highly educated graduates with excellent language abilities in the local economy.

4.9 Potential lessons for Aberdeen City and Shire

The success of the Stavanger city region can be attributed to the oil and gas reserves in the North Sea and city's role as a centre for oil and gas activity in Norway (which is the world's third largest oil exporter behind Saudi Arabia and Russia). The strong recent growth is also partly the result of high oil and gas prices. However, the approach to economic development has assisted and facilitated economic growth and maximised the benefit of Stavanger's role in Norway's oil and gas industry. In particular the concentrated effort to attract foreign oil and gas companies and key government oil and gas organisations to base themselves in Stavanger, collaborations between businesses (foreign and local), government and local universities, careful planning of infrastructure (particularly the relocation of industrial harbour) and a conscious effort to increase the profile of the city by effective marketing have all been key.

The approach to economic development opportunities presented by North Sea oil has differed markedly in Stavanger and Aberdeen. Despite the advanced stage of the UK's oil and gas fields some of the potential lessons for Aberdeen City and Shire are still relevant. There are also other

potential lessons to be learnt from Stavanger's approach to land-use planning and city marketing.

The main potential lessons for Aberdeen City and Shire are:

- **Innovation systems** –Stavanger's approach to innovation can be characterised by strong collaboration between public and private institution with strong support from the local and national governments. University departments have always been closely aligned with businesses in Stavanger and the application of specialist skills to industry related issues has driven the innovation process. There are several examples of this approach outlined earlier in the case study. The research institutions that now exist as a result keep the economy at the cutting edge of research and development and allow diversification into renewable energy technologies for example.

- **Measures to promote technology transfer** – The system the authorities established to use licensing terms, along with other measures, to actively promote technology transfer from foreign companies to local organisations could potentially be applied in some form in Aberdeen. The Schlumberger Stavanger Research Centre is a good example of this technology transfer in practice.

- **Localisation policy** – Stavanger authorities have worked hard to attract oil and gas companies to headquarter their Norwegian activities in Stavanger. This policy has been central to the success of the region. The assets of the region have of course helped in attracting companies; high quality of life, good transport infrastructure including airport linkages, availability of qualified staff and business support services to set-up in Stavanger. There have also been efforts to ensure that important oil and gas government organisations were located in Stavanger – namely the Norwegian Petroleum Directorate and the Petroleum Safety Authority.

- **Land use planning –** The City of Stavanger's decision to re-locate the industrial harbour to the city boundaries and clear industrial land in the city for residential and leisure use has added to the city's attractiveness and quality of life.

- **City marketing –** Stavanger has increased efforts to market the city on a global scale. GSED has invested heavily in developing an informative website. The establishment of an office in Houston, the energy centre of the US, has increased the city's profile and keeps authority's up to speed with key developments.

- **Hosting international events –** Stavanger has enjoyed recent success with hosting international events and the authorities have made a concentrated effort to win high profile events. Winning the European Capital of Culture award for 2008 raises the city's profile internationally and is a large success for the city. Other important events recently won include the 2009 World Beach Volleyball Championship and the Bocuse d'Or Europe 2008 (Europe's foremost food and drink competition).

5 Case study: Aarhus

Summary

Aarhus Amt city region developed around the city's port. The port is still important to the city, with much of Denmark's international trade being handled through the facilities there. This role in supporting and enabling trade has helped to create a relatively diverse economy. In addition to the region's strengths in food and drink processing, other niche industries include packaging, logistics, specialised manufacturing, transport and refrigeration. Aarhus Amt is also recognised within Denmark as having an attractive urban and rural environment, contributing to the region's status as the fastest growing region of Denmark.

A number of key lessons emerge from this case study. The public and university roles supporting the food and drink sector are interesting given Aberdeen City and Shire's strength in this area. Urban development projects, such as the regeneration of the waterfront and opening of Aarhus stream, are also important in creating urban attractiveness and competitiveness.

5.1 Background and national context

Overview

Aarhus is Denmark's second largest city, located on the east coast of the Danish mainland (Jutland) on the main E45 road from Hamburg. The city is 117 miles from the Danish capital of Copenhagen via ferry (2 hours 58 minutes total travel time). Travel time to Odense is 1 hour 39 minutes (90 miles) and total travel time to Copenhagen via Odense is 3 hours 36 minutes (194 miles). Aalborg (north Denmark) is 1 hour 25 minutes drive away (74 miles). Aarhus therefore shares Aberdeen's relative isolation from larger cities.

The city region has a population density of 145 people per km^2, which is greater than the average for Denmark (126 people per km^2). The region covers an area of 4,561 km^2. Population density has been increasing in recent years, reflecting the region's developing role as a major growth hub in Denmark.

For the purposes of this case study, the city region of Aarhus has been defined as the NUTS 3 area of Aarhus Amt. This area includes the major towns of Randers, Silkeborg and Skanderborg as well as the smaller towns of Hadsten, Grenaa, Syddjurs and Odder. Prior to January 2007 Aarhus Amt was also an administrative region within Denmark. However, following recent restructuring, regional governance has been consolidated into 5 larger regions, with Aarhus Amt forming part of Central Region.

The Danish national economy

It is important to begin this case study with a review of the Danish national economy and systems. This is important because differences between city regions are sometimes attributable to national economic differences (between UK/Scotland and Denmark). For example, differences in economic competitiveness between Aarhus and Aberdeen may, in some cases, be related to differences in national labour market organisation and regulation, or differences in tertiary education funding and policy or general differences in the role of government (e.g. in industry ownership or spatial planning and regulation). Some of these differences are highlighted below.

The Danish national economy has performed well in recent years. Strong GDP growth rates (1.7% annual average between 2000 and 2007) have meant that the economy is now nearing capacity. Employment grew by 0.5% annual average between 2000 and 2007, an additional 65,000 jobs.[15] The Danish economy also displays a more inclusive labour market and less income polarisation than is the case in many other European countries. Employment rates are amongst the highest in Europe and are particularly high for females, compared with other countries including the UK.[16]

The welfare state in Denmark is generous in comparison with other developed economies. This is a common theme for Scandinavian countries. Personal tax rates are comparatively high and, correspondingly, 'free' provision of healthcare, education and other services is fairly extensive. The public sector also has a greater role in certain industries than is the case in the UK. For example, public transport is managed by a number of Regional Transport Companies, which have board representation from Regional Councils and local government.

The operation of the Danish labour market is quite distinctive from that of the UK. Trade union membership, at 85% of all workers, is very high. However, despite this firms are able to fire workers at short notice. The ability of firms to do this without a union backlash is attributable to the generosity of the state in providing both benefits and retraining, making the probability of re-employment for fired workers relatively high. Collective pay bargaining operates without state intervention and pay deals are normally struck for a number of years rather than annually. As a result of these features, the Danish labour market model is generally perceived to promote skill levels, protect workers and enable the economic competitiveness of firms.

Denmark is also unusual in having very high male *and* female employment rates (79.4% and 73.1% respectively). This situation is partly enabled by the public childcare system which places an emphasis on providing high quality child care to enable people to return to work.

Denmark is generally regarded as an outward looking economy. Having a small population base (5.4 million) has forced businesses to look abroad for market opportunities. As a result, trade in agricultural produce, food and drink, engineering and other niche industries are significant. This outward looking nature is also evident in information technology use. In a recent World Economic Forum report Denmark was named as the 'most networked country' in the world.[17]

Therefore it is important to note that the Aarhus Amt city region operates in a successful *national* economy. In fact, in 2007 the Economist Intelligence Unit named the Danish Business Climate the 'Best in the World'.

[15] Measured in full time equivalent terms.
[16] Various sources including IMF, Economist Intelligence Unit and OECD.
[17] The Global Information Technology Report 2007-2008, WEF and INSEAD 2008

5.2 Key Indicators

The Aarhus Amt economy is performing above Denmark average

Across a range of key economic indicators, Aarhus Amt appears to be performing well. However, economic prosperity, measured as GDP per head, trails the Danish average to some extent.

- **The population of Aarhus Amt has grown by 0.6% per annum on average between 2000 and 2007, double the rate of growth for Denmark as a whole.**
- **GDP has grown by an annual average of 1.9% between 2000 and 2007, above Denmark's growth rate of 1.6%. This growth has been mainly driven by business services, financial services (which grew at an annual average of 6.4%), transport and communications, heath services and construction.**
- **In 2007 GDP per head was an estimated €26,400 compared with €28,700 for Denmark as a whole. Growth in GDP per head between 2000 and 2007 was slightly lower in Aarhus Amt (1.3%) than Denmark (1.4%), partly reflecting the effect of faster population growth on this measure of per capita prosperity.**
- **In line with faster GDP and population growth, employment growth in Aarhus Amt between 2000 and 2007 (0.6%) has been above the rate of expansion for Denmark as a whole (0.4%), driven by jobs growth in business services (8,000) and health (6,100), with some contributions also from construction, distribution and other private services.**

Figure 5.1 provides an overview of the main economic performance indicators for Aarhus Amt.

Figure 5.1: Key Performance Indicators

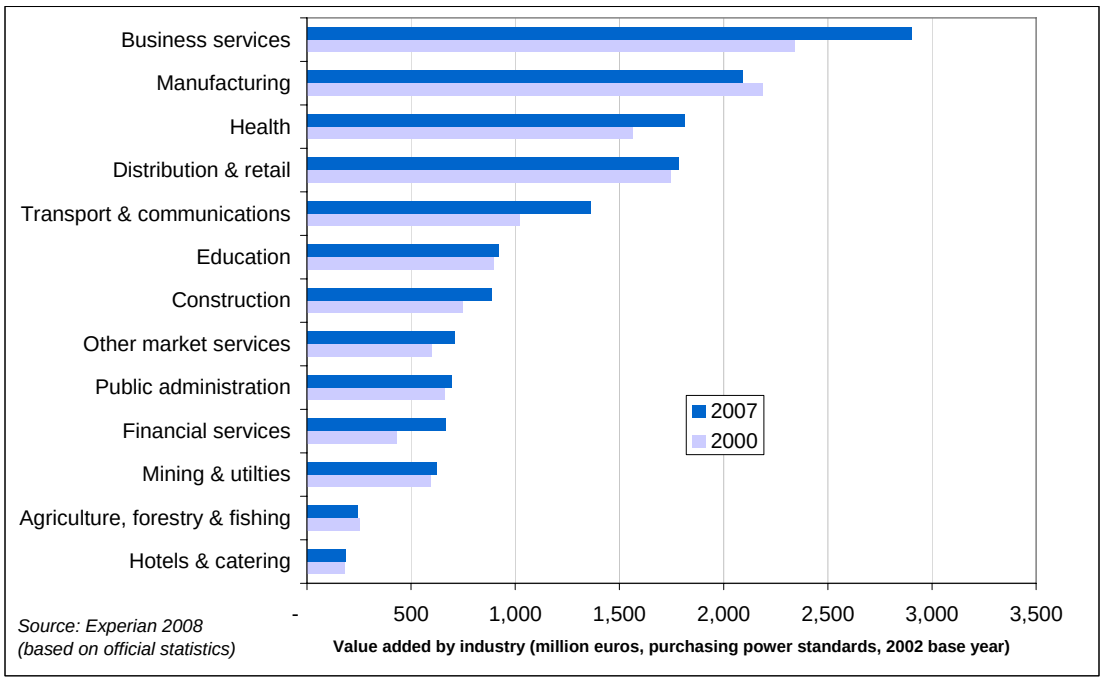
	2000	2007	Annual % change
Population ('000s)	646.2	665.8	0.6
GDP (€ millions)	15,385	17,558	1.9
GDP per head	24,100	26,400	1.3
Employment Level ('000s)	284.2	296.2	0.6
Productivity per FTE worker	54,100	59,200	1.3
Source: Experian			

5.3 Business Base

Aarhus Amt is rapidly transforming into a knowledge-based regional economy

The largest sectors in the Aarhus Amt economy (by value added) are; public services (23%), business services (20%), manufacturing (14%) and distribution (13%). Growth in private services, particularly business services and financial services has been particularly rapid in recent years (figure 5.2).

Figure 5.2: Value added by industry in Aarhus Amt, 2000 and 2007



Aarhus Amt is home to a large number of significantly sized companies, especially food and drink companies and companies related to the goods supply chain (e.g. refrigeration, packaging). These include; Europe's largest dairy-company Arla Foods (headquarters), Danisco, York Refrigeration (headquarters), APV Nordic (headquarters), Scanvægt (headquarters), DLG, Aarhus United (headquarters), Vital Pet Foods, Dansk Supermarked (headquarters), Defco Food (headquarters), Schouw Packing and Hoyer (Tetra Pack). In addition, a number of knowledge centres like MAPP (Centre for Excellence on Customer Relations in the Food Sector) and the Agricultural Advisory Centre are located in the region.

