

London's digital economy

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Foreword

London is well-placed to become the Digital Capital of Europe, and is already one of the world's leading digital knowledge economies.

Supporting London's preeminent position are its complementary strengths in finance and business services, and London's role as the creative capital and global media centre. This provides many opportunities for the cross-pollination of ideas and innovation bolstered by London's world-class universities, highly-skilled workforce attracted by the city's energy and culture, and a competitive business environment.

New digital technologies are accelerating user-led innovation, and transforming core elements of London's industry, media and public services. In the City, for example, digital technologies are vital to the billions of transactions carried out each day by the stock exchange and financial institutions. Digital technologies will continue to play a key part in unlocking the imagination and creativity that will help secure London's highly-skilled jobs of tomorrow.

The health and success of the digital sector is key to the strength of London's future economy. But if London is to continue to lead in innovative industries of the future, it is critical that our businesses have access to competitive digital communications infrastructure, with a supporting immigration policy to ensure the free flow of talent, and a legal and regulatory framework that supports innovation and creativity in a digital age.

It is important that the public sector plays its role too. Here in City Hall we have created the London Datastore to ensure previously unavailable public data (from the GLA, functional bodies and London Boroughs) is available online for everyone to use free of charge. We are working with the London Boroughs to ensure greater WIFI connectivity to take pressure off the 3G network, including trialing WIFI on the London Underground and enabling Londoners to access public services online.



Kulveer Ranger

Mayor's Director of Digital London

Introduction

London is home to over 23,000 ICT and software companies. According to the Experian Business Strategies Regional Planning Service, the Gross Value Added of communications companies in London was £7.9 billion in 2010.¹

Digital employment is a London specialism. London has just shy of a quarter (24 per cent) of all GB employee jobs in Computer and related activities and 22 per cent of all GB Telecommunications employee jobs. No export data exists for London but GLA Economics have estimated that London computer and information services exported £1.7 billion of the £7.04 billion exported from the UK as a whole in 2009.²

The World Bank ranks the UK 11th in terms of ICT expenditure as a percentage of GDP in 2009 with a marked upturn in expenditure between 2008 and 2009. The World Bank also provides data on ICT service exports³ which show that in 2009 the UK was the third largest exporter of ICT services after Ireland and the USA.

Over the financial year 2010-11, the UK attracted one third of Foreign Direct Investments in Europe within the software sector, 129 of the 392 projects, of these 70 were located in London.⁴ Private investment and venture capitalists invested £453 million in 60 Technology Companies in London during 2010 making it the most attractive region in the UK for private investment.⁵

The e-intensity index derived by Boston Consulting Group which measures enablement, expenditure and engagement, has London as the best performing UK region in 2010 - with a score of 156 compared to a UK average of 128.⁶

Access to the internet has transformed how households spend their leisure time with many taking advantage of social networking, web browsing and watching online TV. The Internet has enabled people to do their shopping from the comfort of their own home and helped them to compare products and services available even if some people do end up going to the retail outlets to actually do the purchasing. Applications on mobile devices have met a variety of needs for example, online mapping helps people to locate cash points and they can stay in touch using Skype and Facebook. Indeed a whole new industry has been created developing and selling applications for mobile phones.

London is leading the way with the best provision of Internet services. All London households have access to a DSL-enabled BT exchange and 74 per cent of households have access to Virgin Media broadband compared with 49 per cent in the UK. However, it is important for government service provision to keep in mind that Internet access in the home is not yet ubiquitous. Twenty-eight per cent of London households do not have access to the Internet at home compared with 23 per cent of households in the UK. London appears to be leading on the use of mobile phones for accessing the internet. Forty per cent of London adults have accessed the internet this way compared with 32 per cent within the UK.

There are three main sections of this report - the first outlining business use of ICTs comparing these internationally and showing trends over time. The second section looks at domestic use of ICTs exploring issues around internet access and the use of the internet by households and individuals. The third provides an overview of the quality of broadband services in London and plans for future deployment of the required infrastructure by British Telecom and Virgin.

Business useage

In 2010, London was home to approximately 331,540 enterprises. Of these, 25,795 were classified as being in computer programming, consultancy and related activities and Information Service activities.⁷ This can be further split into those enterprises located in Inner London, 17,045 and Outer London, 13,750.

International comparisons

To compare cities internationally Dun and Bradstreet data was accessed which shows there are 23,740 ICT and software companies in London far more than in other European cities.⁸

Table 1: Number of software companies in European cities

| City | Number of companies |
|------------|---------------------|
| London | 23,740 |
| Paris | 15,510 |
| Milan | 9,154 |
| Madrid | 8,387 |
| Stockholm | 6,827 |
| Amsterdam | 6,824 |
| Brussels | 6,255 |
| Berlin | 6,027 |
| Munich | 5,435 |
| Budapest | 5,039 |
| Barcelona | 4,031 |
| Dublin | 3,706 |
| Frankfurt | 2,181 |
| Birmingham | 1,788 |
| Dusseldorf | 1,657 |
| Geneva | 1,192 |

Source: Dun & Bradstreet (Sic 737); fDi Intelligence, from the Financial Times Ltd (2011)

The Economist Intelligence Unit prepares a benchmarking report on digital economy rankings based on the following weighting system:

Table 2: Weighting system for digital economy rankings

| EIU category | Weighting |
|--|-----------|
| Connectivity and technology infrastructure | 20% |
| Business environment | 15% |
| Social and cultural environment | 15% |
| Legal environment | 10% |
| Government policy and vision | 15% |
| Consumer and business adoption | 25% |

In 2010, the Economist Intelligence Unit ranks the United Kingdom as 14th internationally, one place lower than the ranking in 2009.

Table 3: Digital economy rankings of countries (2010)

| 2010 rank | 2009 rank | Country | 2010 score (out of 10) |
|-----------|-----------|-----------------------|------------------------|
| 1 | 2 | Sweden | 8.49 |
| 2 | 1 | Denmark | 8.41 |
| 3 | 5 | United States | 8.41 |
| 4 | 10 | Finland | 8.36 |
| 5 | 3 | Netherlands | 8.36 |
| 6 | 4 | Norway | 8.24 |
| 7 | 8 | Hong Kong | 8.22 |
| 8 | 7 | Singapore | 8.22 |
| 9 | 6 | Australia | 8.21 |
| 10 | 11 | New Zealand | 8.07 |
| 11 | 9 | Canada | 8.05 |
| 12 | 16 | Taiwan | 7.99 |
| 13 | 19 | South Korea | 7.94 |
| 14 | 13 | United Kingdom | 7.89 |
| 15 | 14 | Austria | 7.88 |
| 16 | 22 | Japan | 7.85 |
| 17 | 18 | Ireland | 7.82 |
| 18 | 17 | Germany | 7.8 |
| 19 | 12 | Switzerland | 7.72 |
| 20 | 15 | France | 7.67 |

Source: *Digital economy rankings 2010, Beyond e-readiness, A report from the Economist Intelligence Unit*

ICT expenditure as a percentage of GDP

The World Bank provides figures on ICT expenditure as a percentage of country GDP.⁹ As a form of investment it would be expected that higher expenditure on ICT will result in greater economic growth in the long run. Many developing countries will be spending larger sums on ICT as they invest in the infrastructure to enable them to catch up with developed countries. It can be seen that the UK is ranked in 11th place in terms of ICT expenditure as a percentage of GDP in 2009 with a marked upturn in expenditure between 2008 and 2009.

Table 4: World Bank information showing the top 20 countries in terms of ICT expenditure as a percentage of GDP ranked by investment in 2009

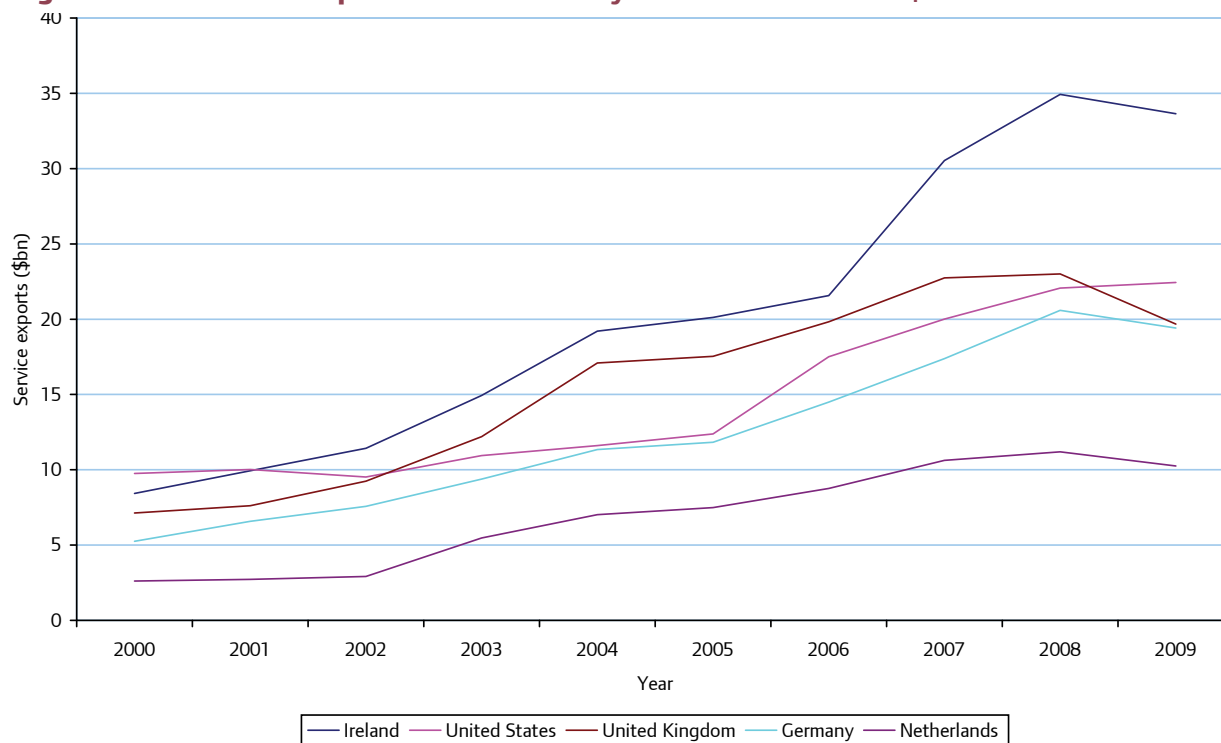
| Country Name | Rank 2009 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|-----------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Morocco | 1 | 5.33 | 6.66 | 7.51 | 7.44 | 10.00 | 12.45 | 13.54 |
| Malaysia | 2 | 12.83 | 13.42 | 12.06 | 12.22 | 11.09 | 9.73 | 11.47 |
| Senegal | 3 | 6.53 | 7.68 | 9.01 | 10.42 | 10.61 | 10.75 | 10.66 |
| South Africa | 4 | 7.91 | 7.89 | 9.33 | 9.67 | 9.36 | 10.10 | 9.45 |
| Bangladesh | 5 | 1.93 | 2.41 | 4.07 | 5.86 | 8.04 | 9.04 | 9.35 |
| Honduras | 6 | 5.13 | 5.89 | 6.35 | 7.17 | 7.62 | 8.17 | 8.87 |
| Hungary | 7 | 9.99 | 10.27 | 10.43 | 10.76 | 9.77 | 8.90 | 8.34 |
| Korea, Rep. | 8 | 8.97 | 9.48 | 9.21 | 9.41 | 9.20 | 9.05 | 7.95 |
| Czech Republic | 9 | 8.16 | 8.27 | 8.32 | 8.40 | 8.24 | 7.58 | 7.91 |
| Ukraine | 10 | 6.76 | 7.89 | 8.15 | 8.08 | 6.78 | 5.94 | 7.05 |
| United Kingdom | 11 | 6.28 | 6.24 | 6.12 | 6.05 | 6.04 | 6.36 | 7.04 |
| Jordan | 12 | 10.20 | 10.56 | 10.10 | 8.98 | 8.31 | 7.28 | 7.04 |
| United States | 13 | 7.51 | 7.39 | 7.28 | 7.25 | 7.20 | 7.22 | 6.96 |
| Slovak Republic | 14 | 4.80 | 4.62 | 5.44 | 5.87 | 6.08 | 6.19 | 6.93 |
| Japan | 15 | 6.71 | 6.60 | 6.69 | 7.00 | 6.88 | 6.72 | 6.89 |
| Saudi Arabia | 16 | 5.10 | 5.02 | 4.81 | 4.92 | 5.42 | 5.11 | 6.81 |
| Canada | 17 | 6.95 | 6.92 | 6.66 | 6.48 | 6.60 | 6.61 | 6.72 |
| Philippines | 18 | 5.03 | 6.01 | 5.34 | 5.39 | 5.87 | 6.10 | 6.72 |
| Singapore | 19 | 10.10 | 9.70 | 9.22 | 8.37 | 7.11 | 6.67 | 6.69 |
| Thailand | 20 | 5.81 | 6.19 | 6.11 | 6.16 | 6.07 | 6.20 | 6.65 |
| World | | 6.50 | 6.46 | 6.44 | 6.42 | 6.16 | 5.98 | 6.02 |

Source: World Information Technology and Services Alliance, *Digital Planet: The Global Information Economy*, and Global Insight, Inc.

