Communications Market Report: Scotland

Research Document

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Introduction

This is Ofcom's 11th annual review of communications markets in Scotland, offering an overview of the take-up and use of communications services across the nation. The report highlights a number of developments that have taken place in Scotland over the past year, as well as showing differences in consumers' use, take-up and engagement with media and communications services.

Since 2015, consumer satisfaction with broadband has improved in Scotland and overall satisfaction with broadband was higher than in the UK. Our analysis of broadband take-up in Glasgow shows that 88% of adults now have access to the internet through a fixed or mobile connection, on a par with the UK average, despite the lower take-up of fixed broadband. This has happened largely through increased take-up of smartphones, which has increased from 61% to 85% in Glasgow between the 2015 and 2016 reports. This is not reflected across the country, however, where smartphone take-up for Scotland as a whole is 70%, in line with the UK average.

Connectivity is growing in Scotland; 4G coverage in Scotland has increased by 21pp to 92%, although this is the smallest increase across the UK nations. 4G take-up is also lower than the UK average (40% v. 48%) and the lowest of any nation.

Increased connectivity and use of devices are changing the way that people in Scotland engage with traditional media and communications services, as our Digital Day research shows. The use of instant messaging has increased greatly since 2014, up from 28% to 46%, while time spent texting has decreased by 16 minutes. Time spent watching TV has fallen by 13 minutes while there has been a 20 minute increase in time spent watching paid on-demand services.

Despite this, the use of traditional broadcast media in Scotland remains high. People are watching TV for 4 hours each day, and listening to more radio than the previous year – up from 19.9 hours to 21.1 hours, which is in line with the UK average.

People in Scotland are generally satisfied with specific aspects of Royal Mail's service, and they have experienced fewer problems in the past 12 months than the UK average.

Ofcom also commissioned research to investigate how those who are connected feel about it, and what they see as the benefits and disadvantages. A quarter (25%) of adults in Scotland had abstained completely from the internet for some time because they thought they'd been using it too much. Although people in Scotland felt some of the negative effects of being online less than across the UK as a whole, almost three-quarters (72%) said they have felt ignored because the person they were with was using a device.

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.

The full dataset and charts are available in a searchable resource, which can be found at www.ofcom.org.uk/cmrscotland. Companion reports for the UK and each of the nations can be found at www.ofcom.org.uk/cmr.

Contents

Setting the scene

Key facts about Scotland

Figure	Scotland	UK
Population	5.373 million (mid-2015 estimate)	65.11 million (mid-2015 estimate)
Age profile	Population aged <16: 17.0% Population aged 65+: 18.3%	Population aged <16: 18.8% Population aged 65+: 17.8%
Population density	68 people per square kilometre	269 people per square kilometre
Language	87,503 people aged 3 and over (1.6% of the population) had some Gaelic language ability in 2015.	n/a
Unemployment	6.1% of economically active population, aged 16 and over	5.1% of economically active population, aged 16 and over
Income and expenditure	Weekly household income: £706 Weekly household expenditure: £474.40	Weekly household income: £747 Weekly household expenditure: £531.3

Source: Office for National Statistics: Population Estimates for UK, England and Wales, Scotland and Northern Ireland, mid-2015; Office for National Statistics: Regional Labour Market, June 2016; Office for National Statistics: Family Spending 2015 edition; National Records of Scotland, Statistical Bulletin, September 2013; 2011 Census, 2011 Census: Key Results

A note on our Technology Tracker survey research

We conducted a face-to-face survey of 3,737 respondents aged 16+ in the UK, with 502 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. Technology Tracker data in this report are cited as from 2016, with the fieldwork taking place in January and February of this year.

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 +/- 3-6% at the 95% confidence level.In urban and rural areas; survey error margins are approximately +/-4-7%.

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 Introduction

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

It also includes the highlights from two pieces of new research; Digital Day, an indepth quantititave diary study looking into people's media and communicaitons activities, and Coping in a Connected Society, which examines how people feel about their use of communications services and devices and what they consider to be the benefits and advantages. We have also repeated our analysis of broadband take-up in Glasgow.

1.2 Fast facts for Scotland

Figure 1.1 Fast facts for Scotland

Nations' fast facts: Half 1 2016 (%) – unless otherwise stated, figures relate to household take-up

	UK	England	Scotland	Wales	Northern Ireland	UK urban	UK rural	Scotland urban	Scotland rural
Digital TV take-up	96	96	98	97	98	96	97	98	97
Pay-digital TV	61	59	69 + +11	68 +	71 + +8	62 + +3	54 -	74 + +16	47 - -13
Freeview-only TV	29	30	25 -10	22 -	23 -	28 -	35 +	21 - -14	45 + +11
Smart TV take-up (among TV homes)	28 +7	29 +8	21 -	33 +16	18 -	27 +7	32 +9	21	25 +10
HDTV service (among those with an HDTV)	79 +4	79 +4	79	77 +8	80	80 +6	75	82 +	64 -
DAB ownership (among radio listeners)[1]	50 +7	52 +8	36 -	50	25 -	49 +7	53	34 -	45 + +10
Catch-up TV/ film viewing online/ on-demand (via any device, among those who use the internet)	58	59	60	59	44 -	58	60	62 +	46 - -17
Total internet access at home (via any device)	86	87	84	84	83	86	87	86 + +7	78 -
Broadband take-up (at home)	81	81	79	79	78 +6	80 -	85 +	81 + +8	70 -
Use mobile to access internet	66 +5	66 +4	63	61	69 +9	66 + +4	61 -	64	59
Mobile phone take-up (personal use)	93	94	91	91	92	93	94	91	91
Smartphone take-up (personal use)	71 +5	71 +4	70	65 -	72 +9	71 +4	68 +9	72	63

	UK	England	Scotland	Wales	Northern Ireland	UK urban	UK rural	Scotland urban	Scotland rural
4G service take-up (among smartphone owners)	67 +22	68 +23	57 -	68 +32	77 + +37	69 + +23	55 – +20	59	50
Fixed landline take-up	86 +2	86	86	85	86	85 -	92 +	87	84
Desktop PC take-up	31 -3	32 -5	23 -	33	17 – -11	30 – -4	36 +	22	26
Laptop take-up	64	65	60	61	56 -	64	64	62 +	51 -
Tablet computer take-up	59 +5	59 +5	56	67 +	60	58 – +4	64 + +9	56	54
E-reader take-up (personal use)	18	19	15	22	15	18 -	25 +	13 -	21 +
Households taking bundles	68 +5	68 +4	69 +8	67	64	67 +4	72	71 + +9	59 -
Fixed telephony availability	100	100	100	100	100				
Fixed broadband availability[2]	99.98	100	99.86	100	100				
LLU ADSL broadband availability[3]	95	96	90	93	90				
Fixed broadband (>=10Mbit/s) availability	95	96	93	91	91				
Fixed broadband (>=30Mbit/s) availability	88	89	83	85	83				
2G mobile availability[4]	99.6	99.7	99.1	98.4	98.8				
3G mobile availability[5]	99.6	99.8	97.9	98.6	99.4				
4G mobile availability[6]	97.8	98.8	92.0	90.1	99.3				
DTT availability[7]	98.5	98.6	98.7	97.8	97.4				
TV consumption (minutes per day) [8]	216	219 **	240	250	225				
Radio consumption (minutes per day)	183	183	181	190	173				

Key: +Figure is significantly higher for nation than UK average or significantly higher for nation's urban/ rural than for nation's rural/ urban; -Figure is significantly lower for nation than UK average or significantly lower for nation's urban/ rural than for nation's rural/ urban; +xx Figures have risen significantly by xx percentage points since H1 2015; +xx Figures have decreased significantly by xx percentage points since H1 2015;
Source: Ofcom Technology Tracker H1 2016, BARB, RAJAR, industry data
Base: All adults aged 16+ (n = 3737 UK, 2239 England, 502 Scotland, 507 Northern Ireland, 489 Wales, 2711 UK urban, 1026 UK rural, 1958 England urban, 281 England rural, 251 Scotland urban, 251 Scotland rural, 240 Wales urban, 249 Wales rural, 262 Northern Ireland urban, 245 Northern Ireland rural)

1. DAB ownership in the nations and UK as reported here is sourced from Ofcom research. The UK CMR uses RAJAR data for DAB ownership
2. Proportion of premises connected to an ADSL-enabled BT local exchange based on BT data, December 2015
3. Proportion of premises connected to an LLU-enabled BT local exchange based on BT data, December 2015

4. Proportion of premises with outdoor 2G mobile coverage from at least one operator, May 2016
5. Proportion of premises with outdoor 3G mobile coverage from at least one operator, May 2016
6. Proportion of premises with outdoor 4G mobile coverage from at least one operator, May 2016
7. Estimated proportion of homes that can receive the PSB channels via DTT (3PSB Mux coverage). Joint TV planning project (Arqiva, BBC, Ofcom).
*8. Based on calendar year 2015. **This figure reflects the average across the English regions with the highest in Border (243) and the lowest in London (197) respectively.*

1.3 The Digital Day in Scotland

Summary

Media and communications are a key part of our daily lives and we spend more time using them than we do sleeping. The amount of time that we spend using media and communications overall has changed little since 2014, but there have been some changes in the respective amounts of time that people in Scotland are devoting to different services.