The growth of the private services industry in Aarhus Amt can be linked to the following inter-related developments:

- The education and research base in the region is very strong and is experiencing continual investment – this has helped to attract companies that require research input (e.g. software, engineering services, environmental services, some life science companies in the service sector);
- The education and research base has also helped to attract students and young, skilled people which *in turn* is a draw for a wide range of private service companies;
- Quality of life in the region is regarded as being high, driving growth in in-migration and companies; and
- Infrastructure investment has been strong and sustained in recent years, including city centre public realm and regeneration schemes (which help promote an attractive urban environment) and the investment in the city's science and research parks, which provide the high quality facilities and property for companies.

These issues are explored elsewhere in this case study. Generally, the public sector has been most active in promoting development of the education sector, promoting links between research institutions and businesses and promoting city centre development.

The region has a number of important niche industries

Aarhus is well-known for research in that field of biotechnology and medical devices. The region has a growing number of newly started companies and is also the home of many foreign-owned biotechnological companies.

Food and drink is also a major industry in Denmark and in particular in Aarhus Amt. The majority of food technology and food industry research and development, marketing and administration in Denmark is located in the Aarhus region. In addition, the region houses many leading companies in the food manufacturing industry (same of which are listed above).

Nanotechnology is another niche industry where Aarhus is regarded as having a relatively strong position. The interdisciplinary Nanoscience Centre - iNANO - covers numerous areas of nanoscience and is an important element of the industry in the region.

The Aarhus region has (together with Copenhagen) the most dynamic IT sector growth rate and has the highest density of IT-educated employees in the Denmark. The IT sector in the region is characterised by a wide range of special IT niches.

Supporting a range of new, knowledge-intensive industries, Aarhus has a considerable number of research and development institutions, knowledge centres and incubator houses. The region has a long tradition for co-operation between the public and the private sectors.

In addition to the sector mentioned above, there are public sector-backed efforts to establish other new industries in the region, such as media, sport and culture. A number of initiatives (mentioned later in this case study) are aimed at building on the city of Aarhus' cultural strengths to establish a film industry and supporting economic activity in the region. There are also efforts to establish Aarhus as a major sports city, with broad based efforts across skills development, facility investment and in joining up existing institutions. Some initiatives related to the development of this sector are mentioned later in this case study.

5.4 People

Talent attraction

Aarhus Amt is home to 649,000 people, equivalent to 12.1% of the total Danish population. Population in the region has increased by 8.7% since 1990 and 4.3% since 2000. Of all the five administrative regions in Denmark, Central Region (which includes Aarhus) is expected to experience the fastest population growth. In terms of population structure, the Aarhus Amt region has a relatively youthful profile – 31% are aged under 25 and only 13% are aged over 65.

As would be expected from a region that is outperforming the national economy, Aarhus Amt has benefited from migration trends. In 2002, 7,000 people moved into the region from countries outside Denmark, and 5,800 persons moved in the opposite direction. In the same year, 17,900 people moved from Aarhus Amt to other regions of Denmark, and 16,600 moved into the Aarhus Amt from other regions of Denmark. The overall result was a positive net inward migration of 2,500 people to Aarhus Amt.

The relatively youthful population profile of Aarhus Amt is partly attributable to the region's high student population. Every year more than 50,000 people are enrolled on a higher education course of some kind in Aarhus. The range and importance of tertiary education institutions in Aarhus Amt is covered later in this case study. However, it is important to note a few distinct educational, learning and innovation assets in the City of Aarhus that may be significant in attracting students, academics and skilled people:

- **Science Park Aarhus** was established as the first Danish science park in 1986. It is adjacent to the University of Aarhus and also houses the BioMedico Science Park, located next to the University Hospital.
- **IT cluster of Katrinebjerg** is an IT cluster of companies, academics and students, which was specifically designed to promote cross fertilisation of knowledge through co-location of activities and skilled people with high IT content. The cluster now also houses an IT Science Park.
- **The Development Park in Sønderhøj, Aarhus** was specifically developed as a single site for new, growing companies. Part of the design was that companies who site there benefit both from each other and from being part of a critical mass of developing companies (e.g. to assist with attracting external finance).

There are likely to be reasons, other than the education infrastructure, why Aarhus has been successful in attracting people in recent years. In summary, the reasons include; education environment, availability of jobs (many on growing innovative sectors such as life science), perceptions of high quality urban *and* rural environment.

Skills development

In terms of the supply of learning in Aarhus Amt there are numerous technical colleges (concentrating on trade skills), business schools, teacher training colleges, specialist colleges for engineers and architects and a university that offers a comprehensive range of academic courses. There are also other specialist learning providers that help to maintain Aarhus Amt's reputation as a competitive place for learning as well as helping to provide skilled people to the region's industries.

Aarhus Amt's tertiary education sector includes the following institutions:

- University of Aarhus
- Aarhus School of Business
- University College of Aarhus (Engineering)
- Royal Academy of Music, Aarhus
- The Jutland Academy of Fine Arts

Two particular specialisms evident in the Aarhus tertiary education system are engineering and food and drink skills. The city's ambitious plans for growth include an aim to attract an additional 10,000 students to the University of Aarhus alone.[18]

[18] University of Aarhus' Strategy Plan 2008-2012

5.5 Infrastructure

Transportation

Aarhus, similar to Aberdeen enjoys road and rail access to surrounding areas and larger cities. There is also an airport with some international services and the port plays major passenger, freight and leisure transport roles.

There are 15 333 km of roads in Aarhus (2001 data) (of which 94 km are motorway) representing 9.7% of the total length of motorways in Denmark. There is a rail link that provides regular connections from the county to the rest of Denmark, and several domestic and international ferry routes.

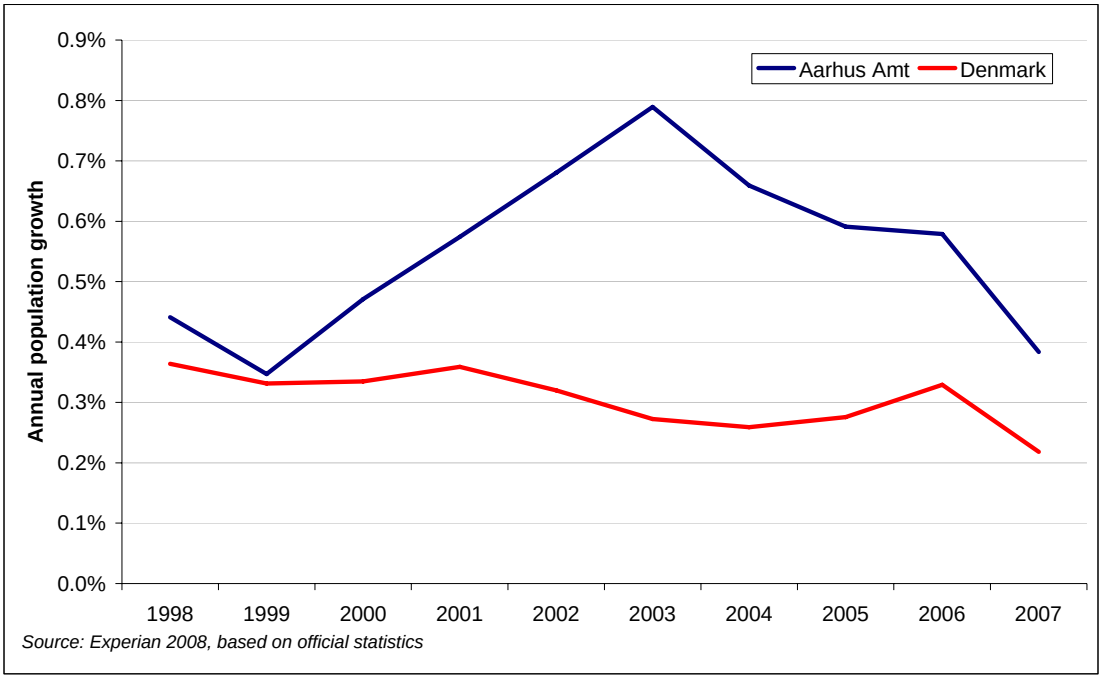
Air services are provided from Aarhus Airport and Billund Airport. The county has air services to the capital of Denmark, Copenhagen, and many other large cities in Scandinavia and Northern Europe.

In terms of sea transport, there are important passenger and freight services. In total; 4.7 million tonnes of goods were loaded and 7.4 million tonnes were unloaded in 2001 in the region. Each year, approximately 8,000 ships dock at the port of Aarhus carrying a total of 11 million tonnes of goods. Almost 6 million tonnes of cargo are handled via the container and ferry services while the turnover of oil products amounts to almost 2 million tonnes; the last 3 million tonnes include bulk cargo such as animal feedstuffs and coal. The port also plays a leisure role. In this regard, approximately 20 - 30 cruise vessels call Aarhus every year.

5.6 Quality of life

As reviewed elsewhere, Aarhus Amt has been enjoying population growth in excess of the Danish average. This is the primary indicator of quality of life and place attractiveness. In this section, the interest is in what has helped to create this reputation for high quality of life.

Figure 5.3: Annual population growth 1998 to 2007 – Aarhus Amt and Denmark



Source: Experian 2008, based on official statistics

One dimension to the region's quality of life is the natural environment, which has been nationally recognised (discussed later in this chapter). The rural environment of Aarhus Amt region is characterised by agricultural land, heather-clad hills, archaeological sites, the longest river in Denmark, the Gudena, and a number of lakes. The area around Silkeborg is known as Denmark's 'Lake District' and the town itself is a popular tourism draw. The Ministry for the Environment in Denmark has recognised[19] the quality of this non-urban environment and the need to accommodate the forecast growth in development in the region without compromising these natural and cultural assets.

At national level, the rural environment has a relatively low profile in the government's efforts to attract foreign nationals to live and work in the country. Rather, the emphasis is on the unique benefits of the welfare system, the quality of the educational environment (from primary through to tertiary education and research institutions), the liberties enjoyed by Danes and the cultural assets of the country.

In addition to the rural environment, urban culture is an important part of what makes Aarhus an attractive place. One of the areas of culture supported jointly by the Danish state and the County of Aarhus is the regional theatre company, Aarhus Theatre, which is the most prominent cultural attraction in the region. There is a general focus on developing cultural offer and new industries hand-in-hand in the city of Aarhus. This includes some of the initiatives and strategies mentioned elsewhere, such as the strategies to develop media and film industry in the city and the efforts to establish Aarhus as a 'sporting city'.

5.7 Governance Structures

There are 26 **Local Authority** areas in Aarhus Amt, including one for the city of Aarhus (population 282,000). On 1 January 2007, five new administrative regions were established -

[19] 2006 National Planning Report, Danish Ministry for the Environment

the Capital Region of Denmark, The Sealand Region, Region of Southern Denmark, Central Denmark Region (including Aarhus Amt) and North Denmark Region. These regions replaced the previous structure of 13 Amter regions.

The tasks of the **Region Councils** include health care, operation of social and special education institutions and regional development. Part of the regional development role is the preparation of regional development plans and the establishment of regional growth fora. Regional Councils are also responsible for prioritising use of EU's Structural Funds (around DKK 400 million a year – or £43 million). The regions' expenditure for regional development tasks (including public transport) will amount to approx. DKK 2 billion (£213 million) in 2007. The expenditure will be financed through a state block grant and a local development contribution which will amount to DKK 110 (£12) per inhabitant in 2007 (50% is for public transport alone).

These new regional bodies are less powerful than the previous regions. As a result of the reorganisation, more power has transferred to the 98 municipalities (including land regulation) and the national level. However, in addition to heath provision and some other issues, the 5 regions are responsible for strategic spatial planning which is a significant role in relation to city region economic development.

The **regional growth fora, or "Vækstfora",** have representatives from trade and business, educational institutions, labour organisations, local and regional politicians. The growth fora's responsibility is to monitor regional and local conditions for growth and to prepare a regional business development strategy. The strategy will be part of the basis for the development plan of the regional council.

Part of the aim of the new regional development agencies is to achieve coherent urban and rural economic development planning and implementation. This follows the city region economic development model closely. The regional business agencies will also provide recommendations to national Danish government on the prioritisation of EU structural funds.

