
North East ICT Infrastructure Policy and Investment Framework Study

Technical Paper 3c North East Policy Context

Final Version

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1. Purpose of this Document

- 1.1 Producing an ICT strategy is an extremely complex process. Among many concerns, it is vital that it is not produced in isolation – the socio-economic context of the region provides a critical input to strategy formulation. Ultimately, the ICT strategy of any geographical area exists to serve the people who reside and work there: failing to consider the particular challenges they face is unlikely to result in a strategy that contributes to local economic growth and job creation.
- 1.2 We felt it was extremely important, therefore, to produce a paper analysing the North East of England – the very subject of our study. This has ensured both that all our team members understand the economic context of the region and also that the recommendations we offer are built around the key strengths and weaknesses of the region, are tailored to tackle some of the most pressing economic challenges it faces, and provide support for some of the major opportunities currently available to it.
- 1.3 A further purpose of the document is to set out North East policy that is relevant to considering need and demand for broadband connectivity. Key policies and supporting research/ analysis we review include:
- The Regional Economic Strategy
 - The Regional Spatial Strategy
 - The Strategy Integration document produced by Lichfield and Partners in February 2006, which sets out the City Region approach set out in the Northern Way which has been adopted by the North East in its latest RSS
 - Current economic growth scenarios – provided by the Centre for Economics and Business Research and DTZ Pieda Consulting
- 1.4 If you have any questions or require further information, please do not hesitate to contact:
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2. Key Features of the North East Region

Key features of the region

- 2.1 The North East region covers around 850,000 hectares and is home to just under 2.4 million residents, but is built, in terms of travel to work patterns, around the two city regions of Tyne and Wear and Tees Valley. The urban centres at the heart of these areas provide the region's key labour markets as well as their main employment centres. The city regions are also notable for containing many of the region's key economic assets, such as the ports and airports that provide transport connectivity and the universities that educate, perform cutting-edge sectoral research and foster innovation.

City Regions

- 2.2 The region is therefore built, in economic terms, quite strongly around the two city regions. The population of Tyne and Wear is around 1.65m, 65% of whom live in the major urban centres, while Tees Valley has a population of around 875,000, almost half of whom live in the Teesside conurbation of Middlesbrough, Stockton and Redcar. The economic fortunes of the two city regions have been quite different in recent years, with Tyne and Wear experiencing much of the higher growth and Tees Valley, with the notable exception of Darlington, struggling in comparison. Nevertheless, both must improve their performance and become competitive at a national level if they are to drive the North East economy forward as required.

Sectors and clusters

- 2.3 The main locations of key sectors/clusters in the North East are as follows:
- The '**Newcastle Science City**' initiative has been placed at the forefront of science and technology development in the Newcastle city region, and is the key driver of the three 'pillars of innovation' (healthcare and life sciences; energy and environment; and process technologies and industries) set out in the North East Strategy for Success. To begin with, activity will be concentrated in the western part of Newcastle, within the triangle between the university campuses, the General Hospital and the Centre for Life, incorporating the Discovery Quarter. Science City, however, is essentially the hub of a wider network of teaching, research, incubation and public engagement activities incorporating Knowledge Campus Gateshead and the Universities of Durham and Northumbria.
 - The **Tees Estuary** is home to a major, world-class heavy industrial complex – employing some 12,000 people – based on petrochemicals at Wilton, Seal Sands and Billingham and steel at Redcar and Lackenby. There is currently a plentiful supply of heavy industrial land for both chemicals and steel, readily available for redevelopment, which provides a solid platform for supporting both the confirmed and anticipated new investments (e.g. development of the hydrogen economy and research capabilities through the Centre of Process Innovation, the Wilton Centre and university facilities) needed from the sector to drive the local and regional economy forward. There is a growing presence in the renewable energy and environmental technology sectors in the Tees Valley area, with the national Fuel Cell Application Centre at Wilton being perhaps the most significant manifestation of this to date.
 - The **NetPark** complex at Sedgefield is anticipated to become, over the next 20 years, a significant location for science and technology activity, housing research
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centres, university spin-outs and established companies, with the aims of establishing an indigenous business base, retaining graduates, raising technical skill levels amongst the local workforce and attracting significant international investment.

- The **health and social care** sector plays an important role in the regional economy at present, and this is likely to continue with the Government's announced investment in the National Health Service. The University of Teesside's School of Health and Social Care is nationally-recognised in the fields of training and research, and has over 5,000 students that would seem to offer a rich source of skilled labour to match the increasing numbers of employment opportunities in the sector.
- The almost universal coverage of telecoms and cable infrastructure in Tees Valley has been listed as a key factor behind the rapid development of high value added **business support services** in the area, particularly in the financial services and telecoms sectors. This is also expected to grow in forthcoming years, providing the supply of high quality, accessible and well connected workspace in the area is sufficient.

Core cities

2.4 At the heart of the North East region lie three core cities, around which employment, industry and travel to work patterns are largely based. Table 2-1 summarises the population, business start-up rate and extent of deprivation in these cities – Newcastle, Middlesbrough and Sunderland. In terms of population, Newcastle and Sunderland are relatively similar-sized, although the latter has a smaller proportion of working-age residents. Middlesbrough is approximately half the size of the other two cities in terms of population, although its 'natural' population is spread out into the wider Tees Valley region. All three cities, overall, are classed as fairly deprived in national terms, with Sunderland being the worst by this measure. Business start-up rates also lag well behind national averages, with Middlesbrough showing the second-lowest figure of all local authority districts in the country.