ICT service exports

The World Bank also provides data on ICT service exports¹⁰ which show that in 2009 the UK was the third largest exporter of ICT services after Ireland and the USA.

Figure 1: ICT service exports Balance of Payments in current US\$



Source: International Monetary Fund, Balance of Payments Statistics Yearbook and data files.

Foreign Direct Investment

The software sector counted for 10 per cent of market share of FDI creating 5,900 jobs in the sector. Software creation, development and maintenance were the second highest sector for investment in Europe, accounting for 10 per cent of all European FDI projects and 4 per cent of FDI jobs.

Table 5: Foreign Direct Investment in Europe by sector

| Rank | Sector | FDI projects 2010 | % change 2009-2010 | % share of total | Jobs created* |
|------|--------------------------|-------------------|--------------------|------------------|---------------|
| 1 | Business Services | 561 | 25 | 15 | 11065 |
| 2 | Software | 379 | 15 | 10 | 5982 |
| 3 | Machinery and equipment | 267 | 14 | 7 | 7756 |
| 4 | Automotive | 258 | 106 | 7 | 33090 |
| 5 | Electronics | 182 | 6 | 5 | 9706 |
| 6 | Financial intermediation | 178 | 10 | 5 | 3957 |
| 7 | Other transport services | 175 | 29 | 5 | 3148 |
| 8 | Chemicals | 154 | 1 | 4 | 4237 |
| 9 | Food | 144 | -11 | 4 | 5116 |
| 10 | Electrical | 139 | 9 | 4 | 4642 |
| | Other | 1320 | N/A | 33 | 48638 |
| | Total | 3757 | | 100 | 137337 |

Source: Ernst and Young European Investment Monitor 2011

*Job creation for projects for which the information is available.

http://www.eyeim.com/pdf/11EDA220_europe_attractiveness_2011_web_resolution.pdf

The top 10 European countries for Foreign Direct Investment

In 2010 the United Kingdom remained the most attractive destination for FDI into Europe. In the UK, job creation from FDI grew by 6 per cent between 2009 and 2010. In terms of projects, the UK attracted an additional 7 per cent (approx. 728 projects) on 2009 as a result of FDI.

Table 6: Top 10 European countries for Foreign Direct Investment

| Rank | Country | FDI Projects 2010 | % change 2009-2010 | % share of total | Jobs created* |
|------|----------------|-------------------|--------------------|------------------|---------------|
| 1 | United Kingdom | 728 | 7 | 19 | 21209 |
| 2 | France | 562 | 6 | 15 | 14922 |
| 3 | Germany | 560 | 34 | 15 | 12044 |
| 4 | Russia | 201 | 18 | 5 | 8058 |
| 5 | Spain | 169 | -2 | 4 | 7723 |
| 6 | Belgium | 159 | 9 | 4 | 4010 |
| 7 | Poland | 143 | 40 | 4 | 12366 |
| 8 | Netherlands | 115 | 6 | 3 | 958 |
| 9 | Ireland | 114 | 36 | 3 | 5785 |
| 10 | Italy | 103 | 3 | 3 | 627 |
| | Other | 903 | N/A | 25 | 49635 |
| | Total | 3757 | 14 | 100 | 137337 |

Source: Ernst and Young European Investment Monitor 2011

*Job creation for projects for which the information is available.

The Ernst and Young European Investment Monitor recorded 129 projects of FDI in software to the UK during the financial year 2010/11. Of these 70 were into the London region.¹¹

London attracted the highest number of digital related FDI projects of all European cities during the financial year 2010/11 with 90 compared to the nearest competitor of Paris which attracted 27.

Table 7: Foreign Direct Investment into Europe by City and selected sectors

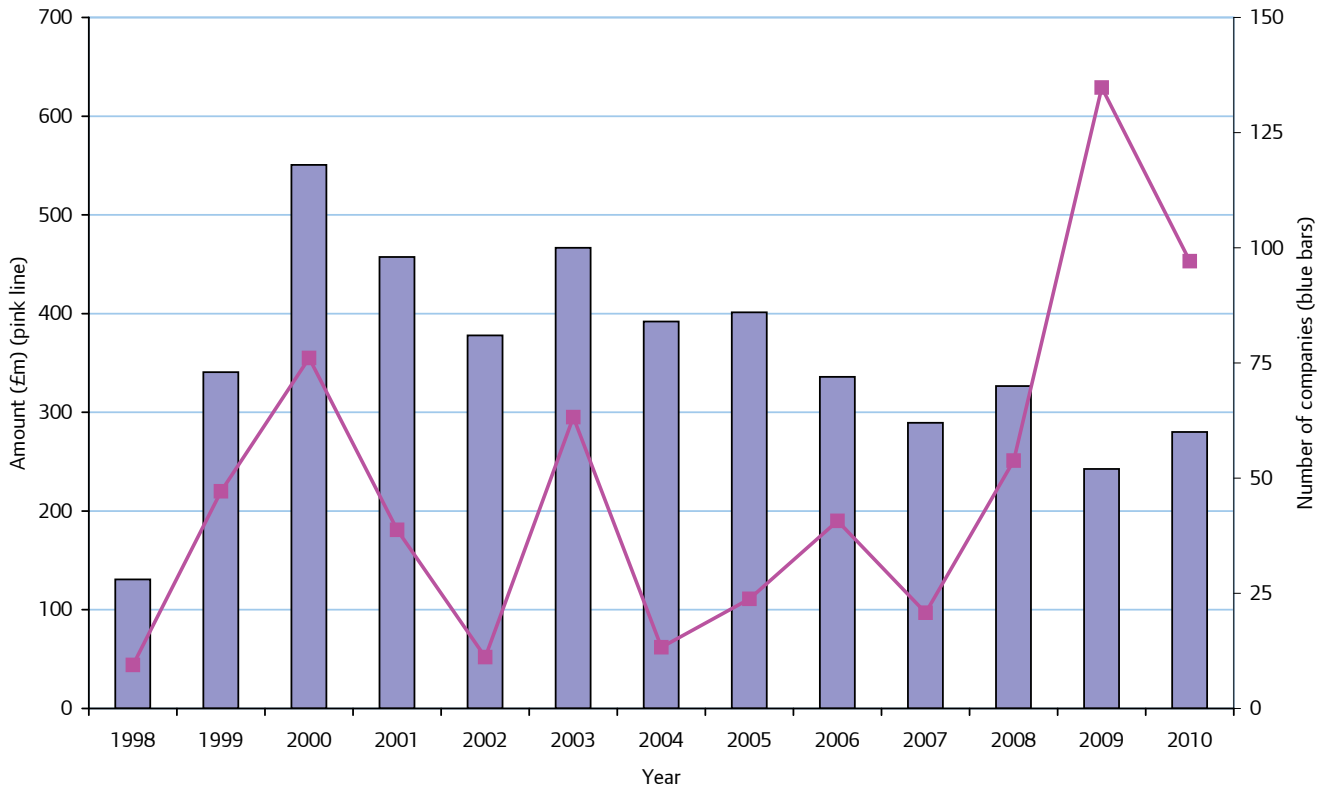
| City | Computers | Electrical | Electronics | Software | Telecoms & Post | Total Digital FDI projects | Total FDI projects | % of FDI that is digital |
|------------|-----------|------------|-------------|----------|-----------------|----------------------------|--------------------|--------------------------|
| London | 1 | 5 | 9 | 70 | 5 | 90 | 295 | 31 |
| Paris | | 3 | 5 | 19 | | 27 | 109 | 25 |
| Madrid | 1 | 1 | 1 | 12 | 3 | 18 | 65 | 28 |
| Dusseldorf | | 5 | 2 | 4 | | 11 | 54 | 20 |
| Moscow | 1 | 2 | 4 | 4 | 3 | 14 | 52 | 27 |
| Dublin | 1 | | | 8 | 1 | 10 | 51 | 20 |

Source: Ernst and Young European Investment Monitor, data downloaded 12 Oct 2011

Private equity and venture funding into technology companies in London

Private equity and venture capital firms invested a total of £3,469 million in London in 2010, 42 per cent of total investment in the UK. Of this £453 million was in 60 Technology Companies (comprising software and computer services and technology hardware and equipment) in London.

Figure 2: Private equity and venture capitalist investment in technology companies in London 1998 to 2010



2009 and 2010 Source: http://admin.bvca.co.uk/library/documents/RIA_2010.pdf

2008 Source: http://admin.bvca.co.uk/library/documents/report_on_investment_activity_08.pdf

1998 to 2007 Source: http://admin.bvca.co.uk/library/documents/Report_Investment_Acty_2007.pdf

Computer and related activities are a London specialism. London has 24 per cent of GB employee jobs in this sub sector providing an index of specialisation of 1.67. Telecommunications are another London specialism having 22 per cent of GB employee jobs in this sub sector and an index of specialisation of 1.51.¹²

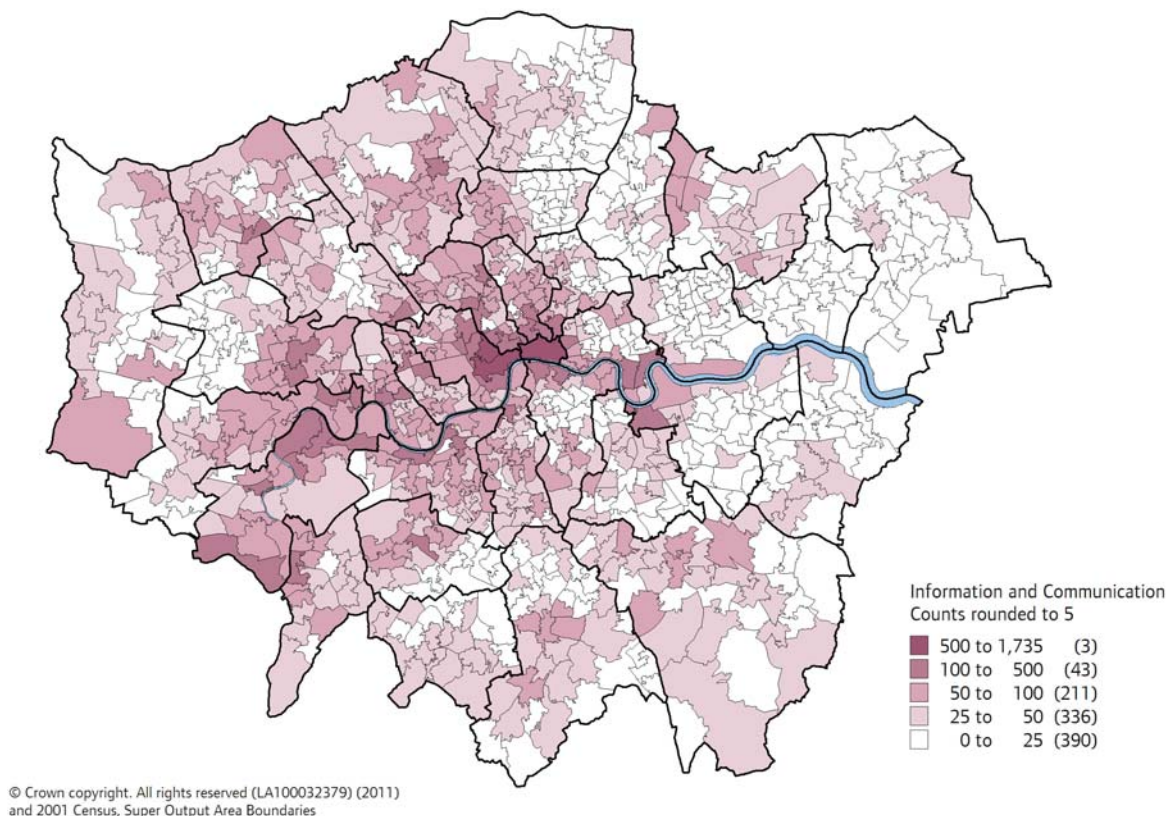
No export data exists for London but GLA Economics have estimated that London computer and information services exported £1.7 billion in 2009.