One of the interesting features of this re-organisation in Denmark is that the regional level of government, although *generally* less powerful than it was before, now has responsibility for strategic spatial planning, regional economic development planning and prioritisation of a significant funding stream. Bringing these functions 'under one roof' offers the Aarhus Amt the opportunity for efficient and coherent economic planning and delivery.

5.8 Economic strategy and delivery

In this section we review recent and current economic development strategy in Aarhus Amt. Although by its nature economic development strategy is multi-faceted we have broken down the policy analysis into the following themes; talent attraction, skills, innovation, infrastructure and quality of life.

Talent attraction

A city region's ability to attract talent is a major feature of its economic competitiveness. For smaller cities this is especially so, as often smaller cities cannot boast the breadth and depth of career and non-career attractions found in the major global cities (e.g. Paris or London) and capital cities (e.g. Copenhagen). Attracting talent is a close reflection of quality of life and economic competitiveness.

The evidence above highlighted that Aarhus Amt's population has grown more quickly than the Danish growth rate overall. This in itself may suggest that Aarhus Amt is relatively successful in attracting talent. However, in this sub-section interest in policy to specifically attract the talented people that drive economic success. There are two useful examples in this regard – firstly, policy efforts to develop the culture sector and second policy efforts to develop the sports sector.

A national survey in Denmark suggested that Aarhus has a strong offer in terms of its culture and has potential to develop this further. The policy focus has been on nurturing 'cultural entrepreneurs' (e.g. through an incubator house) and to deliver more commercial benefit from the range of assets and initiatives currently evident in the region.

In terms of the sports sector, there is political recognition that Aarhus already has some of the necessary features and infrastructure to become a top-class 'sports city'. Assets include high standard sports facilities, a range of sporting associations and organisations and a large student base for sourcing new sporting talent. However, the specific infrastructure and perceptions still fall short of what is required to elevate Aarhus to the position of a top-flight sports city. The stadium, *Atletion*, was renovated in 2001 and has since attracted high profile sporting events as well as international music artists.

Skills

Talent attraction and skills are closely connected. However, in this sub-section we consider policy efforts to ensure the supply of the requisite skills for specific sectors of the economy.

One key area of commonality between Aarhus Amt and Aberdeen City and Shire is the economic significance of the food and drink sector. Key aspects of economic development intervention to support skills develop for food and drink include; facilities development (e.g. for MAPP[20]), development of the network of organisations necessary to develop the sector and support skills development and establishing a food technical scientific education in food.

As noted elsewhere in this case study, another area of sectoral strength in Aarhus is in engineering. A key policy development in recent years has been the establishment of a technical-oriented research based science education at the University of Aarhus in co-operation with the Engineering College of Aarhus. This initiative was prompted by recognition that local companies' difficulties in recruiting qualified engineers were hindering the ambitions of these firms. Status: There is a demand and need for a high-level education in engineering in Aarhus. In the autumn of 2001 a 'Centre of High Level Technical Educations' was established.

Aberdeen City and Shire is, like Aarhus Amt, reliant on engineering skills to help drive the economy. The markets are different – energy sectors in Aberdeen City and Shire, refrigeration and manufacturing in Aarhus Amt. However, both regions share an interest in, and a need for, one of the globe's scarce skill resources – engineers. Both regions are competing for skilled graduates with these skills. The specific, focused approach to develop the regional capacity for supplying these skills to the regional economy in Aarhus Amt may be of interest to agencies Aberdeen City and Shire.

[20] Centre for research on customer relations in the food sector

There may also be interesting lessons to learn further upstream in the skills supply chain in Aarhus Amt (primary and secondary level education). In the region, authorities have been testing out a *new school model*. This new model has been testing out different approaches to a wide range of aspects of education – interiors, educational methods and collaboration models. The policy recognition of Aarhus Amt's educational strengths reaches beyond this and encompasses an effort to establish Aarhus as an 'educational city', involving a collaboration of a range of institutions in the city.

Innovation

The economic competitiveness of city regions in developed economies is dependent on their ability to differentiate themselves from other city regions, move up the value chain, respond flexible to global demand and rapidly develop new ideas and approaches into commercial reality. All these features concern innovation.

In Aarhus Amt, authorities have identified that barriers exist for technology transfer in the small and medium sized enterprise (SME) sector. The public policy response to this in the region has been the development of an 'Innovation Institute', with the aim of developing specific innovation and technology projects in partnerships with regional businesses. The institute, 'Østjysk Innovation A/S', is focused on assisting people translate their ideas into viable business propositions and has a strong relationship with Aarhus University. Its main aim is to increase the throughput of entrepreneurial talent from the region. Østjysk Innovation A/S invests risk capital in knowledge or research-intensive new, innovative companies. This is supported by the provision of business and technology advice to companies, with the aim of maximising a return on the capital invested. The institute also acts as an innovation relay Centre and assists with conducting preliminary patentability searches. Shareholders in Østjysk Innovation A/S include a bank, the Municipality of Aarhus and a range of research institutions. Companies that have developed successfully as a result of the investment include drug discovery companies, innovative diagnostic solutions, novel environmental technologies and software companies.

At a national level innovation policy delivery is driven by the Danish Council for Technology and innovation (DCTI). The DCTI is tasked by Danish ministers with building knowledge and interaction, and increasing commercialisation. The DCTI has a budget of DKK 3 billion (around £320 million) for the period 2007-2010. The council is comprised of members (appointed by government) who are experts in their fields and collaborates with The Danish Agency for Science, Technology and innovation (under the Ministry for science, Technology and innovation) to achieve government policy for innovation (Innovation Denmark 2007-2010: The New Action Plan for more Innovation).

Infrastructure

In this study we are obviously interested in specific interventions and projects that appear to have helped to enable economic transition. However, it is important to remember that arguably the most fundamental government role in regional economic development is ensuring that the general infrastructure (e.g. transport, communications) is fit for purpose and for the future.

Aarhus Amt has a number of features that mean infrastructure development is a priority. In terms of location the city region is relative peripheral in both Denmark and Europe. Aarhus itself develop initially as a port town and its current role as the largest container hub in Denmark has a significant bearing on the region's economy and infrastructure demands. In response to the

fundamental importance of transport to Aarhus Amt, the region's authorities and the transport sector, initiated a Transport Centre. The demands placed upon the region by the container harbour have made this initiative a priority. Linked to this, investment was channelled into the freight rail connection between the main freight station and the harbour. This kind of 'transport coherence' in regional policy has been important to safeguarding one of the region's unique roles and supporting the export base in the region.

The need for investment in passenger transport to support the regional economy has also been recognised. The general focus of transport policy has been on developing the infrastructure to ensure that public transport has the priority status and that it is the number one option for individuals. The role of the new Regional Transport Companies is important. Their responsibilities include; regional bus services, pricing, time tabling and private railways. They are financed through rates and subsidies from the Regional Councils and local government. The regions also finance regional bus services, private railways, and transport administration. The regions' expenditure in 2007 for this was roughly DKK 1 billion (£200-300 million).

There are also plans in the region for a light railway system. This is being driven by recognition of the current rate of population and employment growth in the city region and the need for employers to have efficient access to a large labour catchment (and people to have access to jobs).

Infrastructure development has been about more than transport in Aarhus Amt. Partner organisations in the region identified a need for the physical facilities to accommodate and enable large scale public access to IT, media and culture. To this end they developed a new Multi media house/ city library. This has resulted from the collaboration between IT companies, educational institutions and media companies.

Joining quality of life and infrastructure, the Municipality of Aarhus has driven plans to develop under utilised areas in the urban waterfront and add another major feature to the city's urban design. These plans have culminated in the Light*house project, a redevelopment of the north parts of Aarhus harbour, including a striking commercial and residential block with views across the bay.[21]

Quality of life

The idea that quality of life is a key driver of economic competitiveness of city regions has gained increasing prominence and policy and research in recent years. In this sub-section we review both urban and rural quality of life. This distinction is important. The ACSEF manifesto is based on a consensus that Aberdeen City and Shire's urban-rural mix is part of its competitive offer. The balance and contrast between city living and high quality natural environment is part of the marketing proposition for the region. Aarhus Amt is quite similar.

In Aarhus Amt, the development of urban quality of life in the city itself has focused on public realm development and the enabling of a high quality built environment. An innovative example of this is the transformation of the city centre, most notably by the opening of Aarhus stream, which was previously covered by streets. This project won an EU prize for innovation. Future development plans include the integration of the city centre and the inner harbour-area and linking together the key elements of the city centre, such as stream and harbour and main

[21] http://www.lighthouse-aarhus.com/content/us/the_project

public realm areas. This coherence approach to urban design is evident in the quality of the physical layout and legibility of the city and offers potential lessons to agencies in Aberdeen City and Shire.

Quality of life development in the city has also featured an emphasis on developing a distinctive economic sector around the city's attractiveness. 'Filmby Aarhus - movie-city Aarhus' is an example of this emphasis. The aim here has been to develop a new, distinctive industry in the city by promoting the city as a film and media centre and simultaneously providing the kind of attractive business space that companies in this sector (including film, sound, light, radio, television, audio-visual works and multi media companies) demand. The centre opened its doors in early 2002 at the premises at Aarhus harbour. At present 10,000 sq. are available but expansion up to 60,000 sq. is possible. Although the initiative has not yet been directly successful in achieving its aims (e.g. Copenhagen is still the main hub for the film industry in Denmark) there have been successes in attracting new companies and physically transforming areas of the city. In some ways the initiative shares common ground with efforts to develop the digital media sector in Dundee. However, the aim and ambition to create a large, single site facility and accommodation for the purpose of promoting a new cluster is innovative and may have transferable lessons for sectors of more relevant to Aberdeen City and Shire (e.g. food and drink, life sciences).

Rural quality of life is important in Aarhus Amt's competitive offer too. Denmark has a network of regional Environment Centres. The centre in Aarhus is one of three that is required to ensure local and national government cooperation due the region possessing natural environment of national importance. This cooperation is over the spatial planning of the region. The 2006 National Planning Report highlights that the whole Eastern Jutland area (which Aarhus Amt dominates) possess a high quality rural development at the same time as experiencing some of the most rapid development and population growth in the country. With the growth anticipated to continue, the national report emphasises the need for dense urban development in order to prevalence urban coalescence between the main towns of the region. This ethos is supported by the national policy desire to ensure that housing and employment land development are consistent with public transport availability and investment. The specific approach to a gradation of development density across the urban-rural spectrum may be a particular area of learning for planning authorities in Aberdeen City and Shire.

5.9 Potential lessons for Aberdeen City and Shire

Aarhus Amt is the growth region within Denmark. This has not been achieved by any single policy or feature. Rather, the region's success in attracting in-migrants reflects the size and variety of the tertiary education sector, the growth of knowledge-based industries and investment in the city as a place to live (e.g. retail, culture and public realm investment) and as a place to do business (development of specialised business and research parks). Policy efforts have been similarly diverse but the key priorities have been developing Aarhus Amt's all-round offer as a centre of excellence for education (including international schooling to attract foreign skilled workers) and promoting greater innovation activity.

This case study highlights a number of potential learning areas for Aberdeen City and Shire:

- **The education sector** is something that makes Aarhus quite distinctive and attractive across a broad spectrum. The university sector is quite large (around 40K students) which, in a city of 300K, is sufficient to give the city a youthful profile and support a

variety of related industries and activities (e.g. night life, sports, culture). Related to this, there has been significant investment in, and promotion of, research and innovation institutions in the region, helping to attract in companies from elsewhere and to develop new companies.

- Like Aberdeen City and Shire, one of Aarhus Amt's traditional industrial strengths has been the **food and drink sector**. In Aarhus Amt public sector support for the food and drink sector is quite established and multi dimensional. This includes promotion of links between the region's food and drink related research institutions and the strong cluster of key food and drink export companies.
- **Innovation** is a very strong focus of national policy in Denmark and there is also a distinctive regional profile to this policy. The region's innovation institute has undoubtedly played a key role in helping niche industries to become established in Aarhus Amt and, in particular, is a key part of the region's growing life science sector.
- **Quality of life**, although an elusive concept, is a key driver of high in-migration to Aarhus Amt. In the city there appears to be consensus that city centre investment, attracting events (e.g. sports and music), retail improvements (market-led) have all played a role in creating Aarhus's *reputation* as an attractive, cultural hub in Denmark. These same assets have also assisted with the fairly rapid growth of the University of Aarhus in the last ten years and in attraction of companies.