Table 2-1: Comparison of major cities in the North East			
	Newcastle	Middlesbrough	Sunderland
Population (total), 2004	269,500	137,900	282,700
Working age (15-64)	183,100	90,300	187,700
%	68.0	65.5	66.4
Index of Multiple Deprivation: extent of deprivation ¹	0.45	0.47	0.57
National ranking (1=most deprived, 354=least)	24	23	11

¹ Figures show extent of deprivation in 2004 and represent the proportion of local residents living in the country's most deprived super-output areas

Business start-up rate, 2004² (UK average=46.3)	29.5	17.2	21.6
Sources: National Statistics, ODPM			

Market towns

- 2.5 Around two thirds of the North East region is rural in character, and this presents unique challenges for the region with regard to ICTs. Market towns act as important service centres for rural communities, and often act as the hub in a micro-economy spreading over a significant geographical area. There is relatively little research to indicate how market towns have performed in harnessing the benefits of ICTs to obtain tangible economic benefit; our study has an important role in recommending the most suitable course of action for towns such as Alnwick, Berwick-upon-Tweed and Barnard Castle.

Rural areas and ICTs

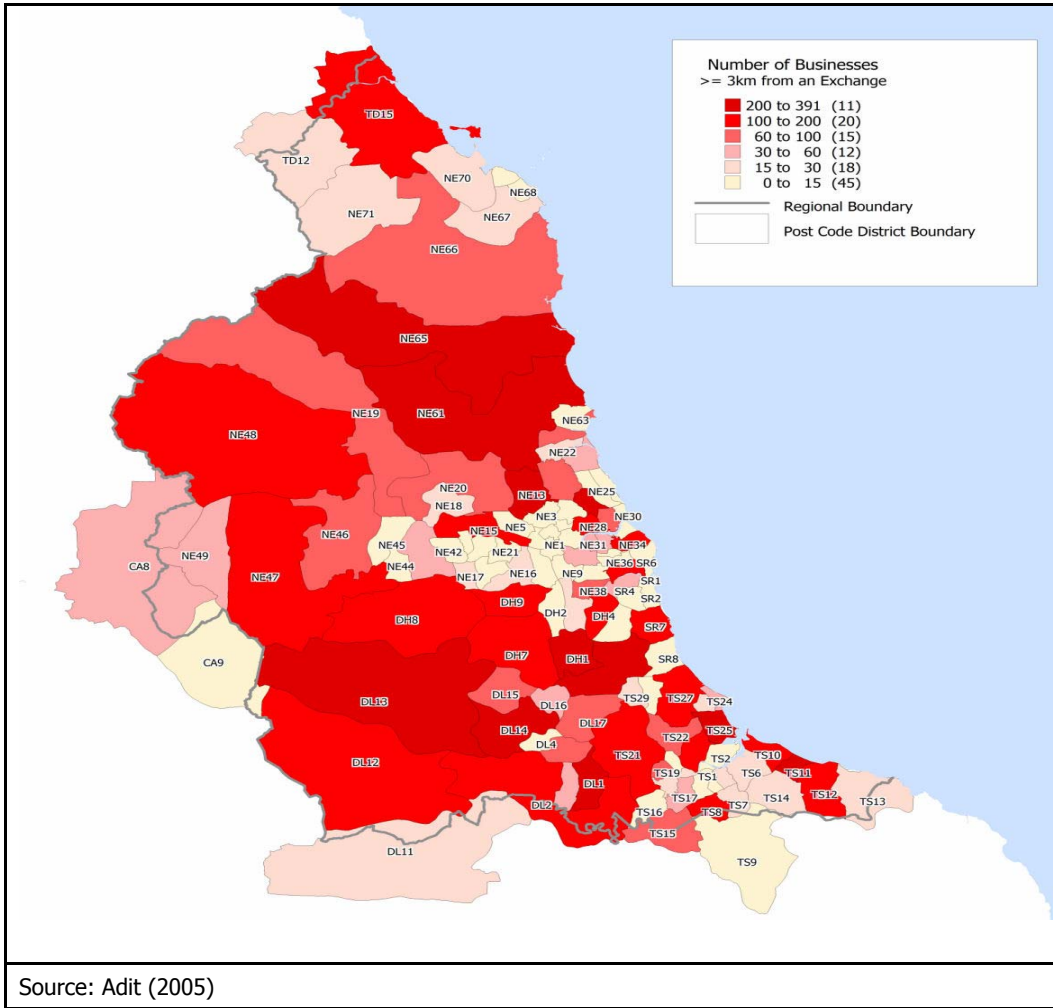
- 2.6 There is some evidence to suggest that rural businesses adopt ICTs significantly more slowly than urban businesses, with micro-businesses suffering in particular from both their relative lack of resources and their rural location (SQW, Jul 2005). There is, however, research to show that rural businesses have been successful in adopting ICTs and indeed in obtaining significant benefits from it – where the technology is available and they have the resources and skills to implement it.
- 2.7 According to the European Commission (July 2005), the UK also has one of the lowest rural broadband penetration rates in Europe. Indeed, although speeds in rural areas often tend to be lower than average, around 80% of the UK's rural areas are in fact covered by DSL (in line with the EU average), which makes the penetration rate of 2% (in the Netherlands, Denmark, Belgium and even France it is around 10%) seem indicative of an acute lack of awareness of any tangible individual benefits.

Businesses and exchanges

- 2.8 As Figure 2-1 illustrates, produced using GIS data mapping software, quite significant spatial inequalities are evident in the number of businesses in a particular postcode area lying more than 3km from a telephone exchange. The map provides quite powerful evidence of the potential demand for high-speed broadband services even in rural areas, and indeed the worrying potential of technological constraints to curb regional productivity and augment the digital divide.

