



# Communications Market Report: Wales

Research Document

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# Introduction

This is Ofcom's eighth annual review of the communications market in Wales. The report offers a detailed overview of communications services across the nation and monitors key trends in the availability and take-up of digital services across Wales.

In 2012, total spend by the BBC and ITV1 on first-run originated TV programming for viewers in Wales decreased by 3% year on year to £26m. However, Wales increased its spend in 2012 on non-news/non-current affairs by 8% - the only proportional increase for this genre across the four nations. Conversely, year-on-year spending on news in Wales was down by 14%. Expenditure per head of population in Wales decreased by 3% year on year to £8.84 in 2012, and the number of first-run originated hours decreased by 6%; this is on par with the UK-wide average. S4C spent a total of £68m on first-run Welsh language programming in 2012, an 8% decrease on 2011 in nominal terms, and the total number of hours broadcast by S4C increased by 6.2%.

Three quarters (75%) of consumers in Wales now have access to the internet, either through a fixed broadband connection, a mobile broadband connection (i.e. dongle) or mobile phone. This represents a 2% year-on-year increase in internet take-up. Nine per cent of consumers in Wales access the internet exclusively through a mobile phone.

Over half of mobile users in Wales have a smartphone, a 12 percentage point increase on 2012. Wales continues to have the highest level of mobile-only households among the UK nations, with just under one in four households (23%) solely using mobile phones to make and receive calls in the home.

People living in Wales say they love sending and receiving post more than those in any other nation, but they are also more likely to have reduced, and say they will continue to reduce, the amount of post they send. Customers in Wales also have the highest levels of satisfaction with Royal Mail.

This year's report explores findings from our research to understand use of and attitudes towards government services online (e-government) and consumers' use of the internet to make purchases (e-retail) as well as users' experience of mobile phone quality of service.

This is just a snapshot of this year's report, highlighting the key stories of take-up and use of communications services in Wales. We are publishing the full data set and charts in a searchable resource, which can be found at [www.ofcom.org.uk/cmrwales](http://www.ofcom.org.uk/cmrwales). Companion reports for the UK and each of the nations can be found at [www.ofcom.org.uk/cmr](http://www.ofcom.org.uk/cmr).

We publish this report to support Ofcom's regulatory goal to research markets constantly and to remain at the forefront of technological understanding. It 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 Wales

**Rural areas lead the way with higher use of tablets...** up 23 percentage points (pp) in the past year, bringing ownership in rural areas into line with the UK average (27% vs. 24% average). In comparison, and despite a 10pp rise, tablet ownership in urban areas is 19%; significantly lower than both rural Wales and the UK average.

**...and greater use of mobile internet...** Half of adults in Wales now own a smartphone, with the UK's biggest rise in rural Wales (+15pp). Also in rural Wales, a rise in use of mobiles to access the internet; rising to 49% to equal the UK average.

**...despite lower than average satisfaction with 3G network internet access** (81% vs. 88%). And a fifth of mobile users say they have been unable to access the mobile internet at some point.

**Dongle use declines...** Two-thirds of households in Wales have home broadband access. The proportion with mobile broadband (using a dongle) declined to 7% over the past year.

**...and Wales reports highest levels of 'smartphone-only' internet access...** At 9%, this is more than twice the UK average (4%). This year, use of pre-pay services has declined (from 59% to 41%), at least partly due to the rise in smartphones.

**...and the highest proportion of mobile-only households.** Eight percentage points higher than the UK average, almost one in four (23%) households in Wales used only mobile phones to make and receive calls at home.

**People in Wales spend more time watching TV than any other nation...** around 4.5 hours each day. Six in ten (60%) report this as their most-missed media activity, significantly higher than the UK average, with comparatively fewer citing 'mobile phone' or 'going online'.

**...and two-fifths (38%) of broadband customers watch TV online.** This is more popular on a weekly basis among broadband customers in urban (31%) than in rural (16%) areas.

**Higher than average use of online government services (66%)...** but users have less positive perceptions compared to the other nations. Fewer considered these services 'more convenient' or stated a preference for 'online'. This is consistent with a higher stated preference for face-to-face communications with government services (34% vs. 19% average) in Wales.

# Setting the scene

## Key facts about Wales

Figure	Wales	UK
Population	3.063m (mid-2011 estimate)	63.232m (mid-2011 estimate)
Age profile	Population aged <16: 18.1% Population aged 65+: 18.5%	Population aged <16: 18.2% Population aged 65+: 16.1%
Population density	147 people per square kilometre	260 people per square kilometre
Language	18.6% of the population can speak Welsh	n/a
Unemployment	8.2% of the working age population	7.8% of the working age population
Income and expenditure	Weekly household income: £598 Weekly household expenditure: £398	Weekly household income: £699 Weekly household expenditure: £470

Source: Office for National Statistics: *Region and Country Profiles, Key Statistics – March 2013*; Office for National Statistics: *Family Spending 2012 edition*; Office for National Statistics: *2011 Census, Key Statistics for Unitary Authorities in Wales*

### 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 492 interviews conducted in Wales. Quotas were set and weighting applied to ensure that the sample was representative of the population of Wales 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 Wales 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 Wales' communications market

## 1.1 Key findings for Wales

### Introduction

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

### Key findings for Wales

#### Use of online services

- **In Wales, two-thirds 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. Around half (53%) of users of the online services say they have engaged with government services or policies more since accessing them online.
- **Sixty-two per cent of internet users in Wales say they shop online** and 79% of online shoppers in Wales say they feel secure when paying online.
- **Around three-quarters of online shoppers in Wales are confident that goods bought online will be delivered on time and in good condition.** But among current online shoppers in Wales, around one-third had previously decided not to buy online before because of a concern regarding delivery; e.g. 19% mentioned concerns about high delivery costs.

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

- **Slightly more mobile users in Wales experience problems than the UK average.** Six in ten respondents in Wales had experienced at least one problem, compared with those in England and Scotland (52% and 51%).
- **The ability to make or receive calls or texts is particularly important when choosing a provider, for people living in Wales.** Mobile users living in Wales are significantly more likely than those in England or Scotland to say that the ability to make or receive calls or texts is the most important factor when choosing a provider.

#### TV and audio-visual content

- **People in Wales spend 4.5 hours per day watching TV**, the highest across all the nations.
- **Spend on first-run originated content for viewers in Wales decreased by 3% year on year**, slightly below the average UK decline of 4%.
- **Total spend on non-news programming for people in Wales increased by 8% year on year..**

- **First-run originated hours in Wales have decreased by almost a quarter (24%) since 2007;** the largest relative reduction in first-run originated nations' output over the five-year period.
- **Total cost per hour for nations' programming decreased by 4% from 2007 for Wales** – the lowest across the nations, compared to the UK average reduction of 24%.
- **The volume of originated networked productions in Wales increased to 1.7% in 2012.**

#### Radio and audio content

- **More people in Wales listen to the radio than in any other nation.** Radio services reached 93.1% of the adult population in Wales, the highest of all the UK nations and 3.5 percentage points higher than the UK average of 89.5%.
- **BBC radio stations are more popular in Wales than in any other nation.** In 2012, BBC radio stations accounted for 61% of all listening hours in Wales, a higher share for this sector than in any other UK nation.
- **Ownership of DAB digital radios is significantly lower than the UK average.** Just over one in four (27%) of those who listen to radio in Wales own a DAB digital radio, compared to the UK average of 41%. The proportion of listening through a digital platform in Wales grew by 1.9 percentage points in 2012, lower than any other UK nation.
- **Commercial radio revenue per head of population was lowest in Wales.** The commercial revenues generated by local commercial radio stations in Wales stood at £17.7m in 2012. Adjusting for population size, Wales has the lowest revenue per head of all the UK nations, despite a £0.10 increase on 2010.

#### Internet and web-based content

- **One in ten (9%) consumers in Wales access the internet exclusively through a mobile phone,** the highest proportion among the devolved nations and twice the UK average (4%). Across all access methods, three-quarters (75%) of consumers in Wales were online by Q1 2013.
- **A third (35%) of those aged 16-34 say their smartphone is their most important device for internet access.** This is likely to be a reflection of the one in five (20%) 16-34 year olds in Wales who access the internet exclusively on their smartphone, compared to the UK average of 9% for that age group.
- **Internet users in Wales claim to spend significantly less time online than the UK average.** According to research conducted for Ofcom's *Adult Media Literacy Report*, internet users in Wales claimed to spend 13.6 hours on the internet per week, significantly less than the UK average of 16.8 hours.

#### Telecoms and networks

- **Wales had the largest increase in the proportion of premises that are in postcodes served by NGA networks in the year to June 2013.** In Wales this proportion was 48% in June 2013, and although this was the lowest figure among the

UK nations it was an 11 percentage point increase compared to the 37% figure recorded in June 2012, the largest increase recorded over the period.

- **Take-up of fixed-line and broadband services are lower than average in Wales:** Landline and overall broadband take-up were both below the UK averages for these services in Wales in Q1 2013. In Wales, 66% of households had a broadband connection during the period, nine percentage points lower than the UK average (75%), while fixed line take-up in Wales (76%) was eight percentage points lower than the UK average (84%).
- **Wales has the highest proportion of mobile-only households among the UK nations:** Just under one in four households in Wales (23%) solely used mobile phones to make and receive calls in the home in Q1 2013, a three percentage point increase compared to a year previously and eight percentage points higher than the UK average (15%).
- **Over half of mobile users in Wales have a smartphone:** Smartphone adoption continued to increase in Wales in the year to Q1 2013, when over half of mobile phone users (54%) had a smartphone, a 12 percentage point increase compared to Q1 2012. Mobile users in Wales had the second highest smartphone take-up among the UK nations, after England.
- **Satisfaction with mobile services remains high in Wales:** Overall satisfaction with mobile services was high in Wales in Q1 2013, when 94% of mobile users were either 'very' or 'fairly' satisfied with their service. Satisfaction with mobile reception was also high in Wales, at 86% of mobile users, although Wales had the lowest proportion of smartphone users who were satisfied with their ability to connect to the internet over 3G or 4G, at 81%.