6 Case study: Calgary

Summary

Calgary is the Canada's third largest city and the national energy capital. The city has experienced extremely rapid population, employment and output growth since 2000 and is one of Canada's fastest growing regions. Calgary's success has been built on the large oil reserves in the Northern Alberta. The city has acted as the hub for all business and financial support functions for the energy sector in Alberta and has become a leader in all aspects of energy development: project design, exploration, production, finance, processing, transportation, marketing and management. Low taxation and a clustering effect for energy companies have aided in the success of Calgary.

The city's rapid growth in recent years has resulted in a tight labour market and therefore the attraction and retention of skilled workers to the city is an important policy concern. Raising levels of innovation is also an area of concern for policy-makers. There are potential lessons for Aberdeen City and Shire in both of these policy areas.

6.1 Background and national context

The metropolitan area of Calgary[22] is situated in Alberta province, Western Canada. With a population of 1.14 million in 2007, Calgary is the largest city in Alberta province. Edmonton is Alberta's other major metropolitan area (population of 1.08 million) and lies 200km to the North of Calgary. Following robust population growth in recent years, Calgary is now the third largest city in Canada behind Toronto and Montreal.

The Canadian economy – A stable foundation for growth

The Canadian economy has performed well in nearly all respects since 2000. Output growth has been robust, Canada's real GDP growth of 2.7% in 2007 surpassed all the other major developed regions, including the euro-zone (2.6%), the US (2.2%) and Japan (2.1%).[23] Strong employment growth has accompanied the robust growth in economic output, while the unemployment rate has fallen to its lowest level since 1974. Inflation was comfortably under control, and the general government and current account balances were in surplus. Altogether, Canadians enjoy one of the highest living standards in the OECD countries, a result that reflects the pay-off from good macroeconomic management and the structural reforms which have been put in place.

The Alberta Economic Juggernaut

Since the discovery of oil and gas in 1914, Alberta has been Canada's oil and gas centre. Alberta's focus on the energy sector has resulted in a volatile economy in the past, but with structural changes that have directed the sector towards long term investments, coupled with strong global demand for energy, Alberta has experienced unprecedented growth levels in recent years.

[22] Metropolitan Area as defined by Statistics Canada
[23] Statistics Canada 2008.

Alberta is in the midst of the strongest period of economic growth ever recorded by any province in Canada's history. GDP rose 53% between 2003 and 2007 which made it the second fastest growing province in Canada behind Newfoundland and Labrador. Alberta's 11.2% average annual increase in GDP since 2003 compares favourably with some of the fastest growing regions in the world. The majority of Alberta's growth was driven by higher oil and gas export prices.

Calgary – The Energy Capital of Canada

As Alberta's largest city, and historically the business and financial centre of the energy sector in Canada, Calgary has become known as the energy capital of Canada. Calgary is the business hub for all business functions for the oil and gas sector in the province. It serves as the head office location of most major energy companies, undertaking activities such as engineering, financial services, design, and procurement.

As a result, the city of Calgary has experienced very robust growth and economic prosperity over the past decade, due in large part, to the strong performance and expansion of this sector and supporting services and the significant levels of in-migration to the region that have resulted. With both the population and employment experiencing high rates of growth, incomes levels have also risen, while unemployment rates are the lowest in Canada.

6.2 Key Indicators

Across a range of key economic indicators, Calgary's performance is impressive:

- **Calgary's population has grown robustly between 2003 and 2007, expanding by 2.4% each year to 1.2 million. This makes Calgary Canada's fastest growing city followed by Edmonton and Toronto.**
- **GDP has grown by 11.2% each year between 2003 and 2007, largely driven by the energy sector and increases in oil and gas prices in recent years.**
- **Prosperity has risen significantly in recent years with median income rising to $75,400 in 2005 which is substantially above the Canadian average of $60,600.**
- **The labour market is functioning efficiently with high employment rates and low unemployment rates. However, the demand for labour has meant Calgary has one of the tightest labour markets in Canada.**

Figure 6.1: Key Performance Indicators

	2003	2007	Annual % change
Population	1.02 million	1.2 million	2.8%
GDP ($ millions)	170,113[24]	259,941	11.2%
Household Income ($)	67,800	75,400*	5.5%
Employment Rate	71.1%	73.5%	-
Unemployment Rate	5.4%	2.8%	-
Source: Statistics Canada	Note: GDP is for Alberta Province, * Income figure for 2005		

[24] The Conference Board of Canada (CBOC) estimates that the total gross domestic product (GDP) of the Calgary CMA in 2001 was $41.6 billion (1997 dollars). This represented 35.3 percent of Alberta's total provincial GDP.

6.3 Business Base

Energy Sector

The booming oil and gas sector across the Alberta province has acted as a catalyst for economic growth in Calgary. Growth of the industry has encouraged large investment by oil and gas companies and companies in the supply chain to the oil and gas sector such as engineering, financial services, design, and procurement. The fact that Calgary has surpassed Vancouver as the third largest seat of corporate headquarters in Canada is testament to the levels of investment in recent years.

As the city's reputation as the energy centre of Canada grew throughout the 1970s, '80s and '90s, Calgary achieved a critical mass of energy companies and is also home to the industry's trade associations and energy regulator. Companies such as EnCana, Petro-Canada, Shell Canada, TransCanada, Canadian Natural Resources and Talisman have corporate head offices in Calgary. Hundreds of smaller oil and gas companies and hundreds more oil and gas service and supply companies - including Precision Drilling, Ensign Energy Services, Schlumberger Canada and Halliburton Canada - are also headquartered in the city. In all, Calgary is home to nearly 2,000 energy industry companies.

Calgary's title as Canada's oil capital was reaffirmed in 2004 when Imperial Oil, the largest energy company in Canada, announced it too would locate its head office in Calgary. This concentration of the energy sector in Calgary has made the city a leader in all aspects of energy development: project design, exploration, production, finance, processing, transportation, marketing and management.

There are a number of reasons why so many companies have chosen to locate their headquarters in Calgary including:

- **Low corporation tax levels** are likely to have been a factor in location decisions. Taxation rates are set at the provincial level and Alberta has one of the lowest corporation taxes in Canada.
- **No provincial sales tax** (the only province in Canada without one).
- **The cost of doing business** (labour costs, office rental costs etc) is also relatively low in Calgary compared to elsewhere in Canada.
- **Agglomeration effects** of having all the oil and gas and supporting services firms in one place is likely to have been a more important factor in the choice of location for most firms.

Exports and Investment

Largely as a result of the energy sector and high oil and gas prices, exports and investment into the region have reached record highs in recent years. In 2006, Alberta (no values are available for the Calgary metropolitan area) exported $90 billion worth of goods and services to 188 countries, an increase of 40% from the value five years ago and per capita investment was $22,300, more than twice the national average of $9,100. Export performance was driven mainly by the energy sector (particularly crude oil) and the strong recovery of agricultural exports. However the region also exports an increasing volume and variety of manufactured products; exports of manufactured products rose by 21.5% between 2001 and 2006.

Innovation

The energy sector's demand for specialised services has precipitated the development of a wide range of knowledge-based high technology industries including wireless telecommunications, information technology and geomatics. These industries in turn have become established as internationally competitive exporters of goods and services.

Calgary has a number of research institutes that have helped foster innovation in the economy. The commercialisation of research undertaken at the University of Calgary has resulted in the creation of several prominent high technology companies including Cell-Loc Inc. (emergency cell phone locator systems), Oncolytics Biotech Inc. (a reovirus treatment for cancer), MBEC Biofilm Technologies Ltd. (diagnostic assays), SemBioSys Genetics Inc. (industrial protein production using genetically engineered canola) and Wi-LAN Inc. (high speed wireless communications).

The regions universities and colleges appear to collaborate closely with the region's business. For example private sector partners – BP Energy Company, EnCana Corporation, Schlumberger Canada Ltd and ShellCanada Limited – provided more than half of the funding for the $35-million **Calgary Centre for Innovative Technology** research and teaching facility which provides leading-edge lab space and state-of-the-art equipment for University of Calgary engineering professors and their students. The university also partners closely with some large energy companies to offers specialised degrees to meet the demand from the local employers.

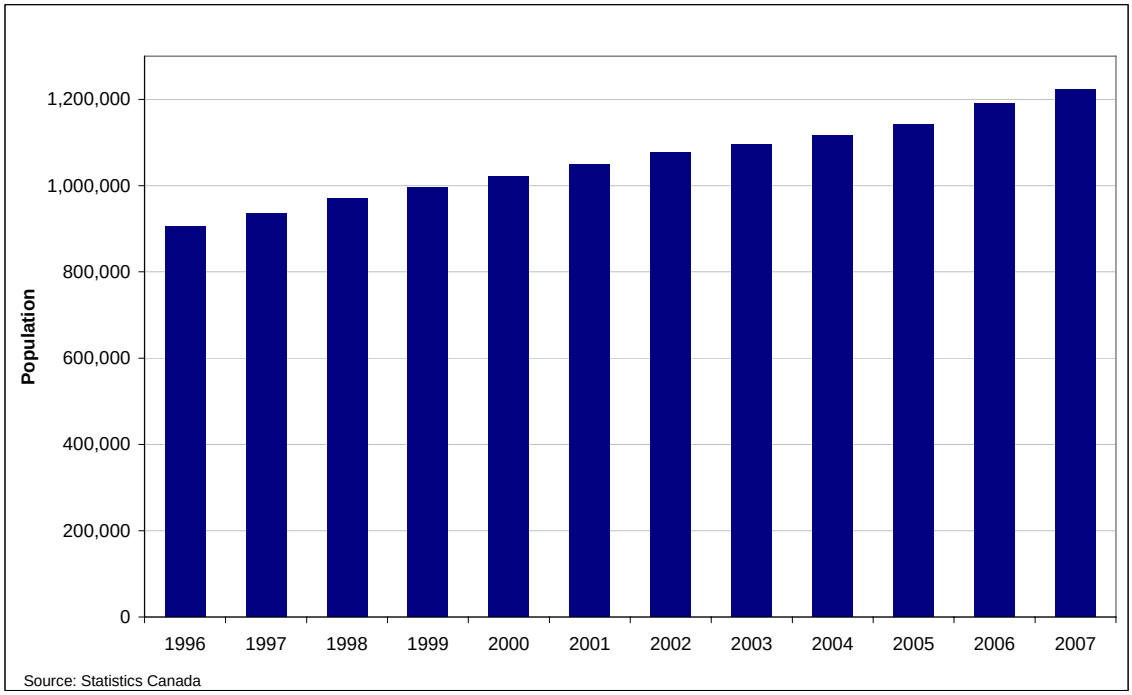
Diversification

While the energy sector continues to play a key role in economic growth, the city has become less reliant on energy by broadening its economic base into a wide range of high technology, business service and transportation industries. In addition to the energy sector Calgary's key industries are: Information and Communication Technology, Transportation and Logistics, Manufacturing, Financial and Business Services and Film and Creative Industries. Financial and business services has been particularly successful, more than 135,000 Calgarians are employed in business, finance and administration occupations. Employment in this support sector grew 51 per cent between 1994 and 2004.

6.4 People

Calgary's population has grown robustly between 1996 and 2007, expanding by 35% (318,000) to 1.2 million. This makes Calgary Canada's fastest growing city followed by Edmonton and Toronto. The strong population growth reflects large inflows of migrants and rising births (it is the only province where births have increased in absolute terms since 2000). Alberta attracts relatively few immigrants from abroad – they tend to gravitate mostly to Toronto, Vancouver and Montreal. However, Calgary benefits from the highest net inter-provincial migration in Canada. Since 2000, inter-provincial migration has been a critical source of labour directly providing 110,000 (or 43%) of Alberta's 250,000 population growth from 2000 to 2005 (not including children these in-migrants had after arriving).

Figure 6.2: Calgary's Population 1996-2006



Calgary has one of the youngest age profiles in the country; 24% of Calgary's labour force is between the ages of 25-34, only 21.8% of Albertans and 21.4% of Canadians are in the same age group. With a median age of 35, Calgary has the youngest population of any city in Canada.

There are a number of reasons why Calgary has been so successful in attracting in-migrants to the city region:

- **High Wages** - at $36,850 average earnings in Calgary are significantly above the Canadian average
- **Career Opportunities** – the diverse range of companies headquartered in Calgary mean that there are a wide range of highly paid and senior jobs opportunities. Strong employment growth has ensured demand for labour is high.
- **Low Tax Rates** – Capped at 10%, Calgary has the lowest income tax rates in Canada.
- **Cost of Living** – Low cost of living relative to other cities in North America.
- **Quality of Life** – Calgary has a high quality of life and has been voted amongst the top cities to live in the world.

