



Communications Market Report: Scotland

Research Document

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Introduction

This is Ofcom's eighth annual review of communications markets in Scotland, offering an overview of the take-up and use of communications services across the nation.

Some of the trends reported in last year's review continue. Broadband take-up has increased by two percentage points – not as large an increase as reported last year, but still an upward trend. There are some new findings, including the fact that internet users in Scotland spend the most time online, compared to users in the other devolved nations. Once people in Scotland discover the advantages of being connected, they appear to make the most of it.

The report provides evidence of Scotland still catching up in some areas. This is evident from the rise in take-up of mobiles and smartphones, along with growth in the use of mobile internet with high levels of user satisfaction. The report also shows the growing popularity of tablets in Scotland, with a quarter of households now owning one.

We focus again on broadband take-up in Glasgow, drawing on data from the British Population Survey. As shown by useful research undertaken by the Carnegie Trust, attitudes towards the internet, rather than demographic factors, could help explain the lower take-up

As in previous reports, some of our detailed research paints a complex picture. Despite being more disposed to spending time online, people in Scotland do not tend to rely on the internet as a source of news about their own local area, or about Scotland as a nation.

In terms of broadcast production, the 2013 report does not provide as positive a picture as the last two years for network spend in Scotland. However, it is by no means a wholly negative picture; viewing figures for regional and national news in Scotland are encouraging from a public service broadcasting perspective. Scotland still has a soft spot for TV: daily viewing hours may have gone down slightly but we have the highest proportion of HD-ready homes in the UK.

For only the second year, we provide research on the postal market. The report shows that in Scotland levels of satisfaction with the service provided by the Royal Mail are the highest in the UK. Despite this, adults in Scotland send the fewest items of post each month compared to the UK average.

We publish this report to support Ofcom's regulatory goal to research markets constantly and to remain at the forefront of technological understanding. The report also fulfils the requirements on Ofcom under Section 358 of the Communications Act 2003 (the Act) to publish an annual factual and statistical report, and addresses the requirement to undertake and make public our consumer research (as set out in Sections 14 and 15 of the Act).

The information set out in this report does not represent any proposal or conclusion by Ofcom in respect of the current or future definition of markets. Nor does it represent any proposal or conclusion about the assessment of significant market power for the purpose of the Communications Act 2003, the Competition Act 1998 or any other relevant legislation.

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Key trends for Scotland

Scotland is starting to catch up in the mobile market... a seven percentage point rise in take-up brings mobile ownership (92%) and use of pay-monthly mobiles (58%) to levels comparable with the UK averages (92% and 60%).

...driven by rise in smartphones. Ownership of smartphones has risen by 13 percentage points to 45% of adults, accompanied by rising use of mobile internet (up to 44%). But these are still behind the UK averages for smartphones (51%) and mobile internet (49%).

Three in four households in Scotland have internet access... up 6 percentage points but broadband access remains unchanged at 70% and below the UK average varying by city – British Population Survey data shows that this is lowest in Glasgow (50%) with Edinburgh (88%) and Dundee (71%) both above average.

Biggest growth in use of mobile internet... up 13 percentage points to 44%, at least partly driven by the recent rise in smartphone ownership. Users report greater use of online activities like visiting websites (50%), email (45%), and social networking (44%).

...and highest satisfaction with connecting via 3G. Ninety-three per cent were satisfied with this aspect, compared to the UK average of 88%. The smartphone is the most important device for going online for 29% of 16-34 year olds in Scotland.

A quarter of adults now own a tablet... equal to the UK average (24%), with 2% saying they own a tablet but no laptop or PC. Tablet owners in Scotland are less likely than those in Wales and Northern Ireland to shop online via this device.

...and broadband customers spend longest online than in other devolved nations. At 18.3 hours per week, this is higher than Wales (13.7) and Northern Ireland (11.6). Internet users in Scotland report higher weekly use of instant messaging/chat rooms and social networking.

Greatest number of HD-ready TV homes... at 79%. More than half (52%) of adults say they would miss the TV most out of all media activities, higher than the UK average of 43%.

...but less likely to own a DAB radio. Three in ten homes in Scotland have a DAB radio, compared to the 41% UK average. But they are more likely than average to listen to music via other methods such as mobile phone, CD or MP3 player.

First-run spend on nations' programming in Scotland was down 6% year on year... over five years, spend on programming decreased by 27% (£19m) making Scotland the least-affected nation over that period, followed by England.

The BBC and STV's spend on current affairs increased by 6% since 2007 against a 28% decline for the UK as a whole. Scotland is the only nation to show an increase in spend on current affairs over this period.

Preference for emailing companies...**rather than using post; more than half (56%) agreed they only send post if there is no alternative. This is consistent with sending the lowest number of items each month (5) and a fifth spending no more than £1 per month on post.**

...and half of adults use First Class all the time, despite the majority (79%) saying they 'trust Second Class to arrive in a reasonable amount of time'. The stamp price increases had least impact on purchasing in Scotland; 77% 'buy the same amount of stamps as before'.

Setting the scene

Key facts about Scotland

Figure	Scotland	UK
Population	5.295m (2011 census)	63.232m (mid-2011 estimate)
Age profile	Population aged <16: 17.4% Population aged 65+:17.0%	Population aged <16: 18.2% Population aged 65+:16.1%
Population density	68 people per square kilometre	260 people per square kilometre
Language	92,400 people aged 3 and over (1.9% of the population) had some Gaelic language ability in 2001.	n/a
Unemployment	7.7% of the working age population	7.8% of the working age population
Income and expenditure	Weekly household income: £674 Weekly household expenditure: £441	Weekly household income: £699 Weekly household expenditure: £470

Source: Office for National Statistics: *Region and Country Profiles, Key Statistics – April 2013*; Office for National Statistics: *Family Spending 2012 edition*; *National Records of Scotland, Statistical Bulletin – March 2013*; *2001 Census Gaelic Report*

A note on our Technology Tracker survey research

We conducted a face-to-face survey of 3,750 respondents aged 16+ in the UK, with 501 interviews conducted in Scotland. Quotas were set and weighting applied to ensure that the sample was representative of the population of Scotland in terms of age, gender, socio-economic group and geographic location. Fieldwork took place in January and February 2013.

Respondents were defined as urban if they lived in a settlement with a population of 2000 or more and rural if they lived in areas with smaller populations. The survey sample in Scotland has error margins of approximately +/- 3-4% at the 95% confidence level. In urban and rural areas; survey error margins are approximately +/-4-6%.

In addition to the survey data, this report refers to information from a range of other sources, including data provided to Ofcom by stakeholders. Tables summarising the data collected in our survey are published on Ofcom's website.

1 Scotland's communications market

1.1 Key findings for Scotland

Introduction

This section sets out a selection of the key facts and figures relating to communications markets across Scotland in 2012, comparing and contrasting between nations and highlighting changes that have taken place in the past year.

Key findings for Scotland

Use of online services

- **In Scotland, 57% of those with internet access use online government services**, e.g. paying car tax, applying for benefits, completing the Census, applying for a bus pass, applying for a school place, etc. This is in line with the UK average. Around three-fifths of users of online government services say they have engaged with government services or policies more since accessing them online.
- **Around two-thirds of internet users in Scotland say they now shop online**, on par with the UK average. Seventy per cent of these online shoppers feel secure when making online payments.
- **Three-quarters of online shoppers in Scotland are confident that goods bought online will be delivered on time and in good condition**, the same as the UK average. But among current online shoppers in Scotland, 37% had previously not made a purchase because of a concern regarding delivery; 26% mentioned concerns about high delivery costs, and 13% were worried they would not be at home to receive the items.

'Not-spots' – users' experience of mobile phone quality of service

- **Consumers in Scotland experience the same frequency of problems as those in the rest of the UK.** 'No signal' is the problem experienced by most respondents (31%), followed by poor sound quality (17%) and calls ending unexpectedly (13%).
- **The ability to make or receive calls or texts is particularly important for people living in rural areas.** Users living in rural areas are significantly more likely than those living in urban areas to rate the ability to make or receive calls as 'most important' when choosing a mobile provider (45% v. 37%).

TV and audio-visual content

- **DTT is the most widely-used platform in Scotland.** Forty-three per cent of all TV households now use the service, whereas in 2011 satellite television had a higher penetration with 44% of all TV households subscribing to the service.
- **Scotland has the highest proportion of HD-ready TV homes in the UK;** at 79%, six percentage points above the UK average of 73%.

- **The combined audience share of the five main PSB channels in 2012 declined by ten percentage points to 53% in Scotland.** This reduction was slightly less than the average decrease across the UK (11pp).
- **BBC One and STV early evening news bulletins attracted greater share in Scotland than in the UK;** an average 30% share of TV viewing – marginally higher than the UK at 28%
- **Spend on first-run originated content in Scotland is down 6% year on year,** which is slightly greater than the UK average decline of 4%.
- **Total first-run originated hours for Scotland shows the biggest year-on-year decrease across the nations.** The number of first-run originated hours decreased by 17% compared to the UK-wide average decrease of 6%.

Radio and audio content

- **Among all the UK nations, Scotland has the lowest reach for radio.** Radio services reached 86.7% of the adult population in Scotland, the lowest of all the UK nations, and 2.8 percentage points lower than the UK average of 89.5%.
- **Local commercial stations are more popular in Scotland than in other nations.** In 2012, local commercial stations accounted for a 38% share of all listening hours in Scotland, a higher share for this sector than in any other UK nation.
- **Commercial radio revenue per head of population was highest in Scotland.** The revenues generated by local commercial radio stations in Scotland reached £40.6m in 2012. Adjusting for population size, Scotland has the largest revenue per head of the UK nations, at £7.72.

Internet and web-based content

- **Three in four households in Scotland have internet access.** Three-quarters of households in Scotland (76%) had access to the internet in Q1 2013 (via broadband, mobile phone or narrowband), with this figure increasing by six percentage points year on year, to be slightly lower than the UK average (80%).
- **A quarter of households in Scotland have a tablet computer.** Take-up of tablet computer such as an iPad or Kindle Fire more than doubled, from 11% to 24% of households in Scotland, on par with the UK average,
- **Internet users in Scotland spent the most time online of the devolved nations.** According to research conducted for Ofcom's *Adult Media Literacy Report*, internet users in Scotland claimed to spend more than 18 hours on the internet per week, greater than, but not significantly different to, the UK average of 16.8 hours.

Telecoms and networks

- **'Up to' 120Mbit/s cable broadband services are available to over a third of premises in Scotland.** Data provided to Ofcom by Virgin Media shows that 38% of premises in Scotland were in postcodes that were served by its cable broadband network by June 2013. Virgin Media is upgrading its cable network to offer speeds of 'up to' 120Mbit/s, and this programme has already been completed in Scotland.

- **A significant rise in mobile phone ownership has brought Scotland into line with the UK average:** The proportion of adults in Scotland who used a mobile phone increased from 85% to 92% in the year to Q1 2013, matching the UK average. The proportion of adults in Scotland who used a smartphone increased from 32% to 45% in the year to Q1 2013, but this was still below the UK average of 51%.
- **One in seven households in Scotland was mobile-only in Q1 2012:** Sixteen per cent of households in Scotland used mobiles as their only form of telephony in Q1 2013. The proportion of homes that were mobile-only in Scotland varied by demographic group: over a third of those aged 16-34 (36%) and those in the DE socio-economic group (35%) lived in a mobile-only household, compared to 6% of those aged 55+ and 1% of AB households.
- **Satisfaction with the ability to connect to the internet using a mobile network is high among smartphone users in Scotland:** Just over nine in ten smartphone users in Scotland (93%) were 'very' or 'fairly' satisfied with their ability to connect to the internet in Q1 2013. This was the highest level of satisfaction among the UK nations, and five percentage points above the UK average of 88%.

Post

- **Adults in Scotland send the fewest items of post each month, compared to the UK average.** People in Scotland claim to send an average of 5 letters, cards or parcels per month, lower than the UK average of 7. Almost a third (30%) had not sent any post in the past month.
- **A fifth of adults in Scotland say they spent less than £1 on postage** for their items in the past month, compared to 13% across the UK. This is driven by the number of people spending fifty pence or less (11% in Scotland vs. 5% across the UK).
- **In Scotland, First Class is the preferred option for letters or cards,** with almost half (49%) saying they prefer to use this method all the time, compared to just 42% across the UK as a whole.
- **The price increase of stamps did not affect most people's use of post in Scotland;** over three-quarters (77%) claim to have continued to buy the same amount, compared to 60% across the UK as a whole.