## Post

- **Residents in Wales are more likely to say they love sending and receiving post.** When asked about their attitudes to post, nearly two-thirds of adults in Wales say they love sending and receiving letters and cards (65%), higher than the UK average of 56%. However, this does not appear to be driven by sending mail, as people in Wales only send an average of 6.7 items each month compared to 8 items for people living in England.
- **People in Wales are more likely to have reduced the amount of post they send and to expect this trend to continue.** When asked about how the amount of post they send has changed in recent times, people in Wales are the most likely to say they now send less (-15% net). They also anticipate that they will reduce their use of post for sending letters, cards and parcels in the future (-16% net).
- **People in Wales receive the most items of post and are more likely than the UK as a whole to have ordered goods to be delivered.** When asked about the amount of post they have received in the past week, people in Wales claim to have received the highest number of items on average (10), especially when compared to residents in Scotland (4.8). This is perhaps due to the high propensity of people living in Wales to order items for delivery by post (76% in Wales vs. 69% across UK).
- **Businesses in Wales are the least likely to have switched some mail to other communication methods in the past year.** When asked if their organisation had moved some mail to another form of communication over the past 12 months, 61% of respondents in Wales said that they had, the lowest proportion of all the UK nations. Among those which had, businesses in Wales are more likely to say this is for better speed, rather than as a cost-saving exercise.

Figure 1.1 Fast facts for Wales

	UK	England	Scotland	Wales	Northern Ireland	UK urban	UK rural	Wales urban	Wales rural
TV take-up	97	97	97	98	98	97	98	98	98
Smart TV take-up among TV homes	7	8	4 <sup>-</sup>	6	6	7	7	6	8
DAB ownership amongst radio listeners	41 ↑+3	43 ↑+3	29 <sup>-</sup>	27 <sup>-</sup>	24 <sup>-</sup>	41	39	26 <sup>-</sup>	31 <sup>-</sup>
Catch-up TV viewing (on mobile or computer)*	27	28	18 <sup>-</sup>	25	24	27	28	24	26
Broadband take-up	75	76	70 <sup>-</sup>	66 <sup>-</sup>	74 ↑+5	74	82 <sup>+</sup> ↑+5	64 <sup>-</sup>	73
Mobile broadband take-up	5	5	7	7	5	6	4	7	8 <sup>+</sup>
Use mobile to access internet	49 ↑+10	49 ↑+9	44 <sup>-</sup> ↑+13	47 ↑+8	45 ↑+10	49 ↑+10	48 ↑+13	46	49 ↑+19
Mobile phone take-up	92	92	92 ↑+7	92	94	92	93	92	91
Smartphone take-up	51 ↑+12	52 ↑+12	45 <sup>-</sup> ↑+13	49 ↑+10	45 <sup>-</sup> ↑+11	51 ↑+12	51 ↑+14	50 ↑+9	48 ↑+15
Fixed landline take-up	84	85	83	76 <sup>-</sup>	82	83	91 <sup>+</sup>	74 <sup>-</sup>	86
Tablet computer take-up	24 ↑+13	24 ↑+13	24 ↑+13	21 ↑+13	29 <sup>+</sup> ↑+20	23 ↑+12	29 <sup>+</sup> ↑+18	19 <sup>-</sup> ↑+10	27 ↑+23
E-reader take-up (personal use)	16 ↑+6	17 ↑+7	14 ↑+6	15	12 <sup>-</sup> ↑+4	15 ↑+4	21 <sup>+</sup> ↑+6	14	18
Households taking bundles	60 ↑+3	60	60 ↑+13	50 <sup>-</sup>	57 ↑+6	59	64 ↑+8	51 <sup>-</sup>	46 <sup>-</sup>
Fixed telephony availability	100	100	100	100	100				
Fixed broadband availability <sup>1</sup>	99.98	100	99.86	100	100				
LLU ADSL broadband availability <sup>2</sup>	94 ↑+2	95 ↑+2	87 ↑+3	93 ↑+5	85 ↑+6				
Virgin Media cable broadband availability <sup>3</sup>	48	51	38	22	28				
BT Openreach / Kcom fibre broadband availability <sup>4</sup>	56	59	25	41	93				
NGA broadband availability <sup>5</sup>	73 ↑+8	76 ↑+8	52 ↑+7	48 ↑+11	95				
2G mobile availability <sup>6</sup>	99.6	99.8	99.3	98.8	98.5				
3G mobile availability <sup>7</sup>	99.1	99.5	96.6	97.7	97.4				
DTT availability <sup>8</sup>	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: <sup>+</sup>Figure is significantly higher than UK average; <sup>-</sup>Figure is significantly lower than UK average;  
 ↑+xx Figures has risen significantly by xx percentage points since Q1 2012

\*Catch-up TV – due to wording change in 2013 questionnaire, data are 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)

## 1.2 Use of online services in Wales: e-government and e-retail

### 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-retail').

This section reports several pieces of relevant research. These include 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 over <sup>1</sup>. 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-retail, conducted in March 2013 <sup>2</sup>. We comment only on those differences that are statistically significant.

### In Wales, two-thirds of those with internet access have used online government services

Among those with internet access in Wales, 66% claimed 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) <sup>3</sup>. The proportion in Wales who said they had used online government services is similar to the proportion in the UK overall, but is significantly higher than in Northern Ireland.

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<sup>1</sup> The dataset reported here comprises results from fieldwork conducted by Saville Rossiter-Base in autumn 2012 among 236 adults in Scotland, 231 adults in Wales, and 213 adults in Northern Ireland.

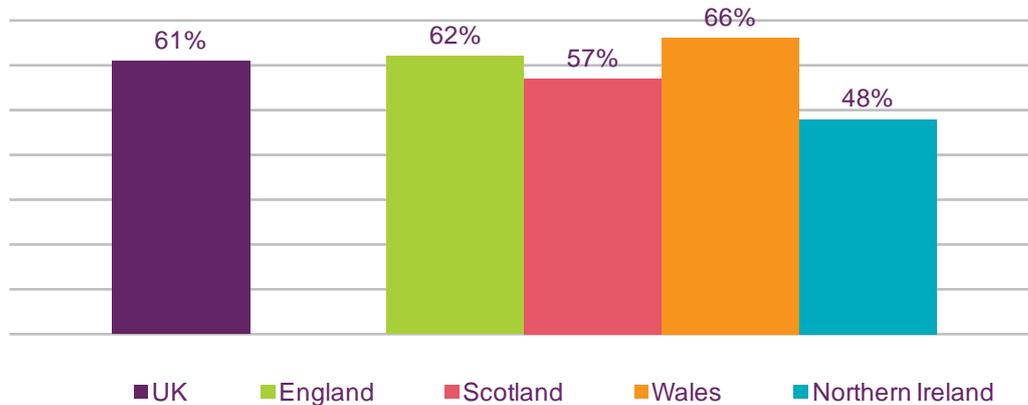
<sup>2</sup> The research involved 2971 UK adults, including 410 in Wales, in the face-to-face survey of UK residential consumers conducted in March 2013 by Kantar Media.

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.

Using online government services does not vary significantly between those with internet access living in urban (68%) and rural areas (63%) in Wales. Those in socio-economic groups ABC1 were more likely to have said they use online government services (78%) than those in C2DE (52%).

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

% That use services



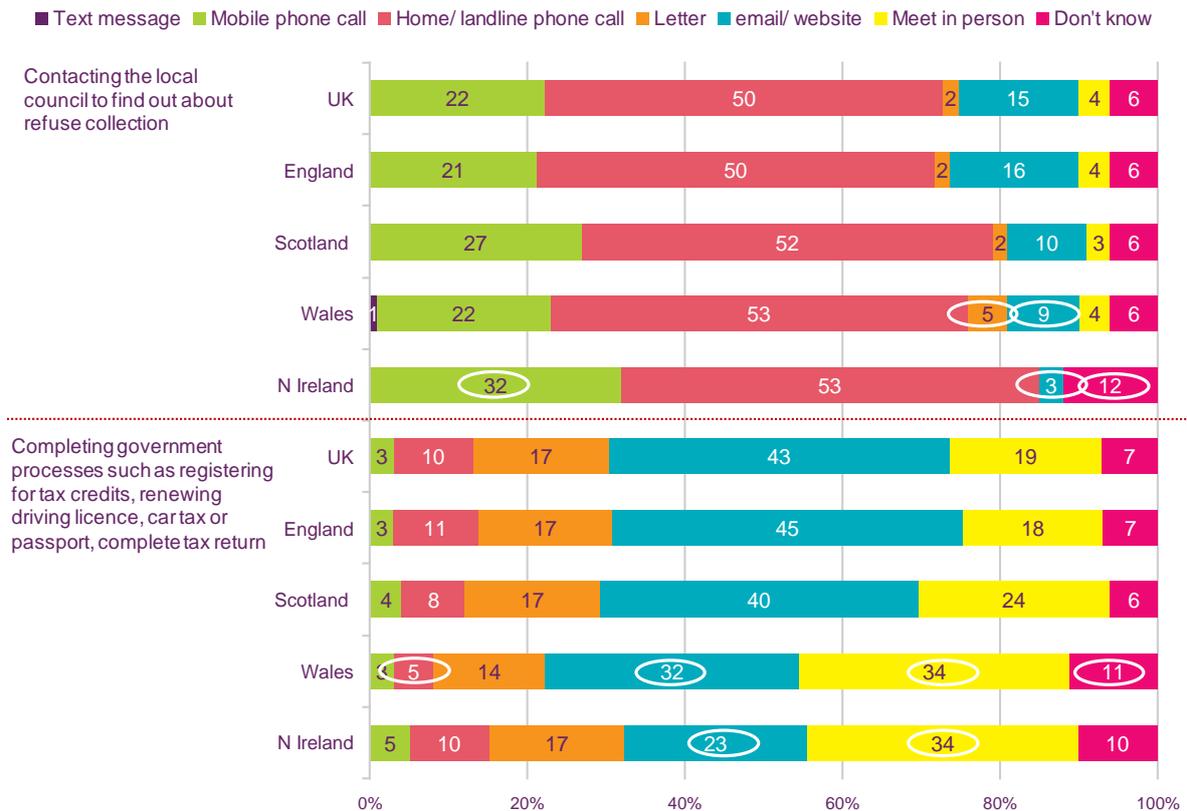
Source: Kantar Media Omnibus. Base: All with internet access. Internet access could be inside or outside the home, and be on a variety of devices. UK (2271) England (1325) Scotland (399) Wales (297) Northern Ireland (250). Question: Q.8 Nowadays, many government services are available online. Some examples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