People in Scotland are spending less time watching live TV as well as recorded TV; in contrast, viewing of paid on-demand content has grown.

Watching TV or films on a TV set is a core part of their evening - between 8pm and 10pm each day around nine in ten adults in Scotland are doing this. However, the amount of time spent watching live TV has fallen by 13 minutes, and the amount of time watching recorded TV has declined by 20 minutes. To some extent, this may have been replaced by viewing of paid on-demand content such as Netflix or Amazon Instant Video - people in Scotland are now spending 20 more minutes per day than in 2014 doing this.

Watching live TV still takes the lion's share of our time spent on media and communications, and this is even more the case in Scotland; people there are more likely than in the UK as a whole to rate live TV as their most important media activity. In an average week 94% of people in Scotland watch live TV, while 20% watch paid on-demand content.

The amount of time spent texting has fallen, while the number of people using instant messaging services has increased. Despite an increase in communicating online, traditional methods of communication are still valued - people in Scotland rate phone calls as their most important communications activity.

Background and methodology

This section provides an overview of the core results from our 2016 Digital Day study, drawing comparisons with data from when the study was last conducted in 2014. Further data are also available to access online via the dedicated website - http://stakeholders.ofcom.org.uk/market-data-research/other/cross-media/digital-day/2016/

Although Ofcom makes use of a wide range of industry research to understand how people consume broadcast media and online content, they generally provide limited insight into how people use all media and communications services and devices together, and how they form a central part of a consumer's day.

In Q1 2016, we conducted an in-depth quantitative diary study on UK adults' and children's[1] total media and communications activities to provide an overview of the role of media and communications in people's lives. The study was last conducted two years earlier, in 2014, so one of the primary aims was to gauge how things had changed since then. The study was

[1] *Within this report we focus on the data from the adults' diaries only.*

therefore designed to remain as consistent as possible in terms of methodology (with some necessary tweaks and improvements).

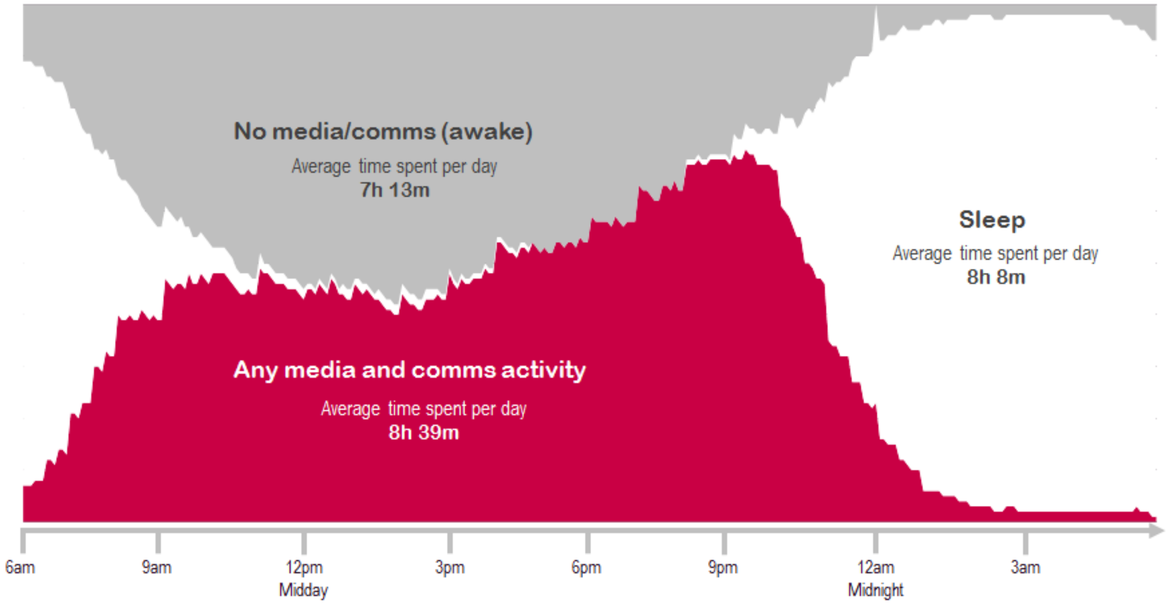
The research provides a snapshot of media and communications behaviour over a seven-day period, exploring when and how people use services and devices throughout the day, covering both personal and business use, in- and out-of-home use.

A comprehensive description of the methodology is available in the technical appendix. This includes all questionnaire material, sample information and analysis definitions - http://stakeholders.ofcom.org.uk/binaries/research/cross-media/2016/technical_appendix.pdf.

On an average day, adults in Scotland spend more time using media or communication services than they do sleeping

Adults in Scotland spend the majority of their waking hours engaged in media and or communications activity (8h 39m). The actual time spent on media and communications per day is relatively consistent across the UK nations.

Figure 1.2 Media and communications versus non-media and communications activity, by time of day



Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

Through multi-tasking, adults in Scotland squeeze 10h 48m of media and communications activity into 8h 39m on a typical day

People consume media in different ways, either focusing solely on the task in hand (categorised as solus activity), or doing two or more things at once, such as watching television and communicating with friends over instant messenger (media multi-tasking). Our research showed that adults in Scotland typically squeeze 10h 48m worth of total media activity into 8 hours 39m of actual time. Among adults in Scotland, since 2014, there has been a 52m decrease in the total time spent on media and communications and a 27m decrease in actual time spent.

Figure 1.3 Average daily media and communications time, by nation

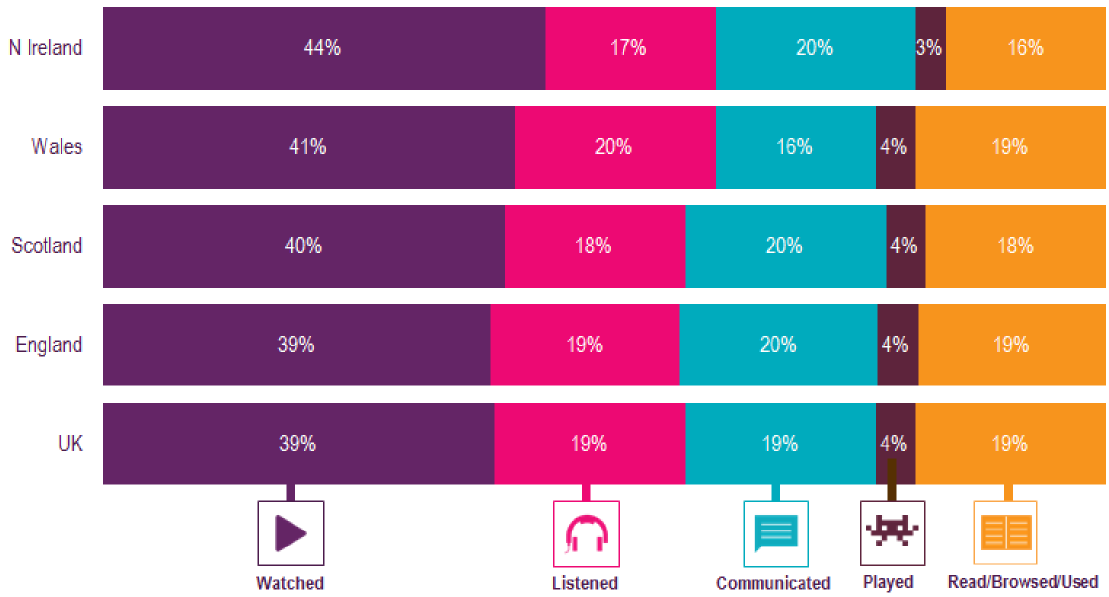
Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in UK (1512), England (991), Scotland (190), Wales (176), N. Ireland (155)

Among adults in Scotland, two-fifths of media and communications time is spent watching content

Watching content such as TV programmes, films or short video clips, accounts for 40% of the total time spent on media and communications by adults in Scotland. This consists mainly of live TV, which makes up 28% of the total media and communications time.

The proportions of this time spent on the five broad activity types (watching, listening, communication, playing and reading/ browsing/ using) is consistent across the nations, and there have been no significant changes since 2014.