Figure 2-1: Number of businesses more than 3km from an exchange, 2005

² Number of VAT registrations per 10,000 working-age adults

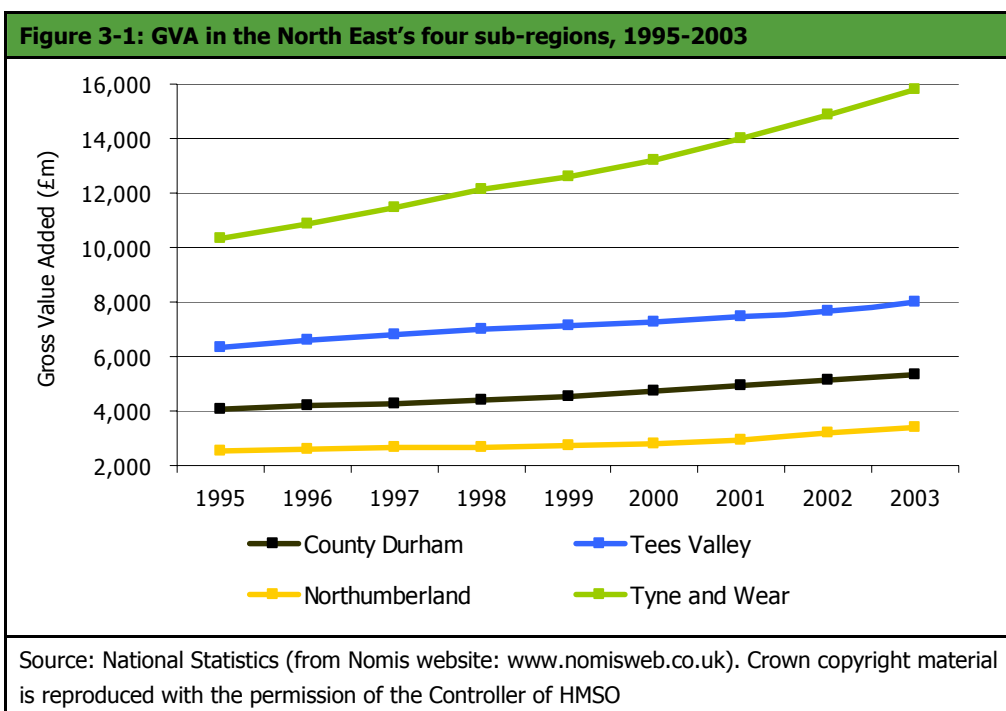


3. Economic Context of the North East

Economic context

GVA

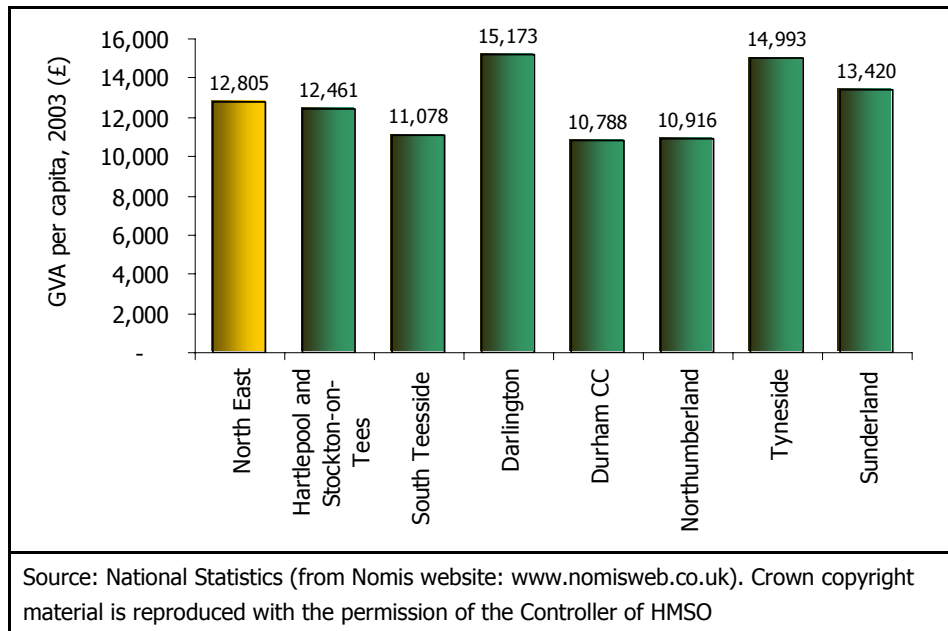
- 3.1 Gross value added in the North East region amounted to £32.5bn in 2003, just 3.3% of the UK total. At a sub-regional level, the largest contributor was Tyne and Wear, which added some £15.8bn in the same period. As Figure 3-1 below illustrates, Tyne and Wear is the only sub-region where total GVA is increasing at any significant rate, although in all four areas an upturn of at least modest proportions is noticeable since 2000. As might be expected, the two rural sub-regions – Northumberland and County Durham – offer the smallest amount of value added to the region.



GVA per capita

- 3.2 As Figure 3-2 below illustrates, Darlington and Tyneside display the highest levels of 2003 GVA per capita (often used as an indicator of productivity) of all local authorities within the region. Rural areas Durham and Northumberland can again be seen to have significantly lower productivity than other areas, with GVA per capita coming in well below the North East average of £12,805. Given that the GVA per capita of the UK was some £16,485 (and over £14,000 in both other Northern Way regions the North West and Yorkshire & the Humber); the potential for productivity enhancements through ICT – if the benefits described in section 2 are obtainable – seems extensive.

Figure 3-2: GVA per capita by local authority district, 2003



Workforce

- 3.3 The North East is a relatively large geographical area yet has less than 1.7m residents of working age (15-64). This represents the smallest potential workforce of all UK government office regions, and in addition, the region's annual percentage increase in working-age population (0.48% in 2004) was also the smallest in the UK with the exception of the South East and the West Midlands. Both these issues present potential hindrances to future economic growth, with a small and relatively dispersed population also making infrastructural investment (including that in ICTs) significantly less attractive to private sector firms.