According to the Experian Business Strategies Regional Planning Service, the Gross Value Added of communications companies in London was £7.9 billion in 2010.¹³

ICT company locations in London

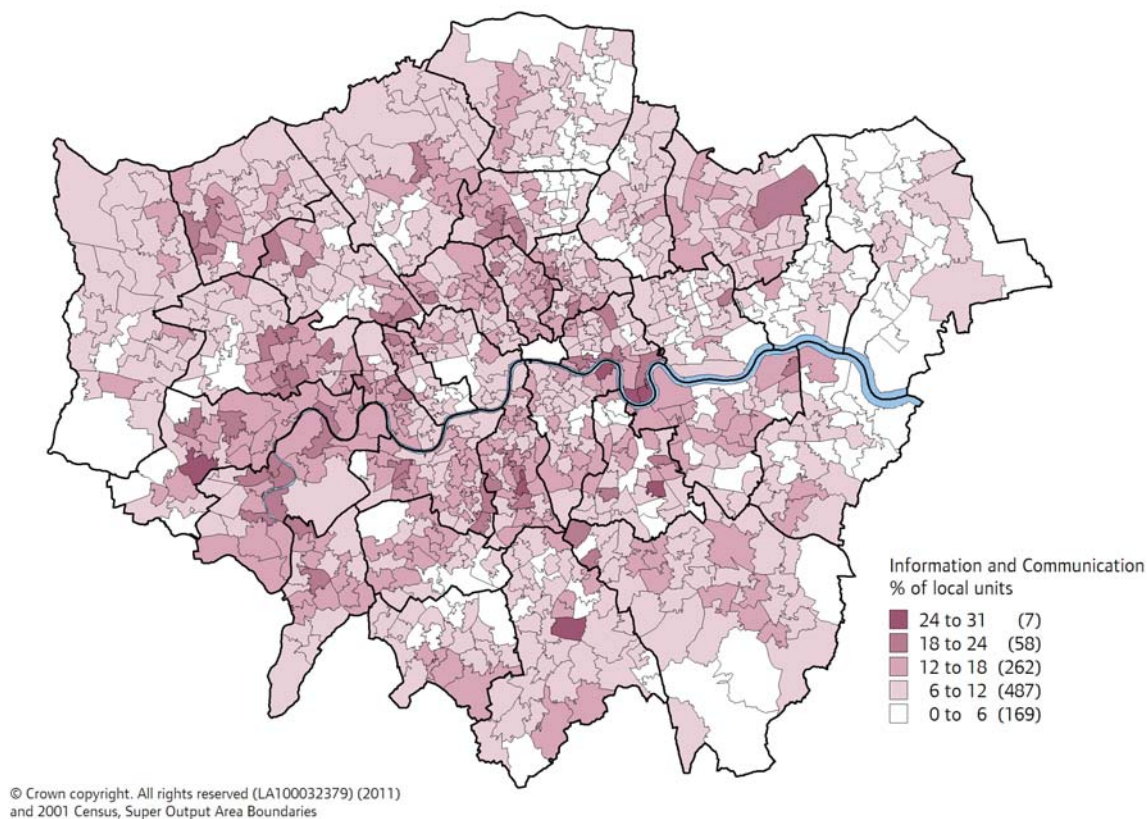
ICT companies are spread throughout London with large numbers of companies located in the City, West End and Canary Wharf.

Figure 3: Number of ICT companies per Medium Super Output Area using 2010 Interdepartmental Business Register Data (IDBR)



As London businesses tend to be concentrated it is helpful to also consider the density of ICT companies as a proportion of all companies within a location as shown in Figure 4.

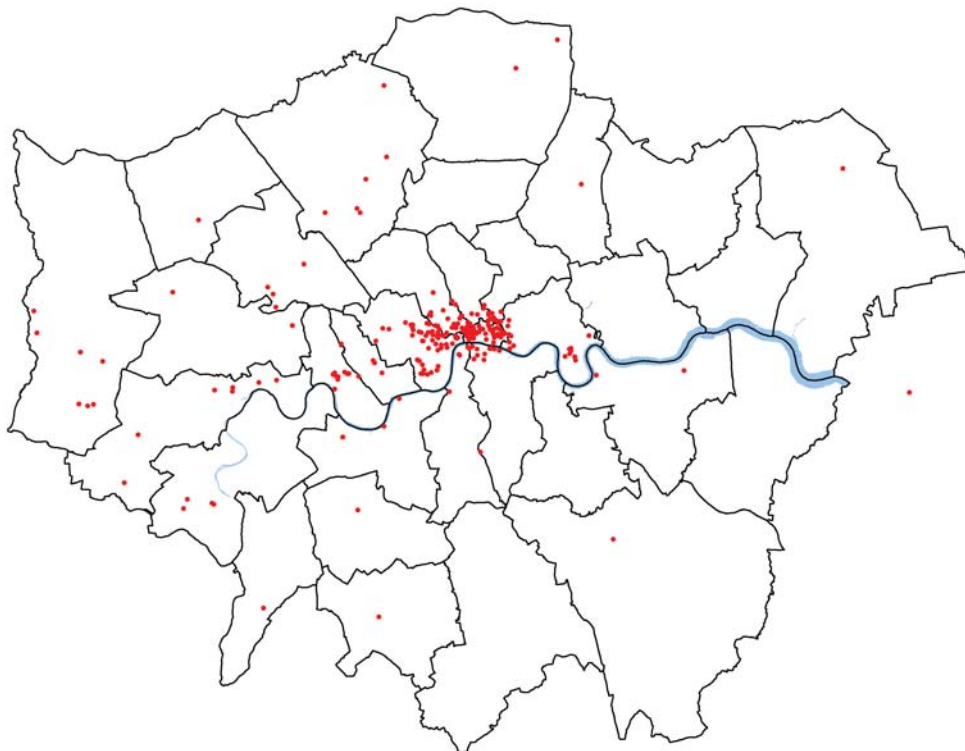
Figure 4: Density of ICT companies per Medium Super Output Area using 2010 Interdepartmental Business Register (IDBR) data



Location of top ICT companies in London

Using the Bureau Van Dijk Orbis database it is possible to locate ICT companies in London that have a minimum turn over of £50 million and employ at least 100 employees. These companies are shown in Figure 5.

Figure 5: Location of top ICT companies in London



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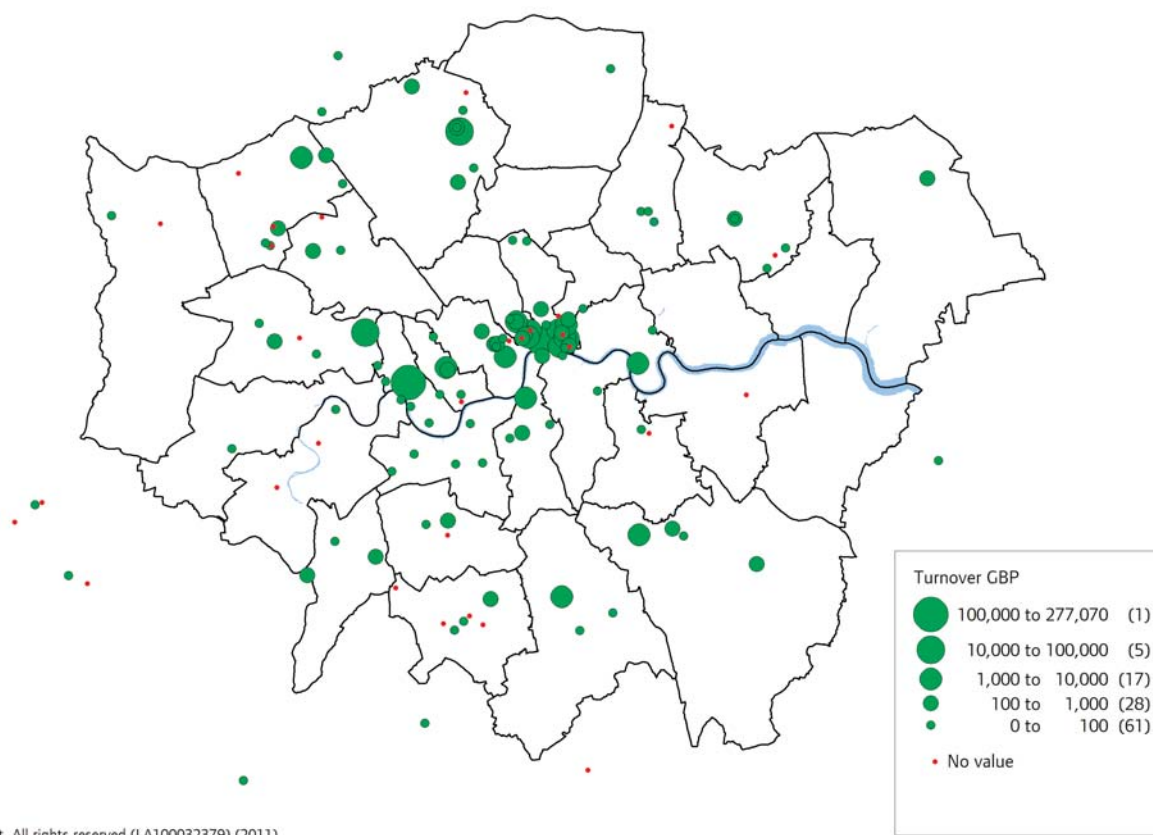
Source: Bureau Van Dijk, 14/2/2011, selected companies coded as in table below with a minimum turnover of £50 million and at least 100 employees

Table 8: Selected companies with a minimum turnover of £50 million and at least 100 employees

| |
|---|
| ICT - BG : 11 - 11-Wired Telecoms, 12 - 12-Wireless Telecoms, 13 - 13-Satellite Telecoms, 14 - 14-Other Telecoms, 15 - 15-Computer Programming, 16 - 16-Computer Consultancy, 17 - 17-Computer Facilities Management, 18 - 18-Other ICT activities, 19 - 19-Data Processing & Hosting, 20 - 20-Web Portals, 21 - 21-Other Info Services, 22 - 22-Manf. of Electronic Components, 23 - 23-Manf. of Circuit Boards, 24 - 24-Manf. of Computers & Equipment, 25 - 25-Manf. of Comms Equipment, 26 - 26-Manf. of Consumer Electronics, 27 - 27-Manf of Fibre Optic Cables, 28 - 28-Manf of other Elec & Electronic wires and cables, 29 - 29-Manf of wiring devices |
|---|

It is similarly possible to present the locations of the fastest growing ICT companies in London based on turn over for the past three years.

Figure 6: Fastest growing ICT companies in London



Source: Bureau Van Dijk, 14/2/2011

Business presence on the internet

It is increasingly common for UK companies to have a presence on the internet. In 2010 78.7 per cent of UK businesses had a website. Larger companies were more likely to have a presence on the web.