**In Wales, about one-third 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 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 making either a mobile or landline telephone call.

However, when asked about their preferred method of contact for completing tasks such as renewing a driving licence, car tax or passport online, etc., they preferred to do the task through a website or by email. In Wales, around a third (32%) of adults said their preferred method for completing government processes was through a website, although a similar proportion (34%) said they would prefer to meet in person to do this.

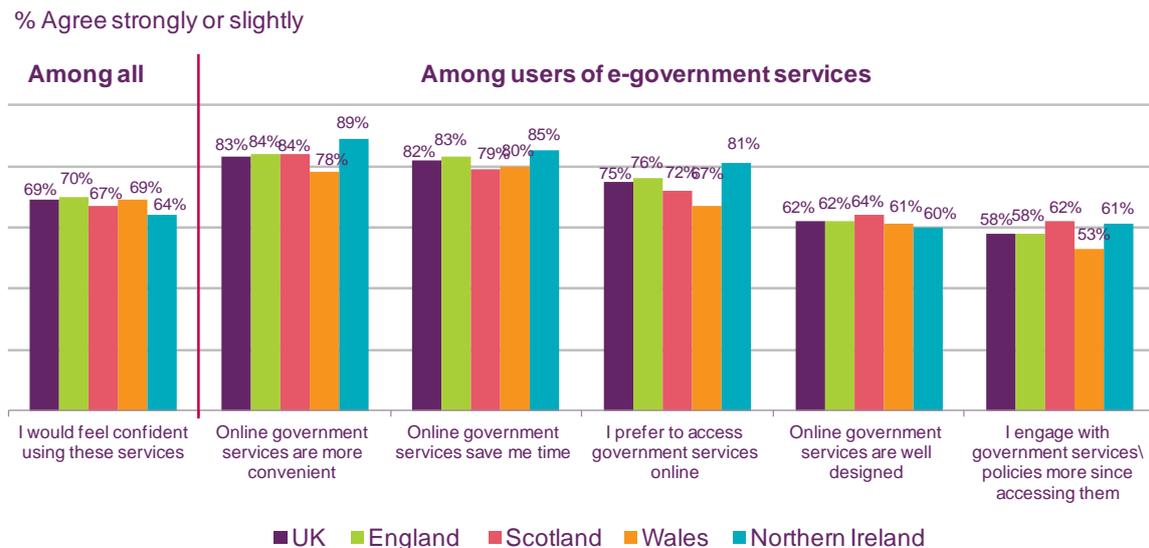
**Figure 1.3 Preferred method of contact with local council and for government processes, by nation**



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 Wales, 69% 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 in Wales said that they were 'more convenient' (78%) and 'save time' (80%). In addition, around half (53%) of users of the 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**

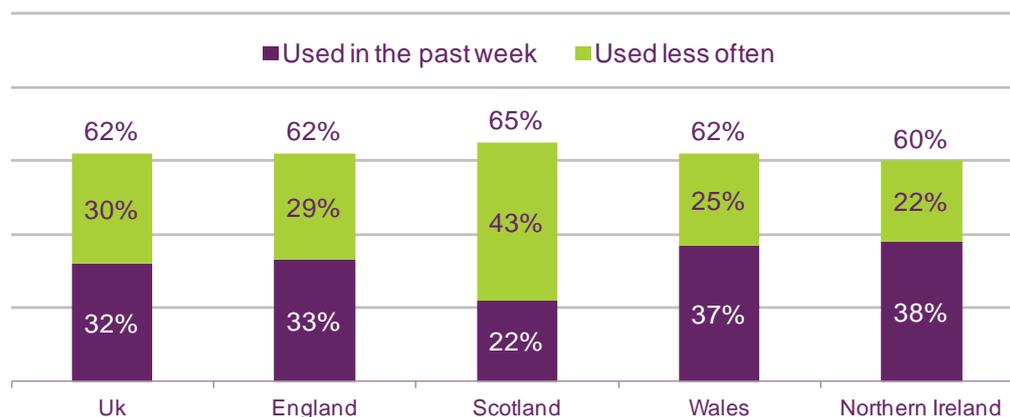


Source: Kantar Media Omnibus. Base: All with internet access: UK (2271), England (1325), Scotland (399), Wales (297), Northern Ireland (250). All ever used e-government services: the UK (1294), England (779), Scotland (217), Wales (187), Northern Ireland (109). Question: Q.9 Thinking about the kinds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

**About three in five internet users in Wales say they shop online**

In Wales, 62% of internet users claimed they shop online for goods, services, tickets etc; this is a similar proportion as claimed in the rest of the UK (see Figure 1.5). Those living in rural areas were more likely to say they shopped online (73%) than those in urban areas (59%), and those in socio-economic groups ABC1 (70%) were more likely to shop online than those in C2DE (53%).

**Figure 1.5 Proportion of internet users shopping online, by nation**

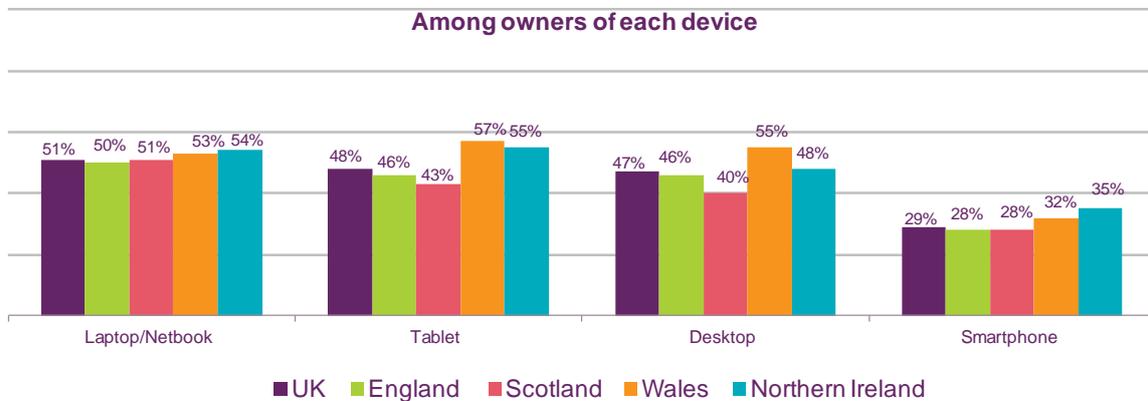


Source: Ofcom technology tracker research, Q1 2013. Base: Adults aged 16+ who use the internet at home or elsewhere 2013. % purchasing good/services/tickets etc online. (UK= 2918, England=1787, Scotland=394, Wales=361, Northern Ireland=376). QE5. Which, if any, of these do you use the internet for? Note 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 various devices that may be able to access the internet. In Wales, 57% of those with a tablet shop online using their

tablet, 55% of those with a desktop computer shop using this, 53% of those with a laptop or netbook shop online using this, while 32% 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 Wales had bought online most often in the past six months were: clothing or footwear (63%), physical multimedia products, e.g. books, CDs, DVDs (52%), hotel or holiday bookings (41%), cinema or theatre tickets (39%) insurance for cars /home /travel etc (38%), transport, e.g. train or plane tickets (35%), electrical devices e.g. TVs (33%), digital multimedia e.g. music or e-books (30%), furniture (25%), household devices, e.g. kettles (22%) and groceries or take-aways (22%).