Figure 1.4 Proportion of time attributed to activity types, by nation

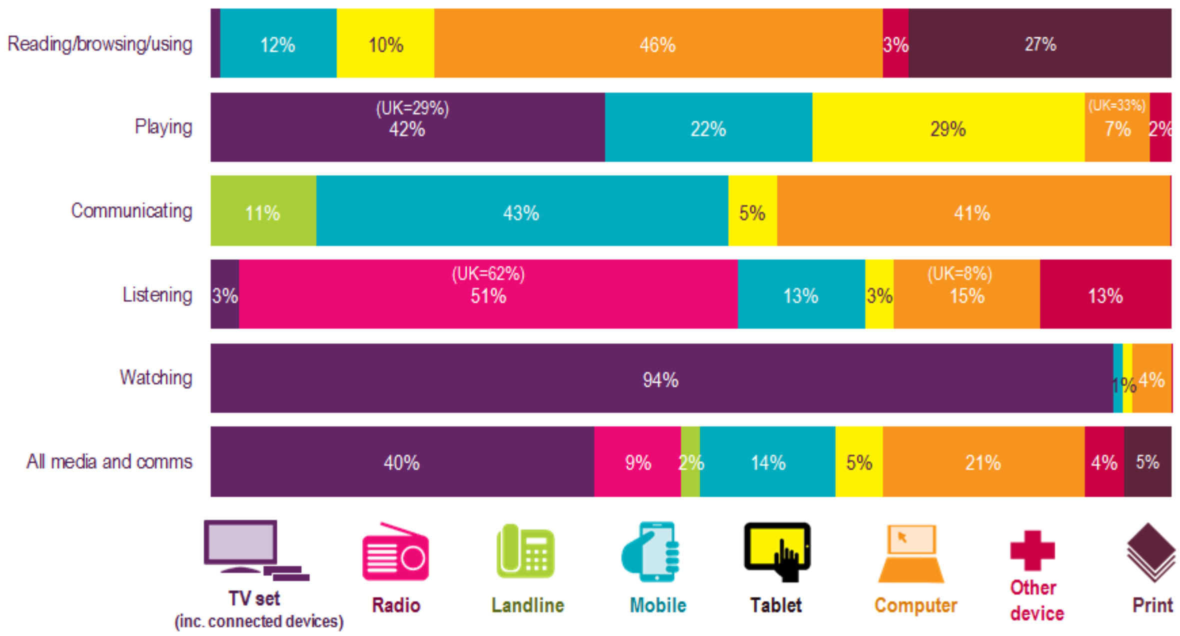


Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in UK (1512), England (991), Scotland (190), Wales (176), N Ireland (155)

Adults in Scotland spend a lower proportion of their listening time using a radio set than the UK as a whole

Adults in Scotland spend proportionally more time on their TV than on any other device; this is consistent across the nations. When we break this down by type of activity, we can see that for listening activities, adults in Scotland are using radio sets less than the UK as a whole, and computers more. And adults in Scotland are more likely to use a TV set (predominantly with a games console) for playing video games, and less likely to use a computer, than the UK as a whole.

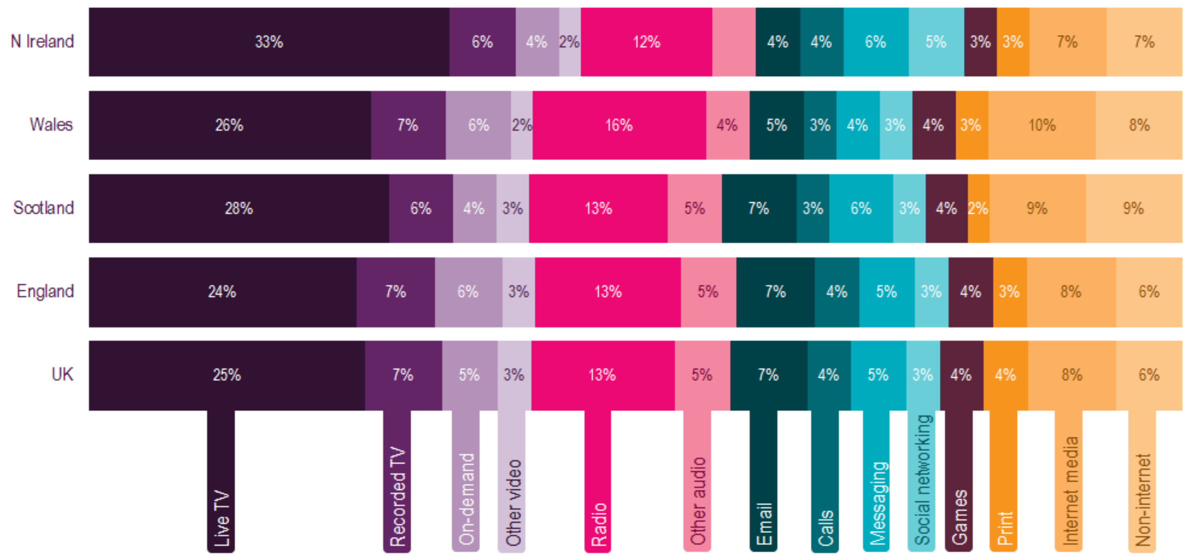
Figure 1.5 Proportion of time attributed to devices, by activity type



Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

The proportion of time spent on activity types among adults in Scotland is in line with the UK as a whole; a quarter (28%) of media and communications time is spent watching live TV and 13% of listening time is spent listening to radio on a radio set.

Figure 1.6 Proportion of time attributed to activity types, by nation

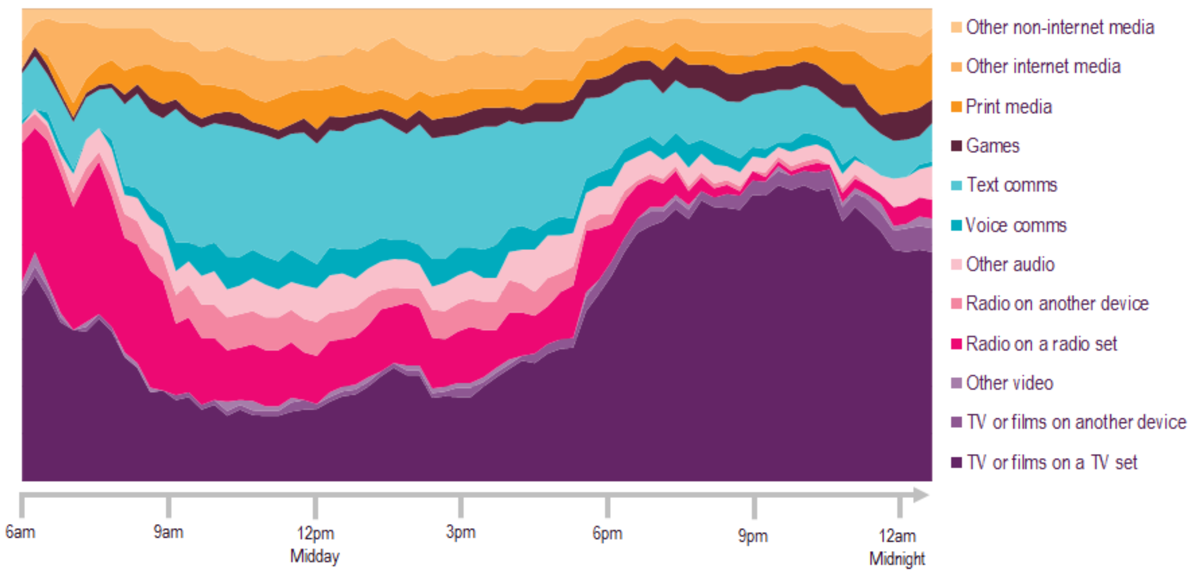


Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in UK (1512), England (991), Scotland (190), Wales (176), N. Ireland (155)

Watching TV or films on a TV set is the most popular activity in the evening

Looking at the proportion of all media and communications activity participated in, by time of day (across a week), among all adults in Scotland, watching TV or films on a TV set[2] takes up 62% of this activity between 9:15 and 10pm, consistent with the share for this time period in 2014 and also in line with the UK average (59%).

Figure 1.7 Proportion of media and communications, by time of day



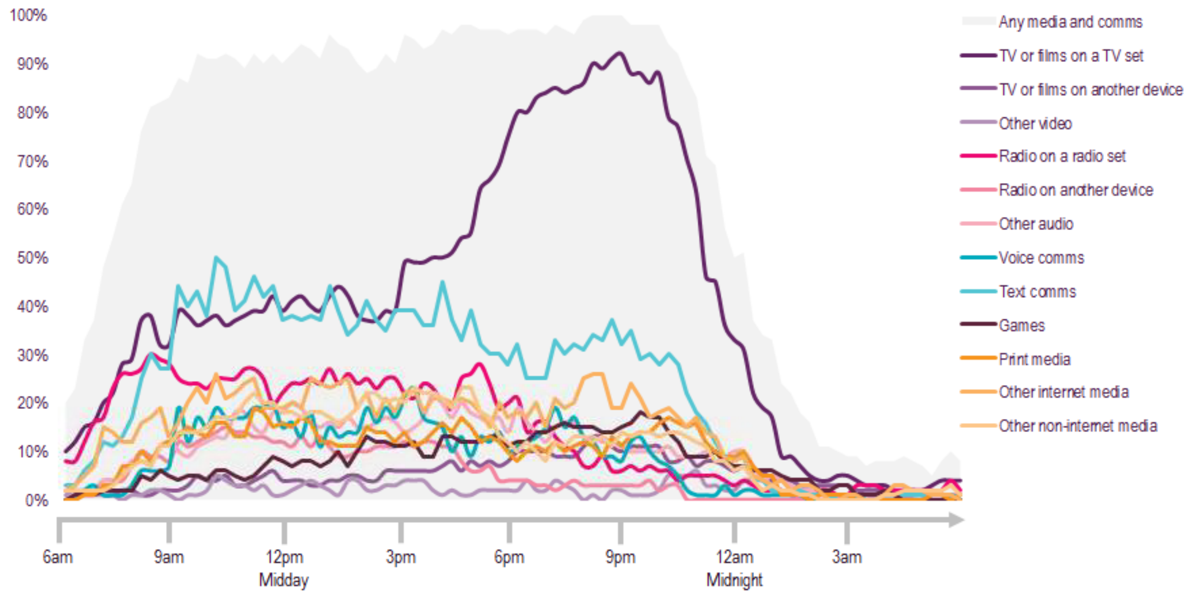
Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

The popularity of TV in the evening period is reflected in its reach across the day. Around nine in ten adults in Scotland watch TV or films on a TV set between 8pm and 10pm at any

[2] Watching TV includes, watching TV and films via live TV, recorded TV ,on-demand TV (paid or free) and DVD/Blueray

point during the week. This compares to a peak of 50% for text communications, which is slightly higher than TV from 9am to midday, but is increasingly lower in comparison thereafter.