1.2 Fast facts for Scotland

Figure 1.1 Fast facts for Scotland

	UK	England	Scotland	Wales	Northern Ireland	UK urban	UK rural	Scotland urban	Scotland rural
TV take-up	97	97	97	98	98	97	98	97	97
Smart TV take-up among TV homes	7	8	4 ⁻	6	6	7	7	3 ⁻	7
DAB ownership amongst radio listeners	41 ↑+3	43 ↑+3	29 ⁻	27 ⁻	24 ⁻	41	39	29 ⁻	31 ⁻
Catch-up TV viewing on (viewed on mobile or computer)*	27	28	18 ⁻	25	24	27	28	17 ⁻	24
Broadband take-up	75	76	70 ⁻	66 ⁻	74 ↑+5	74	82 ⁺ ↑+5	69 ⁻	73
Mobile broadband take-up	5	5	7	7	5	6	4	7	8 ⁺
Use mobile to access internet	49 ↑+10	49 ↑+9	44 ⁻ ↑+13	47 ↑+8	45 ↑+10	49 ↑+10	48 ↑+13	44 ⁻ ↑+14	42 ⁻ ↑+10
Mobile phone take-up	92	92	92 ↑+7	92	94	92	93	91 ↑+7	94 ↑+5
Smartphone take-up	51 ↑+12	52 ↑+12	45 ⁻ ↑+13	49 ↑+10	45 ⁻ ↑+11	51 ↑+12	51 ↑+14	45 ⁻ ↑+12	45 ⁻ ↑+13
Fixed landline take-up	84	85	83	76 ⁻	82	83	91 ⁺	83	86
Tablet computer take-up	24 ↑+13	24 ↑+13	24 ↑+13	21 ↑+13	29 ⁺ ↑+20	23 ↑+12	29 ⁺ ↑+18	25 ↑+14	22 ↑+12
E-reader take-up (personal use)	16 ↑+6	17 ↑+7	14 ↑+6	15	12 ⁻ ↑+4	15 ↑+4	21 ⁺ ↑+6	13	19 ↑+8
Households taking bundles	60 ↑+3	60	60 ↑+13	50 ⁻	57 ↑+6	59	64 ↑+8	61 ↑+16	57
Fixed telephony availability	100	100	100	100	100				
Fixed broadband availability ¹	99.98	100	99.86	100	100				
LLU ADSL broadband availability ²	94 ↑+2	95 ↑+2	87 ↑+3	93 ↑+5	85 ↑+6				
Virgin Media cable broadband availability ³	48	51	38	22	28				
BT Openreach / Kcom fibre broadband availability ⁴	56	59	25	41	93				
NGA broadband availability ⁵	73 ↑+8	76 ↑+8	52 ↑+7	48 ↑+11	95				
2G mobile availability ⁶	99.6	99.8	99.3	98.8	98.5				
3G mobile availability ⁷	99.1	99.5	96.6	97.7	97.4				
DTT availability ⁸	98.5	98.6	98.7	97.8	97.4				
TV consumption (hours per day)	4.0	4.0	4.3	4.5	4.1				
Radio consumption (hours per day)	3.2	3.2	3.1	3.3	3.1				

Key: *Figure is significantly higher than UK average; †Figure is significantly lower than UK average;
↑+xx Figures have risen significantly by xx percentage points since Q1 2012
*Catch-up TV – due to wording change in 2013 questionnaire, data is not directly comparable to previous years

Source: Ofcom research Q1 2013, BARB, RAJAR, industry data

Base: All adults aged 16+ (n = 3750 UK, 2250 England, 501 Scotland, 492 Wales, 507 Northern Ireland, 1962 England urban, 288 England rural, 250 Scotland urban, 251 Scotland rural, 247 Wales urban, 245 Wales rural, 254 Northern Ireland urban, 253 Northern Ireland rural)

1. Proportion of premises able to receive ADSL broadband services based on data reported by BT
2. Proportion of homes connected to an LLU-enabled BT local exchange area, December 2012
3. Proportion of homes in postcodes served by Virgin Media's cable broadband network, June 2013
4. Proportion of homes in postcodes served by BT Openreach/ KCom's fibre broadband networks, June 2013
5. Proportion of homes in postcodes served by NGA networks, June 2013
6. Proportion of premises that have outdoor 2G mobile coverage from at least one operator, June 2013
7. Proportion of premises that have outdoor 3G mobile coverage from at least one operator
8. Estimated proportion of homes that can receive the PSB channels via DTT (3PSB Mux coverage). Joint TV planning project (Arqiva, BBC, Ofcom)

1.3 Use of online services in Scotland

Introduction

With more opportunities to carry out activities online that were once carried out only in person or by post, we decided to focus this section of the report on the use of government services online ('e-government') and consumers' use of the internet to make purchases ('e-commerce').

This section reports several pieces of relevant research, including Ofcom's ongoing Technology Tracker survey research (see *Setting the scene* for more details) and Ofcom's Media Literacy tracker, which measures media literacy across the devolved nations of the UK among adults aged 16 and over¹. But much of the data comes from a bespoke piece of research on the use of, and attitudes towards, the internet for e-government and e-commerce, conducted in March 2013². We comment only on those differences that are statistically significant.

In Scotland, about six in ten of those with internet access have used online government services

Among those with internet access in Scotland, 57% claim to have used a government service online, e.g. paying car tax, applying for benefits, completing the Census, applying for a bus pass, applying for a school place, etc. (see Figure 1.2)³. The proportion who said they had used these online government services is similar to the proportion in the UK, and does not differ significantly between those living in urban (55%) and rural areas (60%). Those

¹ The dataset reported here comprises results from fieldwork conducted by Saville Rossiter-Base in autumn 2012 including 236 adults in Scotland.

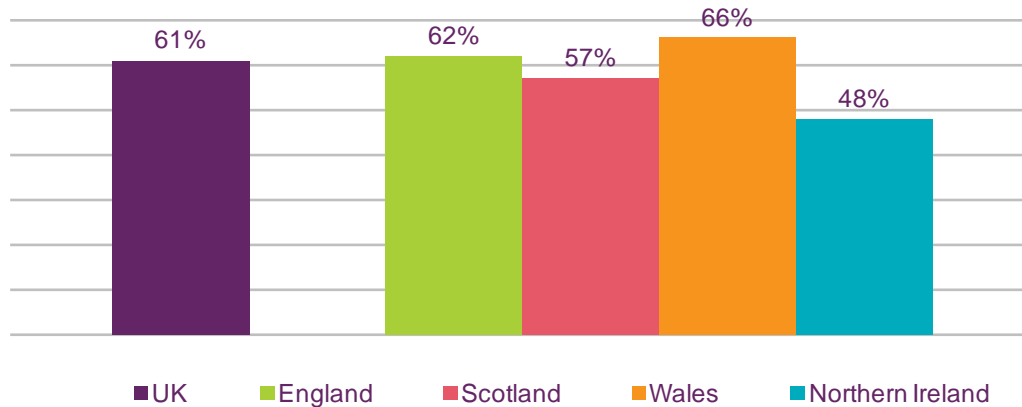
² The research involved 2971 UK adults, including 543 in Scotland in the face-to-face survey of UK residential consumers conducted in March 2013 by Kantar Media,

Ofcom has collected data looking at similar areas in both the Technology Tracker and the Media Literacy research. The data reported here focus on use of government services online and provide the respondent with 11 examples e.g. applying for a school place, completing the Census or applying for benefits. The Technology Tracker figures reported within this report in the Internet and web-based content section focus more simply on 'using local council/government websites'. The Media Literacy research looks at finding information separately to completing transactions online through council/government websites. The differences in the question wording and also methodology result in a range of figures in this area.

aged between 35 and 54 (71%) were more likely than those under 34 (50%) and those aged 55 and older (48%) to say they had used online government services.

Figure 1.2 Proportion ‘ever’ using online government services, by nation

% That use services



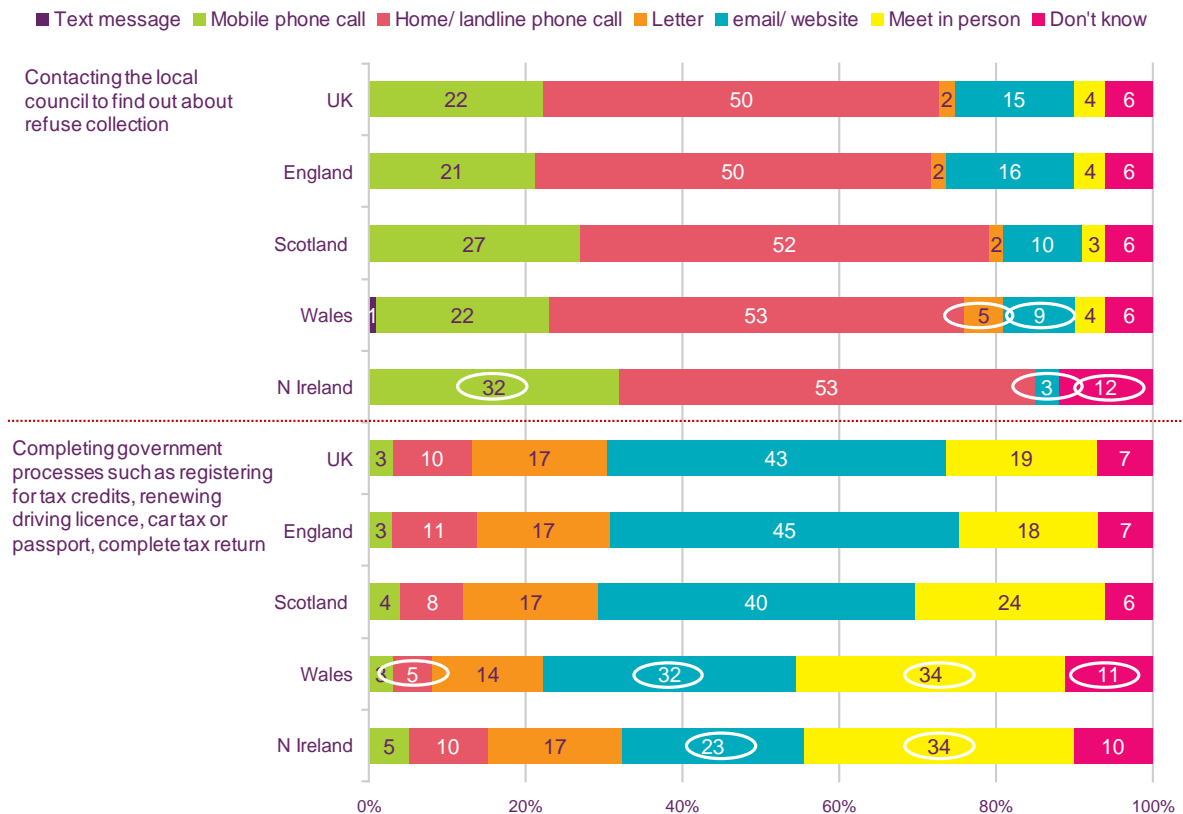
Source: Kantar Media Omnibus. Base: All with internet access. Internet access could be inside or outside the home, and be on a variety of devices. UK (N=2271) England (N=1325) Scotland (N=399) Wales (N=297) Northern Ireland (N=250). Question: Q.8 Nowadays, many government services are available online. Some examples of these services include <Examples> Do you ever use government online services?

In Scotland, 40% of adults said their preferred method for completing government processes was through a website or by email

Ofcom’s Media Literacy study identifies preferences for different e-government services. Across all the nations, relatively few adults said that their preferred method of contact with the local council (e.g. about refuse collection) was through a website or by email (see Figure 1.3). The majority of adults said they preferred to contact their local council about this type of issue by either a mobile or a landline telephone call.

But when asked about their preferred method of contact for tasks such as renewing a driving licence, car tax or passport, etc., they preferred to use a website or email. In Scotland, 40% of adults said their preferred method for completing government processes was through a website or by email.

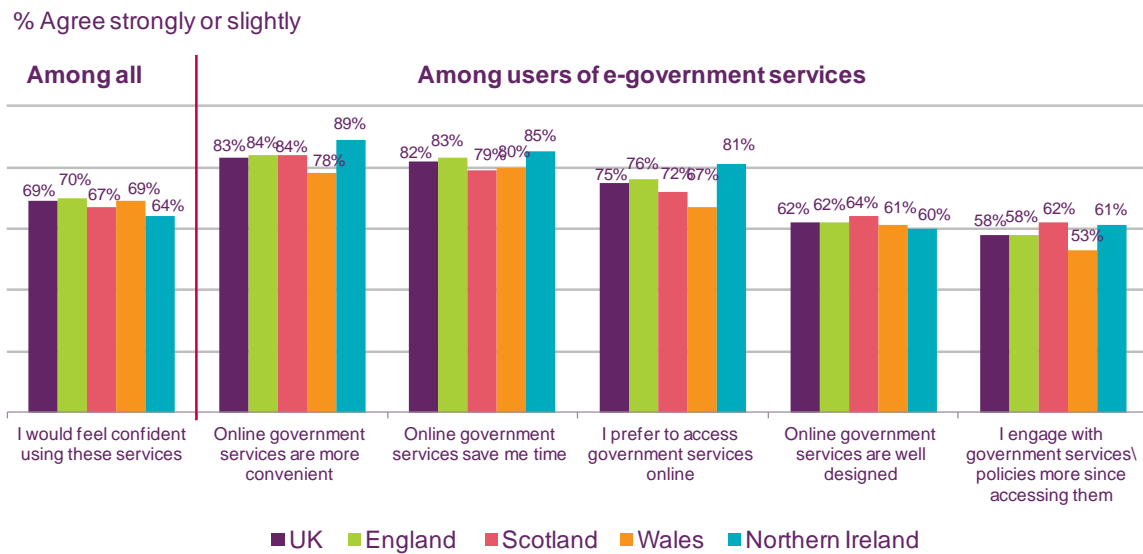
Figure 1.3 Preferred method of contact with local council, and for government processes, by nation



Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in September to November 2012. Base: All adults aged 16+ (1805 UK, 1125 England, 236 Scotland, 231 Wales, 213 Northern Ireland). Significance testing shows any difference between any nation and the UK. NZ2A-E. Please use this list to say which one way you would prefer to make contact for a few different reasons that I'll read out. (Prompted responses, single coded)

In Scotland, 67% of all adults with internet access said they would feel confident using government services online (see Figure 1.4). Around eight in ten of those who used government services online said that they are 'more convenient' (84%) and 'save time' (79%). In addition, around six in ten (62%) users of these online services say they have engaged with government services or policies more since accessing them online. Attitudes towards using government services online are similar across the nations.