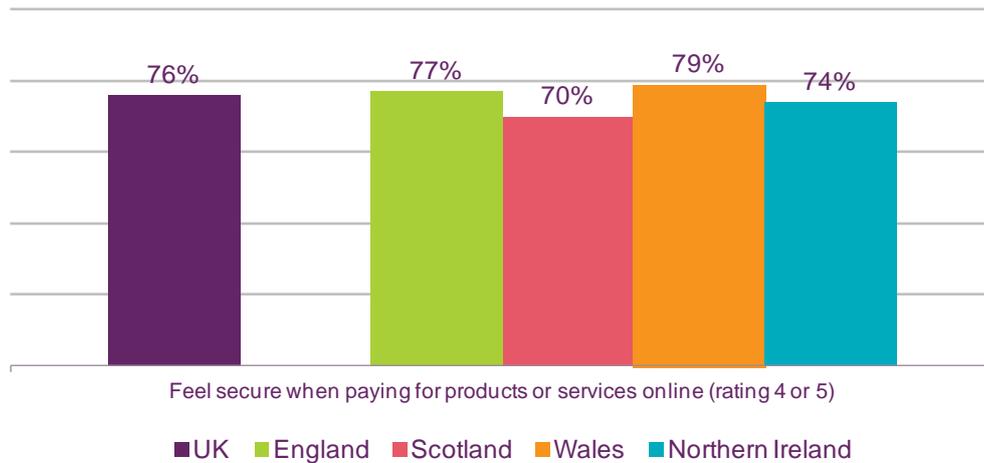
When asked about their preferred method of contact for booking a holiday (e.g. mobile phone, landline phone, in person, email/website etc), adults across all nations were most likely to say that they would prefer contact via a website or email, or would like to meet in person. In Wales, 35% said they would prefer contact via a website or email, and 34% preferred to meet in person.

### **Around three-quarters of online shoppers in Wales feel secure when making online payments**

In general, across the nations, around three-quarters of those shopping online felt secure when they were paying for products and services online (see Figure 1.7). Similarly, 79% of online shoppers in Wales said they felt secure when paying online.

**Figure 1.7 Perceptions of security when shopping online, by nation**

% Feel secure

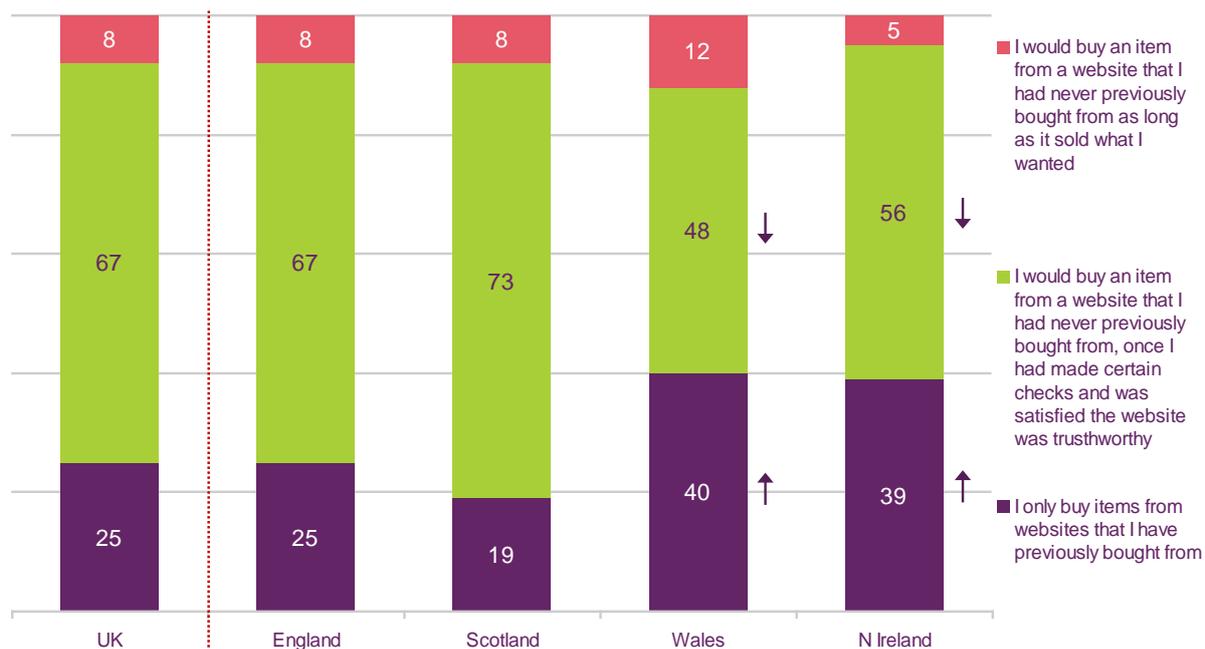


Source: Kantar Media Omnibus. Base: All who use online shopping in the UK (1221), England (689) Scotland (211) Wales (179) Northern Ireland (142). Question: Q.11A Generally, when ordering online how secure do you feel when paying for products or services online? Using a scale from 1-5, where 1 means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

Online shoppers in Wales claim that their decisions about which website to buy from are influenced by several main factors: whether the site is well known or is a reputable brand (53%), the security of the site, e.g. secure payment options (42%), the website offering the product or service at the lowest price (38%), recommendations from friends, family and colleagues (35%) and the delivery options (27%). Although the frequency of mentions of these factors differ slightly across the nations, the five most important factors remain constant across all nations within the UK.

When online shoppers were asked how they decided which websites they would be happy to buy from, 40% of online shoppers in Wales said they would buy only from websites they had previously bought from (see Figure 1.8). Around half (48%) said they would tend to buy something from a website they had not used before, once they had made checks on the site. The remaining 12% said they would buy from a website they had not used before (without necessarily making any checks on it). Online shoppers in Wales and Northern Ireland were more likely than those in the UK overall to say they would buy only from websites they had bought from in the past; they were therefore more cautious about using websites that were new to them.

**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.

**Around three-quarters of online shoppers in Wales 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 Wales, 79% 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 form 1-5, where 1 means not at all confident and 5 means very confident.

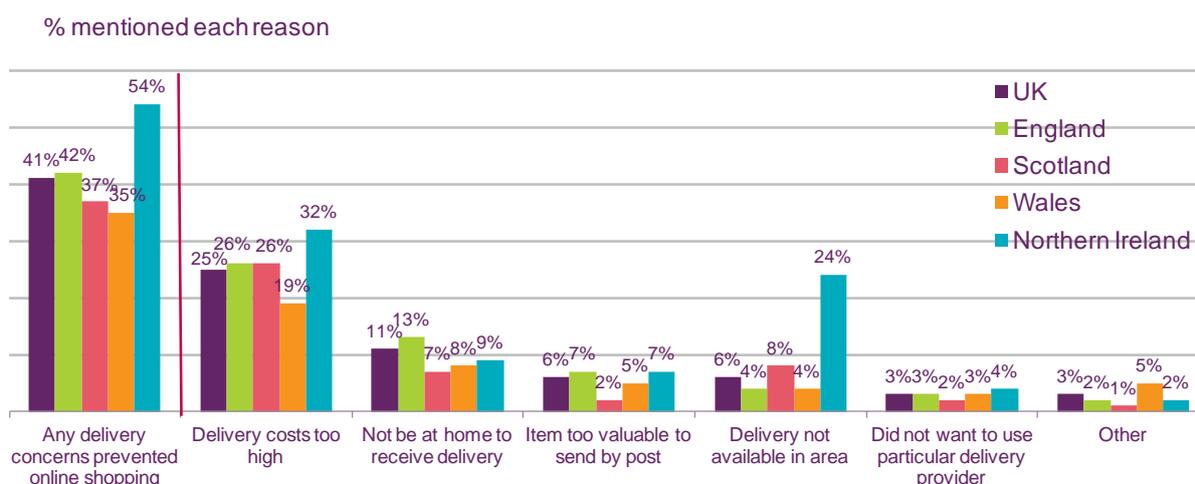
Around nine in ten (88%) online shoppers in Wales said they usually had their online purchases delivered to their home address, rather than to a work address, friends or family or to a store.

Online shoppers in Wales claimed that the factors which influenced their decision about which delivery method to use were: the price (free delivery 54% and cheapest delivery 38%), speed of delivery (29%), and the availability of order tracking 18%). Although the proportion of online shoppers who mentioned individual factors differed slightly between the nations, the four most important factors remained constant across all nations within the UK.

### **Among online shoppers in Wales, around one-third had not made a purchase before because of concerns regarding delivery**

Even among those who said they now made purchases online, around two in five online shoppers (41%) in the UK said that delivery concerns had previously prevented them making an online purchase (see Figure 1.10). In Wales, 35% of online shoppers said that *any* concern had prevented them making a purchase before, and 19% mentioned concerns about high delivery costs in particular. 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?

### 1.3 '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 or not) 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 problems 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 comprised 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.

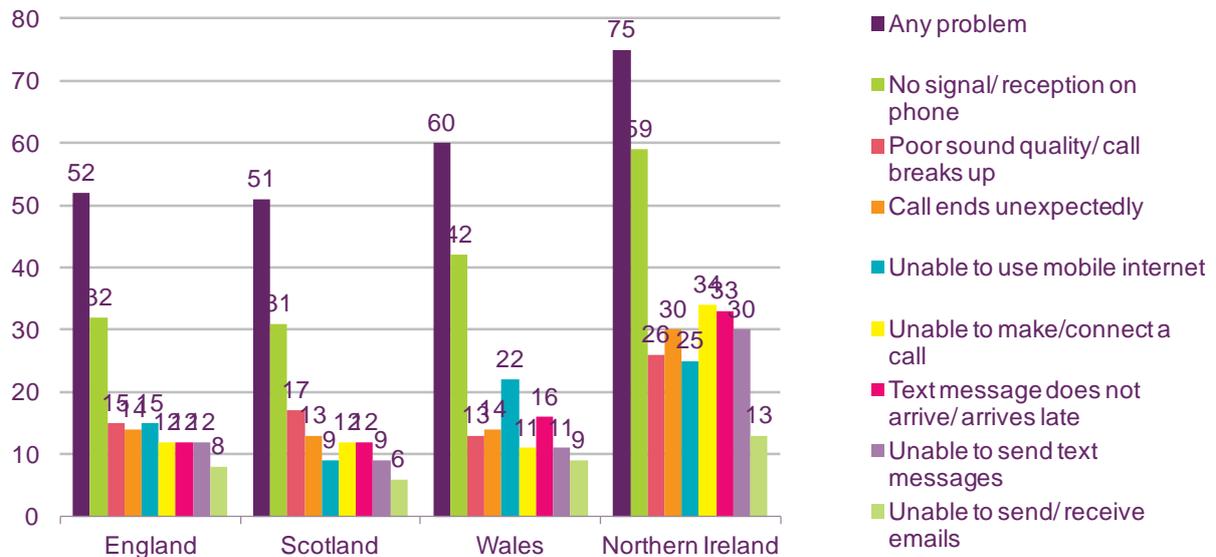
### **Mobile users in Wales experience more problems than the UK average**

More mobile users in Wales reported problems than the UK average. Six in ten respondents in Wales had experienced at least one problem, higher than in England and Scotland (52% and 51%). In Northern Ireland, 75% of respondents reported having ever experienced problems with reception.