Table 9: Businesses with a website, by size of business, 2006 to 2010

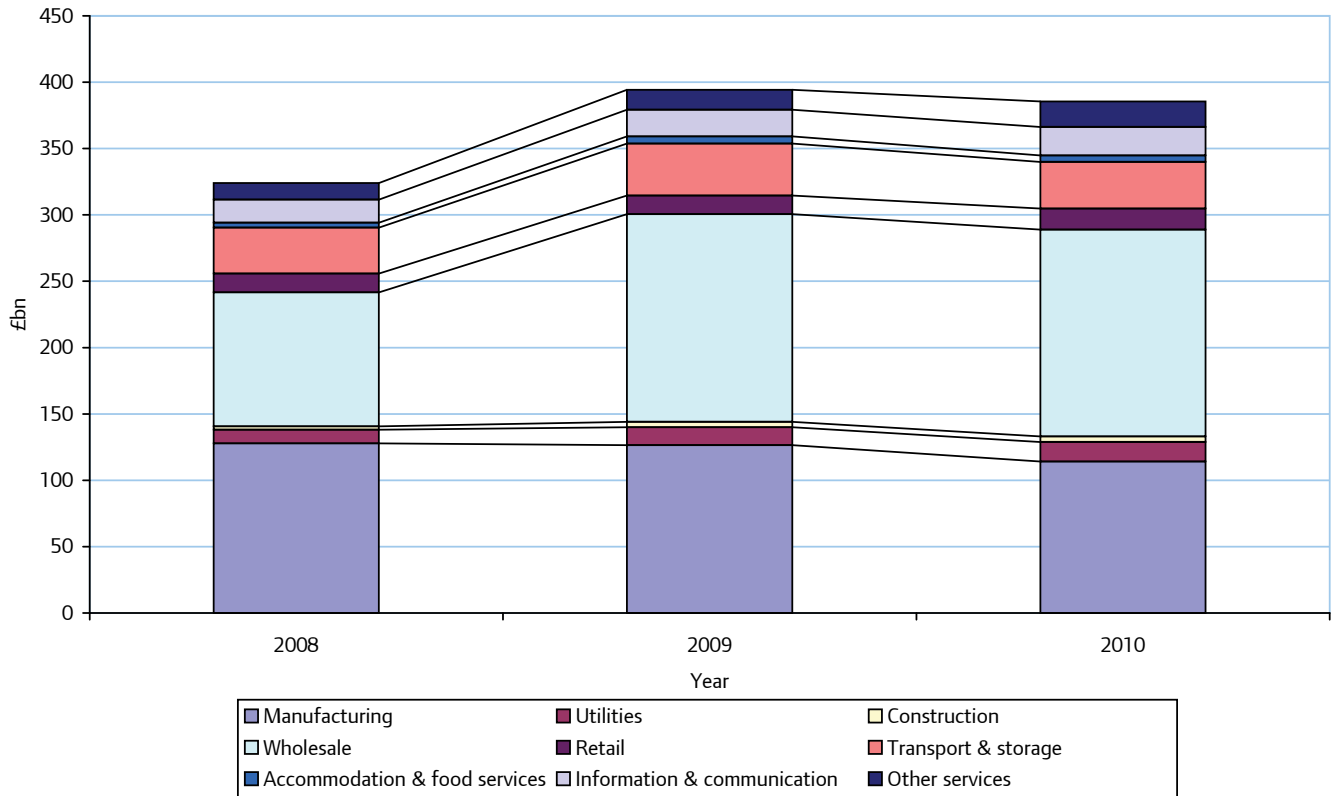
| Employment size | | 10-49 | 50 - 249 | 250 - 999 | 1000+ | All sizebands |
|--|-------|-------|----------|-----------|-------|---------------|
| <i>Per cent</i> | | | | | | |
| Website, own or third party | 2006 | 65.3 | 89.0 | 95.9 | 97.7 | 69.6 |
| | 2007 | 65.8 | 89.3 | 94.4 | 97.6 | 70.0 |
| | 2008† | 70.6 | 91.3 | 95.2 | 97.9 | 74.5 |
| | 2009 | 72.0 | 91.9 | 96.9 | 98.4 | 75.7 |
| | 2010 | 75.5 | 92.5 | 96.0 | 98.8 | 78.7 |
| <i>Coverage: UK non-financial sector businesses with 10 or more employment</i> | | | | | | |
| † - estimates since 2008 have been revised | | | | | | |

Source: ONS Ecommerce and ICT Activity 2010

Sales by businesses using ICTs

The value of e-commerce sales by non-financial businesses in the UK was £385.4 billion in 2010, a decrease from £394.1 billion in 2009. This figure represented 16.9 per cent of the value of all sales by UK non-financial businesses up from 16.1 per cent in 2009. Wholesale had the highest value of e-commerce sales at £155.8 billion followed by Manufacturing at £114.5 billion. The sector with the lowest value of e-commerce sales was Construction at £4.3 billion.¹⁴

Figure 7: Business sales over ICTs by SIC 2007 categories from 2008 to 2010



Source: E-commerce and ICT Bulletin 2010, Office for National Statistics

The proportion of businesses selling over websites increased from 14 per cent in 2009 to 15.3 per cent in 2010. Businesses using ICTs other than a website for sales increased from 6.5 per cent in 2009 to 7 per cent in 2009. Virtually all companies who reported website sales had UK based clients, 42 per cent of companies with website sales also had customers in Europe and a third sold to customers from the rest of the world.

Table 10: Businesses using ICTs for sales by SIC 2007 categories from 2008 to 2010

| | | Sales over a website | Sales over ICTs other than a website | Total e-commerce sales |
|---|-------|----------------------|--------------------------------------|------------------------|
| <i>£bn</i> | | | | |
| Manufacturing | 2008† | 5.5 | 122.3 | 127.8 |
| | 2009 | 5.7 | 120.6 | 126.4 |
| | 2010 | 3.8 | 110.3 | 114.1 |
| Utilities | 2008† | 5.1 | 5.1 | 10.3 |
| | 2009 | 7.0 | 6.6 | 13.6 |
| | 2010 | 6.8 | 7.9 | 14.7 |
| Construction | 2008† | 0.4 | 2.2 | 2.6 |
| | 2009 | 0.9 | 3.1 | 4.0 |
| | 2010 | 0.3 | 4.0 | 4.3 |
| Wholesale | 2008† | 24.5 | 76.4 | 100.9 |
| | 2009 | 42.1 | 114.4 | 156.5 |
| | 2010 | 37.5 | 118.3 | 155.8 |
| Retail | 2008† | 12.3 | 2.0 | 14.3 |
| | 2009 | 11.6 | 2.3 | 14.0 |
| | 2010 | 12.8 | 3.1 | 15.9 |
| Transport & storage | 2008† | 13.7 | 20.8 | 34.5 |
| | 2009 | 11.9 | 27.4 | 39.3 |
| | 2010 | 9.4 | 25.7 | 35.1 |
| Accommodation & food services | 2008† | 3.3 | 0.5 | 3.8 |
| | 2009 | 4.4 | 0.9 | 5.3 |
| | 2010 | 4.2 | 0.7 | 4.9 |
| Information & communication | 2008† | 11.0 | 6.4 | 17.3 |
| | 2009 | 10.5 | 9.8 | 20.2 |
| | 2010 | 10.3 | 11.1 | 21.4 |
| Other services | 2008† | 8.7 | 3.8 | 12.5 |
| | 2009 | 8.7 | 6.1 | 14.9 |
| | 2010 | 10.8 | 8.4 | 19.3 |
| Total | 2008† | 84.6 | 239.4 | 324.0 |
| | 2009 | 102.8 | 291.3 | 394.1 |
| | 2010 | 95.9 | 289.5 | 385.4 |
| Coverage: UK non-financial sector businesses with 10 or more employment | | | | |
| † - estimates since 2008 have been revised | | | | |

Source: E-commerce and ICT Bulletin 2010, Office for National Statistics

Purchasing by businesses using ICTs

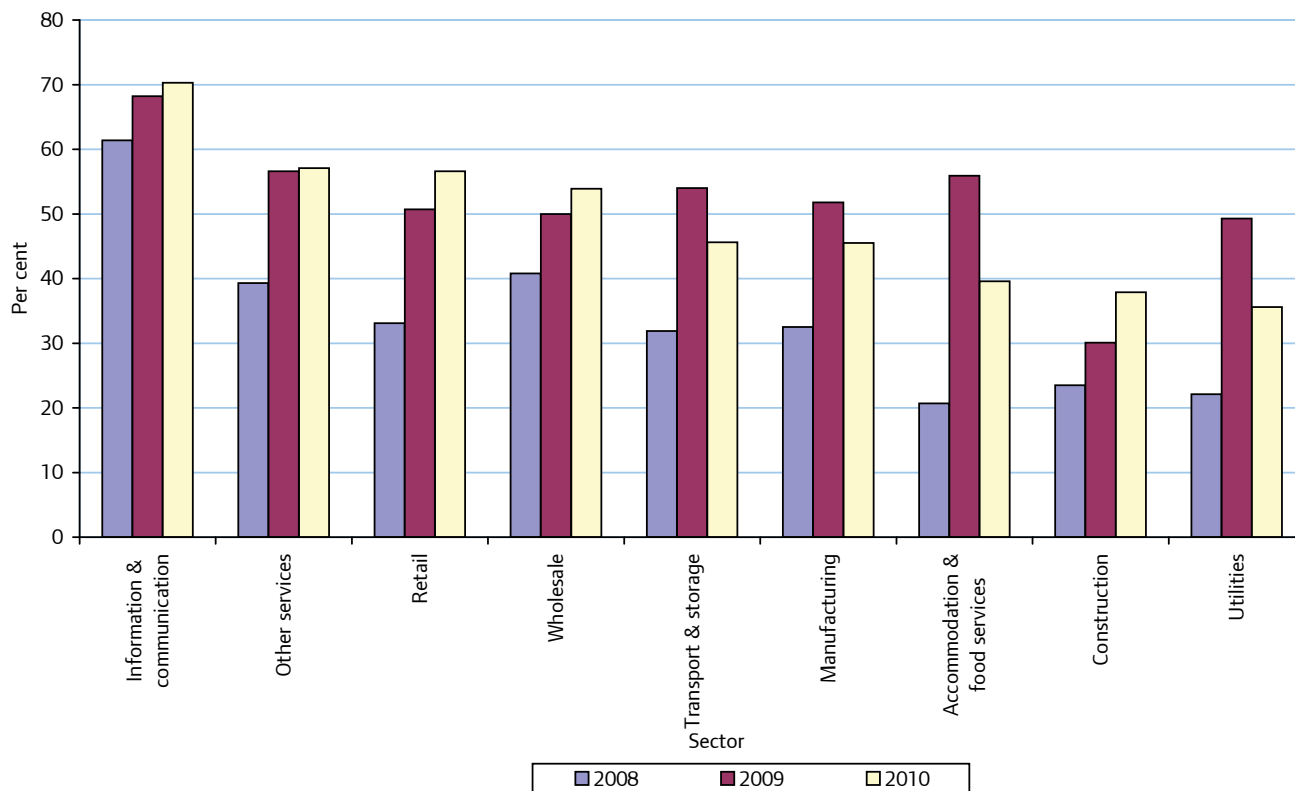
Business procurement practices have changed over recent years. In 2009, 51.6 per cent of businesses placed orders with suppliers over computer networks, an increase from 33.5 per cent in 2008. However, in 2010 there was a slight drop to 50.1 per cent. As company size increases so does their likelihood of purchasing using ICTs.

Table 11: Businesses with ICT purchases by size of business 2005 - 2009

| Employment size | | 10 - 49 | 50 - 249 | 250 - 999 | 1000+ | All sizebands |
|---|-------|---------|----------|-----------|-------|---------------|
| <i>Per cent</i> | | | | | | |
| Purchased over the Internet | 2006 | 52.9 | 69.0 | 74.2 | 79.2 | 55.9 |
| | 2007 | 42.4 | 59.5 | 56.9 | 75.4 | 45.4 |
| Purchased over ICTs other than the Internet | 2006 | 15.5 | 28.1 | 38.4 | 57.5 | 18.1 |
| | 2007 | 14.9 | 26.2 | 37.5 | 58.8 | 17.4 |
| Purchased over ICTs | 2008† | 30.8 | 43.5 | 53.1 | 66.8 | 33.5 |
| | 2009 | 49.4 | 60.0 | 66.1 | 76.6 | 51.6 |
| | 2010 | 47.0 | 61.6 | 72.9 | 84.3 | 50.1 |
| <i>Coverage: UK non-financial sector businesses with 10 or more employment</i> | | | | | | |
| † - estimates since 2008 have been revised | | | | | | |
| 2006 to 2007 estimates for businesses with purchases over ICTs include transactions over manually typed email | | | | | | |

Source: E-commerce and ICT 2010, Office for National Statistics

Half of all companies purchase over ICTS but there is a marked difference in this practice between sectors. The most common are companies in information and communications where, in 2010, 70.3 per cent bought in this manner, followed by other services (57 per cent) and retail (56.6 per cent).