Figure 1.4 Attitude towards online government services, by nation



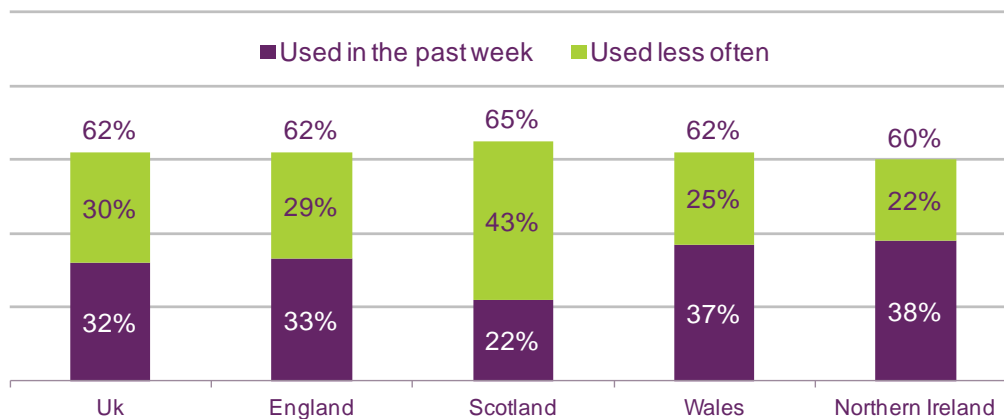
Source: Kantar Media Omnibus. Base: All with internet access: UK (2271), England (1325), Scotland (399), Wales (297), Northern Ireland (250). All ever used e-government services: the UK (1294), England (779), Scotland (217), Wales (187), Northern Ireland (109). Question: Q.9 Thinking about the kinds of services I have just shown you please tell me to what extent you agree or disagree with each of the following statements.

Around two-thirds of internet users in Scotland said they shop online

In Scotland, 65% of internet users claimed to shop online for goods, services, tickets, etc; a similar proportion as in the rest of the UK (see Figure 1.5). But internet users in Scotland were less likely than those in the other nations to say they had shopped online in the past week.

Whether or not people said they shopped online at all does not differ significantly among those living in urban (66%) and rural areas (59%) within Scotland. Those aged 55 or older were less likely than younger age groups to say they shopped online (52%). Those in socio-economic groups ABC1 were more likely to shop online (71%) than those in groups C2DE (58%).

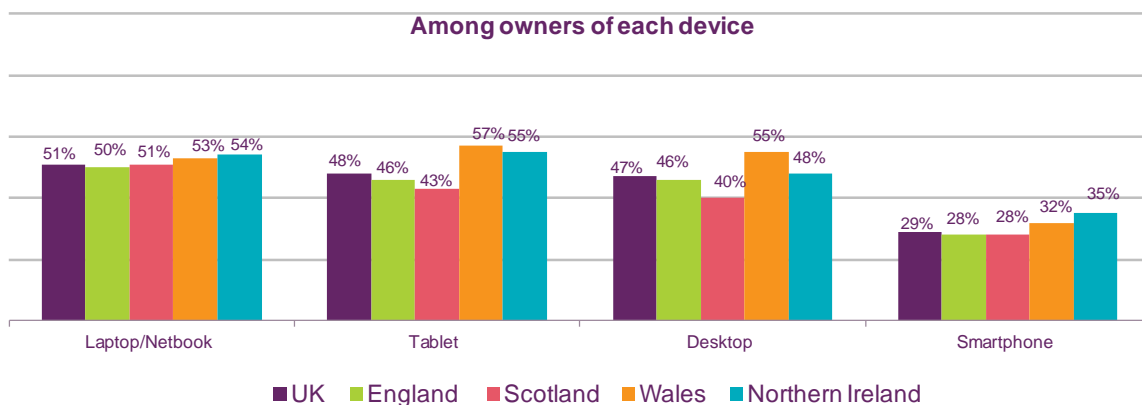
Figure 1.5 Proportion of internet users shopping online, by nation



Source: Ofcom technology tracker research, Q1 2013. Base: Adults aged 16+ who use the internet at home or elsewhere 2013. % purchasing good/services/tickets etc online. (UK= 2918, England=1787, Scotland=394, Wales=361, Northern Ireland=376). QE5. Which, if any, of these do you use the internet for? Note figures in the chart below are not directly comparable to figures on internet from previous years due to changes in question wording.

Figure 1.6 shows the proportion of those shopping online through devices that can access the internet. In Scotland, 51% of those with a laptop or netbook shop online using this, 43% of those with a tablet shop online using their tablet, 40% of those with a desktop computer shop using this, while 28% of smartphone owners shop using their smartphone.

Figure 1.6 Proportion of people shopping online through devices, by nation



Source: Kantar Media Omnibus Base: All who have each device. Desktop: UK (913) England (567) Scotland (133) Wales (119) NI (94). Laptop/netbook: UK (1647) England (951) Scotland (303) Wales (211) NI (182). Tablet: UK (608) England (334) Scotland (113) Wales (79) NI (82). Smartphone: UK (1230) England (715) Scotland (213) Wales (157) NI (145). Bases are 75+ respondents. Question: Q.1A Which of these activities do you use your device for nowadays?

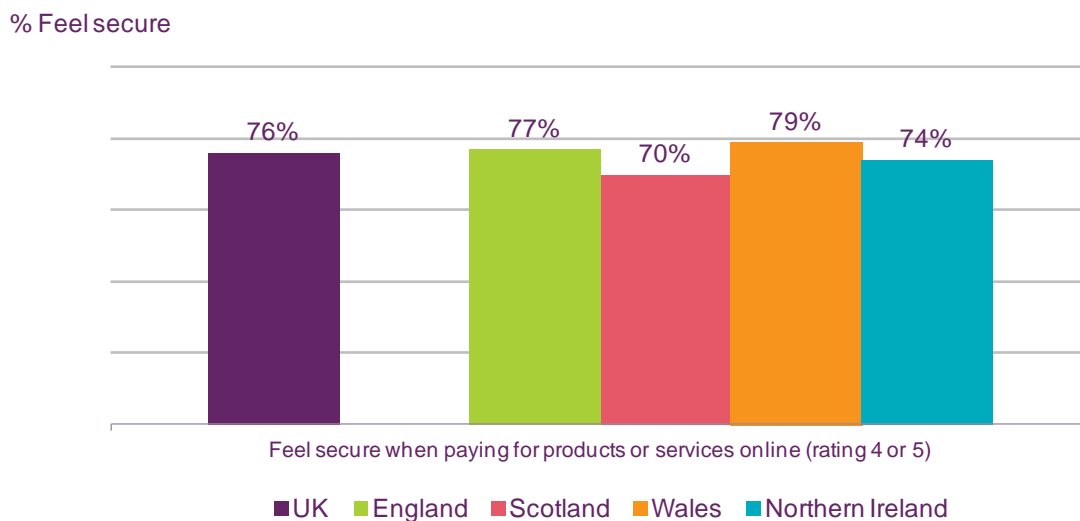
The items that internet shoppers in Scotland had bought online most often in the past six months were: clothing or footwear (54%), physical multimedia products, e.g. books, CDs, DVDs (43%), hotel or holiday bookings (30%), transport, e.g. train or plane tickets (29%), cinema or theatre tickets (28%), car/home/travel insurance (25%), electrical devices such as computers or TVs (25%), household devices such as kettles (23%), furniture (19%) and groceries or take-away meals (18%).

When asked about their preferred method of contact for booking a holiday (e.g. mobile phone, landline phone, in person, email/website etc), adults across all the nations were most likely to say that they would prefer contact via a website or email, or would like to meet in person. In Scotland, around half (48%) said they would prefer contact via a website or email and around one-third (30%) preferred to meet in person to book a holiday.

Seven in ten online shoppers in Scotland feel secure when making online payments

In general, across the nations, around three-quarters of people shopping online feel secure when paying for products and services online (see Figure 1.7). Seventy per cent of online shoppers in Scotland said they felt secure when paying online.

Figure 1.7 Perceptions of security when shopping online, by nation



Source: Kantar Media Omnibus. Base: All who use online shopping in the UK (1221), England (689) Scotland (211) Wales (179) Northern Ireland (142). Question: Q.11A Generally, when ordering online how secure do you feel when paying for products or services online? Using a scale from 1-5, where 1 means not at all secure and 5 means very secure.

Online shoppers in Scotland claim that when deciding which websites to buy from, they are influenced by several main factors: that the site is well known or is a reputable brand (54%), the security of the site, e.g. secure payment options (44%), the website offering the product or service at the lowest price (39%), recommendations from friend, family and colleagues (39%), and the delivery options (30%). Although the frequency of mentions of these factors varies slightly between the nations, the most important five factors are constant across all nations of the UK.

When online shoppers were asked how they decided which websites they would be happy to buy from, one in five online shoppers in Scotland said they would buy only from websites they had previously bought from (see Figure 1.8). Around three-quarters said they would tend to buy something from a website they had not used before, once they had made checks. The remaining 8% said they would buy from a website they had not used before (without necessarily making any checks on it).

Figure 1.8 Online shoppers' choice of websites for shopping, by nation



Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in September to November 2012. Base: All who say they shop online (1076 UK, 667 England, 151 Scotland, 139 Wales, 119 Northern Ireland) Significance testing shows any difference between any nation and the UK. IN33E—When you want to buy something online, which of the following statements most closely applies? (Prompted responses, single coded)

General views on the postal service are included elsewhere in the report, but here we report on online shoppers' opinions on the delivery of goods purchased online. This is included here because the delivery of goods is part of the overall online shopping experience.

Three-quarters of online shoppers in Scotland are confident that goods bought online will be delivered on time and in good condition

Among those who shop online, confidence levels were similar across the nations that the goods would arrive on time and be in good condition. In Scotland, 75% of online shoppers were confident in the delivery of goods bought online (see Figure 1.9).

Figure 1.9 Confidence in delivery when shopping online, by nation

% Feel confident



Source: Kantar Media Omnibus. Base: All who use online shopping in the UK (1221), England (689) Scotland (211) Wales (179) Northern Ireland (142). Q.11B Generally, when ordering online, how confident are you that the goods will arrive on time and in good condition? Using a scale from 1-5, where 1 means not at all confident and 5 means very confident.

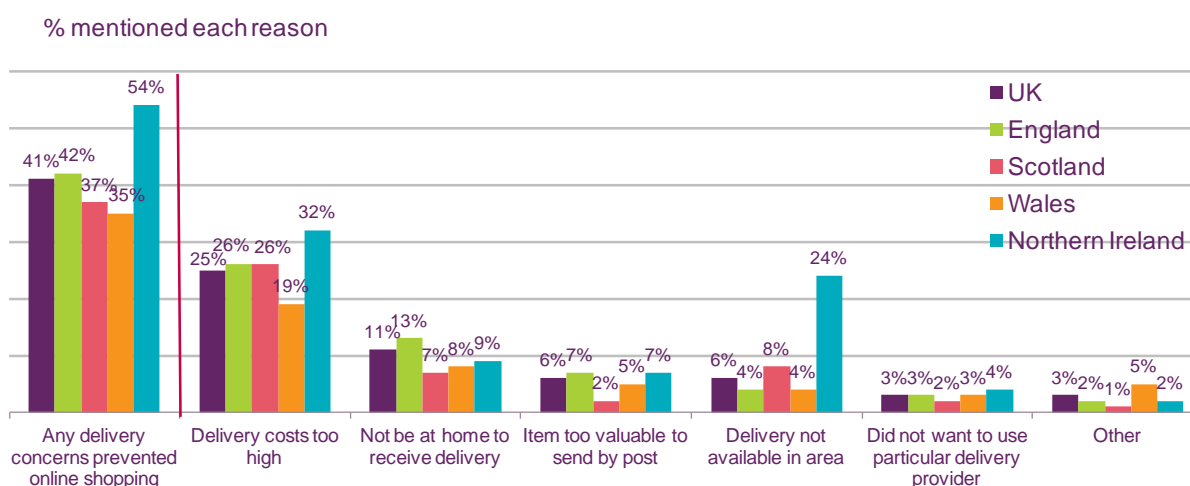
Nine in ten online shoppers in Scotland said they usually have their online purchases delivered to their home address, rather than to a work address, friends or family or to a store.

Online shoppers in Scotland claimed that the factors which influenced their decision about which delivery method to use are: the price (free delivery 59% and cheapest delivery 40%), speed of delivery (44%), and the availability of order tracking (29%). Although the proportions of online shoppers who mentioned individual factors differed slightly across the nations, the four most important factors remained constant across all the UK nations.

Among online shoppers in Scotland, 37% had not made a purchase before because of concerns regarding delivery

Even among those who now made purchases online, around two in five online shoppers in the UK (41%) said that delivery concerns had previously prevented them from buying online (see Figure 1.10). In Scotland, concerns were mentioned at a similar level to the UK overall; 26% mentioned concerns about high delivery costs, 8% mentioned that delivery was not available in their area and 7% were worried they would not be at home to receive the items. Across the devolved nations, online shoppers in Northern Ireland had the most concerns, specifically regarding high costs of delivery and delivery not being available in their area.

Figure 1.10 Delivery concerns preventing online purchasing, by nation



Source: Kantar Media Omnibus. Base: All who use online shopping in the UK (1221), England (689) Scotland (211) Wales (179) Northern Ireland (142). Question: Q.14 Have delivery concerns ever prevented you from buying items online? If yes, which of the following reasons prevented you from shopping?

1.4 'Not-spots': users' experience of mobile phone quality of service

Introduction

Ofcom is undertaking a programme of work to bring about improvements both in mobile phone coverage (whether it is possible to receive a mobile signal) and mobile phone reception (where although a signal may be present it is not possible to connect or sustain a call or use data services).

As part of this work we have commissioned research to understand the consumer experience. This research will help us understand the extent to which mobile phone reception issues affect consumers, and what type of problem are most prevalent and cause most concern. We also wanted to understand the impact of location on the consumer experience, including indoor and outdoor locations and while travelling.

We considered these specific issues:

- Being unable to make/connect a call (including if the phone shows 'bars' present)
- Poor sound quality / call breaks up
- Calls ending unexpectedly – not while travelling (when stationary or walking around)
- Calls ending unexpectedly – while travelling e.g. by road/rail
- Being unable to send a text message
- Text message does not arrive or arrives late
- Being unable to access or sustain access to mobile internet

- Being unable to send emails

Fieldwork was conducted in two waves using a face-to-face omnibus survey in November 2012. The total sample was 2,136 adults aged 16 and over. The research was conducted among a representative sample of UK consumers, and we also captured the experiences of specific sub-groups:

- the populations within each of the four nations
- those in urban and rural areas
- small business consumers (defined as those working within a business employing between one and ten employees)
- regular rail users
- regular road users

The research identified that a significant proportion of consumers were dissatisfied with certain aspects of their mobile service.