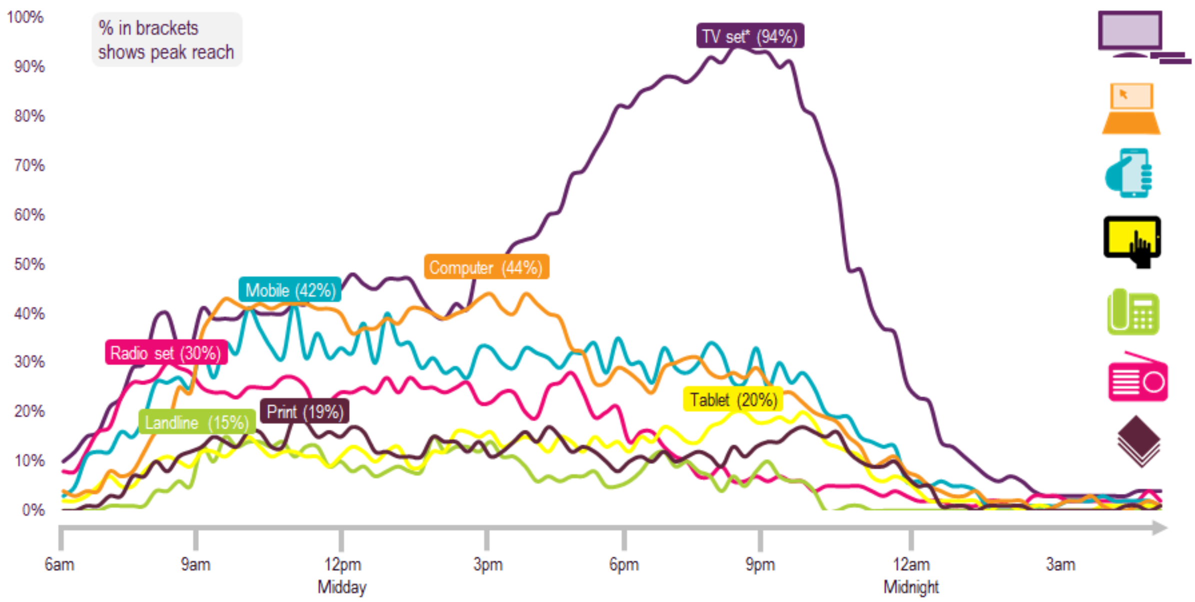
Figure 1.8 Weekly reach of grouped activities, by time of day



Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

The patterns shown above for TV and radio content across the day are clearly mirrored by the weekly reach of the primary associated devices, i.e. the TV and radio set. Radio set use during the morning is lower in Scotland than in the other nations.

Figure 1.9 Weekly reach of devices, by time of day

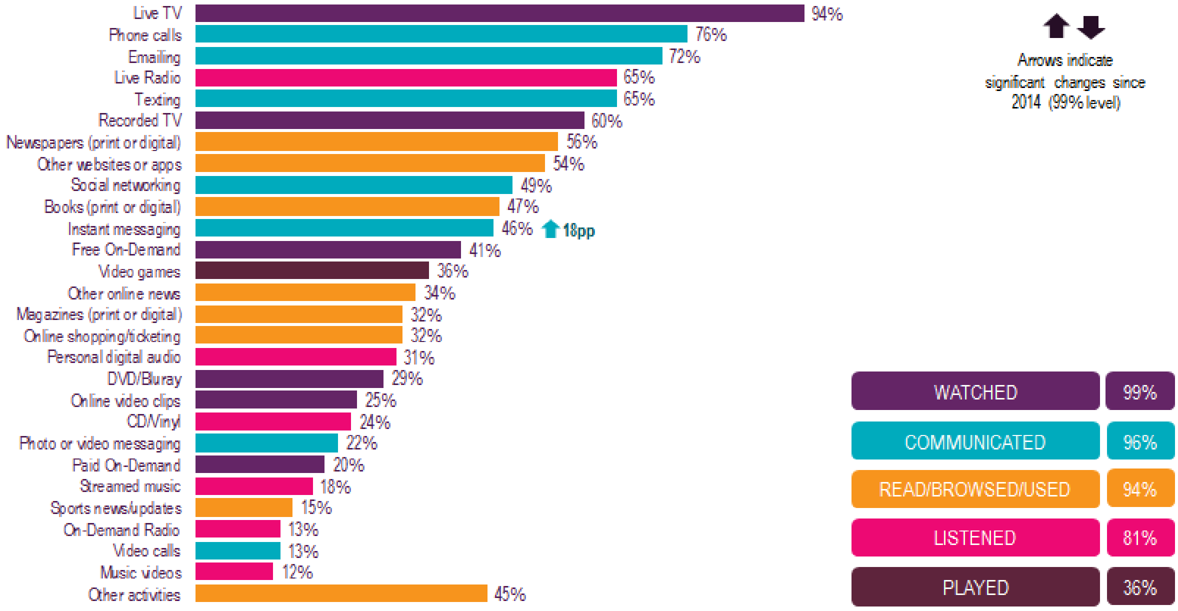


Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

In Scotland, use of instant messaging has increased since 2014

More than nine in ten adults (94%) watched any live TV over the week, while the next most popular activity was taking part in phone calls (76%). Instant messaging was the only activity that showed a significant increase since 2014, up by 18pp to 46%.

Figure 1.10 Weekly reach of media and communications activities



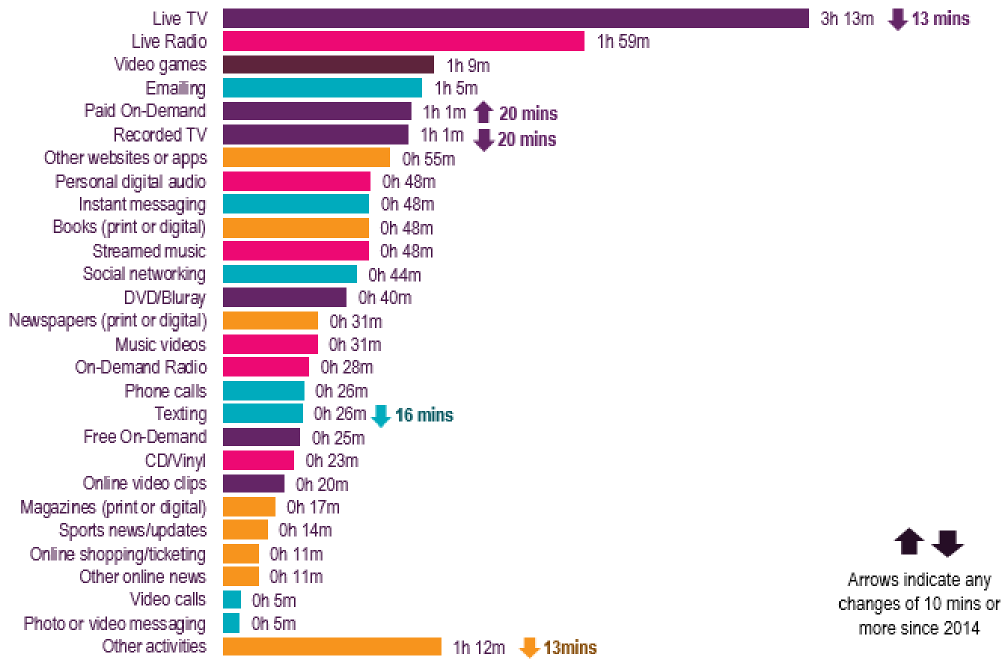
Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

Adults in Scotland now spend less time watching live and recorded TV and more time watching paid on-demand content than in 2014

Among those who watched live TV at all, the average time spent doing this per day has decreased by 13 minutes since 2014; this may in part be attributable to the 20-minute increase in watching paid on-demand content.

An additional three activities showed a decrease since 2014: watching recorded TV (down by 20 minutes), texting (down by 16 minutes) and video calling (down by 23 minutes).