There is a known problem with road and rail coverage within Wales, but this did not show up in the research data, probably due to low sample sizes in these areas. Without specifically surveying those areas, or having a large enough sample to drill down in sufficient geographic detail, it was unlikely that these problems would be identified in this research.

Welsh consumers stated that 'no signal' is the problem they experience most (42%), followed by being unable to use the mobile internet (22%) and text messages arriving late or not at all (16%).

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



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

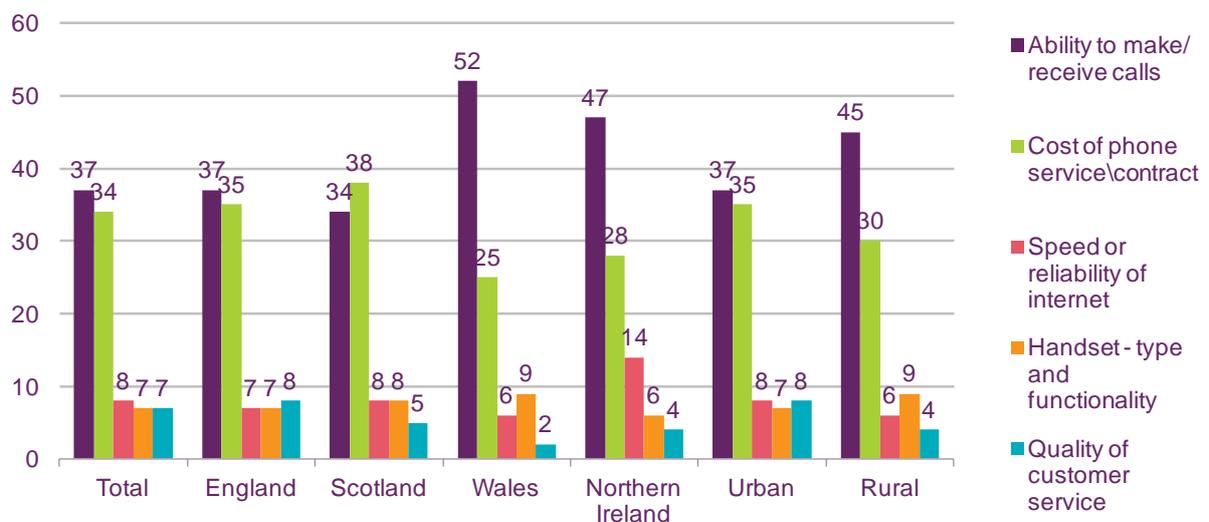
Base: All who use a mobile phone (N=1743/195/95/103)

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 Wales, and and for those in rural areas when choosing a provider**

For consumers in each of the four nations, the ability to make or receive voice calls or text messages is one of the top two most important factors in choosing a mobile provider. Mobile users living in Wales and Northern Ireland are significantly more likely than those in England or Scotland to say that the ability to make or receive calls or texts is more important than cost.

**Figure 1.12 Most important element when considering mobile provider**



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.

## 1.4 Availability and take-up of communications services in Cardiff and availability in Bangor

### 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 combine the results of this work with the conclusions of our work on the availability of communications services in the nations, published on 16 May 2013<sup>4</sup>, which looked primarily at the provision of communications services in rural areas. This information will contribute to our understanding of the needs of different parts of the UK regarding communications services, and to help us understand how the market has delivered, and the impact of public interventions. As part of this research, Ofcom commissioned 11 case studies of UK cities, to assess the availability of communications services and the factors driving this. The relevant cities are:

**Wales:** Cardiff, Bangor

**England:** London, Birmingham, Manchester, Cambridge, Exeter

**Scotland:** Glasgow, Inverness

**Northern Ireland:** Belfast, Derry-Londonderry

The full report by Analysys Mason can be found on the Ofcom website,<sup>5</sup> and a further overview of the findings is included in the UK Communications Market Report.

In parallel, 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 the first phase.

This section focuses on the availability and take-up of telecommunications services in the city of Cardiff, drawing on the key findings of Ofcom's *Infrastructure Report 2012* as well as our own analysis of BPS data. In addition, we present data from the *Infrastructure Report 2012* in relation to the communications infrastructure in Bangor. It was not possible to obtain BPS data on Bangor.

### Methodology

The British Population Survey asks consumers about mobile and landline telephone, 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) from April 2012 to March 2013, we analysed some of the largest UK cities – Inner and Outer London, Bristol and Brighton in the South, Birmingham, Leeds and Kingston-upon-Hull in the Midlands/Yorkshire; Liverpool, Manchester and Newcastle in the North and Glasgow and Cardiff in the nations. The relevant sample sizes can be found in the UK Communications Market Report.

<sup>4</sup> <http://stakeholders.ofcom.org.uk/market-data-research/market-data/economic-geography/>

<sup>5</sup> <http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/cities-report.pdf>

The British Population Survey uses a different methodology to Ofcom's Technology Tracker, in that quotas, and question wordings, are different. In addition, key statistics such as mobile and tablet take-up are household-based rather than per individual. As such, the two data sources should not be compared. The BPS data allow us to make comparisons between ownership in different cities in Great Britain. Key take-up data at an overall level for Wales should be taken from the *Key Facts* section of this report.

## Cardiff

### Summary of key findings

- All premises in Cardiff have access to basic broadband infrastructure, and the city has a higher than average take-up of broadband services.
- Next-generation access (NGA) broadband infrastructure is available to over 90% of premises in Cardiff.
- Ten per cent of premises in the city cannot connect to a service faster than 2Mbit/s, the minimum speed defined for basic broadband connectivity. This may be because the Cardiff city boundary incorporates a number of more rural areas, which can struggle to receive a reliable speed due to the length of copper loops in the access network.
- The existence of lines less than 2Mbit/s in Cardiff is mitigated in part by the ubiquitous 3G mobile coverage. But consumers appear at present to consider mobile broadband access as a complement to, rather than a substitute for, fixed broadband access.<sup>6</sup>
- Take-up of communications services in Cardiff may be skewed by its youthful demographic and relative affluence.
- In particular, the city has a higher than average take-up of web-enabled mobile devices, and lower than average use of landline telephones.
- Cardiff has a high number of WiFi hotspots, compared to the other cities assessed.
- Cardiff Council is investing £4m to provide wireless access in all city schools, and will also commit to providing wireless access free in all community hubs, youth centres and leisure centres. This will be in addition to the facilities already available in Council offices and libraries.
- Cardiff Council has developed an urban broadband plan for the city, which will benefit from funding from the super-connected cities project.

Cardiff has a population of 341,000, with residential premises accounting for 95% of all premises

Figure 1.13 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.

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<sup>6</sup> Ofcom's fuller provisional assessment of this matter is referred to in, for example, our *Fixed Access Market Review* consultation document at: <http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-reviews/summary/fixed-access-markets.pdf>

Cardiff's economy has developed rapidly over the past ten years. The main industries are financial and professional services, creative industries and life sciences. The city also has one of the highest levels of employment in the media sector outside London.<sup>7</sup>

**Figure 1.13 City population and premises data**

City	Population	Total premises	Business premises	Residential premises
Cardiff	c.341,000	c.152,000	c.8,000	c.144,000

Source: Analysys Mason

For this study the city boundary is defined by Cardiff City Council, and is shown in detail in the following figure:

**Figure 1.14 Map of Cardiff area, highlighting city boundary**



Source: Analysys Mason

Next-generation access (NGA) is available to 92% of premises in Cardiff

Figure 1.15, identifies fixed network infrastructure for the two main operators, BT and Virgin Media. This includes the availability of both first-generation broadband (ADSL copper<sup>8</sup> and DOCSIS cable technologies<sup>9</sup>) and NGA infrastructure (FTTx<sup>10</sup> and DOCSIS v3.0 cable technologies<sup>11</sup>). Future NGA availability is predicted based on BT announcements for the upgrade of exchanges with NGA technology by 2015.

<sup>7</sup> Source: Analysys Mason

<sup>8</sup> 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.

<sup>9</sup> 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.

<sup>10</sup> 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.