Consumers in Scotland experience the same frequency of problems as those in the rest of the UK

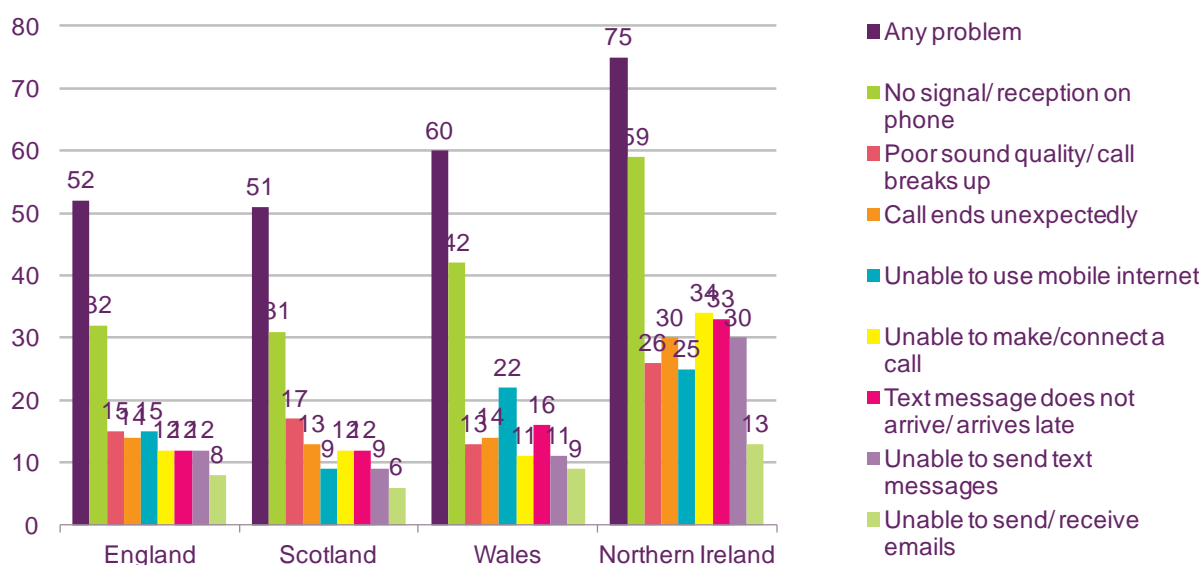
Figure 1.11 shows that mobile users in Scotland reported similar levels of problems with mobile phone coverage as consumers across the UK, although there is a known issue with residents of the Highlands and Islands⁴, and rural users are more likely than those in urban areas to be very dissatisfied with their ability to make or receive calls.

Half (51%) of all respondents in Scotland had experienced at least one problem.

'Not getting a signal' is the problem experienced by most respondents (31%), followed by poor sound quality (17%) and calls ending unexpectedly (13%).

⁴ The proportion of Scottish residents who live in these areas is relatively small and therefore it is likely that a far more granular and targeted survey would be needed to pick up this kind of localised issue.

Figure 1.11 Mobile phone users who have ever experienced problems with reception



Source: Kantar Media omnibus (November 2012)

Base: All who use a mobile phone (N=2 136/1743/195/95/103/1757/379)

Q13: Thinking about your mobile reception with ... in the UK, do you ever experience any of the following issues?

The ability to make or receive calls or texts is particularly important for people living in rural areas, and when choosing a provider

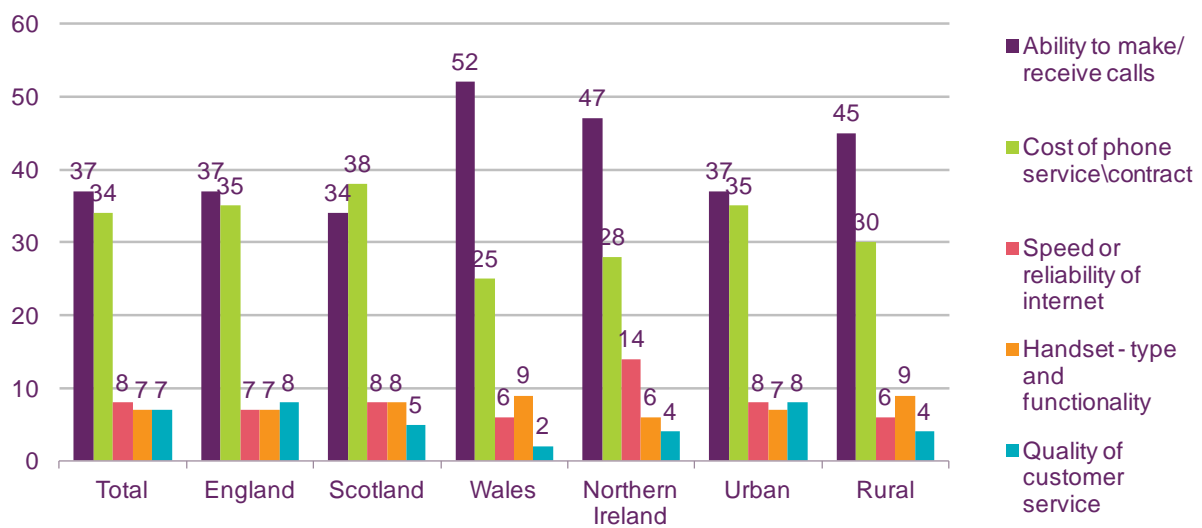
For consumers in each of the four nations, when asked to think about choosing a mobile provider, the ability to make or receive voice calls or text messages is one of the top two most important factors. However, in Scotland the cost of the contract is viewed as more important than the ability to make or receive calls or texts (38% vs. 34%).

Users living in rural areas are significantly more likely than those living in urban areas to rate the ability to make or receive calls as most important when choosing a mobile provider (45% vs. 37%). This is probably because mobile coverage varies by provider more in rural areas than in urban areas, therefore it is more important to choose a provider on this basis. Ofcom's *The availability of communications services in the UK* shows that, in comparison to urban areas, a smaller proportion of premises in rural Scotland are served by at least one operator.⁵

Mobile users in Scotland and England are significantly less likely than those in Wales and Northern Ireland to say that the ability to make or receive calls or texts is the most important factor when choosing a provider (52% and 47% vs. 37% and 34%).

⁵ 2G mobile coverage, in terms of the percentage of premises served by at least one operator, is 97.9% in rural areas of Scotland and 99.7% in urban areas of Scotland. (Ofcom, *The availability of communications services in the UK*, May 2013, <http://stakeholders.ofcom.org.uk/binaries/research/markets-infrastructure/economic-geography.pdf>)

Figure 1.12 Most important element when considering mobile provider



Source: Source: Kantar Media omnibus, (14th – 20th November 2012)

Base: All who use a mobile phone (N=2136/1743/195/95/103/1757/379)

Q.10 And which is the ... important to you when thinking about your mobile operator? Most important.

For users in Scotland, the ability to make calls on their mobile phones at home and in places they go to regularly are the most important factors

Figure 1.13 shows the overall figures for importance of, and satisfaction with, the ability to make calls in different locations by nation.

Eighty-six per cent of users in Scotland reported that it is either important, or very important, to have the ability to make calls on their mobile phones at home. This compares to 82% in England and 83% in Wales. In Northern Ireland it is significantly more important to users than anywhere else in the UK.

Users in Wales and Northern Ireland are significantly more likely than users in Scotland or England to say that it is important to be able to make a call outdoors in places they go to regularly (96% and 94% vs. 90% and 86%).

In Scotland, as with the UK average and in each of the nations, the gap between importance and satisfaction is largest relating to the ability to make calls outdoors in rural locations.

Figure 1.13 Net satisfaction/importance – ability to make calls in different locations and the most important element when considering mobile provider

		Indoor			Outdoor		
		Home	Work / place of study	General	Places go to regularly	Rural	Urban
UK	Importance	83	70	82	87	80	84
	Satisfaction	76	66	75	78	67	78
	S-I	-7	-4	-7	-9	-13	-6
England	Importance	82	70	81	86	79	83
	Satisfaction	76	66	74	78	67	77
	S-I	-6	-4	-7	-8	-12	-6
Scotland	Importance	86	71	89	90	84	88
	Satisfaction	80	66	80	82	71	80
	S-I	-6	-5	-9	-8	-13	-8
Wales	Importance	83	73	85	96	87	90
	Satisfaction	77	68	75	84	62	77
	S-I	-6	-5	-10	-12	-25	-13
Northern Ireland	Importance	92	76	91	94	93	90
	Satisfaction	72	58	77	76	70	80
	S-I	-20	-18	-14	-18	-23	-10

Source: Kantar Media omnibus, (14th – 20th November 2012)

Base: All who use a mobile phone (N=2136/1743/195/95/103)

Q17: How important is it for you to be able to make calls in the following locations?

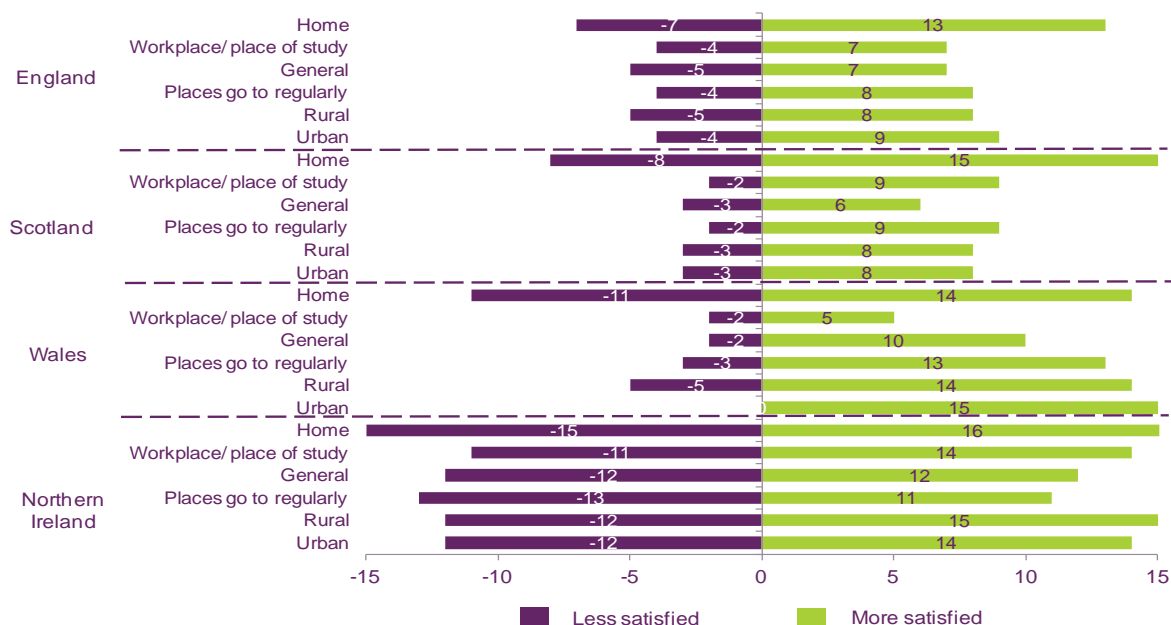
Q18: How satisfied do you feel with the ability to make calls in each of these locations?

Net figures shown for very important/somewhat important and very satisfied/somewhat satisfied

Compared to 12 months ago, users in Scotland stated no significant differences in their satisfaction with the ability to make calls in any of the locations.

When consumers were asked if they were more or less satisfied than 12 months ago with their ability to make calls in a range of locations, similar proportions in each of the nations reported that they were now more satisfied. In Scotland the biggest decline in satisfaction related to the ability to make calls in the home; this fell by eight percentage points.

Figure 1.14 Change in levels of satisfaction with ability to make calls in different locations compared to 12 months ago, by nation



Source: Kantar Media omnibus, (14th – 20th November 2012)
 Base: All who use a mobile phone (N=2136/1743/195/95/103/1757/379)
 Q.10 And which is the ... important to you when thinking about your mobile operator? Most important.

1.5 Availability and take-up of communications services in Glasgow and availability in Inverness

Introduction

In its 2013/14 Annual Plan, Ofcom committed to undertake further research into the effect of communications infrastructure availability on high-density areas, including cities and towns. We will use this research, together with the conclusions of our work on the availability of communications services in the nations, which we published on 16 May 2013⁶, and which looked primarily at the provision of services in rural areas, to help us understand the needs of different parts of the UK regarding communications services, how the market has delivered, and the impact of selected public interventions.

As part of this research, Ofcom commissioned 11 case studies of UK cities, identifying the availability of communications services and the factors driving availability. The cities are:

Scotland: Glasgow, Inverness

England: London, Birmingham, Manchester, Cambridge, Exeter

Wales: Cardiff, Bangor

Northern Ireland: Belfast, Derry-Londonderry

The full Analysys Mason report can be found on Ofcom’s website,⁷ and a further overview of the findings is included in the *UK Communications Market Report*.

⁶ <http://stakeholders.ofcom.org.uk/market-data-research/market-data/economic-geography/>

⁷ <http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/cities-report.pdf>

We have also used data from the British Population Survey (BPS) to consider how take-up of telecommunications services varies in different cities across the UK. The methodology for this is described in more detail below.

The second phase of our research, which will be the subject of a separate report, will consist of six case studies of international cities, as well as a more detailed analysis of some of the projects identified in phase one.