Figure 8: Percentage of businesses purchasing using ICTs by sector, 2008 to 2010

Source: *E-commerce and ICT 2010*, Office for National Statistics

Interaction with public authorities

The percentage of businesses that used the internet to interact with public authorities in 2010 was 86.5 per cent, a large increase from 66.4 per cent in 2009. The main reason for using the internet to interact with public authorities was to return completed forms at 85 per cent of all businesses. Of the returning forms to public authorities the most common reason use was for VAT returns.¹⁵

Table 12: Businesses internet interaction with public authorities 2006 to 2010

| Employment size | | 10 - 49 | 50 - 249 | 250 - 999 | 1000+ | All sizebands |
|--|-------|---------|----------|-----------|-------|---------------|
| <i>Per cent</i> | | | | | | |
| Used Internet to interact with public authorities | 2006 | 47.5 | 68.8 | 68.8 | 77.1 | 51.2 |
| | 2007 | 56.6 | 76.3 | 79.8 | 82.1 | 60.1 |
| | 2008† | 61.1 | 83.8 | 85.4 | 86.5 | 65.3 |
| | 2009 | 62.3 | 84.9 | 87.2 | 89.8 | 66.4 |
| | 2010 | 84.8 | 94.5 | 94.9 | 93.9 | 86.5 |
| <i>Purpose of Internet interaction with public authorities:</i> | | | | | | |
| to obtain information | 2006 | 45.6 | 68.2 | 66.9 | 75.7 | 49.5 |
| | 2007 | 53.5 | 71.5 | 75.1 | 81.1 | 56.7 |
| | 2008† | 57.2 | 80.2 | 81.3 | 84.7 | 61.4 |
| | 2009 | 58.9 | 80.7 | 83.2 | 88.2 | 62.9 |
| | 2010 | 78.3 | 90.0 | 92.1 | 91.9 | 80.5 |
| to obtain forms | 2006 | 42.7 | 66.8 | 66.3 | 73.6 | 46.9 |
| | 2007 | 49.1 | 71.4 | 72.0 | 78.6 | 53 |
| | 2008† | 53.4 | 77.4 | 74.9 | 82.1 | 57.7 |
| | 2009 | 54.0 | 77.1 | 80.6 | 85.7 | 58.3 |
| | 2010 | 75.9 | 88.9 | 89.7 | 90.6 | 78.3 |
| to return completed forms | 2006 | 33.8 | 58.9 | 57.7 | 64.9 | 38.2 |
| | 2007 | 44.4 | 64.6 | 68.6 | 71.8 | 48.0 |
| | 2008† | 50.0 | 76.6 | 74.0 | 76.9 | 54.7 |
| | 2009 | 49.7 | 75.3 | 78.5 | 82 | 54.4 |
| | 2010 | 83.2 | 93.6 | 93.8 | 91.9 | 85.0 |
| <i>Returning forms to public authorities for:</i> | | | | | | |
| details of N I contributions | 2010 | 52.5 | 67.8 | 70.6 | 70.1 | 55.3 |
| corporation tax returns | 2010 | 31.6 | 35.3 | 38.1 | 36.3 | 32.3 |
| VAT returns | 2010 | 82.4 | 92.1 | 91.3 | 88.5 | 84.1 |
| customs/excise returns | 2010 | 33.6 | 48.1 | 48.6 | 48.8 | 36.2 |
| <i>Coverage: UK non-financial sector businesses with 10 or more employment</i> | | | | | | |
| † - estimates since 2008 have been revised | | | | | | |

Source: E-commerce and ICT 2010, Office for National Statistics

The most common reason for why businesses do not interact with public authorities over the internet vary according to size of company. For smaller companies (those with between 10 and 49 employees) the complexity or time required for online submissions were the most commonly stated reason whilst companies of over 250 employees stated that electronic procedures still required the exchange of paper mail or personal visits.

Table 13: Business reasons for reduced internet interaction with public authorities over the internet, by size of business, 2010

| Employment size | 10-49 | 50 - 249 | 250 - 999 | 1000+ | All sizebands |
|--|-------|----------|-----------|-------|---------------|
| <i>Per cent</i> | | | | | |
| Concerns related to data confidentiality and security | 5.8 | 3.5 | 5.0 | 8.0 | 5.5 |
| Electronic procedures too complicated and/or too time consuming | 13.6 | 7.3 | 8.8 | 8.1 | 12.5 |
| Electronic procedures still require exchange of paper mail or personal visits | 11.8 | 11.5 | 15.3 | 14.9 | 11.9 |
| Lack of awareness of availability of electronic procedures | 11.1 | 8.3 | 11.5 | 9.8 | 10.7 |
| <i>Coverage: UK non-financial sector businesses with 10 or more employment</i> | | | | | |

Source: E-commerce and ICT 2010, Office for National Statistics

E-Intensity index 2010

The Boston Consulting Group devised an e-Intensity index to measure the depth and reach of the internet in commerce and society of 28 OECD nations in which the UK was ranked 5th overall with a score of 128. The leading country on the index was Denmark with a score of 140 and bottom of the index was Greece with a score of 54. The index looked at three measures of internet activity:

Enablement: how well built is the infrastructure and how available is access? (50 per cent of index)

Expenditure: how much money are consumers and businesses spending online on e-commerce and online advertising? (25 per cent of index)

Engagement: how actively are businesses, governments and consumers embracing the internet? (25 per cent of index)

On this index the UK was ranked 14th out of 28 OECD countries on the enablement sub-index with slow broadband speeds lowering the UK score but low average monthly access costs at £14 per month make it relatively cheap. As the UK has the highest per capita spending online it was ranked first in the expenditure sub-index. For the engagement sub-index the UK was ranked 12th. Directgov, the UK e-government portal, has 10 million registered users and covers around 75 per cent of key government services. In 2009, about 60 per cent of residents used at least one online government service but only about 40 per cent of UK businesses routinely interact with the government online.¹⁶

The Boston Consulting Group also created a regional breakdown of their e-intensity index which showed London as the leading region, with a score of 156 followed by the South East (score of 138) and the East of England (score of 131).

Figure 9: Regional breakdown of e-intensity index



Note: The index is scaled so that the United Kingdom's average matches its international e-Intensity index score of 128.

Source: Carl Kalapesi, Sarah Willersdorf, Paul Zwillenberg, The Boston Consulting Group, October 2010, *The Connected Kingdom: How the Internet is Transforming the UK Economy* commissioned by Google



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Domestic usage

London is home to 7,900,500 people with the largest population density of the UK regions at an average of 5,000 people per square kilometer.¹⁷

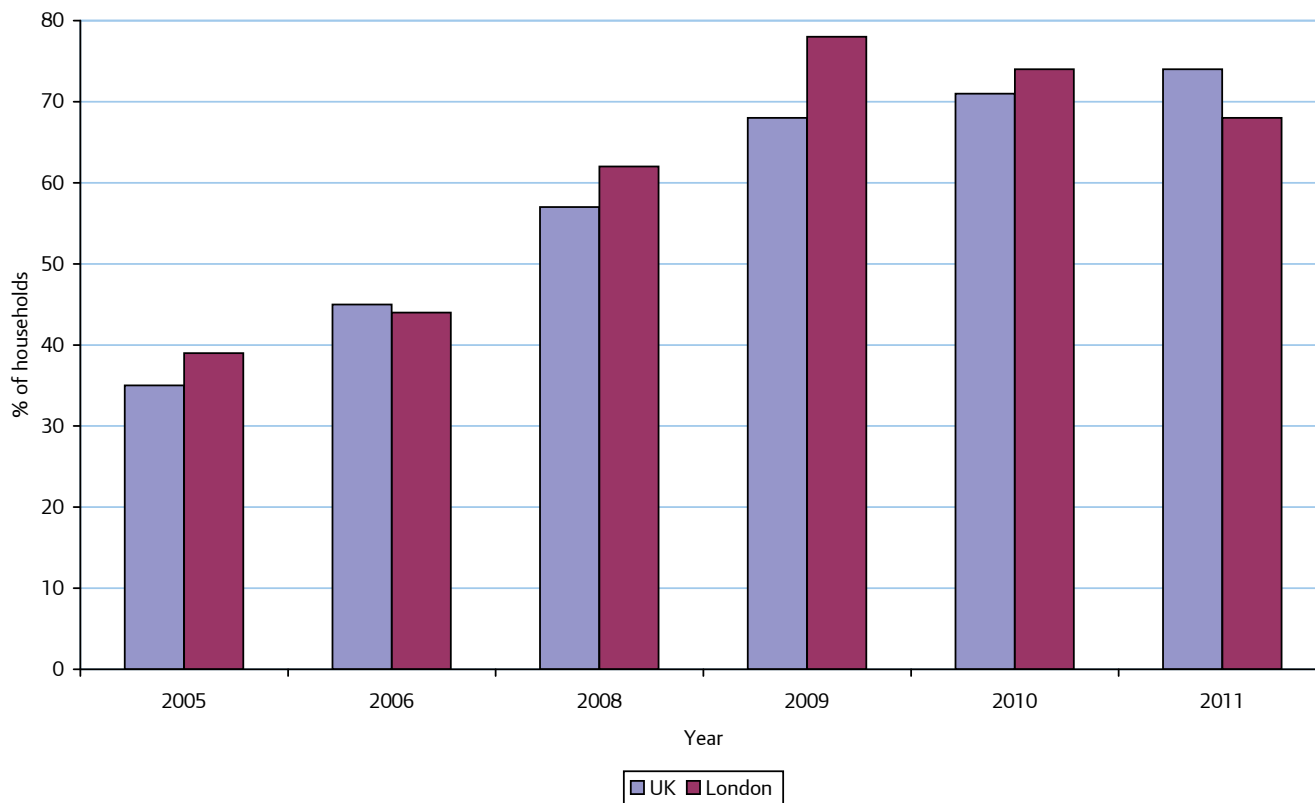
London's population is skewed towards a younger population with a median age of 34 compared to the overall UK median of 39. The city is home to a larger proportion of social class ABC1s at 63 per cent compared to a national average of 54 per cent. The city is also far more ethnically mixed than elsewhere in the UK.

In 2001, 28.9 per cent of London residents identified themselves as non-white compared to 9 per cent in England, 2 per cent in Scotland and Wales and less than 1 per cent in Northern Ireland.¹⁸

Access to broadband

Within the UK, nearly three quarters of households have broadband access. This is higher than household access in the USA where 68.7 per cent of householders had access to broadband.¹⁹ In Q1 2011, 74 per cent of households in the UK had broadband access. 68 per cent of London households had a broadband connection.²⁰

Figure 10: Trends in broadband take up 2005 – 2010 for UK and London



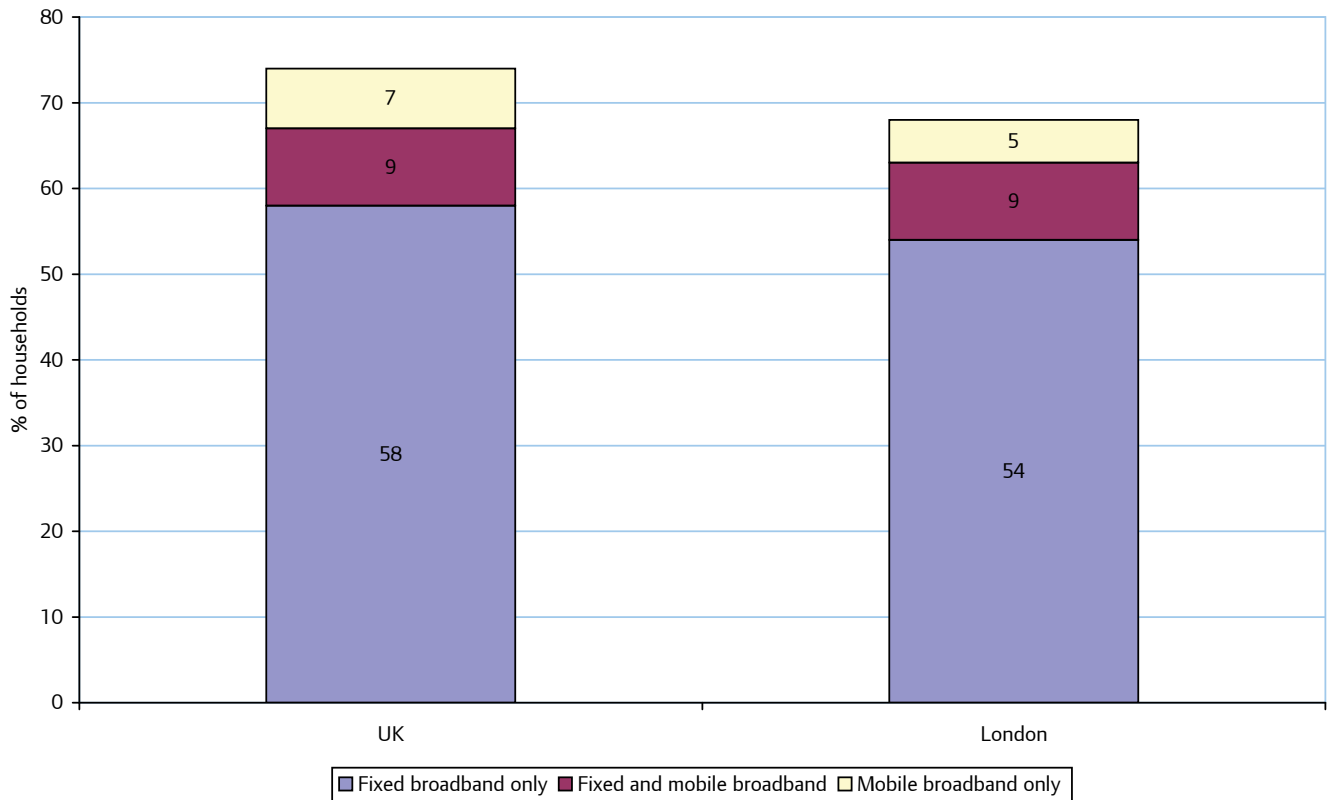
Source: Ofcom research Q1, 2010

One hundred per cent of London households have access to a DSL-enabled BT exchange (same as the UK percentage) and 74 per cent have access to Virgin Media broadband (compared to 49 per cent in the UK).²¹