The success of the economy has played a large part in attracting talented individuals to live and work in Calgary. However, provincial and local policy has also played a role in attracting companies and in turn talented individuals to work in the city.

Calgary boasts an above-average level of educational attainment: 23.8% of the population over the age of 15 has completed university, compared with a rate of 17.4% nationally. The University of Calgary is the largest education institution in the city with 29,000 FTE students. The university partners closely with some large energy companies to offers specialised degrees to meet the demand from the local employers. Other HEI include SAIT Polytechnic, Mount Royal College, Bow Valley College and DeVry Institute of Technology Calgary.

6.5 Infrastructure

Alberta's strong fiscal position has allowed the province to become debt free and increase support for infrastructure needed to try to keep up with economic and population growth. Since 1999, government capital spending in Alberta has doubled in volume, and is the highest of any province in Canada.

Transportation

Calgary lies at the crossroads of two of North America's major highway systems: the Trans Canada Highway which stretches from the Atlantic to the Pacific and the Canamex Corridor, which extends from Northern Canada to Mexico. The latter, when completed, will be a continuous four-lane highway linking Mexico City in the south to Edmonton in the north.

Calgary International Airport, Canada's third busiest airport with 8.3 million passengers in 2001 provides ready access to Asia, Europe, and, of course, the United States; many American cities are less than a four-hour flight from Calgary including Chicago, Dallas, Denver, Seattle, Los Angeles and Houston. Calgary also has a second airport which caters for mainly internal flights.

Calgary's geographic location and its integrated multi-modal transportation and logistics infrastructure has also contributed to it becoming a centre for an increasing number of transportation and warehousing operations. This includes an expanding international air cargo and passenger hub operation at Calgary International Airport, rail and intermodal auto and trainload facilities serving every major city in North America. This in turn has further facilitated the development of its manufacturing base and opportunities in aerospace.

Calgary's light rail internal transport system, the CTrain system, encompasses 42.1 km of track, 36 stations, 11,000 park and ride stalls, 116 CTrain cars, and carries over 220,000 passengers each weekday. Plans are currently in place to enhance the CTrain to cope with population growth.

Other

As discussed above the educational infrastructure in Calgary appears to be good with a number of tertiary education establishments. Calgarians are highly educated and the city region has a broad selection of higher and further education establishments.

The costs of health care in Alberta, as they are in the rest of Canada, are for the most part covered by general federal and provincial taxes. For modest insurance premiums, Calgarians can take advantage of world-class medical services.

6.6 Quality of life

Quality of life is a difficult concept to capture, however Calgary was ranked as the Healthiest City in the World to Live in a survey by Mercer Human Resource Consulting in 2004.[25] The survey examined 144 cities and based rakings on composite scores across a range of indicators including educational and healthcare systems and quality of the natural environment.

[25] http://www.guardian.co.uk/world/2004/mar/01/population.hughmuir

The city is located very close to the Rocky Mountains which include Banff National Park and Kananaskis Country Park which provide a wealth of recreational activities.

6.7 Governance Structures

The Government of Alberta makes most of the decisions in relation to budget, fiscal planning, spending, healthcare and education. The City of Calgary Council for management has responsibility for services at a city-level including transportation and land-use planning issues. The council's operating budget in 2008 was $2.1 billion. The council has recognised that economic planning at a city region level has become increasingly important and last year, in consultation with local businesses and community representatives, published the first Calgary economic development strategy. The strategy covers a range of themes and concentrates on the education and employment of the city's residents, the enhancement of the community, further development of the city's role as a global energy centre, increasing innovation and increasing the international reach of the Calgary 'brand'.

6.8 Economic strategy and delivery

Approaches to economic development strategy and delivery are discussed under a number of key themes.

Economic Development Strategy

Calgary Economic Development (CED) is the lead economic development agency that markets Calgary within Canada and across the world. CED has introduced a variety of initiatives and programs to facilitate economic growth (many of these are discussed below).

Talent Attraction and Human Capital Development

The robust employment growth in recent years has lead to a tight labour market and labour shortages in certain sectors. Economic forecasts indicate that the Calgary economy will require approximately 90,000 new jobs over the next five years and 158,000 in the next 10 years - highest of any economic region in Canada.[26] Therefore, policy-makers recognise that attracting and retaining talented individuals to Calgary is vital to continued success and has responded in a range of ways.

CED's has a workforce initiative program, **Calgary Works**, which is a partnership between industry, business, government and the education sector aimed at developing a coordinated labour strategy. Calgary Works seeks to maintain sustained economic growth and prosperity in the Calgary Economic Region through workforce development and human capital attraction efforts. Over the past two to three years the focus of the initiative has been on the following areas:

- **Communication Tools**: Delivering new and existing regional workforce information to community members and support human capital attraction efforts to the Calgary Region.
- **Labour Force Profile & Forecast:** Undertaking research on labour market trends, occupational projections and shortages for key sectors in the Calgary Economic Region

[26] Calgary Economic Development

to establish goals, objectives and actions to address each of the shortage areas identified.

- **Best Practices Forum:** The promotion of best practices between employers in order to capitalise on the unique strengths of the region and enable an adequate response to current and future labour and skill shortages.

CED has a website that provides good information on what Calgary has to offer to individuals considering locating there. It has a section on moving to Calgary with sub-sections on housing, education, childcare, driving and transportation and arts, entertainment and recreation. It also has a separate section on working in Calgary. Efforts include a relocation brochure and a promotional video entitled “10 Reasons to move to Calgary”.

Supporting Immigration and immigrants to Alberta is the Alberta Governments policy to attract and retain immigrants to address skill shortages and to support the successful transition of immigrants into Alberta's economic, social and cultural life. The province aimed to attract at least 24,000 immigrants to Alberta each year, up from the nearly 16,500 immigrants who moved here in 2004. Immigration levels rose to 21,000 in 2006, suggesting the province is growing in attractiveness to migrants but not as quickly as had been hoped. In response to this the Alberta Government has recently reached an agreement with the Canadian government which provides Alberta with greater control over immigration to the province, facilitating the selection and retention of newcomers to fill gaps in the labour market. The agreement will develop mechanisms to make it easier and quicker to get the foreign workers needed to meet growing labour force demands.

Low income tax levels have also undoubtedly played an important part in attracting individuals to work in the city.

Innovation

There are many partnerships and alliances under way in the Calgary region to promote innovation. The following are some of the existing organizations and partnerships that foster research, development and innovation:

- **Calgary Technologies Inc**. (CTI): Established in 1981, CTI is a joint partnership between the city of Calgary, the Calgary Chamber of Commerce and the University of Calgary. CTI serves as the economic development agency for Calgary's advanced technology sector, specifically biosciences, and information and communication technology industries. CTI offers a wide variety of unique programs, services and resources designed to boost high technology business growth.

- **Universities Technologies International (UTI)** is a technology transfer and commercialisation centre. UTI works exclusively with inventors to evaluate, protect, market and commercialise technology. UTI has a team of technology commercialisation managers who provide a seamless environment, working closely with researchers and business partners to take innovation through to industry.

- **The Alastair Ross Technology Centre**: Located in the University of Calgary's University Research Park and funded primarily by Calgary Technologies, Inc., the 125, 000 square foot complex offers both space and a business development program that

to date has assisted over 300 high technology companies of all sizes to develop their capacity.

- **The Calgary Innovation Centre** (CIC): The CIC helps innovators, businesses and entrepreneurs develop their ideas and bring them to market. It acts as a catalyst in fostering and creating partnerships between life science innovators and the venture capital community. The CIC helps create successful companies that bring prosperity, employment and diversification to the community.

- **Alberta Deal Generator** - identifies technology companies that are "investment ready" and then connects these firms with its network of angel investors, venture capital firms and other investor groups in special presentation forums.

Despite these developments there is a perception that Calgary and more generally Alberta has to do more to improve the level of innovation in the economy. In the recent provincial (Alberta) budget, it was announced that over the next three years, a total of almost $498 million will be provided for innovation, research, and technology commercialisation initiatives which will focus on areas of strategic importance for Alberta. This includes $229 million for research and innovation initiatives in priority areas, $169 million for technology commercialisation, and a $100 million contribution to the Alberta Enterprise Corporation.

Much research has been undertaken to determine the sufficiency of venture capital in Calgary, improve the commercialisation of research and increase levels of research and development. There are currently a number of proposals under consideration to achieve this:

- The Government of Alberta creating an Enterprise Fund to co-invest with private investors;
- Creating a provincial Scientific Research and Experimental Development (SR&ED) tax credit to stimulate R&D activity;
- Creating new product commercialisation centres; and
- The Government of Alberta taking steps to increase access to financing for start-ups.

Financial Incentives

Both corporate and income tax levels in Alberta are very low and amongst the lowest in Canada. In 2006, the provincial government dropped the general corporate income tax rate to 10% from11.5%, to ensure Alberta's global competitiveness. Alberta's small business rate is 3%. Income tax is 10% which is one of the lowest provincial taxes in Canada. The large revenues from oil and gas have allowed the provincial government to pursue this policy. As mentioned above proposals to introduce an R&D tax credit and currently being considered.

City Marketing and Promotion

Calgary's new economic development strategy emphasises the importance of effectively promoting the Calgary 'brand and identity'. This is in recognition that a clear and distinctive identity is essential in attracting migrant workers and business investment to the city. This is something that the city has only done in parts previously and the plan is to develop a strategy to promote, profile and increase awareness of Calgary's brand internationally through an international media and publications campaign.

Transportation

The City of Calgary Council produced a transportation plan in 1995 which provided a 30 year plan with a clear vision of what the transport infrastructure in Calgary should look like in 2025. This long-term planning horizon and vision appears to have benefited the process and is also taken in relation to economic, environmental and social planning. A ten year review of the plan took place in 2005 so that the priorities of the plan could be adjusted to reflect faster than expected population growth for example. The strategy was not only concerned with the provision of infrastructure but also influencing peoples travel to work patterns and methods to decreases stresses on the transport system at peak times and ensure the sustainability of the transport system. The strategy has shown success in changing people's travel to work methods and patterns; more commuters to the centre of Calgary are travelling outside the peak period and more are choosing to walk, cycle or use public transport systems, overall residents are less dependent on cars than in 1991.

A Calgary Ring Road is the largest single project that the plan covers and has been brought forward by 20 years as a result of faster than expected growth,. It will improve access to other major Calgary roads and provide a high-speed route around Calgary that connects to key provincial motorways. Other planned transport infrastructure projects that are strategically important for the city include a high speed rail link with Edmonton and cost-effective parking solutions in the city-centre.

6.9 Potential lessons for Aberdeen City and Shire

The success of Calgary's economy over the last decade can largely be attributed to the region's wealth of natural resources. However, policies of the Alberta Government at a provincial level have ensured that these advantages have been maximised by creating a positive business environment and ensuring prudent fiscal policies. In addition, the initiatives of Calgary Economic Development and the Calgary City Council have played a role in ensuring the efficient functioning of the economy by targeting resources, providing information and limiting market failure. There are a number of clear factors that can be identified as being particularly important in the success of Calgary in recent years:

- **A business 'friendly' environment** – low tax rates have undoubtedly played a role in attracting many companies to the city. The cost of doing business has also been historically low compared to other major cities in North America.
- **Talent attraction** – Due to the rapid employment growth since 2003, Calgary has focused on attracting people to work and live in the city and on retaining the current workforce to avoid skill shortages. A number of initiatives have been adopted at a city and provincial level to achieve this and the low income tax levels have also played a role.
- **Innovation systems** – a range of partnerships and alliances between universities, governments and business have helped increase levels of research and development. Further steps are currently being taken to further increase innovation in the economy including a research and development tax credit and creating new product commercialisation centres.
- **Business involvement and consultation in economic policy and initiative development** – both Calgary Economic Development and The City of Calgary Council consult with and involve the business community in policy developments. There are

numerous examples of this including the involvement of business and academia in developing the Calgary economic development strategy.

- **Marketing and information provision for businesses and migrant workers** – Calgary seems to market itself well to both migrant workers and businesses. This is particularly important for Calgary as the labour market is so tight and maintaining growth is dependant on having a sufficient labour supply. The city has plans to develop a more comprehensive strategy to promote itself on the international stage. The level of information provided by the authorities on likely occupational needs aids long-term planning for businesses.