In the 2010 and 2011 *Communications Market Reports*, we highlighted that broadband take-up was particularly low in the Glasgow area (at 50%). In order to explore this in more detail, Ofcom undertook analysis of broadband take-up in the City of Glasgow in the 2011 CMR. Data from the BPS was used and the period under study was January to September 2011.

Ofcom has decided to repeat this analysis for the current report, again based on data from BPS. The purpose of this analysis is to understand whether take-up of broadband in the city of Glasgow has increased, and whether demographic variables continue to explain at least part of the difference. Analysis was also undertaken to compare Glasgow to two other Scottish cities – Dundee and Edinburgh.

This section focuses on the availability and take-up of telecommunications services in the city of Glasgow, drawing on the key findings from the *Ofcom Infrastructure Report 2012* as well as analysis of BPS data. We also present data from the *Infrastructure Report 2012* in relation to the communications infrastructure in Inverness. It was not possible to obtain BPS data on Inverness.

Methodology

The British Population survey asks consumers about internet and fixed broadband, and comprises around 2,000 face-to-face, in-home interviews with adults (aged 15+) every week, allowing detailed regional and sub-demographic analysis. It covers Great Britain.

Using data from the British Population Survey (BPS) April 2012 to March 2013, analysis was undertaken on cities where the sample size was over 700 individuals. The total GB sample was 79,406 and Glasgow's sample was 1398.

The British Population Survey uses a different methodology from Ofcom's Technology Tracker, in that quotas and question wordings are different. Therefore discrepancies between the BPS and Ofcom's quoted figures are not unexpected and, as such, the two data sources cannot be compared.

Glasgow

Summary of key findings

- Glasgow has a markedly lower total next-generation access (NGA) coverage than the majority of cities assessed.
- Glasgow's NGA availability is expected to increase as BT implements its upgrade plans, but total coverage is forecast to remain slightly behind the other large cities examined in the study.
- Broadband take-up in the city remains low. Fifty per cent of adults have fixed broadband, compared to the Scottish average of 68% and the GB average of 77%.
- Fixed broadband take-up has increased in some demographics within the city.

- A study undertaken by the Carnegie Trust suggests that attitudinal rather than demographic differences may partly explain the lower take-up of broadband in Glasgow.
- Glasgow City Council's Strategic Plan for 2012-2017 involves the provision of a free WiFi network across the city and aims to increase broadband take-up among social tenants.

Glasgow has a population of 590,000, with residential premises accounting for 95% of all premises

Figure 1.15 shows the size of the city in terms of population and number of residential and non-residential premises. The population is based on the 2011 Census and the number of premises is based on postcodes within the local authority boundary.

Glasgow has undergone a significant amount of urban regeneration over the past 20 years. The city's industry is now dominated by services in finance/business, distribution and hospitality (such as hotel services)⁸.

Figure 1.15 City population and premises data

City	Population	Total premises	Business premises	Residential premises
Glasgow	c.0.59 million	c.315,000	c.15,000	c.300,000

Source: Analysys Mason

For the purposes of this study the city boundary is defined by Glasgow City Council, which is shown in detail in the following figure:

Figure 1.16 Map of area local to Glasgow highlighting city boundary



Source: Analysys Mason

Next-generation access (NGA) is available to 63% of premises in Glasgow

Figure 1.17 identifies fixed network infrastructure for the two main operators, BT and Virgin Media. This includes the availability of both first-generation broadband (ADSL copper⁹ and

⁸ Source: Analysys Mason

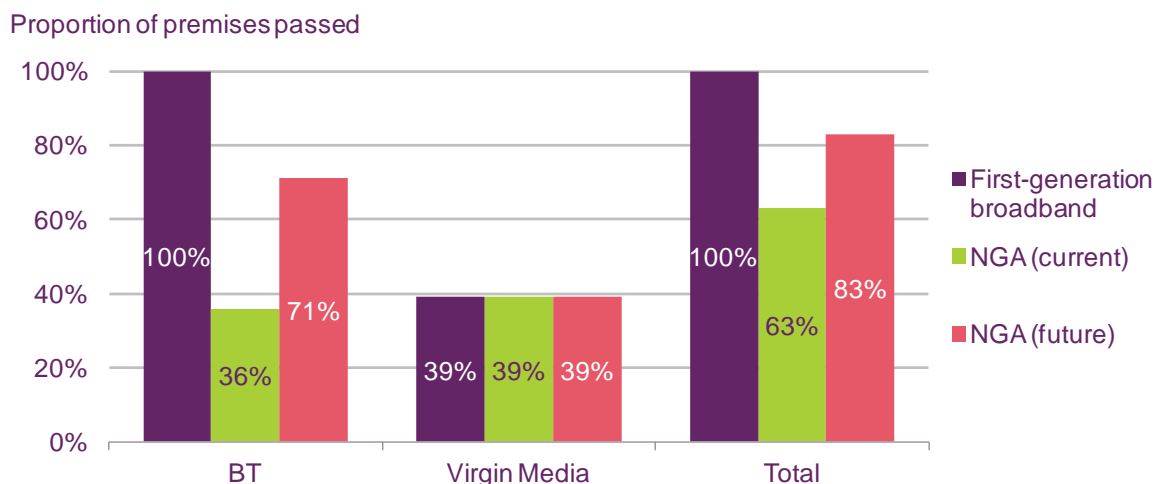
DOCSIS cable technologies¹⁰) and NGA infrastructure (FTTx¹¹ and DOCSIS v3.0 cable technologies¹²). Future NGA availability is predicted based on BT announcements for the upgrade of exchanges with NGA technology by 2015.

The BT NGA network is currently available to around only 36% of city premises, but this figure will increase significantly to 71% as BT upgrades its exchanges in accordance with its current plans. Virgin Media's network is currently available to a relatively small number of city premises (39%), and on the basis of Virgin Media's declared intentions, this figure is unlikely to change by 2015. Total current availability is 63%, which is much higher than the BT-only figures, suggesting that a significant proportion of the operators' networks footprints are non-overlapping. However, total future NGA availability will increase significantly to 83% as BT upgrades its exchanges, which suggests that BT will extend its NGA network to many premises that do not have access to cable networks.

In relation to the other 10 cities which we examine in detail in the *UK Communications Market Report*, Glasgow's NGA availability is 8% less than average across the cities assessed.

Although the availability of first-generation broadband is 100%, some premises experience broadband speeds of less than 2Mbit/s, which is considered below the minimum requirement for a basic broadband service.

Figure 1.17 Fixed network infrastructure: availability by premises passed



Source: Analysys Mason, *Oftcom Infrastructure Report 2012*

Figure 1.18 shows the proportion of lines with a speed of less than 2 Mbit/s. The proportion of Glasgow lines in this category is 7.5%; this is 2% higher than average across all the cities assessed.

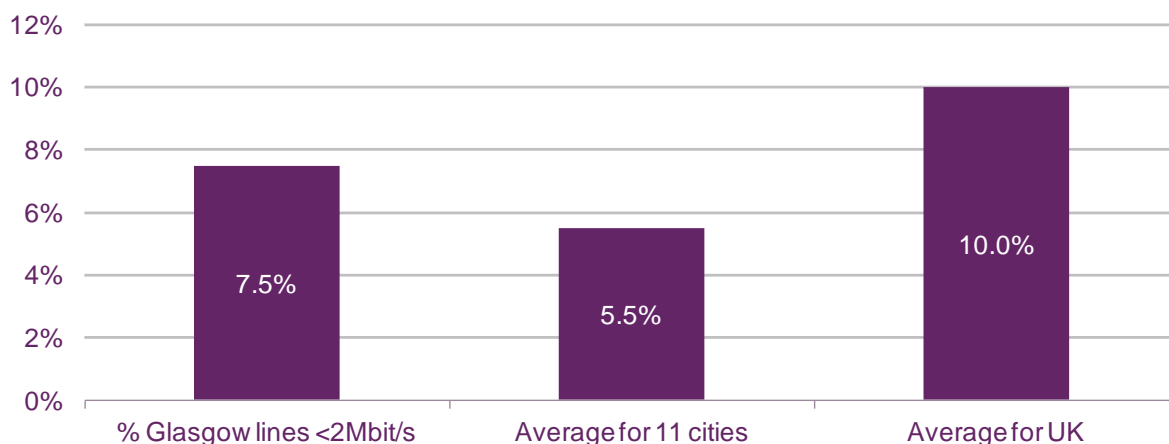
⁹ Asymmetric digital subscriber line (ADSL) is a technology for transmitting digital information over existing copper telephone lines, which allows users to connect to the internet.

¹⁰ Data over cable service interface specification (DOCSIS) is an international telecommunications standard that is employed by many cable operators to provide internet access over their existing infrastructure.

¹¹ Fibre to the x (FTTx) is a generic term used to describe any broadband network using optical fibre to replace all or part of the usual metal local loop used for last-mile telecommunications.

¹² DOCSIS v3.0 is the next generation of DOCSIS, which allows users to experience significantly faster speeds.

Figure 1.18 Percentage of lines with a speed of less than 2Mbit/s, and relative positioning



Source: Analysys Mason, Ofcom Infrastructure Report 2012

Glasgow has 33 exchanges, ten of which have been upgraded to NGA

Figure 1.19 shows the number of exchanges serving the city postcodes, the percentage of lines that support both ADSL and ADSL Max¹³, and the average number of lines per exchange.¹⁴ Not all of these exchanges are physically located within the city boundary. All of the copper lines support basic broadband (both ADSL and ADSL Max).

Figure 1.19 Number of exchanges and % of lines with access to basic broadband

No. of exchanges serving city postcodes	% of lines that have access to both ADSL & ADSL Max	Average number of lines per exchange
33	100%	9,600

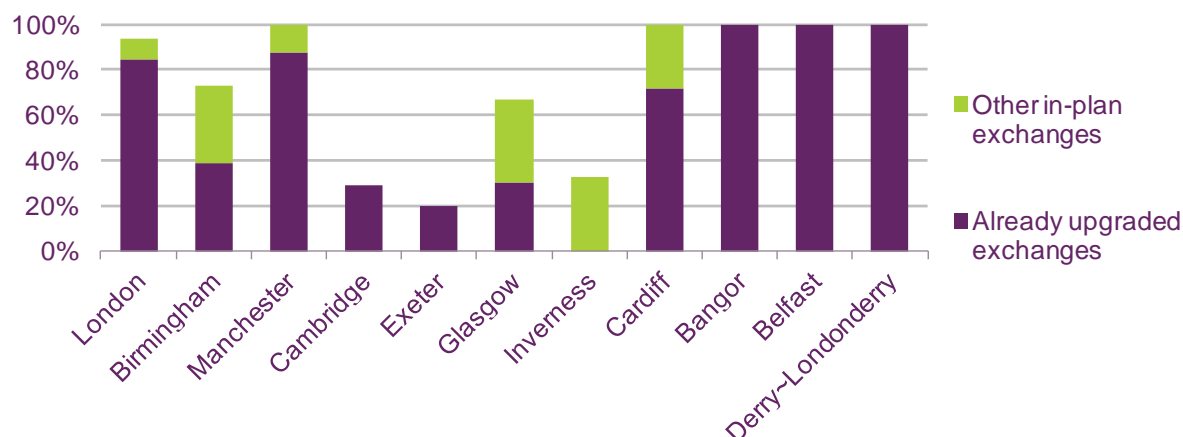
Source: Analysys Mason

The BT fibre network comprises fibre-to-the-cabinet (FTTC) and fibre-to-the-home (FTTH) infrastructure. Figure 1.20 shows the FTTC status of the city exchanges according to BT's current roll-out plans, compared to the other cities assessed.

¹³ ADSL Max is a 'rate-adaptive' variant of ADSL, where the transmitted bit rate varies depending on the physical conditions of the twisted-pair copper line, which may change over time. In contrast, the bit rate for ADSL is fixed and does not change.

¹⁴ Source: Analysys Mason

Figure 1.20 FTTC status of exchanges serving city postcodes, according to BT's roll-out plans



Source: Analysys Mason

To date, ten of the serving exchanges (30% of total serving exchanges) have been upgraded to FTTC¹⁵. BT plans to upgrade another twelve serving exchanges to FTTC by 2015. Therefore, provided BT's upgrade plans are implemented, a total of 22 BT exchanges (67% of total exchanges) will serve the city with FTTC technology by 2015.

Glasgow appears to be behind the other larger cities in terms of the schedule for in-plan exchanges.

12 operators offer NGA services in Glasgow

In addition to the two main operators that own fibre network infrastructure (BT and Virgin Media), a number of alternative operators also have their own fibre network infrastructure, or at least a point of presence i.e. an interconnection with another communications provider, in the city. Alternative operators tend to focus on providing services to larger business customers.

Ten alternative operators have been identified as having, as part of their national networks, a point of presence in the city: Easynet, Exponential-e, Geo Networks, KCOM, Level3, SSE, TalkTalk, Virgin Media business, Vodafone, and Vtesse.¹⁶

Glasgow has 350 WiFi hotspots, equivalent to 6 hotspots per 10,000 residents

Figure 1.21 shows key WiFi hotspot data for Glasgow. The largest providers of Wi-Fi infrastructure in UK cities are currently BT (branded as BT Openzone) and The Cloud, which is owned by BSkyB. Each operator owns a mix of outdoor and indoor WiFi access points. Other private and public organisations own hotspots, but they tend to make a small contribution to a city total. We have therefore used the total hotspots for BT and The Cloud

¹⁵ Note that only a proportion of the cabinets which connect to the upgraded exchanges have been upgraded. Although data are not available on the actual number of cabinets upgraded across the city, BT has stated that for the national FTTC roll-out, on average of 85% of premises are passed with NGA, which equates to an average 70% of cabinets per exchange area.

¹⁶ Source: Analysys Mason

to derive a city benchmark¹⁷. Glasgow has 3% fewer hotspots per 10,000 city residents than the average across the cities analysed.