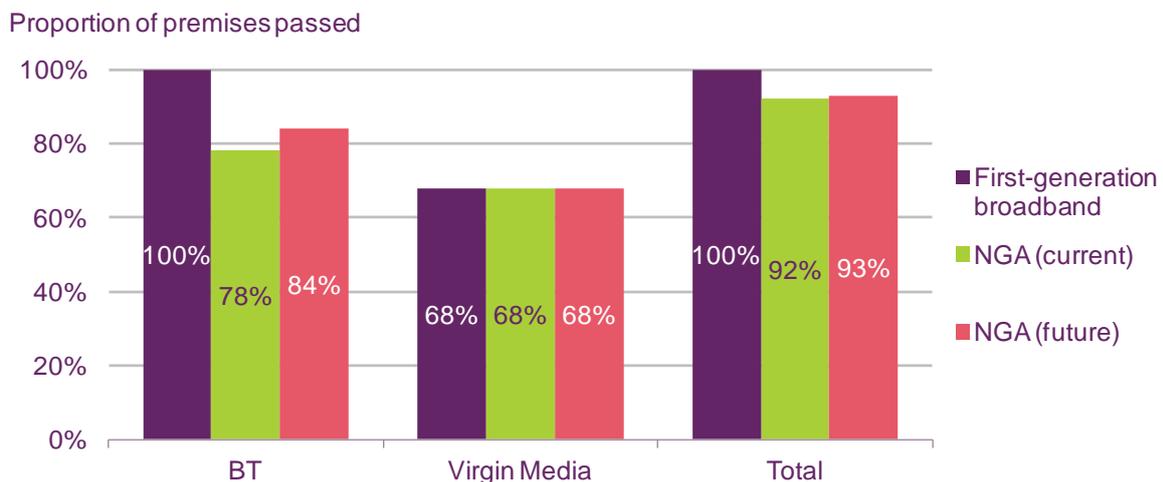
<sup>11</sup> DOCSIS v3.0 is the next generation of DOCSIS, which allows users to experience significantly faster speeds.

The BT NGA network is currently available to around 78% of premises in Cardiff. This will increase slightly to 84% as BT upgrades its exchanges in accordance with current plans. Virgin Media's network is available to around 68% of premises in Cardiff, and, on the basis of what Virgin Media has declared its intentions to be, this figure is unlikely to change by 2015. Current total availability is 14 percentage points higher (at 92%) than the BT-only figures, suggesting that there is substantial overlap of the two operator networks (i.e. the majority of premises that have access to Virgin Media's network also have access to BT's network). Predicted future total availability increases by just 1%, to 93%, suggesting that BT will extend its NGA network to many premises that already have access to the cable network.

In relation to the other 11 cities which we examine in detail in the *UK Communications Market Report*, Cardiff's NGA availability is 21% more than the city average.

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 1.15 Fixed network infrastructure availability: premises passed**



Source: Analysys Mason, Ofcom Infrastructure Report 2012

Figure 1.16 shows the proportion of lines with a speed of less than 2 Mbit/s. Ten per cent of lines in Cardiff lines have speeds less than 2Mbit/s; this is 4.5% higher than the average across all the cities assessed.

**Figure 1.16 Percentage of lines with speeds less than 2Mbit/s, and relative positioning**



Source: Analysys Mason, Ofcom Infrastructure Report 2012

Cardiff has 14 exchanges, ten of which have been upgraded to NGA

Figure 1.17 shows the number of exchanges serving the city postcodes, the percentage of lines that support both ADSL and ADSL Max<sup>12</sup>, and the average number of lines per exchange.<sup>13</sup> Note that 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 1.17 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
14	100%	10,800

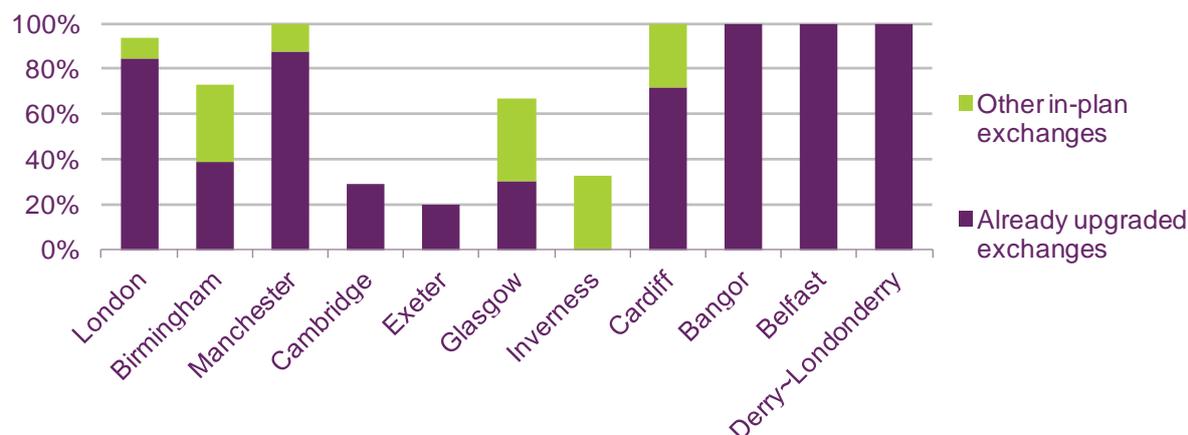
Source: Analysys Mason

The BT fibre network comprises fibre to the cabinet (FTTC) and fibre to the home (FTTH) infrastructure. Figure 1.18 shows the FTTC status of the city exchanges according to BT's current roll-out plans, compared to the other cities assessed.

<sup>12</sup> 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.

<sup>13</sup> Source: Analysys Mason

**Figure 1.18 FTTC status of exchanges serving city postcodes, according to BT's roll-out plans**



Source: Analysys Mason

To date, ten of the serving exchanges (71% of total serving exchanges) have been upgraded to FTTC<sup>14</sup>. BT plans to upgrade three serving exchanges to FTTC by 2015. Therefore, if BT's upgrade plans are implemented, 13 BT exchanges (93% of total exchanges) will serve the city with FTTC technology by 2015.

#### Nine operators offer NGA services in Cardiff

In addition to the two main operators which own fibre network infrastructure (BT and Virgin Media), a number of alternative operators have their own fibre network infrastructures, 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.

Seven alternative operators have been identified as having, as part of their national networks, a point of presence in the city: Easynet, SSE, Surf Telecom, TalkTalk, Virgin Media business, Vodafone and Vtesse.<sup>15</sup>

#### Cardiff has 240 WiFi hotspots, equivalent to 7.1 hotspots per 10,000 residents

Figure 1.19 shows key WiFi hotspot data for Cardiff. The largest providers of WiFi 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 to derive a city benchmark<sup>16</sup>. Cardiff has 14% more hotspots per 10,000 city residents than the average across the cities analysed.

<sup>14</sup> 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.

<sup>15</sup> Source: Analysys Mason

<sup>16</sup> There is, in general, a good correlation between number of hotspots and number of city residents, therefore that ratio forms a suitable benchmark for comparing WiFi availability between cities

**Figure 1.19 Key city hotspot 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
240	7.1	6.2	+14%

Source: Analysys Mason

**3G services are available through at least four operators across more than 98% of Cardiff**

Figure 1.20 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 Cardiff<sup>17</sup>.

**Figure 1.20 3G mobile coverage in city**

% of premises with 3G signal from 4 operators (city benchmark)	% of premises with 3G signal from 4 operators (11 city average)	% of premises with 3G signal from 4 operators (UK average)	Percentage difference from 11 city average
98.6%	95.7%	77.3%	+2.9%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

Ninety-six per cent of premises in Cardiff have a choice of four or more fixed-line telecoms providers. Ofcom assigns a classification code to each exchange, which indicates how many operators have a presence in that exchange. These are typically local loop unbundling operators offering first-generation broadband wholesale services. The classifications are:

- a classification of 3 means 4 or more operators (including BT) are present
- a classification of 2 means 2 or 3 operators (including BT) are present
- a classification of 1 means BT is the only operator present.

Figure 1.21 shows the proportion of Cardiff exchanges with each market classification:

**Figure 1.21 Key city exchange data**

Ofcom classification	% of total exchanges	% of premises passed
3	71.4%	96%
2	21.4%	4%
1	7.1%	0%

Source: Analysys Mason

<sup>17</sup> Source: Analysys Mason

Seventy-one per cent of exchanges are classification 3, and together they provide 96% of lines. Virgin Media also has a presence in 86% of exchange areas<sup>18</sup>. 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 high level of competition in the provision of first-generation broadband services across Cardiff.<sup>19</sup>

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 Cardiff is 34.4 Mbit/s

Figure 1.22 compares the average maximum modem sync speed for basic broadband lines, and for all lines, (including basic and SFBB). The speed values are also 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 1.22 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
12.3	14.1	-13%	34.4	29.9	12.7	+15%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

Cardiff Council has developed an urban broadband plan for the city, which will benefit from funding from the super-connected cities project

Cardiff Council recently obtained £11m in UK government funding for its super-connected cities project; the funds will help the Council deliver its Urban Broadband Plan. The original scope of the project involved the deployment of fibre to street cabinets, and the installation of wireless hotspots across the city. The project also intended to provide 100% superfast 4G mobile phone technology coverage, WiFi in high-footfall areas, and wireless infrastructure at two council-owned housing developments in the city. £600,000 is already being spent on wireless internet at bus shelters and on buses. As with many super-connected city projects, the scope is being modified to focus on wireless-concession projects and voucher schemes for small and medium-sized enterprises.

Cardiff Council recently established Digital Cardiff which has a remit to support a self-sustaining digital media, technology and creative super-cluster in Cardiff, to cover a range of activities including business, culture, entertainment, education and community services.

<sup>18</sup> Source: Analysys Mason

<sup>19</sup> 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 on 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](http://stakeholders.ofcom.org.uk/binaries/consultations/review-wba-markets/summary/WBA_July_2013.pdf))

## Cardiff has a significantly younger age profile than Great Britain as a whole

To understand some of the differences in take-up of communications services, it is helpful to look at the demographic profiles of GB cities. Cardiff has a much younger age profile than Great Britain as a whole; 28% of the sample are under 25 and 52% are under 35. This can be partially explained by the high student population in Cardiff (20% of the Cardiff sample were students).