7 Case study: Huntsville

Summary

Huntsville is located in the Southern U.S. state of Alabama and the economy is centred around the U.S. Army's Redstone Arsenal and the NASA Marshall Space Flight Centre. The U.S. Army's presence and procurement of services from the local economy has resulted in a cluster of aerospace and defence companies growing up around the base and this has been the key driver of economic growth in Huntsville over the last twenty years.

Huntsville is home to the Cummings Research Park which is the fourth largest research and development park in the world. The park houses some of the world's largest aerospace companies as well as university departments and smaller high-tech companies. Potential lessons for Aberdeen City and Shire from Huntsville include business involvement in planning and design of research parks and the benefits of cluster development.

7.1 Background and national context

The metropolitan area of Huntsville is located to the north of the state of Alabama, USA. With a population of around 370,000, Huntsville is the largest city in northern Alabama and serves as the primary economic engine for the northern Alabama and southern Tennessee region. The metropolitan area of Birmingham, which with a population of 1.1 million is Alabama's major city, lies about 100 miles to the south and is easily accessible via the main motorway. Nashville and Atlanta are also within 4 hours drive of Huntsville. Altogether around 4-million people live within a 100-mile radius of the city.

The US Economy

As one of the largest and, until recently, most stable economies in the world the United States has provided stable macro-economic conditions for growth over the last decade. U.S. economic performance has improved considerably in the past ten years or so as there has been a marked acceleration in productivity. Huntsville has benefited from increases in spending of the U.S. government's defence budget and the procurement of services from private companies in relation to defence. More recently, economic growth has slowed as a result of a sharp housing market correction and capacity pressures pose some inflationary risks.

Huntsville – Research and Development Centre

Huntsville is the central hub for North Alabama with nearly a million people within a 50-mile radius. The economy has grown robustly since 2000; Huntsville's employment base has grown by 13.5%, accounting for 33% of all net employment growth in Alabama, the area's population has grown by 4.8% and GDP has grown at a rate averaging over 8% a year, faster than the U.S. and the rest of Alabama.

The trajectory of economic growth in the region has been heavily influenced by the aerospace and military technologies, beginning with the advent of the U.S. Space program in the mid 1950's. Since then the Huntsville economy has been rooted in research and technology development. Huntsville is home to the NASA Marshall Space Flight Centre and the U.S. Army's

Redstone Arsenal, both combining to drive a strong research and development economy. The associated spending of procurement budgets in the local economy of these large government organisations have been the key driver of growth. Huntsville is also home to the Cummings Research Park which is the second largest research park in the United States and the fourth largest in the world, and is nearly 40 years old. The Huntsville economy has twice the dependence on high-tech industries as does the U.S. economy overall.

While the regional economy is heavily dependent upon defence and aerospace sector, Huntsville's economy has diversified (the economy has about a 50% reliance on Federal aerospace and defence spending but that is down from a high in the late 1970s and early 1980s of around 80%) and has attracted major employers in the fields of manufacturing, telecommunications, electronics, software and IT development, and retail. The biotech sector is an emerging industry in Huntsville. Research parks and industrial parks have been developed to promote and nurture this economic diversity.

7.2 Key Indicators

Huntsville was ranked as the 16th best performing metropolitan area in the U.S. in 2007.[27] Across a range of key economic indicators Huntsville's economic performance is good:

- **Huntsville's population has grown relatively strongly between 2000 and 2005, expanding by 0.9% each year.**
- **GDP has grown by 8.1% each year between 2001 and 2005, largely driven by the private business services sector.**
- **Prosperity has risen significantly in recent years with GDP per person rising to $44,700 in 2005.**
- **The performance of the labour market has been stable – the unemployment rate has remained low and despite population growth the employment rate has stayed stable.**

Figure 7.1: Key Performance Indicators

	2000	2005	Annual % change
Population	342,380	358,650	0.9%
GDP ($ millions)	$11,760	$16,060	8.1%
GDP per person	$34,350	$44,700	6.8%
Employment Rate	66.3	66.4	-
Unemployment Rate	3.3	3.1	-
Source: U.S. Department of Commerce, Bureau of Economic Analysis			

7.3 Business Base

Key Sectors

As mentioned in the introductory section above the Huntsville economy has been historically strong in high-technology research and development activities particularly aerospace and

[27] http://www.milkeninstitute.org/pdf/best_prfrmg_cities.pdf

military technologies. The U.S. Space program began in the mid 1950's and Huntsville is home to the NASA Marshall Space Flight Centre (employing 2,500 staff) and the U.S. Army's Redstone Arsenal (employing 14,000 staff).
The presence of these institutions, particularly the Redstone Arsenal, led to Huntsville becoming a key national aerospace and defence cluster. A wide array of organisations support or compliment Redstone's primary mission including the U.S. Army Aviation and Missile Command, the Missile Defence Agency, the Aviation and Missile Research Development and Engineering Centre, the Defence Intelligence Agency, the Missile and Space Intelligence Centre, and the U.S. Army Space and Missile Defence Command. These agencies are responsible for the efficient management of more than $25 billion in federal spending each year. Of that amount, over $4 billion remains in the local economy in either direct payroll or contracts awarded to local companies.

Therefore the Redstone Arsenal has acted as a catalyst of growth for the Huntsville economy as companies located close to the Redstone Arsenal to maximise their chances of supplying contracts and in turn this led to further investment across a range of high-tech industries as a number of clusters became established. The key industries are summarised below.

Aerospace & Defence - Huntsville and the Redstone Arsenal play a vital role in U.S. Army programs for missiles and aviation. More than half of the Army's weapons procurement budget is managed by agencies on Redstone, as are more than half of the Army's foreign weapons sales. NASA's Marshall Space Flight Centre (also on Redstone) is key to the nation's space propulsion and scientific missions programs. Almost every major U.S. aerospace corporation has a presence in the community, with more than 250 companies employing 27,000 people. In total, over 44,000 workers are directly involved in the local aerospace and defence industries. A workforce with six times the percentage of engineers as the national average supports the area's defence and aerospace industries. The industry has benefited from the U.S. Government's Base Realignment and Closure program which reallocated 5,000 jobs to Huntsville in the 2005.

Electronics - Over 300 domestic and international corporations in Huntsville are involved in the design and production of electronics and computer-related technology, including CINRAM, one of the world's largest manufacturers of DVD products.

Manufacturing – Huntsville manufacturing industry represents a diverse mix of technology assembly and production operations from both domestic and international corporations, comprising approximately one fifth of the overall local area employment. The manufacturing sector has over 220 companies with 32,000 workers.

Life Sciences - Huntsville has a growing cluster of life science research, development and manufacturing companies employing nearly 1,000 people in the biotech, biomedical and pharmaceutical fields. During 2003, three Huntsville companies opened a new biotechnology complex in Cummings Research Park, with a goal of creating a critical mass of biotechnology companies in the region. Recently, an announcement was made regarding the creation of the Hudson-Alpha Institute for Biotechnology in Cummings Research Park. It will be a 120-acre bio-tech campus creating 500-600 jobs in Huntsville during 2007 and 2008. By the end of 2008, the Institute is expected to have an estimated annual payroll of $37 million. Within ten years, the bio-tech industry in Huntsville's Cummings Research Park is expected to employ 1,600 persons with a combined payroll of $83 million.

Research & Technology - **Huntsville's Cummings Research Park** (CRP) is the second largest research park in the United States and the fourth largest in the world. The CRP is home to 285 companies spanning a mixture of very large Fortune 500 companies, local and international high-tech enterprises, US space and defence agencies, a business incubator and higher-education institutions. The following is a list of some of the organisations located on the park:

- The Boeing Company (Aerospace)
- The University of Alabama
- BAE Systems (Aerospace)
- Faulkner University
- Lockheed Martin (Aerospace)
- Motorola (Electronics)
- Raytheon Systems (Defence)
- United States Army Space and Missile Defence Command

A total of 25,000 employees work on the park across a range of industries including Software Design, Engineering Services, Aerospace & Defence, Computers & Electronics, Research & Development and Life Sciences. The park covers 3,843 acres and the layout of the park is shown in Figure 7.2. The CRP has excellent transport connectivity; it is within 10 minutes drive of the airport and within 15 minutes drive of the main north-south highway.

Figure 7.2: Cummings Research Park

CRP began as a public-private initiative and was intended to attract and retain major companies of technology and research from around the world, and to positively impact on existing companies in terms of knowledge spill-overs for example. There are several educational

establishments on the CRP which enhance knowledge spill-over and collaborations between universities and business.

In 1982, the second major phase of CRP was launched. A substantial new parcel of land, exceeding 800 acres, was purchased and master planned by the City of Huntsville Council. This phase was called CRP West. The revenue realized from the sale of that land has been returned to the Park in the form of further acquisitions and more infrastructure development.The master plan included man-made lakes, underground utility service, consistent and specific requirements for landscaping, and coordinated management of the outward appearance of all structures constructed within CRP West.

The City of Huntsville also expanded the process of managing the development of the park to include involvement by the actual owners and occupants of CRP, the extended local business community, and a board of business and community leaders were appointed by the Mayor to provide long-term planning. The most recent development in the research park is the construction of a landscaped town centre called Bridge Street. It will become the park's commercial centre combining office space, residential, hotel with conference facility, and service retail, childcare and recreation space.

Another key element in the success of the Cummings Research Park has been the location less than one mile from the main gate at Redstone Arsenal. This is a clear advantage for firms choosing to locate to the park.The Director of the Cummings Research Park highlighted the proximity to the government customer as central to the success of the park as companies want to locate as close as they can to their government customer.

Innovation

There are numerous examples in Huntsville of university and industry collaborations which have helped to raise levels of innovation. The University of Alabama in Huntsville is located on the Cummings Research Park and partners with a number of companies across a range of research areas. The university also has extensive partnerships with governmental agencies, including NASA's Marshall Space Flight Centre, the U.S. Army's Aviation and Missile Command and the U.S. Army's Strategic Missile and Defence Command. Research expenditures at the university have been growing year on year since. During the past five years, researchers have performed over $200 million in contracts and grants, received 11 patents and created almost $1 million in licenses and royalty fees. This success can be attributed to the close partnership between the colleges and the research centres and their collective ability to respond to the changing needs and priorities of industry.

The **National Space Science and Technology Centre** (NSSTC) is another good example of a collaborative research and education initiative. It consists of researchers and resources from government, academia, and industry collaborating in an environment that enables cutting edge basic and applied research and fosters education of the next generation of scientists and engineers.

7.4 People

The population of Huntsville was 358,650 in 2005, up from 342,380 in 2000 which equates to average annual growth of 0.9%. Huntsville's population experienced particularly rapid growth between 1970 and 2000 when average annual growth in population was 1.4%. Figure 7.3

shows that much of this growth was in the suburbs of the metropolitan area. With a median age of 36 years the population of Huntsville is relatively young.

Huntsville's population is well educated with 36% having a college graduate or advanced degree in 2005. This is one of the highest levels in the country and not surprising given the high amount of highly-skilled and qualified staff required to undertake research and development intensive activity. The Huntsville region is home to a number of higher education establishments. Huntsville area has two major universities which provide support and research capabilities to the region's private sector community. In addition there are 14 other colleges offering a combination of bachelor and master's degree education.