Figure 1.21 Key city hotspots data

City total	Total hotspots per 10,000 city residents (city benchmark)	Total hotspots per 10,000 city residents (11 city average)	Percentage difference from 11 city average
350	6	6.2	-3%

Source: Analysys Mason

3G services are available from at least four operators across all of Glasgow

Figure 1.22 shows the proportion of premises that are covered by 3G networks, compared to the average across the other cities assessed and the UK as a whole. At the time of writing EE was the only operator providing 4G coverage in Glasgow¹⁸.

Figure 1.22 3G mobile coverage in city

% of premises with 3G signal from four operators (city benchmark)	% of premises with 3G signal from four operators (11 city average)	% of premises with 3G signal from four operators (UK average)	Percentage difference from 11 city average
100%	95.7%	77.3%	+4.3%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

More than ninety-nine per cent of premises in Glasgow have a choice of four or more fixed-line telecoms providers

The classification assigned by Ofcom to each exchange is a good indicator of local competition in communications services. The classification is based on the number of operators with a presence in the exchange, typically local loop unbundling operators offering first-generation broadband wholesale services. The classifications are:

- a classification of 3 means that four or more operators (including BT) are present
- a classification of 2 means that two or three operators (including BT) are present
- a classification of 1 means that BT is the only operator present.

Figure 1.23 shows, for each market classification, the key city exchange data:

¹⁷ There is in general a good correlation between the number of hotspots and number of city residents, therefore that ratio forms a suitable benchmark for assessing WiFi availability between cities

¹⁸ Source: Analysys Mason

Figure 1.23 Key city exchange data

Ofcom classification	Number of the city exchanges	% of total exchanges	% of premises passed
3	32	97%	>99%
2	0	0%	0%
1	1	3%	<1%

Source: Analysys Mason

Ninety-seven per cent of exchanges are classed according to the scheme as within classification 3, and pass >99% of lines. Virgin Media also has a presence in 91% of exchange areas¹⁹. The number of operators present in an exchange is generally a good indicator of the degree of competition, and these findings suggest that there is a level of competition in provision of first-generation broadband services across the city²⁰.

An equivalent or similar classification for SFBB is not yet established (although communications providers are currently using the generic Ethernet access product from BT Wholesale to provide retail superfast services).

Including superfast broadband, the average maximum modem sync speed for Glasgow is 27.3 Mbit/s

Figure 1.24 compares the average maximum modem sync speed for just basic broadband lines, and for all lines including basic and SFBB. The speed values are compared to the city average. Note that the result for all lines (including SFBB lines) is for illustrative purposes only, as we have assumed all superfast lines to be 40Mbit/s.

Figure 1.24 Average maximum modem sync speed compared to other cities

Excluding SFBB lines			Including SFBB lines			
Average maximum speed (Mbit/s)	City average (Mbit/s)	% difference from city average	Average maximum speed (Mbit/s)	City average (Mbit/s)	UK average (Mbit/s)	% difference from city average
14.2	14.1	+1%	27.3	29.9	12.7	-9%

Source: Analysys Mason, Ofcom Infrastructure Report

Glasgow City Council's Strategic Plan for 2012-2017 involves the provision of a free WiFi network across the city and aims to increase broadband take-up for social tenants

The Council plans to work with telecoms providers to accelerate planned investment in the city and to identify additional opportunities. Initial priority areas are the city centre, the Commonwealth Games 2014 Athletes Village, and around the Clyde Gateway area. The

¹⁹ Source: Analysys Mason

²⁰ This does not represent Ofcom's assessment of competition for the purpose of any market analysis under the Competition Act 2003, Ofcom has recently published a consultation document in our current review of the Wholesale Broadband Access Market (see: http://stakeholders.ofcom.org.uk/binaries/consultations/review-wba-markets/summary/WBA_July_2013.pdf).

Plan will build on the growing percentage of households passed by broadband. The Council is working with a range of partners in the city to deliver this commitment, including housing associations, businesses, and education and learning partners.

Glasgow has recently commissioned the Digital Glasgow Strategy to ensure that the whole of the city has a world-class digital infrastructure to bring new businesses and jobs, and the capacity to ensure continued growth by harnessing the digital skills of residents, businesses and organisations. Digital Glasgow will combine the expertise of business, the public sector, colleagues and universities, the third sector and grassroots community organisations, to make the biggest possible impact across the city. The Digital Glasgow programme will consist of eight workstreams: broadband infrastructure, urban wireless/mobile, SME/e-commerce, incubation and start-up, citizen participation, training and employment, digital public services, benchmarking and impact assessment.

Despite an unsuccessful Super-Connected Cities bid for public funds, Glasgow recently won the UK Technology Strategy Board's £24m Future Cities Demonstrator programme. The competition called for large-scale designs demonstrating unique and functional methods of integrating city systems in an environmentally sound, economical way, to improve the overall quality of life. The Future Cities Demonstrator programme will overlap with the Digital Glasgow strategy in some areas; for example, on the incubation and start-up and digital public service work streams.

Glasgow is part of the Scottish Cities Alliance, a collaboration of Scotland's seven cities (Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling), the Scottish government and the Scottish Council for Development and Industry (SCDI). The alliance is tasked with attracting external investment, stimulating economic activity and, most importantly, creating new jobs and business opportunities. The partnership aims to develop Scotland's potential as a competitive and world-class place to live, work, visit, invest and do business. The action plan: Scotland's Cities: Delivering for Scotland was launched by the leaders of Scotland's cities and Scotland's Minister for Cities in December 2011. Several areas have been identified by the cities, as providing the greatest potential for collaborative approaches to support growth. One of these involves working collectively to deliver world-class digital connectivity, capacity and use across the cities and their regions, and improved mobile coverage along main transport links, although funding is not currently allocated directly for communications infrastructure.

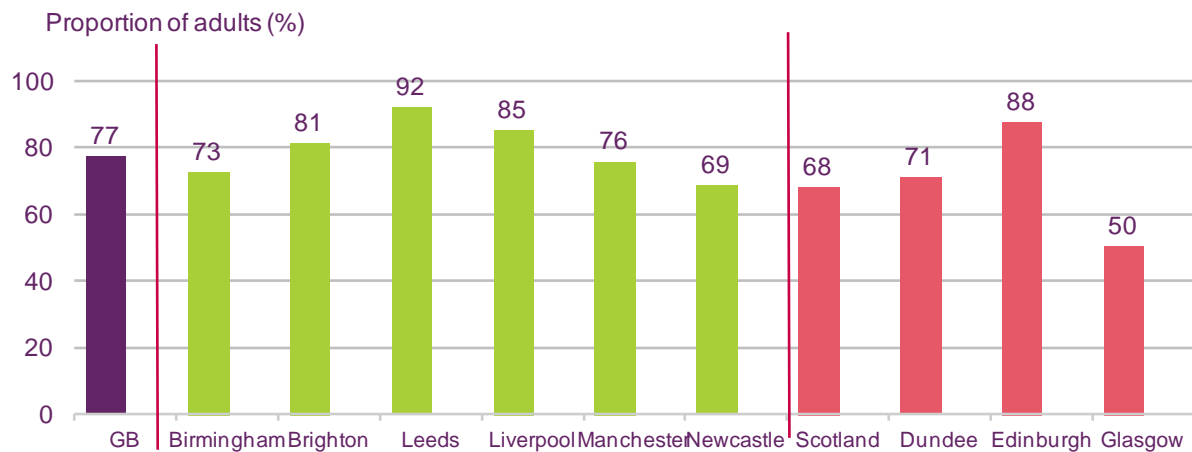
Glasgow's low fixed broadband take-up continues

As the *Communications Market Report* highlighted in 2010, 2011 and 2012, broadband take-up is, and has remained, relatively low in Glasgow. Figure 1.25 shows that 50% of adults in the city of Glasgow have fixed broadband, compared to Scottish average of 68% and the GB average of 77% (all these figures are as reported by the BPS for this period).²¹ Fixed broadband take-up in Glasgow was the lowest of all the cities we analysed.

As well as comparing Glasgow to the larger cities across the whole of Great Britain, it was also possible to compare Glasgow to Scotland as a whole and to the cities of Dundee and Edinburgh. This shows that take-up of fixed broadband in Glasgow is significantly lower than take-up in Dundee and Edinburgh.

²¹ Ofcom's technology tracker (Q1 2013) reports broadband penetration in the Greater Glasgow area at 59%. This figure is not significantly different to the 60% reported in 2012. The 2013 data are based on a sample of only 69 respondents in Greater Glasgow and so should be treated as indicative only.

Figure 1.25 Fixed broadband take-up, by city



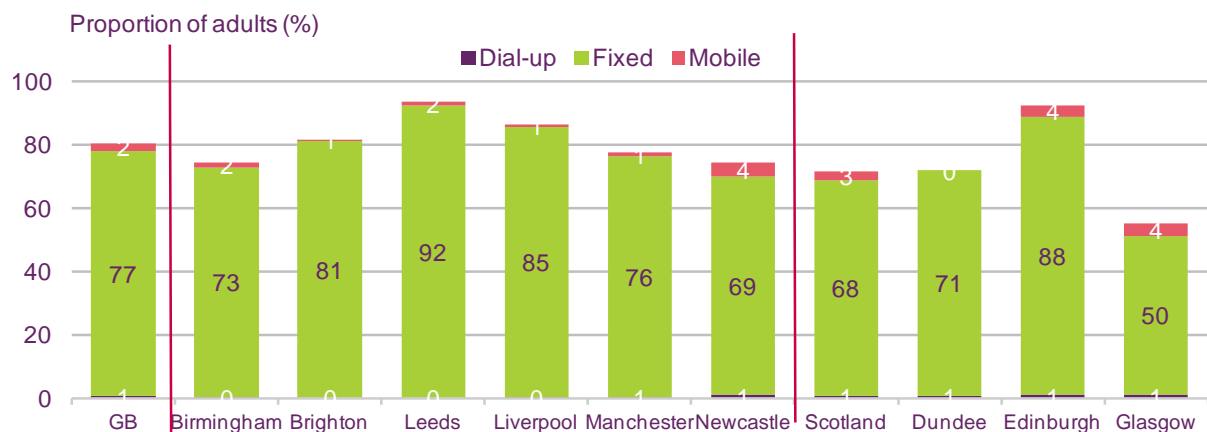
Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Birmingham 2577, Brighton 1090, Glasgow 1398, Leeds 1412, Newcastle 1149, Scotland 6840, Dundee 90, Edinburgh 89)

Q. Is your access to the internet AT HOME cable broadband, ADSL broadband, broadband but you don't know type or non-broadband?

In recent years, smartphones and mobile dongles are increasingly being used to access the internet. For some consumers this is their only method of access. Consumers in Glasgow (4%), Newcastle (4%) and Edinburgh (4%) are the most likely to have internet access via a mobile terminal only. Dial-up internet access is still used by 1% of GB consumers, with higher than average use in Glasgow, Newcastle, Dundee and Edinburgh.

Figure 1.26 Home internet access, by technology, by city



Source: British Population Survey

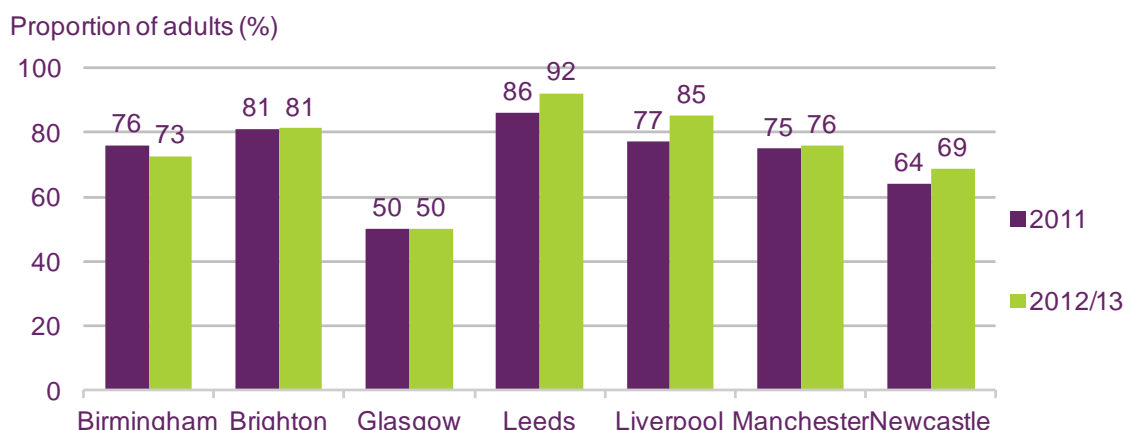
Base: All adults 15+ (April 2012 to March 2013; GB 79406, Birmingham 2577, Brighton 1090, Glasgow 1398, Leeds 1412, Newcastle 1149, Scotland 6840, Dundee 90, Edinburgh 89)

Q. Is your access to the internet AT HOME cable broadband, ADSL broadband, broadband but you don't know type or non-broadband?/How do you access the internet – through a mobile terminal?

Broadband take-up has remained fairly stable in most cities, except Liverpool, Leeds and Newcastle, which have had a small but significant increase.

Glasgow, Brighton and Manchester have remained fairly static. Leeds, Liverpool and Newcastle have seen significant increases while Birmingham has seen a small but significant fall in broadband take-up; of three percentage points.