Internet take up

According to Ofcom research London households are less likely than households in the UK to access the internet by broadband or mobile access alone.²²

Figure 11: Methods used by households to connect to the internet at home

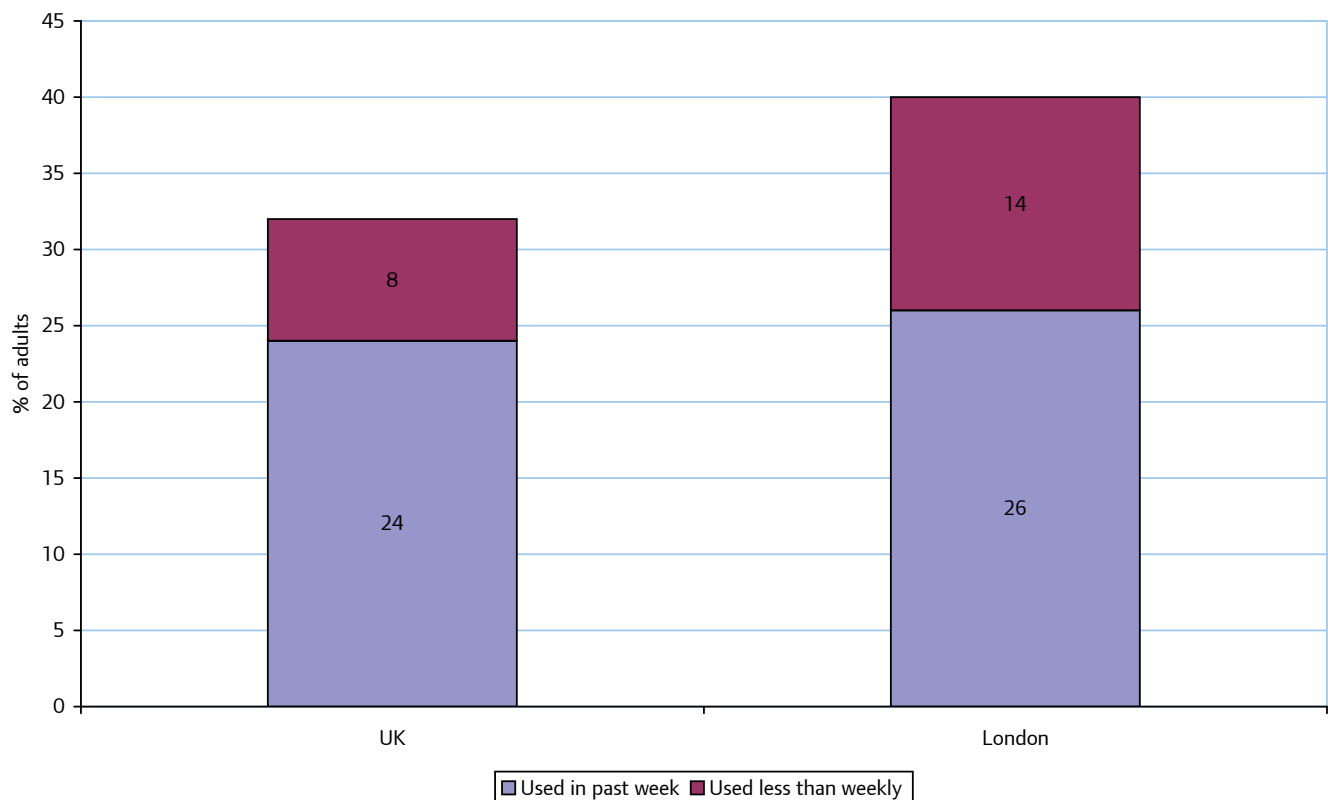


Source: Ofcom research, Q1 2010

Access to mobile broadband

Forty per cent of London adults have used a mobile phone to access the internet compared to 32 per cent within the UK.²³

Figure 12: Proportion of adults who have used a mobile phone to access the internet



Source: Ofcom research, Q1 2011

Households without access to the internet

Twenty-eight per cent of London households do not have access to the internet at home compared to 23 per cent of households in the UK.²⁴

At a national level, reasons given for not having the internet at home are listed in Table 14. Some householders suggested that specific barriers were preventing them from investing in a household Internet connection; for example 19 per cent indicated that equipment costs were too high, while 21 per cent stated that lack of skills prevented them from getting the Internet. However, half of those without a household Internet connection said they didn't have one because they "don't need the Internet".

Table 14: Reasons for not having Internet at home, 2010 and 2011

| | 2010 | 2011 |
|---|------|------|
| <i>Per cent</i> | | |
| Have access to the Internet elsewhere | 8 | 8 |
| Don't need Internet | 39 | 50 |
| Don't want Internet | 20 | n/a |
| Equipment costs too high | 18 | 19 |
| Access costs too high | 15 | 13 |
| Lack of skills | 21 | 21 |
| Privacy or security concerns | 4 | 5 |
| Physical disability | 2 | 3 |
| None of the above, but other | 14 | 18 |
| Base: GB households with no Internet access | | |

Source: ONS, *Internet Access - Households and Individuals, 2011*

Internet activities

The top uses of the internet from GB adults are finding information about goods and services, using services related to travel and accommodation and social networking. Activities vary by age with those under 44 years much more likely to use social networking whilst those aged over 45 years are more likely to use services related to travel and accommodation.

Figure 13: Use of online applications among British adults in the last 3 months

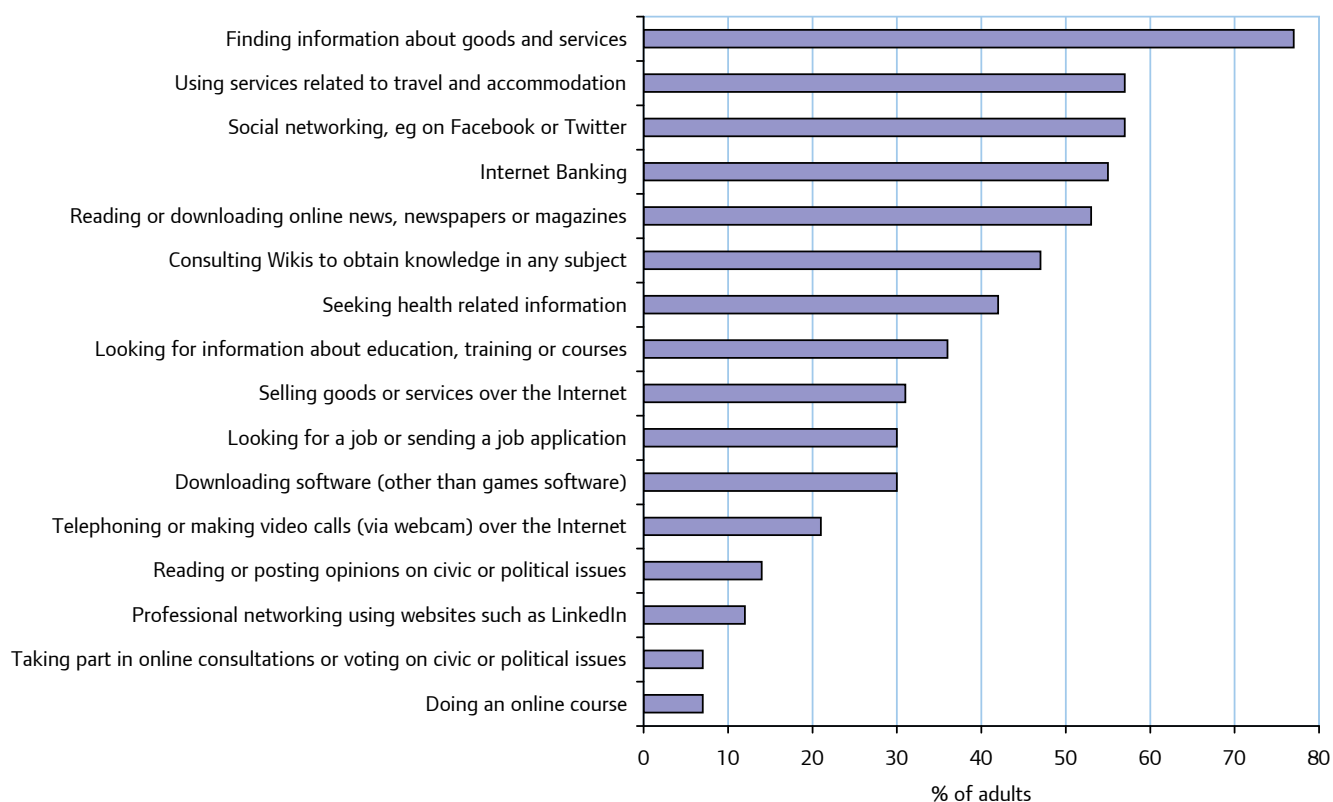


Table 15: Internet activities by age group and sex, 2011

| | 16-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | Men | Women | All |
|--|-------|-------|-------|-------|-------|-----|-----|-------|-----|
| Per cent | | | | | | | | | |
| Finding information about goods and services | 63 | 77 | 80 | 83 | 85 | 78 | 78 | 77 | 77 |
| Social networking, eg on Facebook or Twitter | 91 | 76 | 58 | 42 | 30 | 18 | 54 | 60 | 57 |
| Using services related to travel and accommodation | 45 | 58 | 58 | 63 | 63 | 55 | 58 | 56 | 57 |
| Internet Banking | 49 | 72 | 63 | 51 | 50 | 31 | 58 | 52 | 55 |
| Reading or downloading online news, newspapers or magazines | 48 | 65 | 57 | 50 | 46 | 41 | 57 | 47 | 53 |
| Consulting Wikis to obtain knowledge in any subject | 59 | 52 | 51 | 43 | 39 | 26 | 51 | 43 | 47 |
| Seeking health related information | 30 | 51 | 50 | 38 | 42 | 39 | 38 | 46 | 42 |
| Looking for information about education, training or courses | 58 | 46 | 36 | 32 | 19 | 11 | 34 | 39 | 36 |
| Selling goods or services over the Internet | 28 | 45 | 35 | 31 | 21 | 16 | 35 | 27 | 31 |
| Downloading software (other than games software) | 38 | 38 | 32 | 23 | 21 | 16 | 39 | 20 | 30 |
| Looking for a job or sending a job application | 49 | 42 | 31 | 24 | 14 | 2 | 31 | 29 | 30 |
| Telephoning or making video calls (via webcam) over the Internet | 22 | 28 | 21 | 16 | 18 | 17 | 23 | 19 | 21 |
| Reading or posting opinions on civic or political issues | 16 | 19 | 16 | 9 | 15 | 8 | 18 | 11 | 14 |
| Professional networking using websites such as LinkedIn | 8 | 18 | 17 | 14 | 9 | 3 | 16 | 9 | 12 |
| Doing an online course | 9 | 9 | 6 | 9 | 3 | 3 | 6 | 7 | 7 |
| Taking part in online consultations or voting on civic or political issues | 5 | 8 | 9 | 7 | 9 | 6 | 7 | 7 | 7 |

Base: GB adults who accessed the Internet in the last three months
 Dark grey shaded areas are top three internet activities by age or sex.

Source: Source: ONS Household and Individual Access to the Internet, 2011

2G mobile phone coverage

One hundred per cent of London postcode districts had a minimum of one service operator giving 2G mobile phone coverage and 96 per cent had four or more operators offering 2G mobile phone coverage compared to the UK average of 92 per cent and 71 per cent respectively. Areas with poor coverage included the Scottish Highlands and Islands, parts of north Devon, and areas with low population density or poor coverage as a result of topographies that limit the range of cellular masts.²⁵

3G mobile phone coverage

Again 100 per cent of London postcode districts had a minimum of one service operator giving 3G mobile phone coverage and 95 per cent had four or more operators offering this service. This compared to the UK average of 87 per cent of postcode districts having one or more operators and 39 per cent having a choice of four or more operators. Across the UK 3G network, roll-out has been concentrated in urban areas to enable the networks to meet the population coverage obligations outlined in the 3G spectrum licences. The result of this is that there are still areas with a low population density where 3G services are not available.²⁶

Gaming take up

The take-up of the three leading games consoles (PS3, Wii and Xbox 360) in London (37 per cent) was below the UK average (44 per cent). The take up of Nintendo Wii was roughly the same.²⁷

Service provision

Service bundling

Convergent devices and technologies allow consumers to access multiple content types over a variety of networks. Many operators seek to exploit this by expanding into adjacent markets and offering 'bundles' of communications services; for instance, a mobile operator may offer a bundle of mobile phone, mobile data and fixed broadband services. This can benefit both operator and consumer. For the operator it can increase average revenue per user and increase customer loyalty. For consumers some bundles can offer considerable savings over the separate purchase of services, with the added convenience of receiving a single bill for all services.