Figure 7.3: Huntsville Population

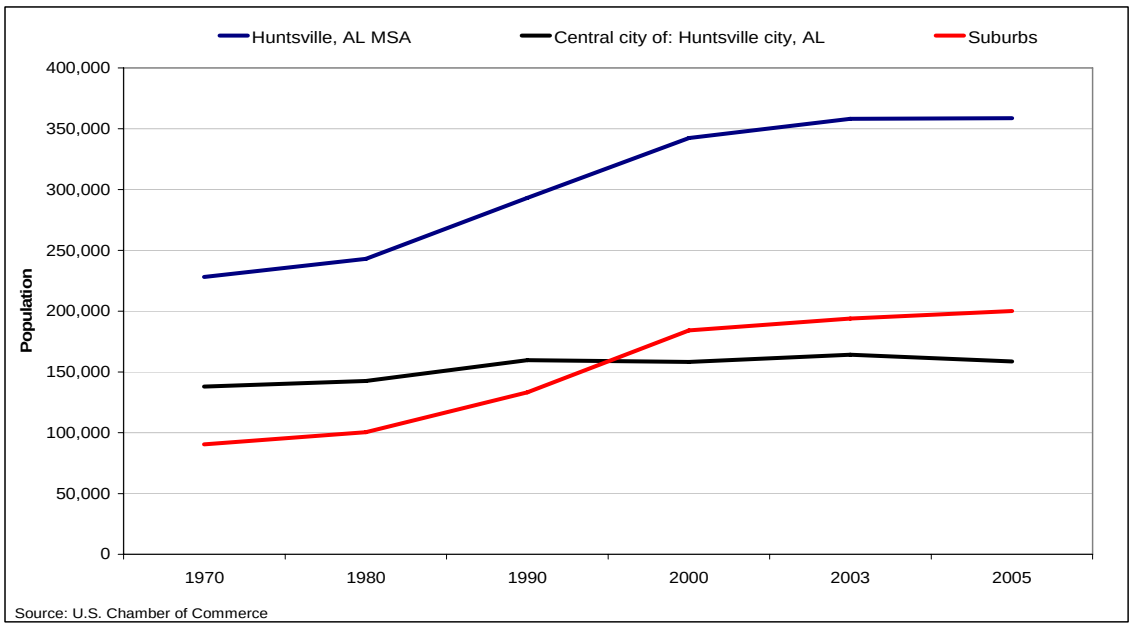
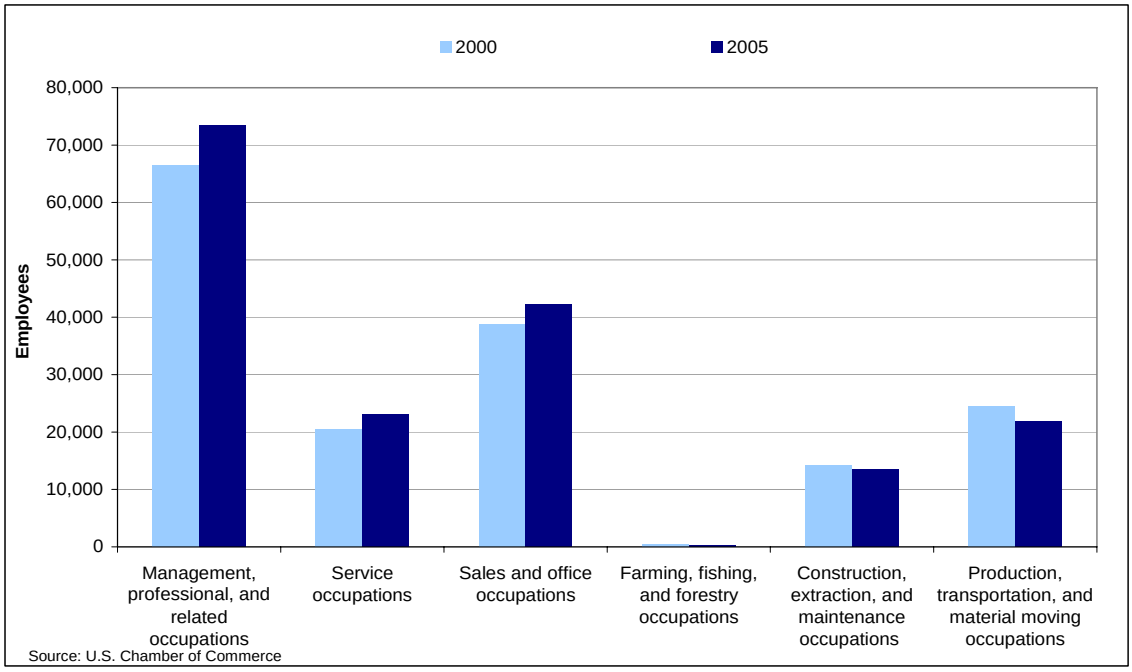


Figure 7.4 shows the occupational mix of Huntsville's workforce in 2000 and 2005. It shows that management, professional and related occupations accounts for the largest share of the workforce at 42% up from 40% and reflects the R&D orientated nature of much of the industry in the Huntsville area. The number of service sector occupations increased between 2000 and 2005 while the number of primary and manufacturing industry occupations fell.

The foreign-born population in Huntsville has increased considerably from 1.4% in 1970 to 4.6% in 2005. This is largely as a result of the increasing levels of foreign inward investment into the area in recent decades.

Figure 7.4: Huntsville's Occupational Mix, 2000 and 2005



Huntsville receives significant in-flows of commuters from surrounding areas on a daily basis; 31,822 people commute into the county each day and 7,804 workers commute out, giving a net in-commuting of 24,018. Therefore the surrounding counties provide an important source of labour for the Huntsville economy.

7.5 Infrastructure

Huntsville's central location in the south eastern United States provides excellent access to the national rail and road system. The quality of the transport network in Huntsville has helped attract businesses into the region. In 1991, a city by-pass was built that provides easy and speedy access to the various research parks, the airport, railway and the main motorways North and South.

Huntsville International Airport is 12 miles from downtown Huntsville and has over 80 daily fights and provides direct flights to eleven major cities and one-stop service to anywhere in the country. It has two parallel runways including the 2nd longest in the southeast allowing non-stop cargo flights to Asia, Europe and Latin America. Huntsville's cargo hub operations are anchored by a partnership between Cargolux and Panalpina air cargo. These companies use Huntsville as its main point of entry to the United States. The company operates twelve weekly international cargo flights from Huntsville to Asia, Europe and Latin America. The company has seen significant growth (up 22%) in passenger numbers over the past ten years.

The International Intermodal Centre (IIC) located close to the airport provides a single hub location specialising in a wide range of services including receiving, transferring, storing and distributing air, rail and highway cargo both domestically and internationally. International and domestic rail containers move to the IIC on a direct spur from the Norfolk Southern mainline. The IIC is also designated as a U.S. Customs Port of Entry.

7.6 Quality of life

One of the attractive features of Huntsville is the low cost of living. When compared with other larger metropolitan areas in the U.S., the difference in cost of living is very favourable. The cost of living index in Huntsville is 92 relative to the national average of 100 and 96 for Atlanta, 136 for Washington and 212 for Manhattan. The Huntsville community also compares well with communities of comparative size throughout the Southeast and the rest of the country.

The Huntsville area has been recognised nationally for the high quality of life it affords its residents. Employment Review Magazine ranks Huntsville as number four in the nation for the best place to live and work sighting low cost of living and the employment, educational and the recreational opportunities on offer. The region saw positive net migration of more than 1.1% between 2000 and 2006 which indicates the attractiveness of the region.

7.7 Economic strategy and delivery

Economic Development Strategies

Huntsville's economic development effort is led by the Chamber of Commerce of Huntsville. The Huntsville Regional Economic Growth Initiative (HREGI) is currently the main program of the Chamber of Commerce to establish Huntsville as a stronger and more visible community in the nationwide competition for economic growth. A large number of companies that have operations in Huntsville invest in the HREGI. The HREGI has seven investment strategies:

- Grow & Preserve the Huntsville Region's Existing Economic Base, Business Climate and Business Culture
- Recruit Targeted Businesses
- Grow the Community's Defence & Space Industries & Assets
- Support efforts to ensure there is adequate quality and quantity of workforce to meet employer needs
- Enhance the Community's Image
- Develop the Community's Capacity for New & Sustained Economic Growth
- Be Accountable to Investors

The direction of the HREGI is very much on continuing to focus on the economy's strengths in aerospace and defence and related technologies and gain maximum benefit for the local economy from the expansion of the Redstone Arsenal as a result of the national Base Realignment and Closure programme. There are no plans for a departure from this strategy. The HREGI underlines the importance of partnerships with local universities to maintain and promote the region's technology-based reputation (this is discussed below).

Financial and Tax Incentives

A number of tax and financial incentives exist at the state level to attract businesses to the Huntsville city region. For example:

- Income Tax Capital Credit
- Low Property Tax
- Low Sales and Use Tax

- No Inventory Tax

Various other financial incentive programmes are available to fund enterprise expansion in Huntsville:

Industrial Development Grants are available to the Industrial Development Board or government entity that will be leasing land or buildings to a new or expanding company. The agency can use the money to prepare a site or do repairs and thus save the company from that cost.

Industrial Revenue Bonds (IRB) has been a preferred method of financing used by industries locating to and expanding in Alabama since the fifties. The political subdivision issuing the IRB retains ownership of the bond-financed facility and leases it back to the company at a rate sufficient to pay the principal and interest on the bonds as they mature.

Workforce Development / Talent Attraction

The Huntsville Chamber of Commerce has a Workforce Division which aims to ensure an available labour force with the skills and education to meet the employment demands of the 21st century. The Chamber partners with industry, education and civic groups to address many aspects of workforce and takes the lead in certain areas, such as marketing the community to new workers.

One key element of the Chamber's approach to workforce is support for employee recruitment and retention with a particular focus on young professionals. A website has been set-up to provide information on living and working in Huntsville.

Another element of the workforce program is to help increase the local talent base through partnerships with secondary schools and post-secondary education institutions and community organizations to promote career awareness and requisite skills in the region's high-growth industries.

At state level, there is a workforce training program called the Alabama Industrial Development Training (AIDT) program. The AIDT program supports companies who create new jobs in the state by performing customised workforce recruitment, screening, pre-employment and on-the-job training. The program offers a range of services (pre-employment selection and training, leadership development, on-the job training, maintenance assessments, and industrial safety assessments and training) which are free of charge to new and expanding businesses throughout Alabama. The AIDT program has been ranked number one in the U.S. for its workforce training.

Industry-University Collaboration

A lot of importance is given to the importance of collaboration between university-industry-government organisations to improve innovation and build a reputation for research and development. The Alabama Experimental Program to Stimulate Competitive Research is a range of competitive, merit-based programs sponsored by the State of Alabama and by the National Science Foundation, the National Aeronautics and Space Administration, the Department of Energy, the Department of Defence, and the Environmental Protection Agency. These programs are a Federal-State-industrial partnership formed to enhance the science and

engineering research, education and technology capabilities of Alabama. The location of Huntsville's universities on the Cummings Research Park facilitates the interaction and research and development partnerships between the companies and universities.

Industry and university collaborations are also concerned with ensuring the future workforce has the skills required by industry and government. For instance Calhoun College, in cooperation with the US Army Ordnance Missile and Munitions Centre and School, provides a specialized Associate in Applied Science degree for graduates of the missile programs controlled by Redstone Arsenal. This program allows career military personnel to earn college credit through a combination of civilian and military education.

7.8 Potential lessons for Aberdeen City and Shire

The success of the Huntsville's economy is inextricably linked with the U.S. Army's Redstone Arsenal locating in the region. Since it's location in Huntsville in the fifties, the military presence in Huntsville has expanded, with the city playing a key role in the U.S. Army's technology development programs. A large proportion of the U.S. Army's weapons procurement budget is managed by Huntsville-based operations and this has driven a strong research and development economy and affected spin-off and commercial activity of technology innovations. This led to the development of the Cummings Research Park which is the country's second largest research and technology park, containing 225 companies employing 23,000 people involved in technology research and development.

The Huntsville City Council and the Chamber of Commerce have not introduced highly innovative policies or delivery models which have led to the economic success. Rather their open approach and engagement with businesses and government has facilitated the growth of the economy that has been driven by the large military presence. There are some clear factors that can be identified as having been particularly important in the success of the Huntsville economy in the past decades:

- **Clustering or agglomeration effects have led to a critical mass of high-tech aerospace and military companies locating in Huntsville.**
- **The inclusion of the business community in the long-term planning and design of the Cummings Research Park have contributed to its success and functional design.**
- **The purchase of land by the City of Huntsville Council and their investment in infrastructure on this land allowed the research park to expand and facilitated long-term planning on a large scale.**
- **A business friendly approach – low tax rates and incentives have helped to attract businesses to locate in the city.**
- **The willingness and openness of universities, businesses and universities to collaborate on research and development activities.**
- **Good marketing and information provision for businesses considering locating to Huntsville – mainly through the Huntsville Chamber of Commerce.**

The outlook for the Huntsville metropolitan economy is bright. The latest round of the U.S. military's Base Relocation and Consolidation programme should stimulate the region's economy as the area gains jobs due to consolidation from other military bases. The critical mass of high-tech aerospace and defence companies located in the area combined with the increasing large

military presence and the highly-skilled and specialised workforce in the area mean that Huntsville has a strong offering when competing for inward investment and attracting mobile talent. As the population of Huntsville continues to grow, diversification of the economy will increase and serve as a ‘buffer’ against political movements which may or may not affect the level of defence spending at Redstone.

8 Learning agenda

8.1 Summary conclusions from case studies

In this chapter we pull together the evidence from the five case studies in order to highlight some of the *general* lessons for Aberdeen City and Shire. The *specific* lessons from each case study are highlighted at the end of each of the preceding chapters (the lessons from each city region case study and their applicability to Aberdeen City and Shire will be furthered developed into action plans in phase 3 of the research).