Figure 1.27 Fixed broadband take-up, by city: 2011 and 2012/2013



Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Birmingham 2577, Brighton 1090, Glasgow 1398, Leeds 1412, Manchester 1423, Newcastle 1149; 2011 to 2012 Birmingham 1880, Brighton 590, Glasgow 594, Leeds 648, Manchester 1712, Newcastle 898)

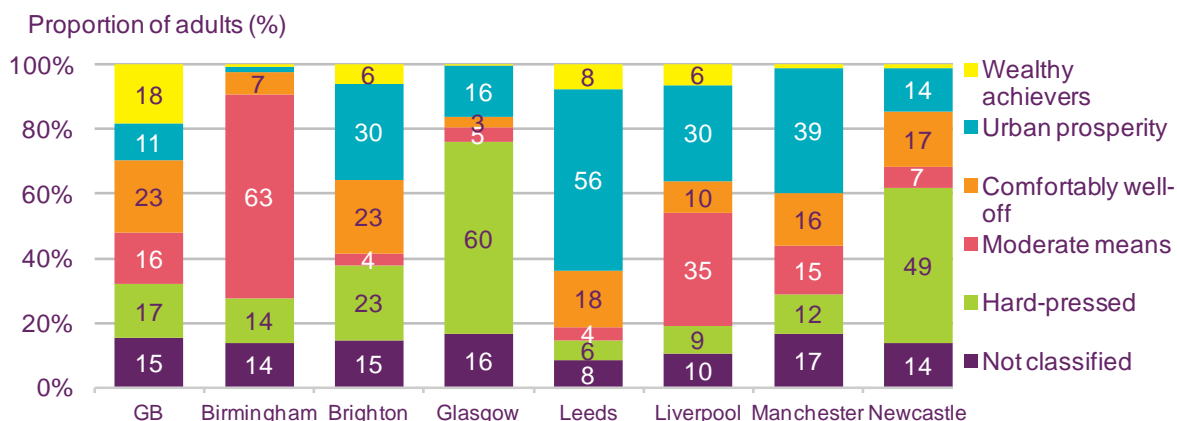
Q. Is your access to the internet AT HOME cable broadband, ADSL broadband, broadband but you don't know type or non-broadband?

Demographic differences go some way to explaining Glasgow's low fixed broadband take-up

We have applied CACI classifications to the BPS data (Figure 1.28) to show that Glasgow's population is not typical of other cities in GB. Six in ten adults in the Glasgow sample are classified as "hard-pressed" by CACI, compared to the GB average of 17%. Newcastle has the closest CACI profile, with 49% "hard pressed" but a higher proportion classified as "comfortably well-off" (17% compared to 3% in Glasgow).

This partly explains the lower level of broadband take-up; we know from previous research that those on low incomes are less likely to have broadband connections at home.

Figure 1.28 Demographic profile, by city



Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Birmingham 2577, Brighton 1090, Glasgow 1398, Leeds 1412, Newcastle 1149, Scotland 6840, Dundee 90, Edinburgh 89)

Q. Is your access to the internet at home cable broadband, ADSL broadband, broadband but you don't know type, or non-broadband?

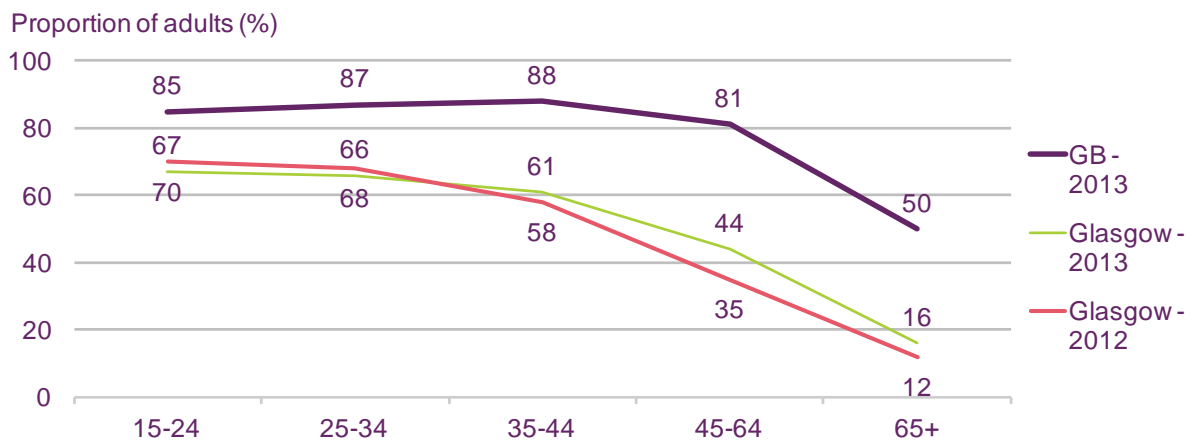
But demographic differences alone are not sufficient to explain Glasgow's low fixed broadband take-up

Broadband take-up in Glasgow is lower than average among all age groups (Figure 1.29), so regardless of age profile, we would expect to see lower broadband take-up. The difference in take-up in fixed internet is most marked in the over-45s. For the 45-64 age-band, there is a difference of 37 percentage points between the GB average of 81% and the Glasgow average of 44%.

Fixed broadband take-up has increased in some demographics within the city of Glasgow.

Since the last analysis, take-up of fixed broadband has increased for all age-bands over 35 and remained stable for those under 35. The most significant increase is among people aged 45-64. In the 2011 analysis, this demographic group differed most from the UK average for the same demographic. This gap has now narrowed.

Figure 1.29 Fixed broadband take-up, by age-group



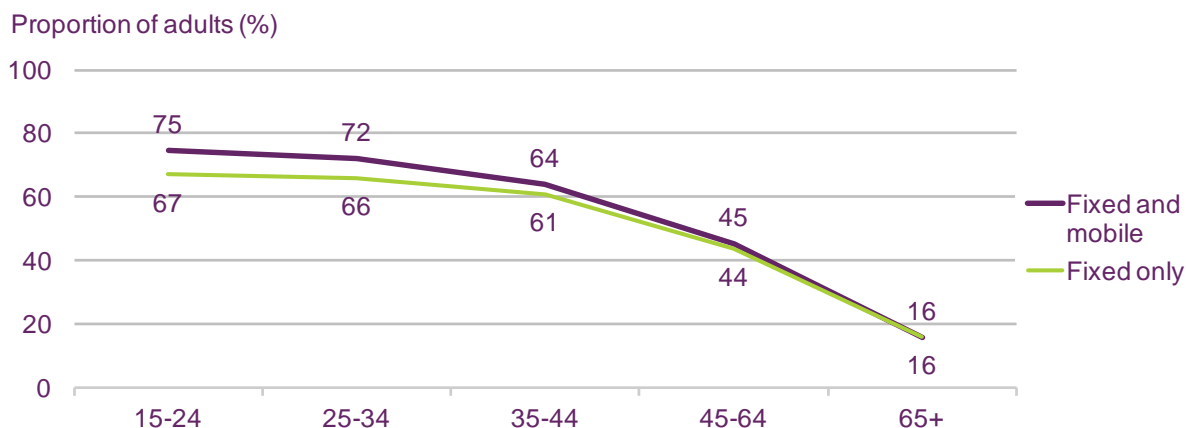
Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Glasgow 2013: 1398, Glasgow 2011-12: 597)

Q. Is your access to the internet at home cable broadband, ADSL broadband, broadband but you don't know type, or non-broadband?

There is some evidence to suggest that under-35s are accessing the internet via a mobile terminal rather than fixed access. Take-up of mobile-only broadband is highest among the under-25s and increases their total take-up of broadband by eight percentage points; from 67% (fixed only) to 75% (fixed and/or mobile broadband).

Figure 1.30 Fixed versus combined (mobile and/or fixed) broadband take-up, by age-group



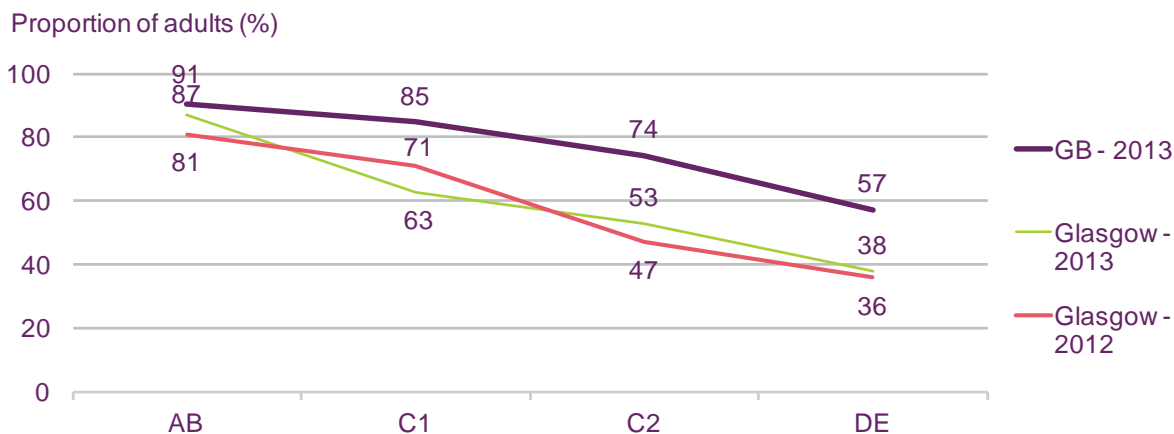
Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; 15-24 280, 25-34 218; 35-44 188; 45-64 456, 65+ 258;)

Q: Is your access to the internet at home cable broadband, ADSL broadband, broadband but you don't know type, or non-broadband?

Comparing broadband take-up by socio-economic status shows that ownership among the AB socio-economic group remains broadly comparable to the GB average (87% and 91% respectively). It also shows that take-up has risen in some groups and fallen in others. Take-up has risen for all socio-economic groups with the exception of the C1 group, which has seen a fall of eight percentage points. Take-up in socio-economic group C2 has risen the most.

Figure 1.31 Fixed broadband take-up, by socio-economic status



Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Glasgow 2013: 1398, Glasgow 2011-12: 597)

Q: Is your access to the internet at home cable broadband, ADSL broadband, broadband but you don't know type, or non-broadband?

This analysis shows that the lower take-up of fixed broadband in Glasgow, compared to the GB average, continues. Although demographic differences go some way to explain the lower take-up, there is evidence to suggest that Glaswegians are still less likely to have broadband at home than the GB average, regardless of age and socio-economic group (with the exception of socio-economic group AB). However, the two groups with the largest gap

between Glaswegians and the GB average (35-64 year-olds and the C2 socio-economic group) have narrowed the gap, while for those in socio-economic group C1 the gap has widened.

A study undertaken by the Carnegie Trust²² in 2012 suggests that attitudinal rather than demographic differences may partly explain the lower take-up of broadband in Glasgow.

The Trust's research identified two distinct groups among those without internet at home – 'rejecters' and 'potential users'. 'Potential users' (57% of the population without online access) are interested in going online at some future date while 'rejecters' (43%) have no such interest.

Rejecters were asked to give their reasons for not wanting internet access at home. The main barrier they mentioned was that they preferred to do things in person or by phone (22%) and that it was too difficult to learn (16%). The following three barriers were each mentioned by 11% of rejecters: 'Too expensive'; 'Rather spend my money on other things'; and 'Not for people like me'.

In contrast, the main barriers for the 'potential users' were that 'friends and family did it for them' (19%) and their preference for doing things in person or by phone (18%). Again, some common barriers were each mentioned by 11%: 'too expensive', 'too difficult to learn' and that 'the options were too confusing'.

In the light of this study, it is interesting to observe that although the local authority in Glasgow was unsuccessful in its 'Super-Connected City' bid for BDUK funding, it is now believed to be investigating the possibility of deploying its own initiatives, such as broadband demand stimulation projects²³.

Inverness

Summary of key findings

- Inverness is the only one of the 11 cities studied that currently has no NGA availability.
- The city's largest exchange is due to be upgraded to NGA soon, but availability will still be markedly lower than the other cities assessed.
- However, this may, over time, be addressed by the £146m scheme to invest in broadband across the Scottish Highlands and Islands, which is a public-sector intervention led by the Highlands and Islands Enterprise (HIE).
- Although Inverness contains a small number of WiFi hotspots in absolute terms compared to the larger cities assessed, it is particularly well served in terms of hotspots per head.

²² The Carnegie Trust commissioned Ipsos MORI to undertake 200 in-depth interviews – 136 with those who had never used the internet, ten with those who had used the internet but no longer did so, 20 who accessed the internet outside the home and 34 who had mobile or home internet.

²³ Source: Analysys Mason

Inverness has a population of 37,000, with residential premises accounting for 93% of all premises

Figure 1.32 shows the size of the city in terms of population and number of residential and non-residential premises. The population is based on the 2011 Census and the number of premises is based on postcodes within the local authority boundary.

Inverness acts as a hub for high-technology industries, including life sciences, renewable energy, digital media, and electronics. Other industries include tourism and leisure/sports. The city acts as the major centre for the surrounding Highland and Islands area²⁴.

Figure 1.32 City population and premises data

City	Population	Total premises	Business premises	Residential premises
Inverness	c.37,000	c.20,300	c.1500	c.18,800

Source: Analysys Mason

For the purposes of this study the city boundary is defined by the combination of appropriate data zones, published by Scottish Neighbourhood statistics, for areas of contiguous urban density, as shown in the following figure:

Figure 1.33 Map of Inverness area, highlighting city boundary



Source: Analysys Mason

Next-generation access is not currently available in Inverness

Figure 1.34 identifies fixed network infrastructure for the two main operators, BT and Virgin Media. This includes availability of both first-generation broadband (ADSL copper and DOCSIS cable technologies) and NGA infrastructure (FTTx and DOCSIS v3.0 cable technologies). Future NGA availability is predicted based on BT announcements for the upgrade of exchanges with NGA technology by 2015.

²⁴ Source: Analysys Mason

BT has not yet upgraded any of its exchanges that serve the city, but there are plans to upgrade the largest exchange. Virgin Media does not provide service to any premises in the city, and based on its declared intentions, this is unlikely to change by 2015. On that basis we estimate that around 45% of premises across the city will in future have access to NGA infrastructure, and this will be provided by BT alone.

In relation to the 10 other cities which we examine in detail in the *UK Communications Market Report*, Inverness's NGA availability is 71% less than average across the cities assessed.

Although the availability of first-generation broadband is 100%, some premises experience broadband speeds of less than 2Mbit/s, which is considered below the minimum requirement for a basic broadband service.