Figure 1.11 Average time spent on activities per day



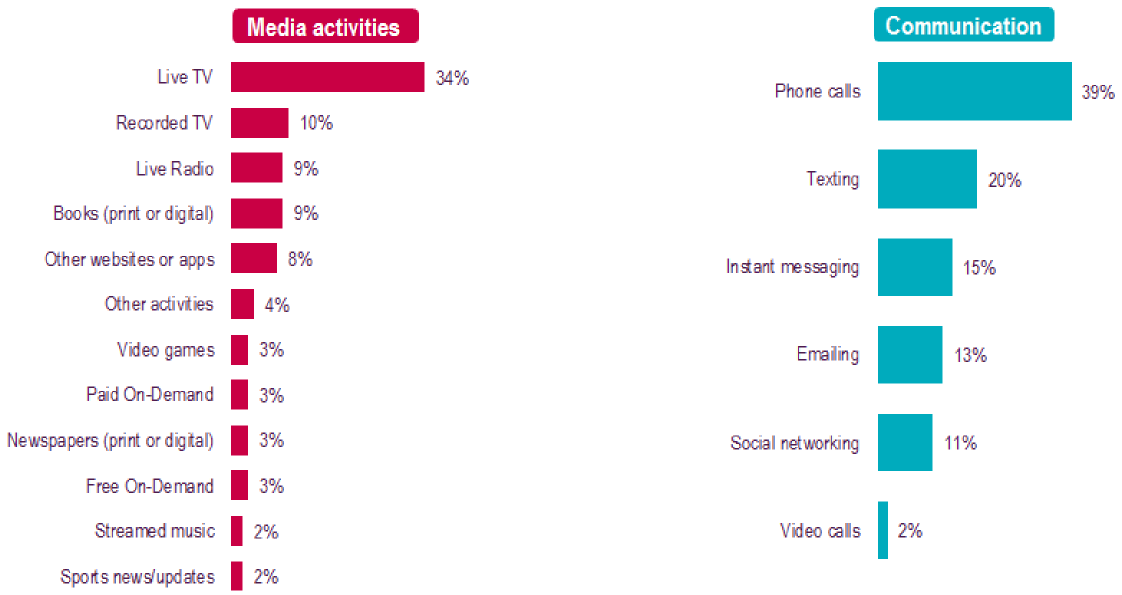
Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

Live TV has more importance in Scotland than in the UK as a whole

Respondents who completed the diary were asked (as part of the follow-up survey) which media activity, and which communications method, they considered most important to them personally.

More than a third (34%) of adults in Scotland said that live TV was their most important media activity; this is higher than the UK average (27%). Two-fifths (39%) cited phone calls as their most important communications method, in line with the UK average.

Figure 1.12 Media and communications activities cited as most important



Source: Ofcom Digital Day 2016
Base: Adults aged 16+ in Scotland (190)

1.4 Coping in a connected society

Summary

As we've seen in the Digital Day research in section1.3, people in Scotland are spending more time using media and communications than sleeping. With an increase in fixed broadband take-up, from 71% to 78% of households between 2015 and 2016, and six in ten people in Scotland able to access the internet on a mobile phone in 2016, people in Scotland increasingly have the connections and the devices they need to get online.

Ofcom commissioned research to investigate how people feel about being connected and what they see as the benefits and disadvantages. The internet is broadening people's horizons and making communications with friends and family easier. But using connected devices, like smartphones or tablets, can get in the way of face-to-face interactions. Almost three-quarters (72%) of people have felt ignored because the person they were with was using a device. And there's a risk of collisions too – nearly seven in ten (67%) people in Scotland have had someone bump into them because the other person was engrossed in their phone.

People don't want to put their devices down, and some are spending more time online than they planned – when they do, it is sleeping and housework that are neglected.

Six out of ten people see themselves as 'hooked' on their connected device. A minority (11%) say that they feel nervous or anxious when they are offline, and one in five (20%) feel nervous without their mobile. But if people in Scotland did decide to take a break from being online, they consider that they'd be better at coping with this than those in the UK as a whole. Some people in Scotland have given themselves a 'digital detox'; a quarter (25%) had abstained completely from the internet for some time because they thought they'd been using it too much.

People in Scotland are embracing the online world

Connectivity is broadening people's horizons; three-quarters (76%) of internet users[3] in Scotland say that being online means they can do things that they would previously have been unable to do, and six in ten (58%) internet users say that they would know a lot less about the world if they did not have access to the internet.

People in Scotland are making more use of being online. Just over eight in ten (81%) internet users in Scotland say that the internet has made their life easier, saving time and effort with services like banking and shopping. It also helps people stay informed: 81% of internet users say that being connected helps to keep them up to date with news and current affairs.

As well as people making more use of being online, they are also becoming more used to being online. Fifty per cent of internet users in Scotland agreed that If they couldn't access the internet they would feel out of touch, and just over a third (36%) wouldn't know where to find information if they couldn't get online.

But not everyone feels the same about the time they spend online

The relationship people in Scotland have with the internet is not all plain surfing. Many are recognising that it can have a negative effect on their work and home lives.

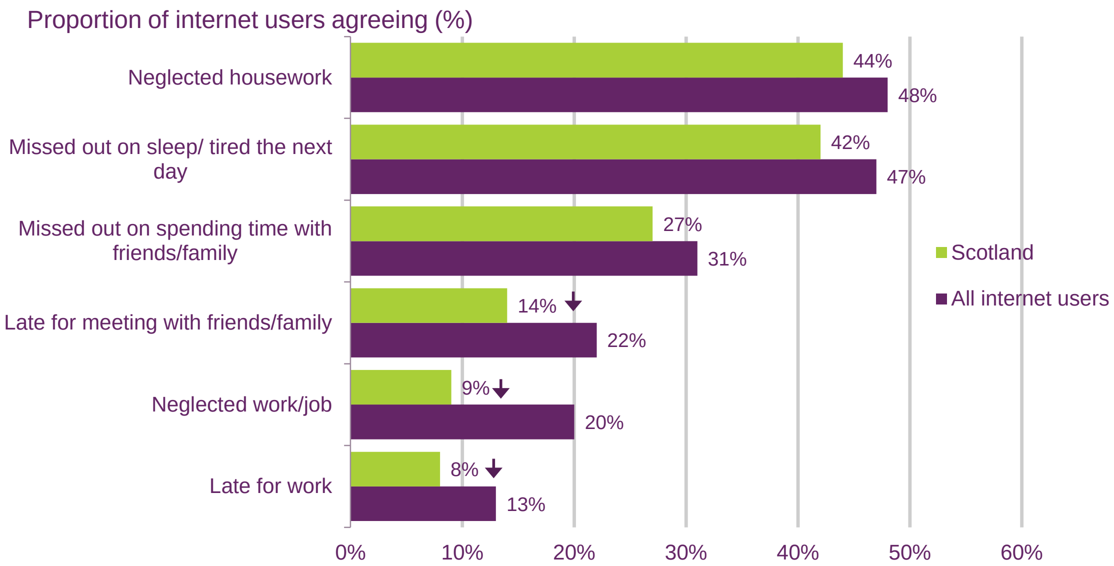
[3] Internet users are defined as those who have been online within the last month

Although just over a third (35%) of internet users in Scotland say that they can work more flexibly because of the internet,15% feel as though they're always at work, as a result of this constant connectivity.

About one in six (17%) feel guilty about the amount of time they spend online. Almost two in five (37%) of all internet users in Scotland admit to spending longer than they intend to in browsing social media, and more than half (53%) spend longer than they intend to just generally browsing the web. When people in Scotland do spend more time than intended online, housework and sleeping are the activities that are neglected, with 44% of regular internet users leaving the housework and 42% losing sleep.

People in Scotland felt some of the negative effects of being online to a lesser extent than those in the UK as a whole; they were less likely to have been late for meetings with friends or family, neglected their job or been late for work, as Figure 1.13 shows.