Households in London are most likely to take bundles of communications services. Almost half (48 per cent) of adults in England took communications service bundles in Q1 2009, an increase of seven percentage points in the past year. In London 59 per cent of adults took communications service bundles in Q1, 2009, an increase of 25 percentage points in the last year.²⁸

Voice over internet protocol

Thirteen per cent of adults in England in 2009 said that someone in their household had made voice calls over the internet (VoIP). For London take up of VOIP was higher at 19 per cent.²⁹

The survey found that the UK had improved 23 per cent in a single year. It added that in 2010 there was a 39 per cent improvement in download speeds from 2009 and a 17 per cent rise in upload speeds.

The survey placed the UK in a category of “Broadband Penetration leaders”, with three-quarters of UK households already having broadband access. However, the study also found that Britain was not one of the 14 countries that is already prepared for the “applications of tomorrow”, and added that many developing economies are leap-frogging established countries. For example, Latvia, Bulgaria and Portugal are already achieving the necessary 11mbps download and 5mps upload speeds. The worldwide average is currently 5.9mbps for download and 1.7mbps for upload; the UK compares favourably with a 6.4mbps download speed. Ofcom have since reported (May 2011) that average download speeds in the UK are 6.8mbps

Overall the study, showed that global broadband quality has improved by 50 per cent in three years, and that South Korea has set a new benchmark for the world's broadband standards by achieving 100 per cent penetration.

Table 16: Broadband Quality Study 2010, top 20 leaders with scores and progress from 2008-2010

| Ranking 2010 | Country | Leadership 2010 | Leadership 2009 | Leadership 2008 |
|--------------|-----------------------|-----------------|-----------------|-----------------|
| 1 | Korea | 157 | 128 | 107 |
| 2 | Hong Kong | 118 | 104 | 98 |
| 3 | Japan | 116 | 98 | 95 |
| 4 | Iceland | 115 | 103 | 85 |
| 5 | Switzerland | 111 | 102 | 91 |
| 5 | Luxembourg | 111 | 101 | 84 |
| 5 | Singapore | 111 | 105 | 96 |
| 6 | Malta | 108 | 92 | 67 |
| 7 | Netherlands | 107 | 101 | 93 |
| 8 | United Arab Emirates | 106 | 88 | 68 |
| 8 | Qatar | 106 | 106 | 80 |
| 9 | Sweden | 104 | 96 | 83 |
| 10 | Denmark | 103 | 94 | 87 |
| 11 | Norway | 102 | 95 | 85 |
| 12 | Bahrain | 100 | 91 | 73 |
| 13 | Ireland | 97 | 86 | 75 |
| 13 | Finland | 97 | 83 | 77 |
| 14 | Israel | 96 | N/A | N/A |
| 15 | Latvia | 94 | 71 | 58 |
| 15 | France | 93 | 87 | 79 |
| 15 | Canada | 93 | 87 | 81 |
| 15 | United States | 93 | 84 | 74 |
| 16 | Slovenia | 93 | 87 | 77 |
| 17 | Belgium | 91 | 82 | 73 |
| 18 | United Kingdom | 88 | 82 | 76 |
| 18 | Germany | 88 | 77 | 70 |
| 18 | Estonia | 87 | 77 | 67 |
| 19 | Cyprus | 83 | 69 | 55 |
| 20 | Taiwan | 82 | 82 | 74 |

Source: Broadband Quality Survey 2010

Where sample sizes are sufficiently large, the survey also included details at the City level. London scores 30 on the broadband quality score, the same as Glasgow and one point higher than Birmingham. This compares with the winning city of Seoul which has an overall score of 73.

Table 17: Broadband Quality Study 2010, City Level data for top performing cities

| Country | City | Download | Upload | Latency | Broadband Quality Score |
|----------------|---------------|--------------|------------|-----------|-------------------------|
| South Korea | Seoul | 29.891 | 14.846 | 139 | 73 |
| Japan | Osaka | 20.929 | 11.302 | 63 | 59 |
| Japan | Tokyo | 20.878 | 10.729 | 52 | 58 |
| Germany | Hamburg | 20.647 | 3.156 | 34 | 53 |
| Bulgaria | Sofia | 14.779 | 7.653 | 52 | 48 |
| Germany | Koln | 16.65 | 2.463 | 46 | 46 |
| Sweden | Stockholm | 14.722 | 5.769 | 73 | 46 |
| Netherlands | Rotterdam | 15.156 | 1.636 | 38 | 44 |
| Finland | Helsinki | 15.343 | 1.57 | 105 | 43 |
| Denmark | Copenhagen | 11.44 | 5.784 | 43 | 42 |
| France | Paris | 13.359 | 2.669 | 43 | 42 |
| Portugal | Lisbon | 12.453 | 1.424 | 48 | 40 |
| Portugal | Porto | 12.369 | 1.353 | 41 | 40 |
| France | Lyon | 11.462 | 1.447 | 56 | 38 |
| Netherlands | Amsterdam | 11.364 | 1.609 | 44 | 38 |
| US | New York | 10.119 | 2.757 | 47 | 38 |
| Belgium | Antwerp | 10.516 | 961 | 51 | 37 |
| Czech Republic | Prague | 9.588 | 2.625 | 38 | 37 |
| France | Marseille | 10.804 | 1.565 | 65 | 37 |
| Belgium | Brussels | 9.753 | 1.226 | 44 | 36 |
| Austria | Vienna | 9.284 | 1.389 | 84 | 35 |
| Germany | Berlin | 9.122 | 1.193 | 65 | 35 |
| Norway | Oslo | 8.718 | 2.673 | 69 | 35 |
| Switzerland | Zurich | 9.243 | 1.153 | 42 | 35 |
| Canada | Vancouver | 8.393 | 945 | 90 | 33 |
| Germany | Munich | 8.023 | 1.223 | 90 | 33 |
| France | Toulouse | 7.272 | 1.068 | 104 | 32 |
| Germany | Frankfurt | 7.338 | 1.186 | 106 | 32 |
| Canada | Montreal | 6.291 | 914 | 51 | 31 |
| UK | Glasgow | 5.836 | 535 | 68 | 30 |
| UK | London | 5.812 | 589 | 76 | 30 |
| UK | Birmingham | 5.377 | 575 | 64 | 29 |
| Australia | Melbourne | 5.123 | 539 | 76 | 29 |
| UK | Manchester | 5.376 | 588 | 54 | 29 |

Source: Broadband Quality Survey 2010

Looking to the future

According to Ofcom, the average residential fixed broadband customer is using 17GB of data per month. This figure ranges from 10GB to 40GB between operators. Data from the London Internet Exchange shows that traffic over its network routers, which interconnect the UK's Internet Service Providers (ISPs), has increased seven fold in the past five years. While future demand for capacity is uncertain, if demand continues to increase at current rates ISPs will need to make further investment in their networks.

Virgin Media, BT and others are already investing in new technologies to increase the capacity of broadband access networks; BT plans to introduce technology in 2012 that will deliver up to 80Mbit/s over copper lines and 300Mbit/s over fibre, Virgin has demonstrated 1Gbit/s speeds on its cable network. In mobile, Ofcom plans to auction radio spectrum in 2012 that will enable the deployment of 'Long Term Evolution' (LTE) next-generation wireless technologies which will help meet growing capacity demands.

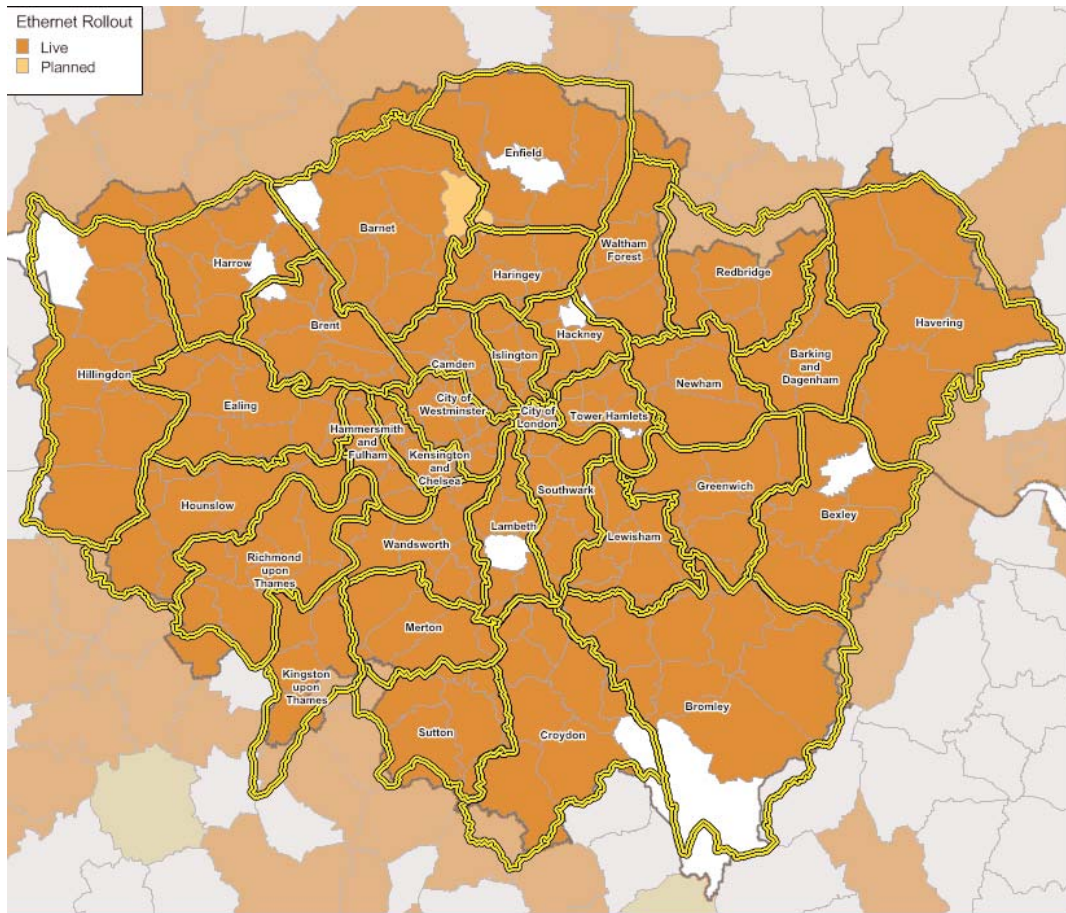
In addition to the upgrades to access networks, increases in network traffic will also drive the need to upgrade backhaul capacity, the data circuits that connect mobile base stations and local telephone exchanges to the core networks. Ofcom has recently published a Call for Inputs as the first stage of their Business Market Connectivity Review, which will review the competitive conditions in the market for leased lines used in backhaul circuits.

Mobile broadband data volumes are now significant, at an average of 240MB/month for each 3G connection. However, the data suggests that consumers continue to rely on fixed networks for the bulk of their data consumption and a number of operators are turning to fixed networks to off-load traffic from mobile devices on to fixed networks using Wi-Fi and similar technologies.³¹

The Government recently announced in their Autumn statement that they will be creating a new £100 million urban broadband fund that will create up to 10 "super-connected cities" across the UK with 80 – 100 megabits per second superfast broadband. London, Belfast, Cardiff and Edinburgh and up to six further cities will receive support from the fund over the next three years.³²