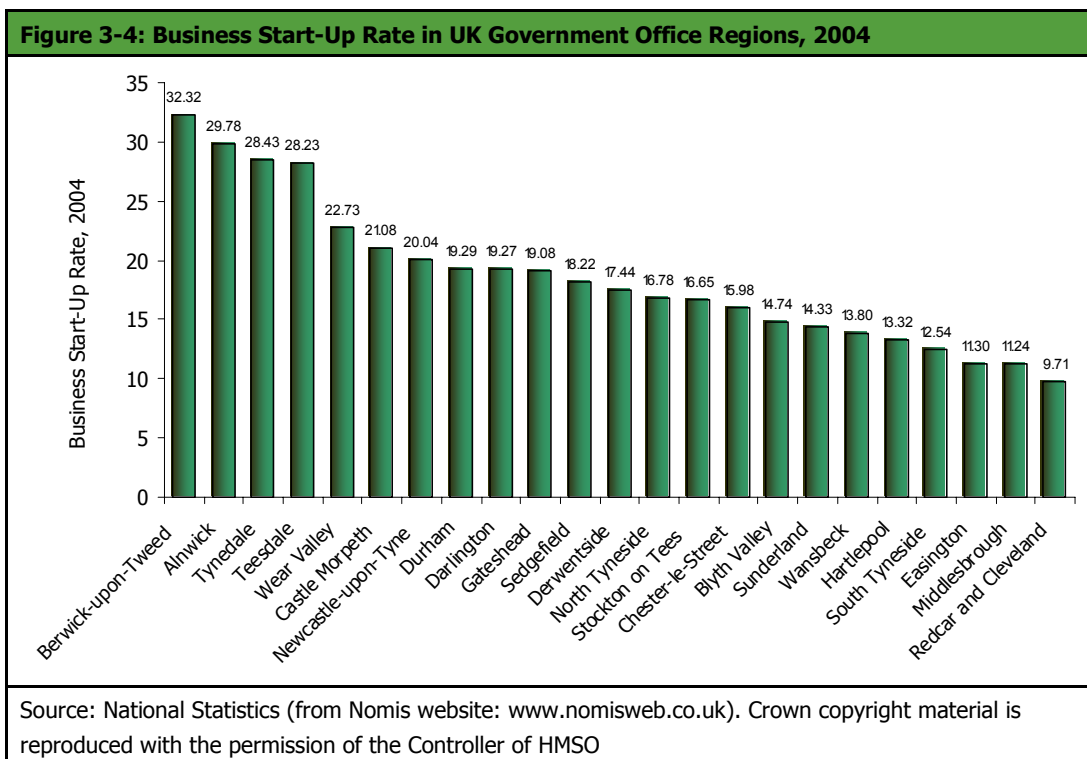
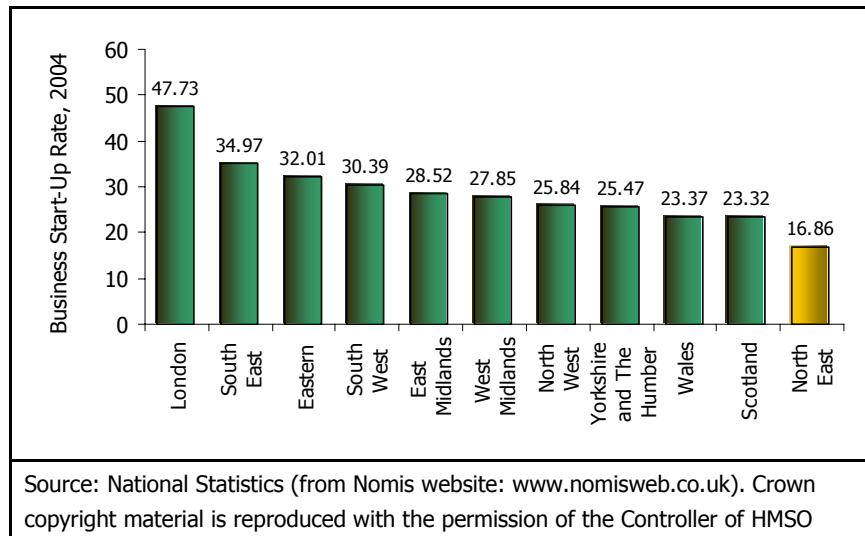
Business base

- 3.4 The North East had less than 46,000 registered businesses in 2004, by far the lowest figure of all UK regions despite an annual rate of increase (0.44%) amongst the highest. More significantly, the number of businesses per 10,000 working-age population was just 274 in 2004, far behind the national average of 460 and much lower even than the North West at 387.

Enterprise

- 3.5 The region's obvious need to increase entrepreneurship – a transformation which may well be partially facilitated by ICT – is also indicated by its lagging rate of business start-ups, which in 2004 was just 16.86 (new starts per 10,000 total population) in comparison with the national average of 30.60. As Figure 3-3 and Figure 3-4 below illustrate, utilising the potential of ICT to increase entrepreneurship should almost certainly be a key priority for the region.

Figure 3-3: Business Start-Up Rate in UK Government Office Regions, 2004



Industrial composition

- 3.6 In terms of industrial structure, almost a quarter of businesses in the North East are in the wholesale and retail sector, a greater proportion than the national average. Around 22% are in the real estate sector, although this proportion is significantly lower than the national average of 9%. Construction and manufacturing remain important for the North East, which is an important point for this study given that recent research from the European Commission suggests that ICT usage in both these sectors – particularly the former – remains relatively

low despite the existence of much potential for ICT to enhance productivity through more effective project management and managerial coordination.