**Figure 1.23 City profile, by age**



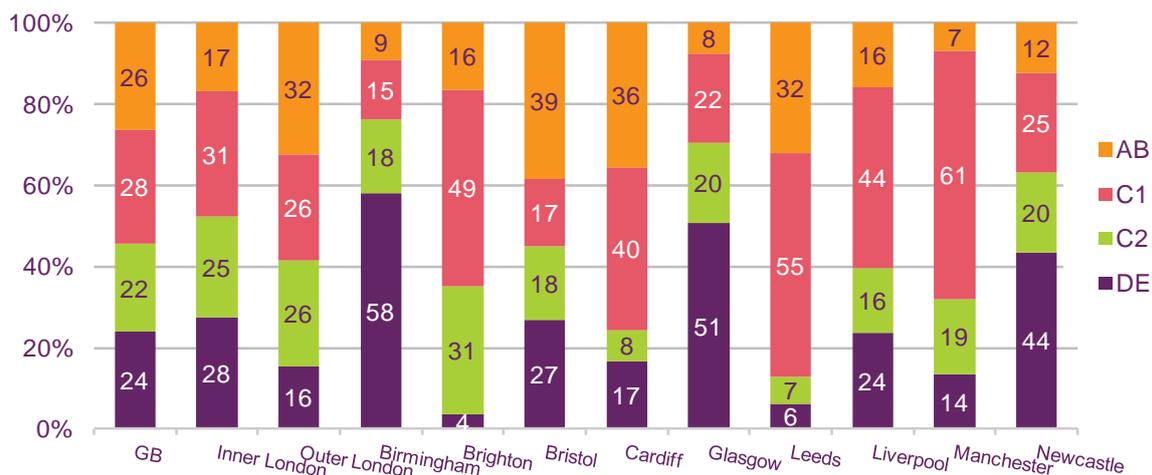
Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. How old are you?

Cardiff has the most affluent socio-economic profile, with 76% of adults in socio-economic group ABC1, compared to 54% for Great Britain as a whole.

**Figure 1.24 City profile, by socio-economic group**



Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. Derived from questions about employment and job title.

## Cardiff has the lowest use of landline telephones

In order to have fixed broadband, it is necessary to have a landline. The BPS is likely to understate the true number of landlines as it focuses on those people who have a landline ‘telephone’ – i.e. a device to make and/or receive calls, rather than a line capable of receiving a broadband connection. Therefore anyone with fixed broadband, or who says they have a landline ‘telephone’ in the household is classed as having a fixed connection.

On this assumption, adults in Cardiff are significantly less likely than those in other GB cities to use their landline as a phone connection. The higher than average take-up of web-enabled mobile devices, and the low use of landline telephones in Cardiff, may be due in part to its youthful profile, as 28% of the Cardiff sample is under 25 and Ofcom research suggests that this age group is the least likely to use landline telephony.

**Figure 1.25 Access to landline, by city**



Source: British Population Survey

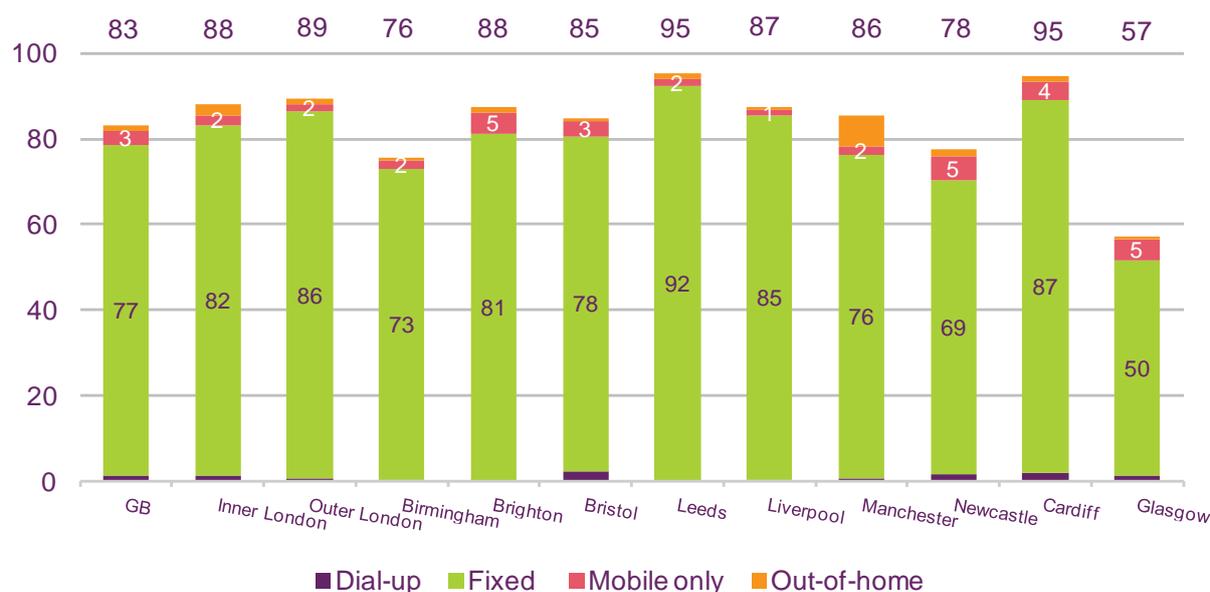
Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Kingston 496, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. Is there a landline telephone in your household? How do you access the internet?

## Over nine in ten adults in Cardiff have access to the internet, mainly through fixed broadband

Cardiff has a significantly higher percentage of individuals accessing the internet, by any means, than the majority of other cities and Great Britain as a whole.

**Figure 1.26 Access to internet, by method and city**



Source: British Population Survey

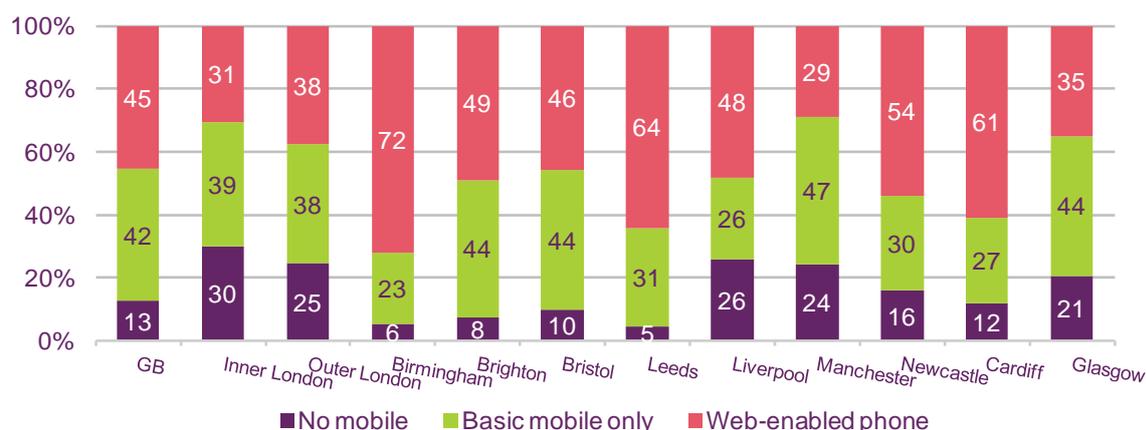
Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Kingston 496, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. How do you access the internet? Is your access to the internet at home provided by...?

**Cardiff has a high take-up of web-enabled mobile devices compared to other cities in Great Britain**

The higher than average take-up of web-enabled mobile devices, and low use of landline telephones in Cardiff may be due in part to its youthful profile and relative affluence. Adults in Cardiff are significantly more likely to live in a household which has a web-enabled mobile device. In Cardiff, the most common type of connected device is a web-enabled mobile phone – 63% have some form of device and 45% a web-enabled mobile.

**Figure 1.27 Access to mobile devices, by city**



Source: British Population Survey

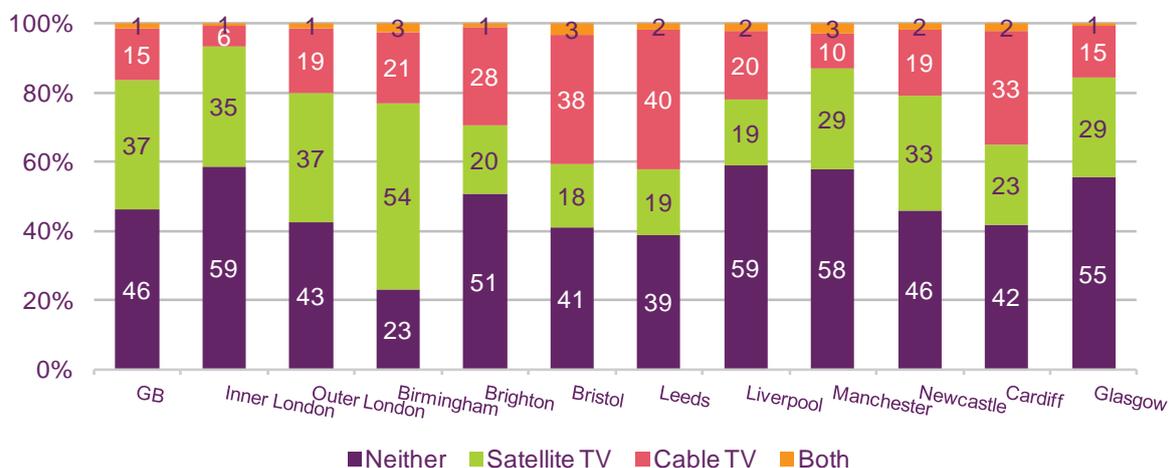
Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Kingston 496, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. Is there a mobile telephone in your household? Is there a web-enabled telephone in your household?