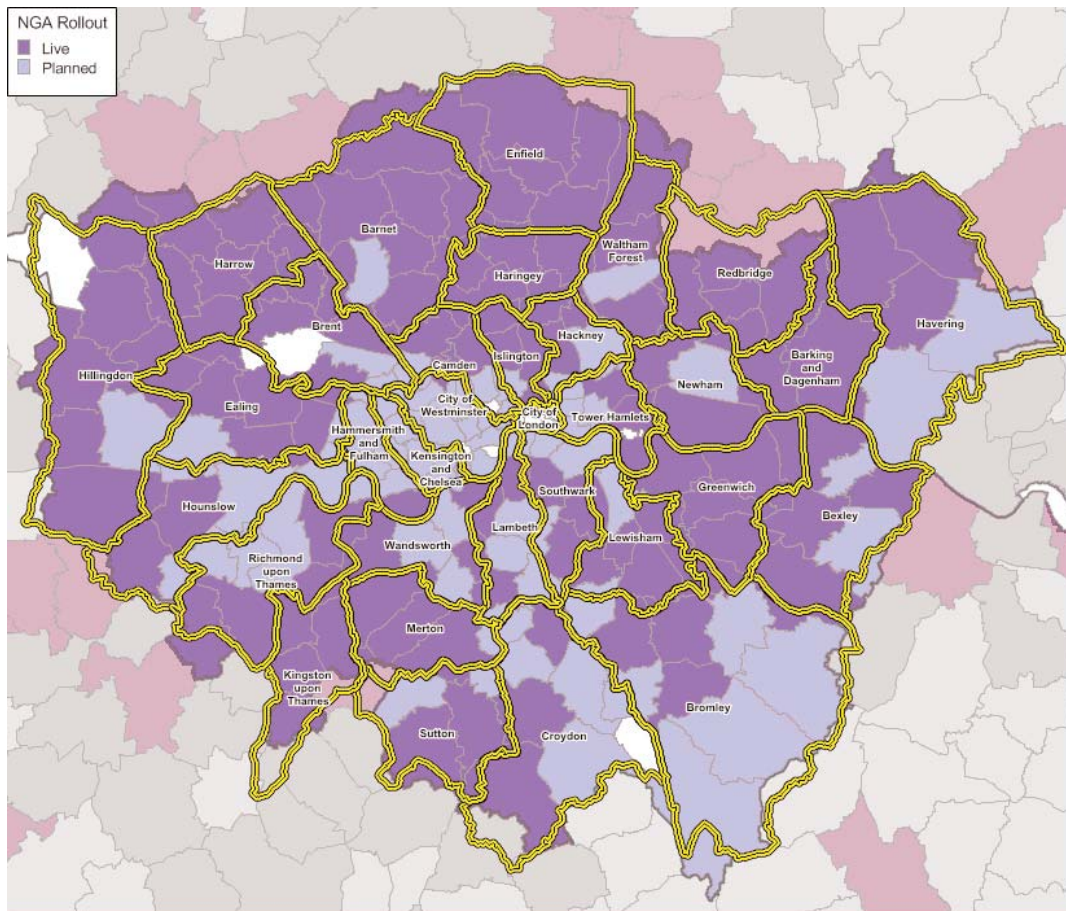
According to British Telecom the roll out of super-fast broadband (up to 110 Mbit/s) is under development with the coverage of 2.6 million premises in London expected by March 2012. It requires a fibre connection directly to the premises or at least to a street cabinet. BT provides the first for new development areas if the developer informs them at an early stage. For large business services BT provides an ethernet connection (up to 10 Gbit/s). The following maps show BT's existing and planned (until March 2012) super-fast and ethernet deployment. Areas where currently no super-fast broadband is planned include areas in north-east Hillingdon, Brent and south Croydon as well as the City of London and other business centres. These areas mainly cater for large businesses through the provision of ethernet connections but less well for the relatively few residential customers and SMEs. In terms of ethernet deployment the majority of London can be connected. The 'white' areas, where connections are technically possible but potentially more expensive to provide, include individual areas within the north of London as well as areas in Bexley, Lambeth, south Bromley and south Croydon.

Figure 14: BT's superfast broadband deployment plans for London



Source: British Telecom

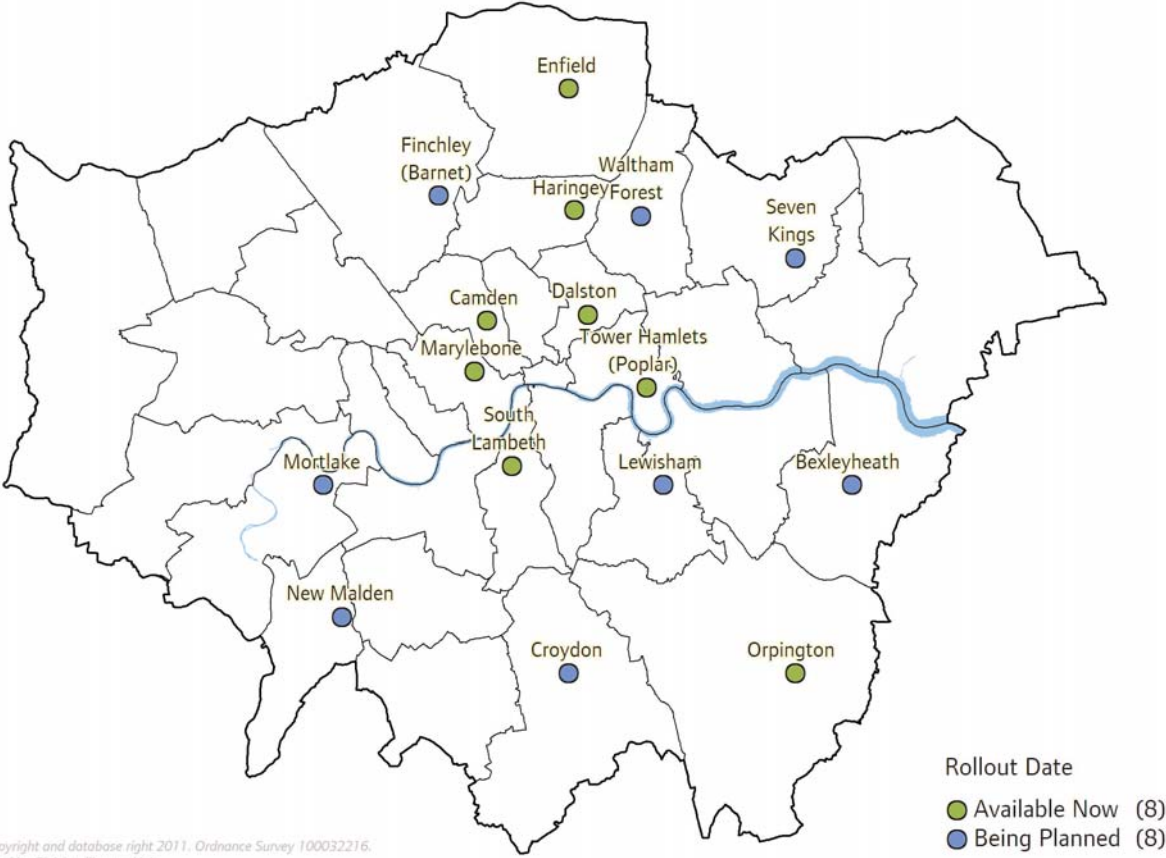
Figure 15: BT's Ethernet deployment plans



Source: British Telecom

Virgin media are rolling out their 100mb broadband service across their fibre optic network. Their schedule for service delivery in London can be seen in Figure 16.

Figure 16: Virgin's 100mb broadband deployment



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Endnotes

- 1 Experian Business Strategies Regional Planning Service forecast for London in 2006 prices, Oct 2011 release.
- 2 Table 1.2 and Figure 1.4 from GLA Economics, Economic Evidence Base, May 2010.
- 3 The World Bank definition of Information and communication technology service exports includes computer and communications services (telecommunications and postal and courier services) and information services (computer data and news-related service transactions).
- 4 Ernst and Young European Investment Monitor for software sector investments during financial year 2010/11.
- 5 BVCA Private Equity and Venture Capital Report on Investment Activity 2010.
- 6 Carl Kalapesi, Sarah Willersdorf, Paul Zwillenberg, The Boston Consulting Group, October 2010, The Connected Kingdom: How the Internet is Transforming the UK Economy commissioned by Google.
- 7 ONS, Inter-Departmental Business Register.
- 8 Dun & Bradstreet (Sic 737) ; fDi Intelligence, from the Financial Times Ltd (2011) downloaded October 2011.
- 9 The World Bank definition of information and communications technology expenditures include computer hardware (computers, storage devices, printers, and other peripherals); computer software (operating systems, programming tools, utilities, applications, and internal software development); computer services (information technology consulting, computer and network systems integration, web hosting, data processing services, and other services); and communications services (voice and data communications services) and wired and wireless communications equipment.
- 10 The World Bank definition of information and communication technology service exports includes computer and communications services (telecommunications and postal and courier services) and information services (computer data and news-related service transactions).
- 11 Ernst and Young European Investment Monitor. Data downloaded 12 Oct 2011.
- 12 Table 1.2 and Figure 1.4 from GLA Economics, Economic Evidence Base, May 2010.
- 13 Experian Business Strategies Regional Planning Service forecast for London in 2006 prices, Oct 2011 release.
- 14 This data excludes financial services.
- 15 Source: E-commerce and ICT 2010, Office for National Statistics.
- 16 For more details see: Carl Kalapesi, Sarah Willersdorf, Paul Zwillenberg, The Boston Consulting Group, October 2010, The Connected Kingdom: How the Internet is Transforming the UK Economy commissioned by Google.
- 17 Source: Greater London Authority 2010 round of SHLAA projections.
- 18 Source: Office for National Statistics.

- 19 Source: U.S. Census Bureau, Current Population Survey, October 2009.
- 20 Source: Ofcom research Q1, 2011, Base: All adults aged 16+ (n = 3474 UK, 247 London). Note: includes households with a fixed line and/or mobile broadband connections.
- 21 December 2008 data from Virgin media, BT and OFCOM Source: OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 22 Source: Ofcom research, Q1 2011, Base: All adults 16+ (n=3474 Uk, 247 London) Which of these methods does your household use to connect to the internet at home?
- 23 Source: Ofcom research, Q1 2011. Base: All adults aged 16+ (n = 3474 UK, 247 London QD28A-B. Which, if any, of the following activities, other than making and receiving calls, do you use your mobile for?/ And, which of these activities have you used your mobile for in the last week?
- 24 Source: Ofcom research, Q1 2011 QE2. Do you or does anyone in your household have access to the internet/ Worldwide Web at HOME (via any device, e.g. PC, mobile phone etc)?
- 25 Source: GSM Association / Europa Technologies; Q1 2009 taken from OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 26 Source: Ofcom/ GSM Association / Europa Technologies; Q1 2009 taken from OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 27 Source: Ofcom research, Quarter 1 2009 Base: All adults aged 15+ (n = 6090 UK, 3437 England) QB4. Which games console/s do you or does anyone in your household have at the moment? Taken from OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 28 Source: OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 29 Source: OFCOM communications markets report: English Regions <http://stakeholders.ofcom.org.uk/binaries/research/cmr/nrcmreng.pdf>
- 30 Third Annual Broadband Quality Survey 2010, conducted for Cisco by the Said Business School and the University of Oviedo Broadband quality was evaluated by scoring the combined download throughput, upload throughput, and latency capabilities of a connection, the key criteria for a connection's ability to handle specific Internet applications, from consumer telepresence to online video and social networking. These criteria are expressed as a single 'Broadband Quality Score' for each country. Using the data from 40 million real-life broadband quality tests conducted in May-June of 2010 on the Internet speed testing site, speedtest.net, the researchers were able to evaluate the broadband quality of 72 countries around the globe.
- 31 OFCOM- Infrastructure report published 1/11/11 see <http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/bbspeeds2011/infrastructure-report.pdf>
- 32 See http://www.hm-treasury.gov.uk/as2011_index.htm for a full copy of the Autumn statement.

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liên hệ theo số điện thoại hoặc địa
chỉ dưới đây.

Greek

Αν θέλετε να αποκτήσετε αντίγραφο του παρόντος
εγγράφου στη δική σας γλώσσα, παρακαλείστε να
επικοινωνήσετε τηλεφωνικά στον αριθμό αυτό ή ταχυ-
δρομικά στην παρακάτω διεύθυνση.

Turkish

Bu belgenin kendi dilinizde
hazırlanmış bir nüshasını
edinmek için, lütfen aşağıdaki
telefon numarasını arayınız
veya adrese başvurunuz.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਤੁਹਾਡੀ ਆਪਣੀ ਭਾਸ਼ਾ
ਵਿਚ ਚਾਹੀਦੀ ਹੈ, ਤਾਂ ਹੇਠ ਲਿਖੇ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਹੇਠ
ਲਿਖੇ ਪਤੇ 'ਤੇ ਰਾਬਤਾ ਕਰੋ:

Hindi

यदि आप इस दस्तावेज की प्रति अपनी
भाषा में चाहते हैं, तो कृपया निम्नलिखित
नंबर पर फोन करें अथवा नीचे दिये गये
पते पर संपर्क करें

Bengali

আপনি যদি আপনার ভাষায় এই দলিলের প্রতিলিপি
(কপি) চান, তা হলে নীচের ফোন নম্বরে
বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Urdu

اگر آپ اس دستاویز کی نقل اپنی زبان میں
چاہتے ہیں، تو براہ کرم نیچے دئے گئے نمبر
پر فون کریں یا دیئے گئے پتے پر رابطہ کریں

Arabic

إذا أردت نسخة من هذه الوثيقة بلغتك، يرجى
الاتصال برقم الهاتف أو مراسلة العنوان
أدناه

Gujarati

જો તમને આ દસ્તાવેજની નકલ તમારી ભાષામાં
જોઈતી હોય તો, કૃપા કરી આપેલ નંબર ઉપર
ફોન કરો અથવા નીચેના સરનામે સંપર્ક સાધો.

Other formats

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