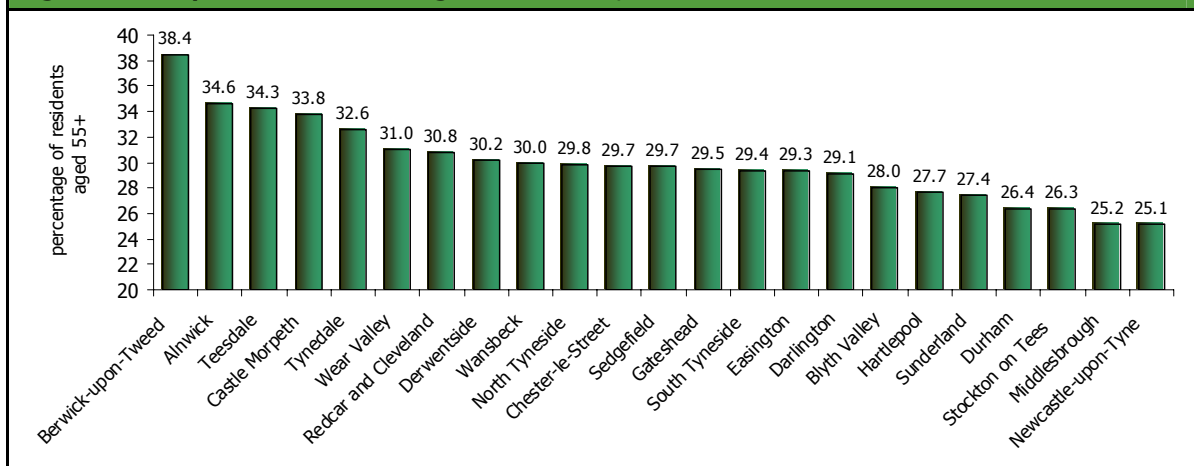
Population

- 3.7 The North East's population is in decline, with a 20-year population change figure (1982-2002) of -4.2%. This compares extremely unfavourably with most other UK regions, particularly those in the South which increased their populations by around 10% on average in the same period. Most worryingly, the problem appears most severe in the region's urban areas, with a decline of closer to 10% in Newcastle, Sunderland, Gateshead and Middlesbrough during the same 20-year period.

Demographic trends

- 3.8 In the North East, many areas also display an ageing population, which is often associated with a lack of either willingness or ability of residents to use ICT (a claim generally supported by research). In 2004, almost 29% of the total population in the North East was aged over 55, a greater proportion than the national average. As Figure 3-5 below shows, several rural areas (e.g. Berwick, Alnwick and Teesdale) have a proportion of over 55s closer to 40%, but even more significantly populated areas (such as Redcar and Cleveland, Derwentside, Gateshead and North Tyneside) have around one in three residents aged 55-plus. This is likely to pose a significant challenge for increasing ICT uptake and usage across the region.

Figure 3-5: Proportion of residents aged 55 and over, 2004

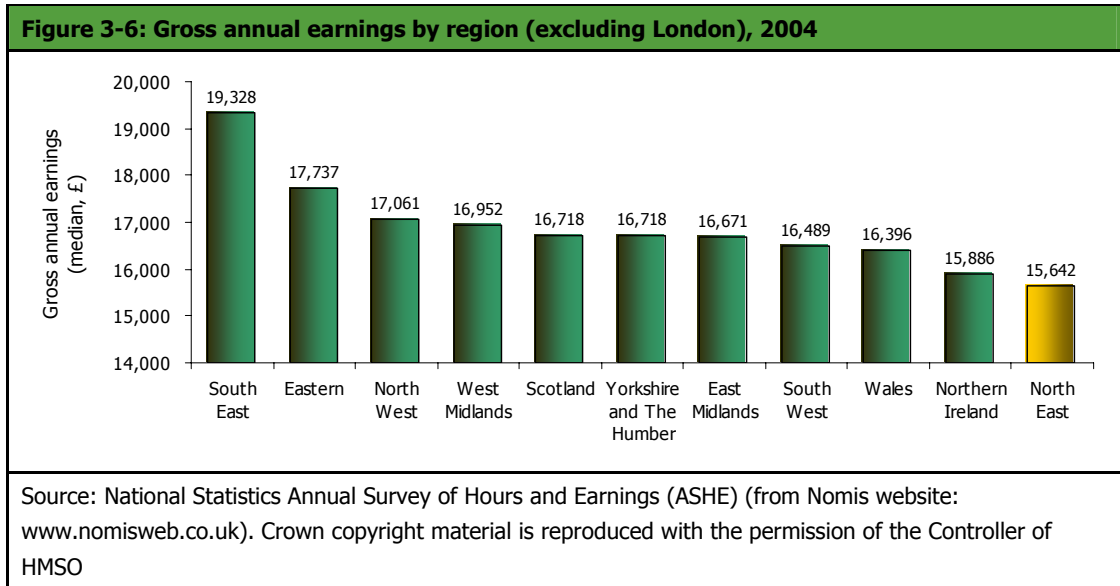


Source: National Statistics Mid-Year Population Estimates (from Nomis website: www.nomisweb.co.uk). Crown copyright material is reproduced with the permission of the Controller of HMSO

Income and earnings

- 3.9 Key indicators relating to the take-up of ICTs are income and earnings, which the evidence suggests hold a fairly strong correlation with household access to and usage of computers, the internet and more sophisticated forms of technology. Figure 3-6 below shows that the median gross annual earnings of workers in the North East were the lowest of all government office regions in 2004. A central objective of the Regional Economic Strategy may well be to decrease the earnings gap with the rest of the UK in forthcoming years, although in the meantime it must be recognised that relatively low incomes put the region's residents at a considerable disadvantage in terms of accessing cutting-edge ICTs.

3.10 Public sector intervention may be advisable to minimize the effects of such potential 'digital exclusion' for those on particularly low incomes, although it is also true that *willingness* rather than outright ability to afford ICTs tends to be lower for such people, and a degree of awareness raising and/or demonstration of relevant benefits may be required if the full potential of ICT infrastructure deployment is to be harnessed.



3.11 A key challenge for the North East region, as set out in the key policy documents, is re-skilling and increasing participation within the workforce in order to increase economic growth, improve quality of life and reduce deprivation.