Access to cable TV is significantly higher in Cardiff than in other cities in Great Britain

As cable roll-out is mainly focused in urban areas, it is not surprising that access to cable TV is higher in many cities than across Great Britain as a whole. Cardiff, in particular, has high take-up of cable TV.

**Figure 1.28 TV platform, by city**



Source: British Population Survey

Base: All adults 15+ (April 2012 to March 2013; GB 79406, Inner London 3858, Outer London 6043, Birmingham 2577, Brighton 1090, Bristol 560, Cardiff 460, Glasgow 1398, Kingston 496, Leeds 1412, Liverpool 745, Manchester 2156, and Newcastle 1149)

Q. Does your household have satellite /cable TV?

**Bangor**

Summary of key findings

- The availability of communications services in Bangor may be affected by the fact that it is a relatively small city.
- While the city has reasonably high NGA availability, Virgin Media does not provide coverage in the city, and a significant minority of premises are served by fewer than four mobile operators.
- Bangor is particularly well-served in terms of WiFi hotspot density, compared to the other cities assessed.
- The city has benefited from several cases of public intervention. For example, Bangor recently had its only serving exchange upgraded with the support of a public subsidy from the Superfast Cymru project.
- Bangor also benefits from the Welsh government’s Broadband Support Scheme, which provides up to £1000 for individuals or businesses with slow broadband access to secure a better connection.

Bangor has a population of 14,800, with residential premises accounting for 92% of all premises

Figure 1.29 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. Bangor's small economy is dominated, through its university, by education.

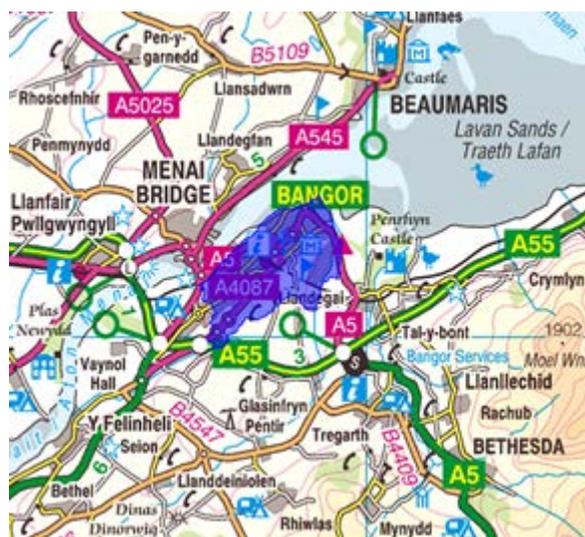
**Figure 1.29 City population and premises data**

City	Population	Total premises	Business premises	Residential premises
Bangor	c.14,800	c.6000	c.500	c.5500

Source: Analysys Mason

For this study the city boundary is defined by the combination of appropriate Lower Super Output Areas (LSOA), published by the Office for National Statistics, for areas of contiguous urban density, which are shown in detail in the following figure:

**Figure 1.30 Map of area local to Bangor, highlighting city boundary**



Source: Analysys Mason

Next-generation access is available to 85% of premises in Bangor

Figure 1.31 identifies fixed network infrastructure for the two main operators, BT and Virgin Media. This includes the 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.

The BT NGA network is currently available to around 85% of city premises: these are all served by just one exchange, which has been upgraded. This figure will only change in the future as BT upgrades more cabinets attached to the city's only serving 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, in future, around 85% of premises across the city will have access to NGA infrastructure, and this will be provided by BT alone.

In relation to the 11 other cities that we examine in detail in the *UK Communications Market Report*, Bangor's NGA availability is 14% more than the average for these cities.

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 1.31 Fixed network infrastructure availability: premises passed**

Operator	First-generation broadband	NGA (current)	NGA (future)
BT	100%	85%	85%
Virgin Media	0%	0%	0%
Total	100%	85%	85%

Source: Analysys Mason, *Ofcom Infrastructure Report 2012*

Figure 1.32 shows the proportion of lines with a speed of less than 2 Mbit/s; in Bangor, this figure is 6.5%.

**Figure 1.32 Percentage of lines with speeds less than 2Mbit/s, and relative positioning**



Source: Analysys Mason, *Ofcom Infrastructure Report 2012*

Bangor only has one copper exchange, which supports 6,000 lines, and has been upgraded to NGA

All of the copper lines support basic broadband (both ADSL and ADSL Max)<sup>20</sup>.

Four operators offer NGA services in Bangor

In addition to the two main operators that own fibre network infrastructure (BT and Virgin Media), a number of alternative operators have their own fibre network infrastructures, 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.

<sup>20</sup> Source: Analysys Mason.

Two alternative operators have been identified as having, as part of their national networks, a point of presence in Bangor: Fibrespeed and Vodafone (proximity) <sup>21</sup>.

Bangor has 21 WiFi hotspots, equivalent to 14.1 hotspots per 10,000 residents

Figure 1.33 shows key WiFi hotspot data for Bangor. The largest providers of WiFi 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 total. We have therefore used the total hotspots for BT and The Cloud to derive a city benchmark<sup>22</sup>. Bangor has 129% more hotspots per 10,000 city residents than the cities average.

**Figure 1.33 Key city hotspot 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
21	14.1	6.2	+129%

Source: Analysys Mason

Around three-quarters of premises in Bangor receive 3G coverage from four operators

Figure 1.34 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 Bangor.

**Figure 1.34 3G mobile coverage in Bangor**

% of premises with 3G signal from 4 operators (city benchmark)	% of premises with 3G signal from 3 operators (city benchmark)	% of premises with 3G signal from 4 operators (11 city average)	% of premises with 3G signal from 4 operators (UK average)	Percentage difference from 11 city average
76%	22.2%	95.7%	77.3%	-19.7%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

All premises in Bangor have a choice of two or three fixed-line telecoms providers

Ofcom assigns a classification code to each exchange, which is an indicator of the level of local competition in the provision of communications services, as it shows how many operators have a presence in that exchange. These are typically local loop unbundling operators offering first-generation broadband wholesale services. The classifications are:

- a classification of 3 means 4 or more operators (including BT) are present

<sup>21</sup> Source: Analysys Mason

<sup>22</sup> There is in general a good correlation between the number of hotspots and the number of city residents, therefore that ratio forms a suitable benchmark for comparing WiFi availability between cities.

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

Figure 1.35 shows the proportion of Bangor exchanges with each market classification:

**Figure 1.35 Key city exchange data**

Ofcom classification	% of total exchanges	% of premises passed
3	0%	0%
2	100%	100%
1	0%	0%

Source: Analysys Mason

The only exchange serving the city is rated as classification 2. Furthermore, Virgin Media does not have a presence in any of the exchange areas<sup>23</sup>. These findings suggest that there is limited competition in the provision of first-generation broadband services in Bangor<sup>24</sup>.

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 Bangor is 15.9Mbit/s

Figure 1.36 compares the average maximum modem sync speed for j basic broadband lines, and for all lines, including basic and SFBB. The speed values are also 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 1.36 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
15.9	14.1	+13%	15.9	29.9	12.7	-47%

Source: Analysys Mason, Ofcom Infrastructure Report 2012

The average maximum modem sync speed for basic broadband lines across the city is greater than the average by 13%. The average maximum modem speed for all broadband lines across the city is less than the average, by 47%.

<sup>23</sup> Source: Analysys Mason

<sup>24</sup> Again, this is not an assessment of competition for the purpose of a market analysis under the Competition Act 2003.

### Gwynedd Council has set up 'Digital Gwynedd', which aims to establish Gwynedd as a fully digital area

The local authority is Gwynedd Council, and it has set up Digital Gwynedd as part of its 2011-2014 three-year plan. The aim is to establish Gwynedd as a fully digital area. The project is working towards a state-of-the-art broadband infrastructure, and aims to inspire people and businesses and help them gain the skills and information they need to make the most of the technology. Digital Gwynedd helps Gwynedd's residents and businesses to take advantage of the support that is currently available from the Welsh government and others. Digital Gwynedd operates projects in various areas, including the ICT infrastructure.

Digital Gwynedd recently presented a case to the Welsh government for the roll-out of faster broadband across Gwynedd. It has also held a survey among over 700 of Gwynedd's residents and businesses, to establish their current and desired future use of the internet. The survey also collected information on the quality of their connection.

### Bangor has benefited from several cases of public intervention

Bangor recently had its only serving exchange upgraded with the support of a public subsidy from the Superfast Cymru project. The city was one of the first in Wales to benefit from the scheme, which involves the Welsh government and BT working in partnership to develop a nationwide SFBB infrastructure to deliver high-speed fibre broadband access to 96% of homes and businesses in Wales by 2016. In total, the project will invest £425m. This has been achieved through a total investment by the public sector of £205m, which includes European Structural Funding of £89.5m (£80m of which is convergence funding), UK government funding of £56.9m and Welsh government funding of £58.6m, with the remainder invested by BT<sup>25</sup>.

Bangor also benefits from the Welsh government's Broadband Support Scheme, which provides up to £1000 for individuals or businesses with slow broadband access to secure a better connection. Digital Gwynedd ran a campaign to raise awareness of the initiative.

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<sup>25</sup> <http://www.superfast-cymru.com/faqs>