Figure 1.13 Negative effects of too much time online



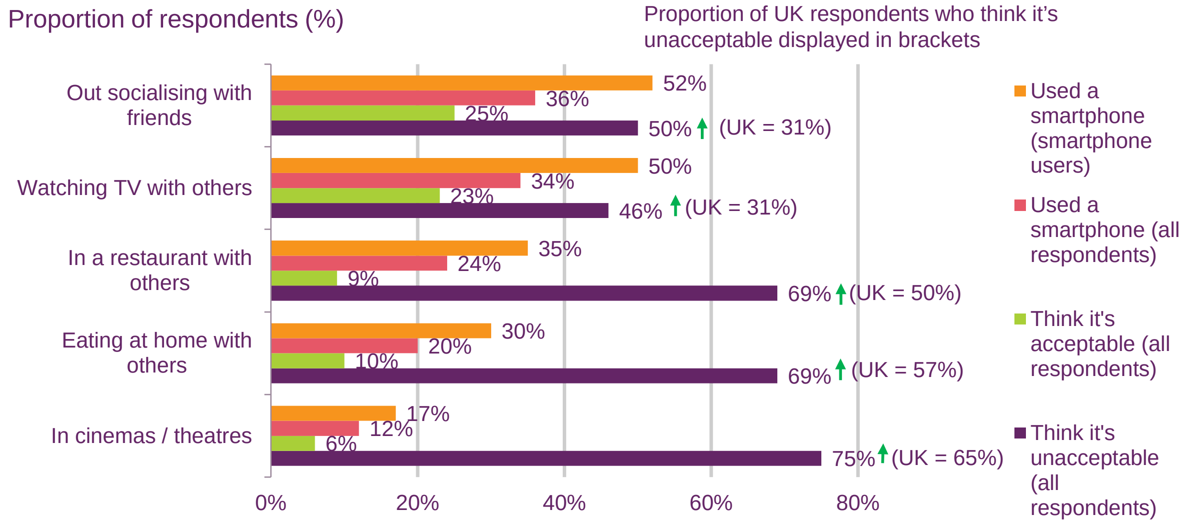
Source: Ofcom research, 2016
Base: All going online at least once a month (UK: 1,861: Scotland: 170)
Q.D7 Have any of these parts of your work or personal life ever been negatively affected by spending too much time online?

Although using smartphones and tablets is disruptive to conversation, people still do it

People in Scotland are more likely to keep in touch with their friends and family in person (40%), than they are to use electronic communication such as text messaging (23%), email (22%) or instant messaging (8%). Three in ten (30%) use phone calls to keep in touch with friends and family.

Half (50%) of internet users report that face-to-face interactions are often interrupted by the use of connected devices. Despite this, many people are still willing to use electronic devices in company – watching TV with friends, in a restaurant with other people or having dinner at home, or even at the cinema or theatre, as shown in Figure 1.14. Three-quarters (75%) of smartphone users admitted to using their smartphone in at least one social situation. However, compared with the UK as a whole, more adults in Scotland felt that the use of a device in each of these situations was unacceptable.

Figure 1.14 Use and acceptability of using a smartphone in social situations



Source: Ofcom research, 2016
Base: All (Scotland: 192), smartphone users (125)
Q: For each of the following situations, please indicate if you have personally used and/or have been with others when they have used a smartphone or tablet on each occasion? And for each occasion, could you indicate the extent to which you think using a smartphone at this time is acceptable?
Note: arrows represent significant difference to the UK as a whole

Almost three-quarters of people in Scotland feel ignored while others are using their devices

Considering the widespread use of devices, often in social situations, it's no surprise that 72% of people in Scotland report feeling ignored because another person was engrossed in their phone or tablet. A third (32%) said they experienced this at least once a week and 10% had felt it on a daily basis.

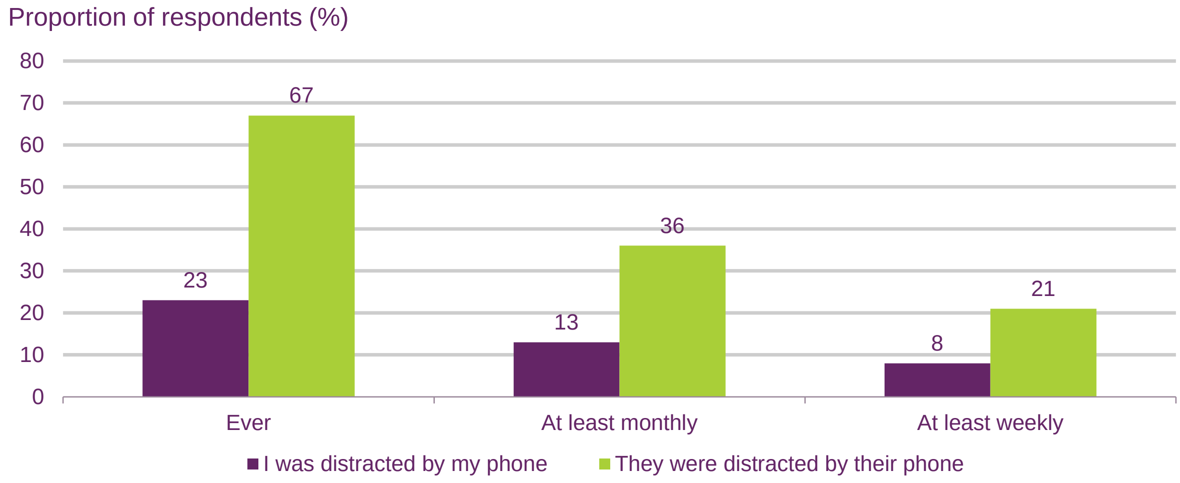
Some people are using their devices to communicate with people while they are in the same place as them: almost a fifth (19%) of people in Scotland had done this. At home, at a friend's house and in a bar or restaurant are the places where people are most likely to communicate electronically with others who are physically present.

Some people can't put their devices down …

Six in ten (60%) people see themselves as 'hooked' on their device, and one in five (20%) would feel nervous without their mobile. But compared to the UK overall (25%), a greater proportion of adults in Scotland (64%) denied feeling anxious when they did not have their mobile phone with them.

Another effect of attachment to the mobile phone is the risk of collision. Nearly seven in ten (67%) people in Scotland have been bumped into in the street by someone engrossed in their phone or tablet. But less than a quarter (23%) admit to bumping into someone else because they were too busy with their device. This is lower than across the UK as a whole (33%).

Figure 1.15 Distracted by a phone: bumpers, bumpees and the frequency of collision



Source: Ofcom research, 2016
Base: All (Scotland: 192), all phone users (Scotland: 158)
Q: How often, if ever, do people bump into you while walking on the street because they are too busy looking at their phone? Q: How often, if ever, do you bump into people or anything else while walking on the street because you are too busy looking at your phone?

…although some have tried to disconnect

In a bid to strike a healthier tech-life balance, some people in Scotland have given themselves a 'digital detox' – purposefully going without the internet for a period of time. A quarter (25%) had abstained completely from the internet for a time because they thought they had been using it too much. Their feelings during the period without the internet were more positive than negative; they felt liberated and less distracted. The majority (80%) had reduced at least one activity because they felt they were spending too much time online; this was a lower proportion than across the UK as a whole (88%). A fifth had made a conscious effort to visit physical shops rather than shopping online, 19% had reduced the time they spent on social media and seven in ten parents had imposed rules to limit their children's time online.

When thinking about whether they would be able to cut down, or take a break from being online, people in Scotland were more likely those in the UK as a whole to feel that they would be able to cope with a 'digital detox'. In fact, compared to the UK, a greater proportion of people in Scotland thought that they would be able to cope *very easily* – and would perhaps look forward to spending more time communicating face-to-face with friends without feeling ignored.

1.5 Analysis of fixed and mobile broadband take-up in Glasgow

Introduction

In previous *Communications Market Reports*, we highlighted that broadband take-up was particularly low in the Glasgow area when compared to the rest of Scotland and the UK. In 2011 and 2013, home broadband take-up in Glasgow was 50%. This increased to 63% in 2014 and remained broadly the same in 2015. When we include internet access through a mobile device, this brings the figure to 66% of households in Glasgow with internet access in 2014, rising to 75% in 2015.

We have repeated this analysis, finding that in the year ending March 2016, 69% of adults in Glasgow have home internet access, with 88% having access through fixed broadband or through a mobile device. This is now in line with the UK due to internet access through mobiles making a substantial contribution to the total internet access in Glasgow.

Methodology

The British Population Survey (BPS) asks consumers in Great Britain about internet and fixed broadband, and comprises around 2,000 face-to-face, in-home interviews with adults (aged 15+) weekly. The large number of interviews allows detailed analysis by region and sub-demographics. Interviews were conducted between April 2015 and March 2016. The analysis was undertaken on the city of Glasgow[4]. In total, data from 250 Glasgow respondents were analysed[5].

The BPS is designed to monitor the UK population at a regional level, but not to look at relatively small areas such as the City of Glasgow. Therefore, the respondents' profile may shift from year to year. From analysis of Ofcom's *Technology Tracker*, we know that a respondent's age, socio-economic status and gender all influence how likely they are to have broadband in the home.

This year's sample profile was different to previous years', particularly with regard to socio-economic status and gender. To ensure comparability, we adjusted to account for this difference. This change in sample profile this year towards more affluent respondents, and the smaller sample size in 2016, means this analysis should be viewed with some caution.