4. Policy Context

The Regional Economic Strategy

- 4.1 The new North East Regional Economic Strategy sets out how partners in the region will attempt to deliver greater and more sustainable economic growth, creating prosperity and raising the quality of life for residents, in the period to 2016. Social and environmental goals are set out alongside economic targets to ensure that growth is sustainable and the North East can fulfill its objective of becoming a "*vibrant, self reliant, ambitious and outward looking region featuring a dynamic economy, a healthy environment and a distinctive culture*". Following the analysis of various growth scenarios developed by the Centre for Economic and Business Research (CEBR), an inspirational target of achieving a level of GVA 90% of the UK average by 2016 has been adopted.
- 4.2 A number of key sectors have been identified by the RES as being particularly important to employment and wealth creation, and as offering the greatest opportunity for expansion in forthcoming years:

Manufacturing

- **Chemicals and Pharmaceuticals:** building upon the success of the existing Tees Valley complex (employing 12,000) and its interrelationships with the pharmaceuticals sector, there are said to be significant opportunities for networking and clustering activities – primarily through the North East Process Industry Cluster (NEPIC);
- **Automotive:** the sector employs 20,000 across the region, including some 12,000 at the much-heralded Nissan facilities, and continued foreign direct investment and expanding business support activities are opening up further opportunities for the region.
- **Defence and Marine:** employment stands at around 6,000 in this sector, buoyed by the growing number of high-tech firms in the defence and homeland security sector.
- **Food and Drink:** the sector employs some 25,000 people across the North East, with particular strengths in secondary processing on the back of increases in demand for convenience foods.
- **Energy:** several hundred firms in sectors from oil and gas to nuclear and now low-carbon technologies provide a solid base for the region, and academic research in local universities continues to drive the economy forward.

Services

- **Knowledge-Intensive Business Services:** this sector has emerged quite rapidly in the last two decades (comprising firms in activities from banking and accountancy, such as the much-heralded and still locally-based Sage, to legal and engineering consultancies), and is considered pivotal to the region's future economic fortunes.
 - **Tourism and Hospitality:** this sector accounts for around one in ten jobs in the North East, yet it is still considered to be under-performing in terms of delivering wealth to the region. More effective marketing and improved information management/booking services through better use of ICT are both described as means of harnessing the full potential of this sector.
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- **Commercial Creative:** this includes digital industries, television, film and commercials, new media, music and content creation – effectively all firms that commercially exploit creative intellectual property (IP).
 - **Health and Social Care:** over 128,000 people (around 13% of the region’s workforce) are employed in this sector, whose major employer is the public sector. Opportunities at both ends of the skills spectrum are said to exist, with vacancies for lower-skilled workers offering the chance to increase participation rates and the growth in biosciences and healthcare technologies offering the chance to drive innovation and productivity.
- 4.3 The RES identifies ICTs as a key means of improving business efficiency, increasing trade and overcoming the region’s geographic peripherality. It recognises that the North East’s adoption record of ICTs is somewhat mixed, both spatially and in terms of the e-adoption ladder. Many businesses are effectively using technology to seek out information and communicate, although comparatively few are utilising the potential of online trading or so-called ‘e-procurement’.

Policy Context – Regional Spatial Strategy

- 4.4 The North East’s Regional Spatial Strategy (2005 Consultation Draft) sets out the strategic land-use planning context within which documents such as the Regional Economic Strategy can guide economic development in the region. It notes that making available ‘high *standard ICT facilities*’ is crucial for a number of reasons:
- Retaining existing businesses;
 - Creating new employment;
 - Influencing business location; and
 - Extending opportunities in the region.
- 4.5 The document also encourages greater integration between the providers of ICT facilities, networks and applications in order to increase availability and encourage the adoption of more flexible working patterns, including home-working, so residents may achieve a better work-life balance. Specifically, the following practices are promoted:
- Home-working, to reduce travel;
 - Home-shopping, or ‘e-tailing’; and
 - Education and training through remote access.
- 4.6 The RSS notes that while access to broadband is now commonplace in the North East’s urban areas and other major conurbations, some rural areas still depend quite heavily upon satellite and radio technology. It encourages Local Development Frameworks to enable the necessary infrastructure to be installed so that coverage can be made universal, although it cautions that environmental impacts should be minimized by sharing facilities where possible.
- 4.7 The importance of incorporating ICT infrastructure needs into the development of sites and premises at an early stage is also noted, alongside the need to ensure they are enabled as early as possible. In order to guide strategic investment decisions, establishing the key priorities for improving access in rural areas is also set out as a critical task for the short-term future. Making broadband access available to all communities, particularly those in more rural
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or 'peripheral' areas, is repeated as a core theme of the document, not least because it would almost certainly facilitate the sustainable relocation of businesses to rural areas.

Strategy Integration document: developing the city region concept

- 4.8 In February 2006, Nathaniel Lichfield and Partners produced a document entitled 'Strategy Integration in the North East', which aimed to critique the current regional evidence base and how it reflects the city region approach set out in the Northern Way which has been adopted by the North East through its Regional Spatial Strategy. Although clearly much less important in policy terms than the RES or the RSS, the report does contain a useful overview of the fairly dominant city regional approach adopted in the North East.
- 4.9 The report acknowledges that there is strong academic evidence to support the concept of city regions – where *"underpinned by appropriate infrastructure, governance structures and public funding"* – as a tool for enhancing regional competitiveness. The role of ICT infrastructure can be inferred from this to be important in supporting the development of the city regions in future years.
- 4.10 It is also stated that clear evidence exists of a 'step change' in the region's economic performance, which is set to have profound implication in terms of attracting population growth, *"both in urban and rural areas"*. Increasing population density and economic prosperity will also have an impact on the future role of ICT in the region: infrastructure will need to be sufficiently advanced and robust to support the growing demands of both knowledge workers and entertainment seekers.