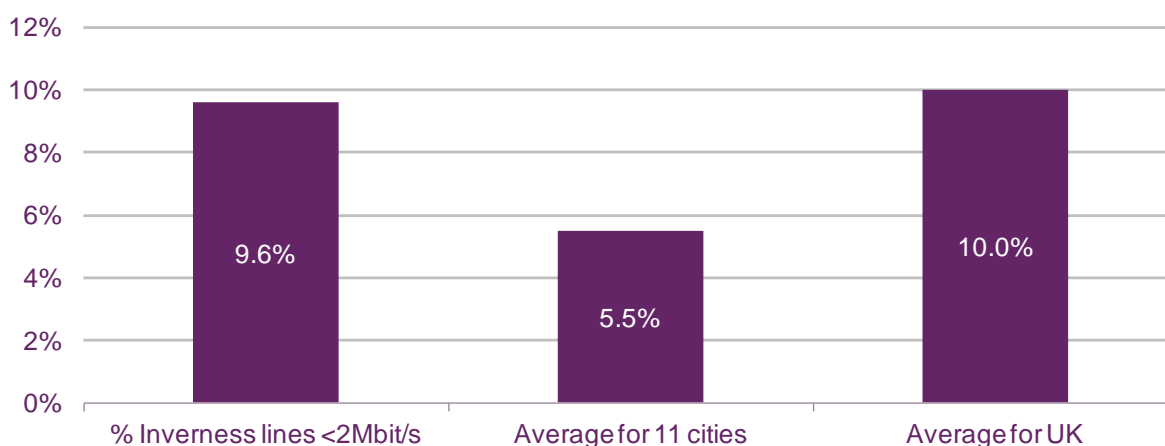
Figure 1.34 Fixed network infrastructure premises passed availability

Operator	First-generation broadband	NGA (current)	NGA (future)
BT	100%	0%	45%
Virgin Media	0%	0%	0%
Total	100%	0%	45%

Source: Analysys Mason, *Ofcom Infrastructure Report 2012*

Figure 1.35 shows the proportion of lines with a speed of less than 2 Mbit/s. The proportion of Inverness lines that have a speed of less than 2Mbit/s is 9.6%, which is 4.1% higher than average across the cities assessed.

Figure 1.35 Percentage of lines with speed less than 2Mbit/s, and relative positioning



Source: Analysys Mason, *Ofcom Infrastructure Report 2012*

Inverness has three copper exchanges, none of which have been upgraded to NGA

Figure 1.36 shows the number of exchanges serving the city postcodes, the percentage of lines that support both ADSL and ADSL Max²⁵, and the average number of lines per exchange.²⁶ Not all of these exchanges are physically located within the city boundary. All of the copper lines support basic broadband (both ADSL and ADSL Max).

Figure 1.36 Number of exchanges and % of lines with access to basic broadband

No. of exchanges serving city postcodes	% of lines that have access to both ADSL & ADSL Max	Average number of lines per exchange
3	100%	6,800

Source: Analysys Mason

In future, three operators may offer NGA services in Inverness

In addition to BT, a number of alternative operators have a point of presence i.e. an interconnection with another communications provider, in the city. Alternative operators tend to focus on providing services to larger business customers.

Two alternative operators have been identified as having, as part of their national networks, a point of presence in Inverness: Level3 and SSE²⁷.

Inverness has 30 WiFi hotspots, equivalent to 8.1 hotspots per 10,000 residents

Figure 1.37 shows key WiFi hotspot data for Inverness. The largest providers of Wi-Fi infrastructure in UK cities are currently BT (branded as BT Openzone) and The Cloud, which is owned by BSkyB. Each operator owns a mix of outdoor and indoor WiFi access points. Other private and public organisations own hotspots, but they tend to make only a small contribution to a city's total. We have therefore used the total hotspots for BT and The Cloud to derive a city benchmark²⁸. Inverness has 31% more hotspots per 10,000 city residents than the average across the cities assessed.

Figure 1.37 Key city hotspots data

City total	Total hotspots per 10,000 city residents (city benchmark)	Total hotspots per 10,000 city residents (11 city average)	Percentage difference from 11 city average
30	8.1	6.2	+31%

Source: Analysys Mason

²⁵ ADSL Max is a 'rate-adaptive' variant of ADSL, where the transmitted bit rate varies depending on the physical conditions of the twisted-pair copper line, which may change over time. In contrast, the bit rate for ADSL is fixed and does not change.

²⁶ Source: Analysys Mason.

²⁷ Source: Analysys Mason

²⁸ There is in general a good correlation between number of hotspots and number of city residents, therefore that ratio forms a suitable benchmark for assessing WiFi availability between cities.

Ninety-eight per cent of premises in Inverness receive 3G coverage from four operators

Figure 1.38 shows the proportion of premises that are covered by 3G networks, compared to the average across the other cities assessed and the UK as a whole. At the time of writing, no operators are currently providing 4G coverage in Inverness.

Figure 1.38 3G mobile coverage in city

% of premises with 3G signal from four operators (city benchmark)	% of premises with 3G signal from four operators (11 city average)	% of premises with 3G signal from four operators (UK average)	Percentage difference from 11 city average
98%	95.7%	77.3%	+2.3%

Source: Analysys Mason, Ofcom Infrastructure Report

Just over half of premises in Inverness have a choice of two or three fixed-line telecoms providers

The classification assigned by Ofcom to each exchange is a good indicator of local competition in communications services. The classification is based on the number of operators with a presence in the exchange, typically local loop unbundling operators offering first-generation broadband wholesale services. The classifications are:

- a classification of 3 means that four or more operators (including BT) are present
- a classification of 2 means that two or three operators (including BT) are present
- a classification of 1 means that BT is the only operator present.

Figure 1.39 shows, for each market classification, the key city exchange data:

Figure 1.39 Key city exchange data

Ofcom classification	% of total exchanges	% of premises passed
3	0%	0%
2	33%	52%
1	67%	48%

Source: Analysys Mason

None of the serving exchanges are classed according to the scheme as classification 3. Roughly half of the premises are passed by exchanges rated as classification 2, while roughly half are rated classification 1. Virgin Media has a presence in 33% of exchange areas²⁹.

These findings illustrate that there is a level of competition in provision of first-generation broadband services across the city³⁰. An equivalent or similar classification for SFBB is not

²⁹ Source: SamKnows

³⁰ Again, this is not an assessment of competition for the purpose of a market analysis under the Competition Act 2003.

yet established (although communications providers are currently using the generic Ethernet access product from BT Wholesale to provide retail superfast services).

Including superfast broadband, the average maximum modem sync speed for Inverness is 12.2Mbit/s

Figure 1.40 compares the average maximum modem sync speed for basic broadband lines, and for all lines including basic and SFBB. The speed values are compared to the other cities. Note that the result for all lines (including SFBB lines) is for illustrative purposes only, as we have assumed all superfast lines to be 40Mbit/s.

Figure 1.40 Average maximum modem sync Speed, compared to other cities

Excluding SFBB lines			Including SFBB lines			
Average maximum speed (Mbit/s)	City average (Mbit/s)	% difference	Average maximum speed (Mbit/s)	City average (Mbit/s)	UK average (Mbit/s)	% difference
12.2	14.1	-13%	12.2	29.9	12.7	-59%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

The average maximum modem sync speed for basic broadband lines across the city is less than the average by 13%. The average maximum modem speed for all broadband lines across the city is less than the average by 59%.

Inverness is a member of the Scottish Cities Alliance

The Scottish Cities Alliance is a collaboration of Scotland's seven cities (Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling), the Scottish government and the Scottish Council for Development and Industry (SCDI). The alliance is tasked with attracting external investment, stimulating economic activity and, most importantly, creating new jobs and business opportunities. The partnership aims to develop Scotland's potential as a competitive and world-class place to live, work, visit, invest and do business. The action plan: Scotland's Cities: Delivering for Scotland, was launched by the leaders of Scotland's cities and Scotland's Minister for Cities in December 2011. Several areas have been identified by the cities as providing the greatest potential for collaborative approaches to support growth. One of these involves working collectively to deliver world-class digital connectivity, capacity and use across the cities and their regions, and to improve mobile coverage along main transport links.

NGA availability in Inverness is likely to increase significantly as a result of a public-sector intervention

The Highlands and Islands Enterprise (HIE) is leading a £146m investment in broadband across the Highlands and Islands. The project is to be delivered by BT, and upon completion around 84% of Highlands and Islands homes and businesses will have access to fibre broadband. The public-sector investment towards the contract is £126.4m, and is being delivered through the Scottish government broadband fund, which incorporates funding from BDUK, and includes up to £12m from the HIE budget. BT is investing an additional £19.4m in the project, in addition to investment in its wider commercial roll-out for the region.

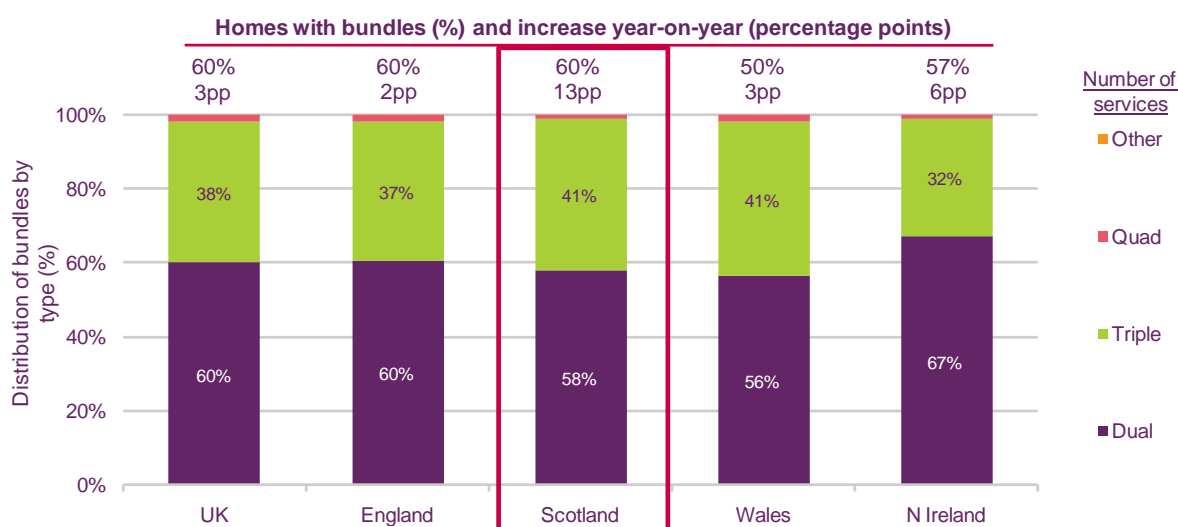
1.6 Purchasing of communications services

Scotland sees largest rise in bundle take-up over past 12 months

Six in ten (60%) households in Scotland have a package of services, an increase of 13 percentage points since 2012, and the greatest increase across the nations. The proportion of homes in Scotland with a package of services now matches the average for all UK households (60%). This increase has been particularly marked in urban Scotland, where the proportion of households with a communications bundle rose from 41% to 60% in the last 12 months.

Most of those in Scotland with a package of services (58%) have two services in their package, while almost all of the remainder (41%) have a triple-service package.

Figure 1.41 Proportion of homes in Scotland with a bundle of services



Source: Ofcom research, Q1 2013

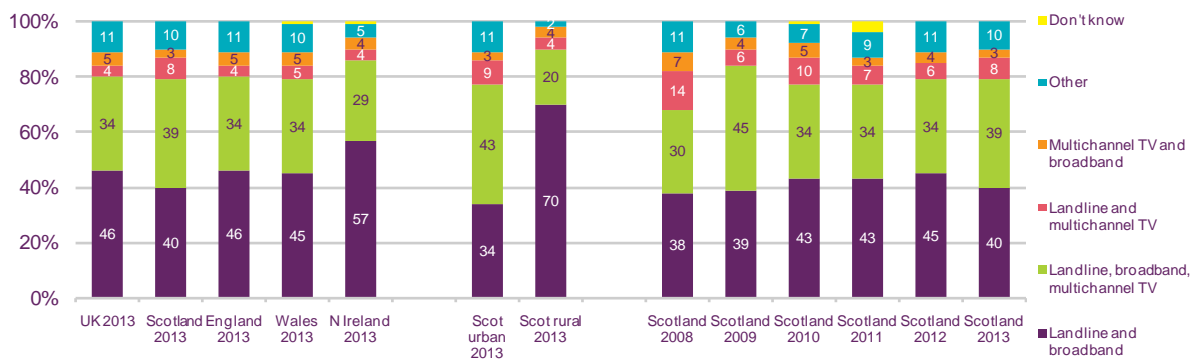
Base: All adults aged 16+ with a package of services regardless of whether or not these include a discount (n = 2104 UK, 1309 England, 297 Scotland, 220 Wales, 278 Northern Ireland)

Note: Remaining percentages are Don't know responses

Households in Scotland are equally likely to have a double-play or triple-play bundle

Households in Scotland with a bundle of services (60% of households) are equally likely to have a double-play (40%) bundle - comprising landline and broadband only - or a triple-play (39%) bundle - comprising landline, broadband and TV. Triple-play bundles have lower penetration in rural areas of Scotland (20%), where cable services have lower availability.

Figure 1.42 Types of services in bundle in Scotland



Source: Ofcom research, Q1 2013

Base: All adults aged 16+ with a package of services regardless of whether or not these include a discount (n = 2104 UK, 297 Scotland, 1309 England, 220 Wales, 278 Northern Ireland, 154 Scotland urban, 143 Scotland rural, 324 Scotland 2008, 351 Scotland 2009, 605 Scotland 2010, 226 Scotland 2011, 254 Scotland 2012, 297 Scotland 2013)

Question. Do you receive more than one of these services as part of an overall deal or package from the same supplier?