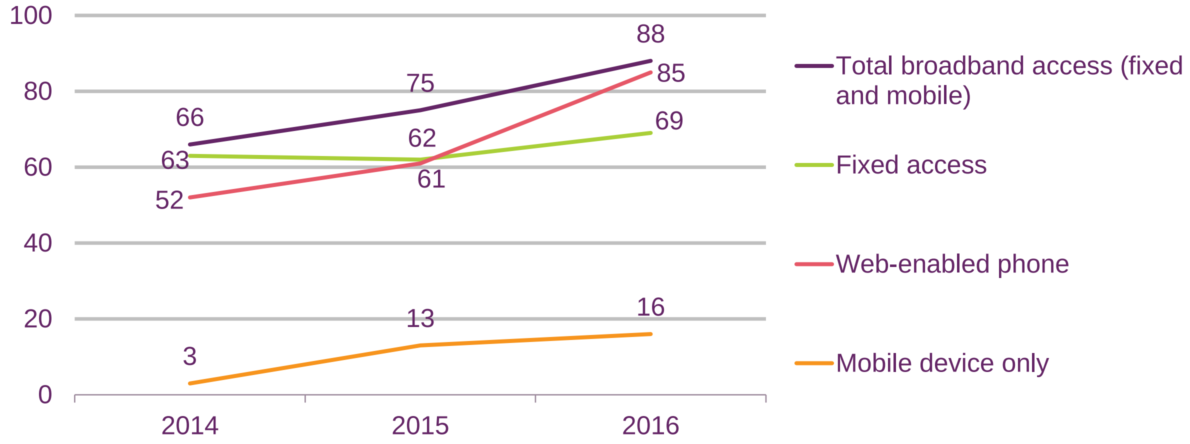
Over eight in ten homes in Glasgow have access to the internet via fixed broadband or mobile devices

Ofcom's *Technology Tracker* shows that the percentage of the UK population with fixed broadband is 81%, this rises to 86% when web enabled mobile devices are taken into account.

In contrast, the percentage of Glaswegians living in households with fixed broadband (excluding mobile devices) is 69%, or 88% if mobile devices are included. This compares to 62% and 75% in 2015. Take-up of fixed services has remained stable since 2014 after differences in the socio-economic profile of the sample are taken into consideration; the apparent differences are not statistically significant. The increase in access to broadband at home has been driven, as we said in our 2015 report, by the take-up of smartphones. Indeed, the take-up of web-enabled mobile phones has increased significantly, rising from 61% in 2015 to 85% in 2016.

[4] The City of Glasgow is defined as the area under the control of Glasgow City Council.
[5] In 2015, there was a methodology change. Although consumers were still asked about access to home internet, they were not asked whether that access was via broadband or another source. It was felt that this question added little value as almost everyone with home internet used broadband. A small proportion of the 2015/2016 sample (45 people) were asked if their home internet was via broadband, and all of these respondents stated that it was. The methodology employed by the BPS differs from Ofcom's *Technology Tracker*, in that quotas and question wordings are different. Therefore discrepancies between the BPS and Ofcom's quoted figures are likely.

Figure 1.16 Fixed and mobile broadband take-up in Glasgow: 2014-2016



Source: British Population Survey
Base: All adults 15+ (Glasgow 2016 – 250, Glasgow 2015 – 542, Glasgow 2014 - 1405)
Q: How do you access the internet – personal computer at home, via a mobile terminal, through a TV-set, through a games console?
Q: Do you have a web-enabled phone?

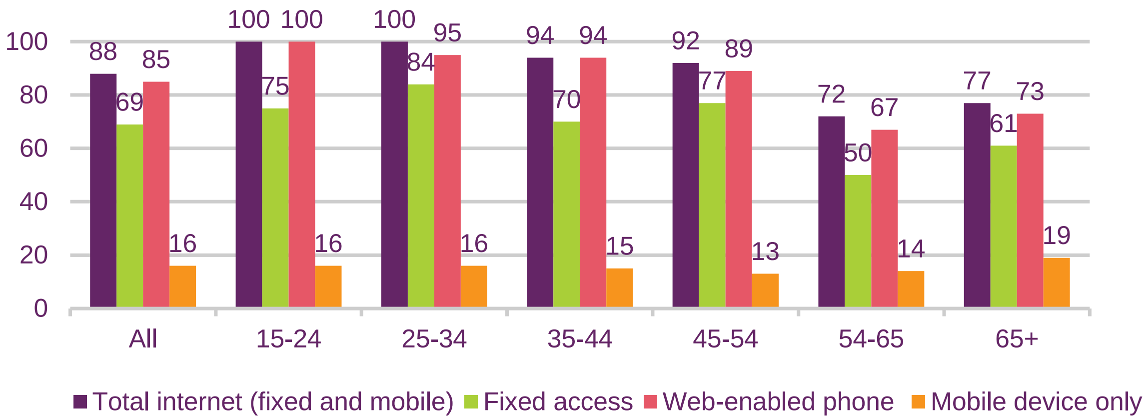
A hundred per cent of 15-34 year olds in Glasgow have access to the internet

Almost nine in ten households (88%) in the Glasgow sample have access either to the internet at home or via a web-enabled mobile device. Access to a web-enabled device[6] is highest among 15-34 year-olds, at 100%, and lowest among people aged 54-65, at 67%, as Figure 1.17 shows. Across Glasgow, 16% of respondents use *only* a mobile device to access the internet. This is most common among those aged 65+; one in five in this group only access the internet through a mobile device (19%); up from 9% in the same period in 2015.

There are no significant changes in the proportion of fixed-line home internet take-up among any socio-economic group. The only significant year-on-year change by age is a significant 25pp increase in the proportion of over-65s who have fixed internet, up from 36% to 61%.

[6] A web-enabled device is a smartphone, tablet or a personal digital assistant (PDA). Access to such a device does not necessarily mean it is actually used to access the internet.

Figure 1.17 Comparison of fixed and mobile broadband mobile take-up in Glasgow, by age

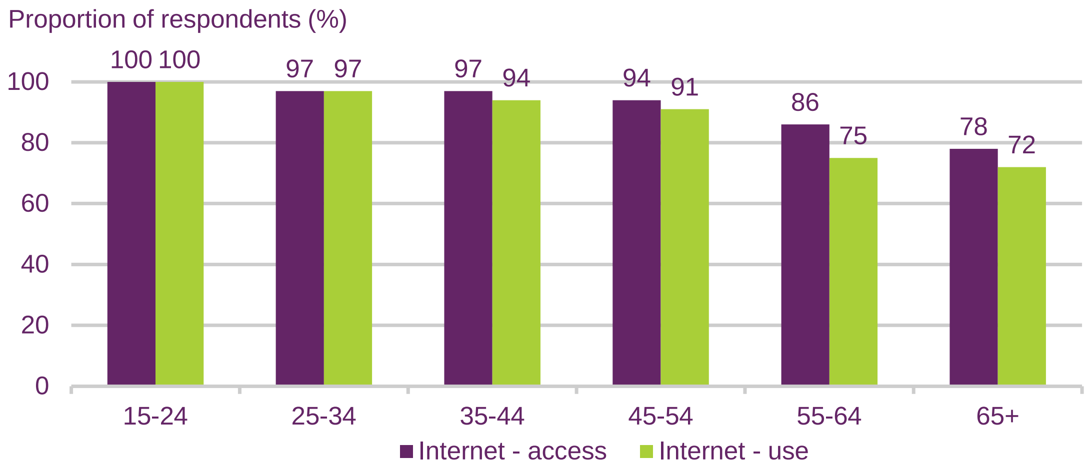


Source: British Population Survey
The percentage in brackets gives the percentage of all Glasgow respondents in that category.
Base: All adults 15+ (Glasgow 2015 – 250) Q: How do you access the internet – personal computer at home, through a mobile terminal, via a TV set, through a games console? Q: Do you have a web-enabled phone? Q. Do you have a tablet?

Almost all individuals under 45 have access to the internet *and* use it, both inside and outside the home

Across the sample, 96% of respondents in Glasgow who had access to the internet used it. Among under-55s, 98% of those with access used it, compared to those aged 55-64 and 65+, of whom 11% and 6% respectively had access but did not use it.

Figure 1.18 Internet access and use



Source: British Population Survey
Base: All adults 15+ (Glasgow 2016 – 250)
Q: How frequently do you use the internet?

Eight in ten under-55s in Glasgow who have access to the internet on a mobile device use it

Many consumers in Glasgow have access to mobile devices that could be used to access the internet, but they choose not to do this. As Figure 1.19 shows, 96% of those under 55, and 71% aged over 55, have a smartphone. However, just 38% of those with access over-55s actually use their web-enabled device to go online, while 78% of under-55s do so.

Figure 1.19 Access to and use of web-enabled mobile devices, by age

Age band	Access to web-enabled mobile device	Use of web-enabled mobile device	Percentage of those with access who use
15-24	100%	78%	78%
25-34	95%	79%	83%
35-44	94%	67%	71%
45-54	89%	60%	67%
55-64	67%	31%	46%
65+	73%	25%	34%
Net: Under 55	94%	75%	78%
Net: 55+	71%	27%	38%

Source: British Population Survey
Base: All adults 15+ (Glasgow 2016 – 250) Q: Do you have a web-enabled phone? Q. Do you have access to a tablet?Q: Do you access the internet via a mobile terminal?

2 Television and audio-visual content

2.1 Recent developments in Scotland

BBC Alba

BBC Alba's drama series, *Bannan*, returned in 2016 for a new series, having been re-commissioned for a further ten episodes in 2015, and it received a nomination in the drama series category at the Celtic Media Festival 2015.