Table 4-1: Tyne and Wear City Region: Key Assets

- Major investment sites and modern offices (Newcastle Great Park, West Hertford, North Sunderland/South Tyneside Business Park, Baltic Business Park, Newburn Riverside)
- Recent performance in key sectors (e.g digital start ups, knowledge intensive business services, tourism and hospitality, commercial creative,)
- Some leading manufacturing firms stimulating cluster development (Nissan, NaREC)
- Universities' research strengths with opportunities to grow (Science City, Life Knowledge Park, National Centre for Bioinformatics, Design School)
- Support for innovation strategies (NStar, Design Centre North)
- Net inflow of students from other regions
- Cultural/Tourism Growth (Conference tourism, Gateshead Quays)
- Transportation (Airport, Metro)

Source: Nathaniel Lichfield and Partners, Strategy Integration, February 2006

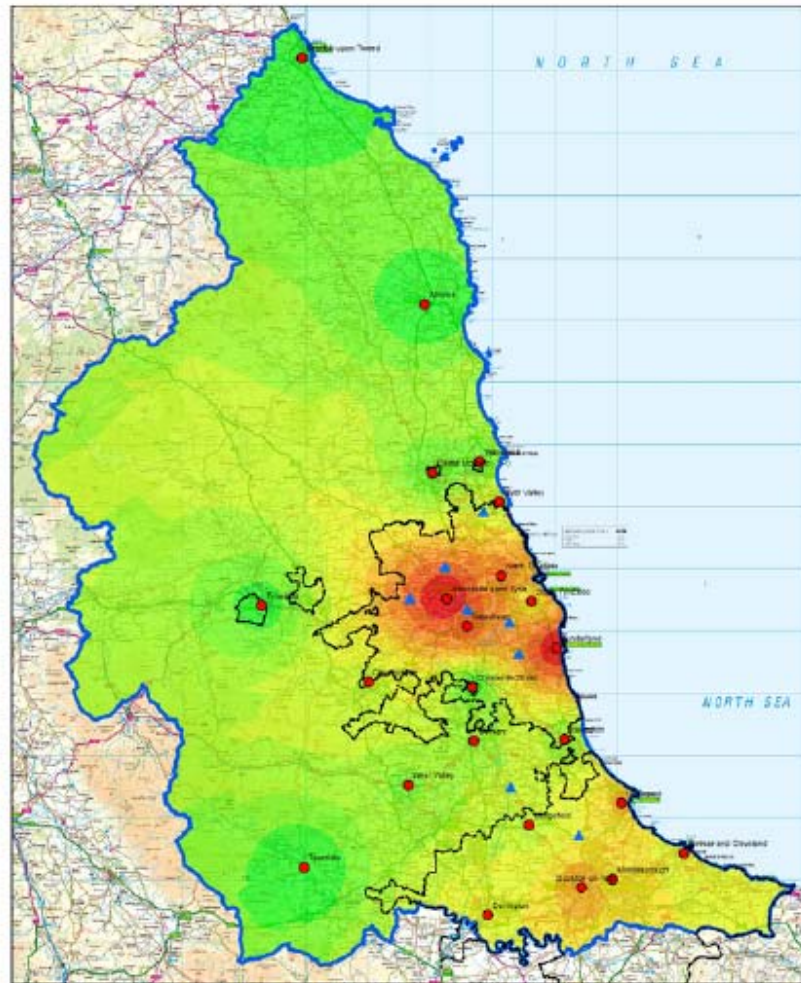
Table 4-2: Tees Valley City Region: Key Assets

- The Chemicals Industry (petro chemical cluster, North East Process Industry Cluster, Biotechnology, Biodiesel)
- Digital technology and media (Digital City)
- A growing engineering design and maintenance industry (Cenamps)
- Teesport
- A plentiful supply of land for development
- Middlesbrough Town Centre/Central Stockton
- Two universities: the University of Teesside in Middlesbrough has 20,000 students which contribute to the economy and an expertise in digital/multi-media and virtual reality which is stimulating a new industry in the Tees Valley.
- The A1(M) growth corridor centering on Darlington which is already home to some major manufacturers serving global markets and to communications, logistics and business support services. Latent demand is now being realised as sites and premises are made available.
- Durham Tees Valley Airport, Good connectivity by road and rail via the A1(M), A19 and East Coast Main Line.

Source: Nathaniel Lichfield and Partners, Strategy Integration, February 2006

4.11 Figure 4-1 below shows the likely future scenario of the North East's city region structure. The implications for ICTs are important: the bulk of future employment sites are concentrated around the outskirts of Newcastle, while administrative centres will continue to be spread much more widely across the whole region. A focus of the public sector may well be upon providing advanced connectivity at future employment sites, ensuring all 'new build' premises are fully equipped to help businesses foster a sustainable competitive advantage.

Figure 4-1: Future City Regional Structure in the North East



**City Regions
Future Scenario**

- ▲ Future Employment Sites
- Administrative Centres
- - - Main Commuting Flows
- ▭ North East Boundary



Source: Nathaniel Lichfield and Partners, Strategy Integration, February 2006

Economic Scenarios

4.12 Within the context of recent economic growth trends in the North East, three 'positive scenarios' or targets for the region have been developed by the Centre for Economics and Business Research (CEBR). The three targets put the Northeast's economy on very different trajectories:

- 1) **Gold scenario:** Northeast achieves UK average gross value added per head by 2016
- 2) **Silver scenario:** Northeast achieves an average of 3.4 per cent annual growth in real gross value added in the period up to 2016
- 3) **Bronze scenario:** Northeast achieves an average annual rate of growth in gross value added over the period up to 2016 equal to the UK average (2.3 per cent)

4.13 The positive scenarios push annual growth up from 0.8 per cent in past decade through the Baseline's 1.8 per cent to averages of 4.9, 3.4 and 2.3 per cent respectively for the period 2001-2016.