In the following sections we discuss the recurring lessons under the following headings:

- **Business Base**
- **People**
- **Infrastructure**
- **Quality of Life**
- **Governance**

These themes are of course inter-linked. The attractiveness of a city region to business is influenced by characteristics such as: the presence of other firms in the same industry (agglomeration economies); infrastructure quality; labour cost and quality; quality of life; stable political situation; international links; access to markets; sufficient business accommodation and transport links. In turn the presence of businesses (jobs) attracts skilled labour into the region, as does the quality of life on offer. Therefore the characteristics of the region and the interaction and synergy of these characteristics are key to identifying the likely attractiveness and development of a location.

8.1.1 Business base

To a large extent a city region's economic competitiveness in the developed world economy emanates from the nature and quality of its business base. Therefore under this theme we are interested in how other city regions' business bases compare with that in Aberdeen City and Shire and how this is supported by the public sector.

The key lessons in developing the business base are:

- Economic success and transition is predominantly **market-driven**. In all the case studies – key **economic clusters have developed out of the cumulative commercial decisions** of numerous firms to locate in the same city-region. However, there is still a public role in ensuring that such positive economic trajectories take place efficiently (e.g. infrastructure provision, information provision and providing incentives) and for Aberdeen City and Shire the lesson may be to help reinforce the city region's attractiveness as a number one location for identified sectors (energy, food and drink, life science); and
- Another area of interest in the development of the business base is the **role of universities in supporting innovation**. This is generally an area of weakness in UK universities as their roots and strengths are in teaching and in pure research rather than

applied research supporting local industries. Across the case studies there are examples of universities playing a key role in supporting innovation, often because they are *newer* institutions and their objectives are **more tied to local industry** needs than to pure research and teaching. For Aberdeen City and Shire the pertinent lessons are the co-location of Universities and companies on science parks (e.g. Huntsville) and the development of a *regional* innovation system with funding support, a public sector role and buy in from universities and companies (Bristol, Aarhus, Stavanger, Calgary).

8.1.2 People

There is widespread recognition across the economic development strategies of each case study area that economic success has not, and cannot, take place without an adequate **supply of skills** to serve and create it.

The key lessons in developing people assets are:

- The evidence from these case studies and from previous research (e.g. the Aberdeen City Region Economic Review 2007) is that the fastest growing and most **successful city region economies are also those that are experiencing the most rapid population growth**. In contrast with Aberdeen City and Shire, all five case study city regions in this research are experiencing quite pronounced population growth. This underlines the imperative to make Aberdeen *City* an attractive choice for a broader range of skilled people;
- Although economic growth in itself drives population expansion, most of the case study areas have had **additional public sector support for attracting in-migrants**. There are key lessons from Calgary (influencing national skilled in-migrant priorities and marketing the city effectively) and Aarhus Amt, Stavanger and Bristol (developing the quality of life and liveability on offer); and
- There are also examples of **specific collaborations between universities and businesses** to ensure that the supply of higher level skills to the economy match those required by employers (e.g. in Calgary and in the university-business collaboration in Bristol).

8.1.3 Infrastructure

Infrastructure refers to the general economic 'place making' required to create a competitive business environment. It encompasses transport, ICT, public services, business property and the other features that provide the necessary **backcloth for economic activity**. The key questions in this sub-section are whether other places have a superior infrastructure to Aberdeen City and Shire and how they are ensuring their infrastructure remains adequate for emerging needs.

The key lessons in developing infrastructure are:

- All the case study city regions have a **good quality infrastructure**, which can be regarded as a pre-requisite for any high-performing small or medium sized city region economy. Typically the case study city regions demonstrated; road infrastructures that can cope with demands, extensive direct air transport links, good logistics capacity and viable alternatives to private car use (e.g. C-Train system in Calgary). This finding underlines the need for transport and logistics capacity investment in Aberdeen City and

Shire to support the nature and scale of economy envisaged in the future. In this regard it is useful to note that in Calgary, plans for a ring-road were brought forward by several years to support anticipated economic growth;

- Stage 1 of this research project identified the constraints in Aberdeen City and Shire – at the current time the region would struggle to **accommodate a significantly greater population**. However, across the case studies there are examples of places that have managed to accommodate significant population growth in recent years. In Aarhus Amt, Stavanger and Bristol there has been a common approach to re-locate commercial maritime activities away from the city centre and dedicate the city centre to denser urban development (enabling population growth);
- To a greater or lesser extent, all the city regions in this study are relatively small and peripheral. In all cases this has led to some **policy emphasis on the need for fairly extensive air connections and supporting infrastructure**. The key lessons in this regard are from Calgary and Huntsville. In both case study city regions, the air and logistics infrastructure is of such a quality that a diverse range of firms are attracted to these regions as competitive places to site export businesses or businesses requiring good international access;
- A more general area in relation to infrastructure development is the **assembly of developable land**. The economic strategic partners in Aberdeen City and Shire, as consulted in stage 1 of this research (and as summarised in the ACSEF Economic Manifesto, *Building on Energy*), recognise the lack of land for development. A good example of a direct public role in this regard is the City of Huntsville Council who provided the land and infrastructure for the expansion of the Cummings Research Park, ensuring its growth into the future.

8.1.4 Quality of life

There are two key areas of intervention in relation to quality of life – **investment in the creation of an attractive, competitive place** and **the communication of a place's attractiveness**. Therefore in this sub-section we review interventions in relation to both actual place change and in place marketing.

The key lessons in developing quality of life are:

- The case studies provide evidence of public-led strategies to **re-develop the role played by city centres**. In Bristol, Aarhus and Stavanger the decision to re-locate the industrial ports were at least partly driven by an aim to ensure that the city centre is focused on living, working, leisure, retail and cultural activity, rather than industrial production or freight handling;
- Quality of life is a difficult concept to pin down but this should not be a barrier to reviewing evidence in relation to investments and interventions that are, in a common sense way, related to place improvement. One particular area where most of the city regions have tried to invest in improvements (with an aim of improving place attractiveness) is **cultural development**. In Aarhus, for example, there is a public-led focus in the city itself to develop the media industries and sporting sector to simultaneously develop new industries whilst improving the range and depth of cultural attractions for residents, in-migrants and visitors. The City of Bristol Council and SWRDA have taken a similar approach to develop visitor/resident attractions and the film/media industry to create a new 'feel' to the city centre;

- In Huntsville, part of the approach to developing **a joined-up career/residential offer** is the physical development of the workplaces in Cummings Research Park. A good example of this is the development of Bridge Street, a new public and commercial area within the site itself. This may prove to be a useful model for the planning and development of the *Energetica* corridor in Aberdeen City and Shire; and
- **Marketing** a city region's attractions is a key part of the strategy to compete for skilled people. Calgary probably has the most advanced approach with well developed marketing tools and materials for attracting people to work in the city region. Already the city benefits from internal migration within Canada but increasingly the city region as a whole needs to attract *international* in-migrants. In Aarhus and Stavanger **attracting key events** (e.g. sports, music acts, festivals) has been an important mechanism for raising quality of life, diversifying the cultural offer and creating opportunities to market the city region to visitors This is an area of activity that could be of greater benefit to Aberdeen City and Shire.

8.1.5 Governance

In this chapter so far we have highlighted some of the key areas where the public sector has been involved in helping to facilitate economic transition. However, it is important to compare the organisation of public sector powers and in particular the powers that are available at city and regional level to enable economic development.

The key lessons in relation to governance are:

- Calgary stands out as having some advantages in **regional powers**. One of the main advantages is the ability of the state (Alberta) to vary regional income tax rates. In Alberta, regional revenue from the oil and gas industry has enabled the state to reduce income tax to 10%, providing a fiscal incentive to in-migrants (helping to explain the high net migration inflows from other parts of Canada). These powers are difficult to replicate directly but it does provide an agenda for Aberdeen City and Shire to lobby UK and Scottish government for policies that promote *international* competitiveness for the energy sector in the region;
- One area of consistency in terms of regional governance is the operation of **long-term planning** at regional level. In Aarhus Amt[28], this has been given more focus by the re-organisation of the regional tier of government, identifying strategic land use planning as a major role of the Regional Councils. In the case of Denmark, this capability has been married with the role for controlling the use of European Structural Funds, potentially providing Aarhus Amt with a more coherent system for regional development than Aberdeen City and Shire. Although Aberdeen City and Shire has a strong public-private sector collaborative approach to economic strategy development and implementation, it lacks an economic development agency with sole focus on the region. Such an agency is an asset in both Calgary and Stavanger. Also Bristol benefits from being the 'capital' city in a government office region (whereas Aberdeen is third largest within Scotland).

[28] However, the Regional Council covers a larger area than simply Aarhus Amt.

8.1.6 City and hinterland interaction

In Aberdeen City and Shire, the wider regional area plays a range of significant roles including; industry (energy, food and drink, visitor economy), choice of high quality settlements and leisure environment, visitor attractions (including Cairngorms National Park) and supply of labour (commuting).

The case study comparator areas highlight some useful lessons:

- An important function of a city region economy is the availability of a **larger pool of labour than can be provided by a city alone**. In this respect Huntsville and Calgary are notable as having fairly large labour catchment areas, the latter courtesy of a large-scale passenger system, which is an advantage when trying to attract new businesses;
- The physical footprint of a travel to work area is partly determined by **commuting tolerances and the density of urban development**. In this respect, both Aarhus and Stavanger are interesting examples where denser development is being permitted in core city areas and where most people commute relatively short distances to work or learn (10-30 minutes in Stavanger). This means urban sprawl is limited and the character and scale of the non-city areas is preserved;
- As predominantly non-urban areas, the **hinterlands of city regions offer something that urban areas cannot**, such as natural environments and low density settlements. The region around Aarhus is nationally recognised as being of a high quality and is an important visitor draw in Denmark. Calgary's region benefits from National Parks (like Aberdeenshire) and international-quality winter sports conditions and facilities, providing a distinct attraction which complements the region's urban offer; and
- Many of the **regional innovation systems** we have reviewed in this study have a predominantly city focus. However, in Bristol city region there are a range of innovation initiatives that involve all higher education institutions in the region, creating a more dispersed and inclusive system for creating, sharing and commercialising knowledge. This is, however, difficult to replicate in Aberdeen City and Shire as there are no other large urban areas with HEIs unlike Bristol city region (e.g. Bath, Cirencester, Gloucester).

8.1.7 Summary

Figure 8.1 below summarises the key lessons for Aberdeen City and Shire. The purpose of this figure is to highlight some of the key lessons that are worthy of further investigation. We have highlighted the three best examples under each heading.

Figure 8.1: Key lessons

Key issue	Lesson 1	Lesson 2	Lesson 3
Business base	• Public sector role in developing regional innovation system for knowledge-based industry (Aarhus, Stavanger)	• Permitting growth and development to enable key clusters to reach critical mass (Bristol – aviation, Calgary – energy, Stavanger – energy, Huntsville – defence)	• Research, marketing and commercial collaboration to promote food and drink industry (Aarhus, Stavanger)
People	• Multi-faceted approach to attracting skilled in-migrants (e.g. communication, incentives, lobbying) (Calgary)	• Developing place competitiveness around liveability offer and developing industry niches to support this (Aarhus)	• Collaboration between business and universities on skills supply for regional clusters (All)
Infrastructure	• Relocating industrial uses of city waterfront to free up city for residential/leisure development (Aarhus, Bristol, Stavanger)	• Long term infrastructure and business property planning (Huntsville, Calgary)	• Development of strategic sites focusing on business space, innovation and liveability (Huntsville)
Quality of life	• City centre investment across a broad range of activities – retail, office, cultural, sports (Aarhus, Bristol)	• Developing a vision for the purpose for the city centre and creating relevant development and activity (Aarhus, Bristol, Stavanger)	• Attracting events which create new economic opportunities and market the city region (Stavanger, Aarhus)
Governance	• Long term land use planning which serves the needs of key local industries, ensuring they reach and sustain critical mass (Stavanger, Huntsville, Calgary)	• Regional economic development agency with budget and powers (Calgary CED, Stavanger - GSED)	• Lobbying national level government on place investment needs (Calgary)

8.1.8 Next steps

Phase 3 of the study will bring together all the key lessons on initiatives, projects, programmes and approaches that have played a part in economic change in the case study city regions. This will be compiled in the form of an action plan which will enable agencies in Aberdeen City and Shire to establish contact with project managers, economic development agencies, industry fora and university innovation centres.