4.14 The report also delivered a series of policy recommendations. To deliver the higher growth scenarios, it claimed that improvements must be made along three dimensions:

A. Improving the fundamental performance of incumbent businesses and the incumbent population

4.15 *"The twin challenges are to increase the proportion of working age adults attracted into the workforce, and increase the rate of productivity of those in work."*

B. Making the Northeast a more attractive place to do business

4.16 *"The Northeast already has competitive advantages — e.g. physical space; uncongested transport infrastructure; and low costs — that need to be cultivated on a continuing basis. The skills of the labour force needs to be addressed — through improving the current working age population, better educating the future workforce currently at school and attracting workers with appropriate skills in to region. To provide a competitively sized pool of employees, residential densities need to be increased and the region's transport advantage maintained. Critical mass may be achieved through future development that considered and promoted the wider conurbation of Tyneside, Tees Valley and east County Durham. Meanwhile, the region should present itself and be business-friendly."*

C. Making the Northeast a more attractive place to live and work

4.17 *"The higher growth scenarios will only be achieved if net immigration of skilled workers can be supported and sustained. The region must be open and attractive to the most footloose workers. Competing for these workers with other — often cosmopolitan — urban centres, the development in the region of attractive urban environments in which people can live, work and play efficiently will be crucial. Leveraging the talent in local universities should also be part of any such strategy."*

Table 4-3: Summary of CEBR Gold, Silver and Bronze Economic Growth Scenarios for the North East of England

	Actual 2001	Baseline 2016	Bronze 2016	Silver 2016	Gold 2016	Recommended 2016
Population, millions	2.52	2.47	2.50	2.76	3.00	2.72
Dwellings, millions	1.12	1.13	1.15	1.27	1.37	1.25
Gross value added						
£ billion, 2001 prices	27.7	36.4	38.8	45.8	56.8	42.0
Percentage of UK total	3.3	3.1	3.3	3.8	4.8	3.5
GVA per head, UK = 100	76	78	82	88	100	82
Employment, millions	1.00	0.97	1.00	1.13	1.25	1.10
<small>All assume United Kingdom real growth of 2.3 per cent per annum, 2001-2016</small>						
Source: CEBR, April 2004, Scenarios for a Prosperous North East						

- 4.18 The CEBR warned, however, that these scenarios were dependent on significant policy interventions – it estimated that there was only a 40% chance of achieving the bronze scenario, 10% of achieving silver and just 3%, as things stood in 2004, of achieving gold.

5. Conclusions

- 5.1 The policies and supporting research reviewed in this working paper set out the key features of the North East – in economic, physical and future development terms. In particular, the previous sections review economic growth scenarios for the region which reflect target sector/ cluster growth aspirations and the increasing transformation of the region to one of a strong sustainable knowledge economy.
- 5.2 Most recent EU policy on broadband makes it clear that broadband is an essential prerequisite to such transformation:

Table 5-1: EU Broadband Policy Statement

2. WHY BROADBAND MATTERS

The internet is one of the most important innovations of our time. It brings substantial benefits to economies and societies⁴. The impact of broadband is just beginning to be felt. The precise impact has been difficult to measure. It is, however, clear that the ability to communicate information at high speeds and through various platforms is key to the development of new goods and services.

Broadband enables new applications and enhances the capacity of existing ones. It stimulates economic growth through the creation of new services and the opening up of new investment and jobs opportunities. But broadband also enhances the productivity of many existing processes, leading to better wages and better returns on investment. Governments at all levels have recognised the impact that broadband may have on everyday lives and are committed to ensuring that its benefits are made available to all⁵.

Securing long term sustainability of remote and rural areas requires a strategic approach to the development of the information society. The availability of broadband services is one critical element in assisting local communities in attracting businesses, in enabling tele-work, providing healthcare, improving education and government services. It provides a critical link to information. Examples are:

Telemedicine and eHealth: The delivery of telemedicine and eHealth applications bridges time and distance and allows services to reach individuals in their own communities. Rural hospitals may exploit broadband to enjoy the same medical expertise available in urban centres. Purchase of medical supplies, prescriptions and electronic record keeping are enabled online. Electronic monitoring is made possible, with important benefits for assisted living.

eGovernment: Broadband improves the capability of eGovernment services and allows a better interaction between governments, easing access to government for citizens and businesses. It facilitates the development of high-quality services and may increase organisational performance resulting in efficiency gains for the public administrations.

Education: Broadband strengthens the life-long learning process and enables students to obtain real-time education from qualified teachers in areas where that instruction may not be available. Students can access alternative educational resources and be exposed to new forms of educational content. It enables video-conferencing and facilitates inter-institutional collaboration.

Rural Development: In rural areas, broadband plays an important role in connecting farms and businesses to national and international markets. It helps the development of the rural economy by facilitating e-business, particularly in the farm and food sectors. It can encourage diversification by making rural areas more attractive and improving marketing opportunities for products and services such a tourism and rural amenities. Village ICT initiatives built around broadband hubs can provide a cost-effective approach to provision of services to businesses and local communities.

Source: European Commission, March 2006, 'Bridging the Broadband Gap'

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- 5.3 It is clear therefore, that the North East must ensure that appropriate levels of broadband connectivity, are provided to enable the planned economic transformation of the region.
- 5.4 The policy review in this paper shows us clearly what changes are/ will take place and by applying this to conclusions from some of the other working papers (which explore the broadband needs of particularly types of activity and area), allows us to map out what sorts of connectivity are likely to be required to support and enable the region's transformation.
- 5.5 In summary, appropriate broadband infrastructure and supporting services must be in place to provide sufficient connectivity at competitive prices and to sufficient standard/ quality of service to support:
- Existing businesses
 - Potential new business starts
 - Home-workers
 - Flagship digital clusters
 - Digital homeowners
 - Government in rolling out e-services
 - The digitally and/or socially excluded
- 5.6 If appropriate connectivity is not available (and at competitive prices), the evidence reviewed in the other working papers suggests that at least this will slow and frustrate the region's aspirations, and it worst it may significantly hamper them:
- Businesses will be unable to grow to their full potential
 - The region's business start-up rate will continue to lag behind the rest of the country
 - Homeworking and related quality of life enhancements will remain out of reach to the majority
 - Inward investment will be lost to other regions
 - Social exclusion will worsen
 - The North East will maintain its image, in the eyes of some, as an inward-looking, geographically and economically 'peripheral' region
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