In March 2016 the Scottish Government announced £1m of funding for MG Alba for 2016/17. The UK Government withdrew £1m of funding, not renewing the annual grant from the Department of Culture, Media & Sport.

In April 2016 MG Alba welcomed the commitment to Gaelic broadcasting in the BBC White Paper, which stated that the BBC should maintain its partnership with MG Alba. MG Alba moved from channel 8 to channel 7 on the Freeview EPG, following BBC Three's move to an online platform.

BBC Scotland

BBC Scotland's coverage of the 2015 General Election included results broadcast live from every count across the country, while *Reporting Scotland* remained the most-watched news programme in Scotland.

The Investigations team covered a range of issues including fracking, and doping in sport, and *Catch Me If You Can* received the Sport Story of the Year Award at the 2015 British Journalism Awards.

STV

In March 2016 STV launched an enhanced digital news service tailored for Scottish viewers, including a mobile app, featuring bite-sized video reports on local, international, UK and other news from a Scottish viewpoint.

Local TV

STV Edinburgh and STV Glasgow joined forces to cover the Edinburgh Festival 2015 in a live one-hour show transmitting each weekday evening; this was shared with local TV stations across the UK.

In April 2016 STV Edinburgh and STV Glasgow moved from channel 21 to channel 8 on the Freeview EPG after BBC Three began operating as an internet-only brand.

Production and commissioning

STV Productions and GroupM Entertainment were commissioned by Sky to produce a documentary series about life behind bars, and were given permission to film in a number of prisons.

Channel 4 spent £18.9m in Scotland on first-run UK originated content broadcast on their main channel in 2015. This represented 5.0% of its total spend on such content[7] compared

[7] Total excludes spend on Channel 4 News output

to 4.6% in 2014. In total, 159 hours of C4 programming, including peak-time transmissions, came from Scottish independent production companies, representing 6.2% of total first-run originated programming.[8] Series highlights included *Supershoppers*, *Location, Location, Location* and other programmes with C4 regulars Kirstie Allsopp and Phil Spencer, and *Fifteen To One*. One-off programme highlights included *Dispatches: Secrets of Cadbury* and *Britain's Benefit Tenants*.

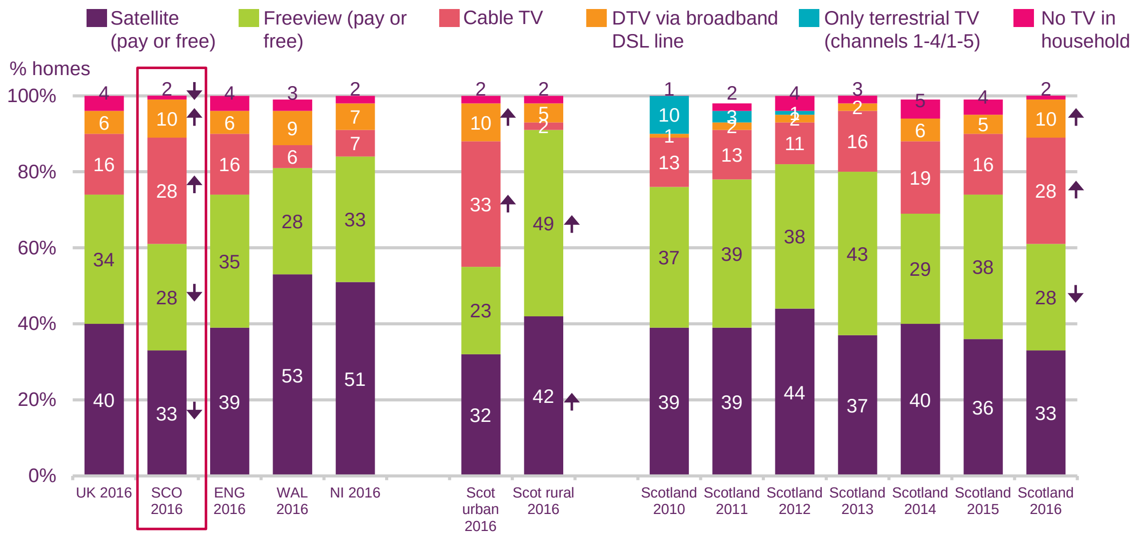
2.2 Television platform take-up in Scotland

Satellite television remains the most widely-used TV platform in Scotland

Figure 2.1 shows that in 2016, satellite television (33%) was the most popular main television service in Scotland. Freeview/ DTT (28%) and cable services (28%) were the next most popular services, while one in ten adults (10%) nominated DTV via a broadband connection. Compared to the UK overall, adults in Scotland were less likely to say that satellite (33% vs. 40% for the UK) or Freeview/ DTT (28% vs. 34% for the UK) was their main television service. They were more likely to nominate cable TV (28% vs. 16% for the UK) or DTV via a broadband connection (10% vs. 6% for the UK).

Satellite television had higher penetration in rural areas of Scotland (42% in rural areas vs. 32% in urban areas), and cable services had lower penetration (2% in rural areas vs. 33% in urban areas). In 2016, people in rural areas of Scotland were more likely to say that Freeview was their main television service (49%) compared to those in urban areas (23%).

Figure 2.1 Main television set: share, by platform



Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 1468 Scotland 2010, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016.
QH1A: Which, if any, of these types of television does your household use at the moment?
Note: In 2015 the survey data indicated an increase in use of Freeview as a main television service in Scotland. The 2016 measure is similar to the previous measure from 2014. This may suggest that the apparent increase in 2015 was due to sample error.

[8] Source – Channel 4

Households in Scotland are more likely to have pay TV compared to the UK as a whole

In 2016, seven in ten households in Scotland (with a television set) had pay TV[9] (71%) and this incidence has increased by ten percentage points since 2015 (from 61%). Households in Scotland are more likely to have pay TV compared to the UK overall (64%).

Take-up of pay TV is significantly higher in urban than in rural areas.

Figure 2.2 Proportion of homes with free and pay television

Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ with a TV in household (n = 3606 UK, 491 Scotland, 2148 England, 471 Wales, 496 Northern Ireland, 246 Scotland urban, 245 Scotland rural, 1452 Scotland 2010, 479 Scotland 2011, 489 Scotland 2012, 487 Scotland 2013, 481 Scotland 2014, 472 Scotland 2015, 491 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QH1A: Which, if any, of these types of television does your household use at the moment?

Over six in ten households in Scotland have access to HDTV services, in line with the UK average

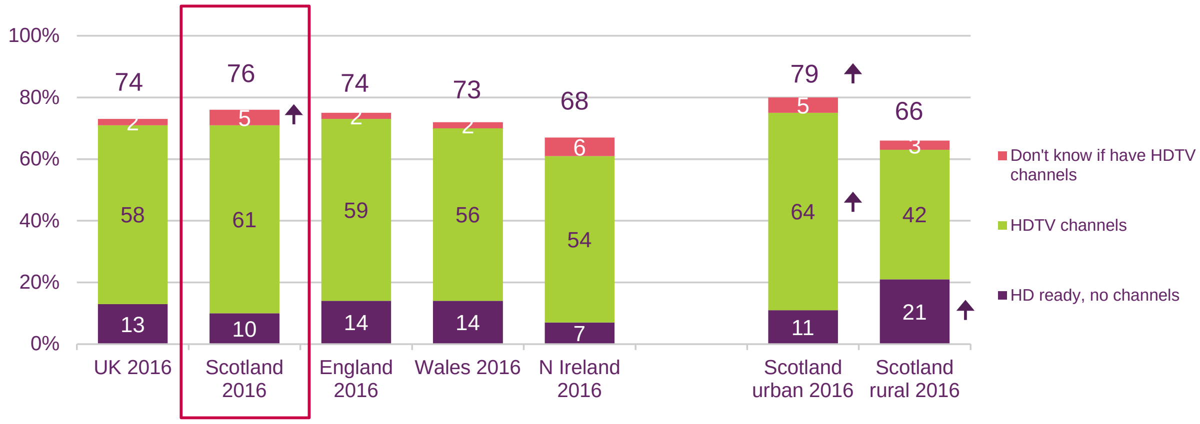
Seventy-six per cent of households in Scotland with a TV set claimed to have either HDTV services or an HD-ready television. Six in ten TV households (61%) claimed to actually receive HDTV services, with a further 10% claiming to have an HD-ready TV but not to receive HD services. The remaining 5% were not sure whether or not they were receiving HD services.

In Scotland, ownership of an HD-ready set was more likely in urban (79%) than in rural (66%) households. Respondents in urban households were more likely than those in rural locations to say they actually received HD services (64% vs. 42%). Households in rural

[9] Pay TV refers to all other types of television service. Free TV refers to households that only receive Freeview with free channels (without any additional subscriptions to services such as Netflix or Top Up TV etc.) or only receive Freesat satellite TV. In 2015 the survey data indicated an increase in use of Freeview as a main television service in Scotland. The 2016 measure is similar to the previous measure from 2014. This may suggest that the apparent increase in 2015 was due to sample error.

areas were more likely than those in urban areas to have an HD-ready TV, but not receive HD services (21% vs. 11%).

Figure 2.3 Proportion of homes with HD television



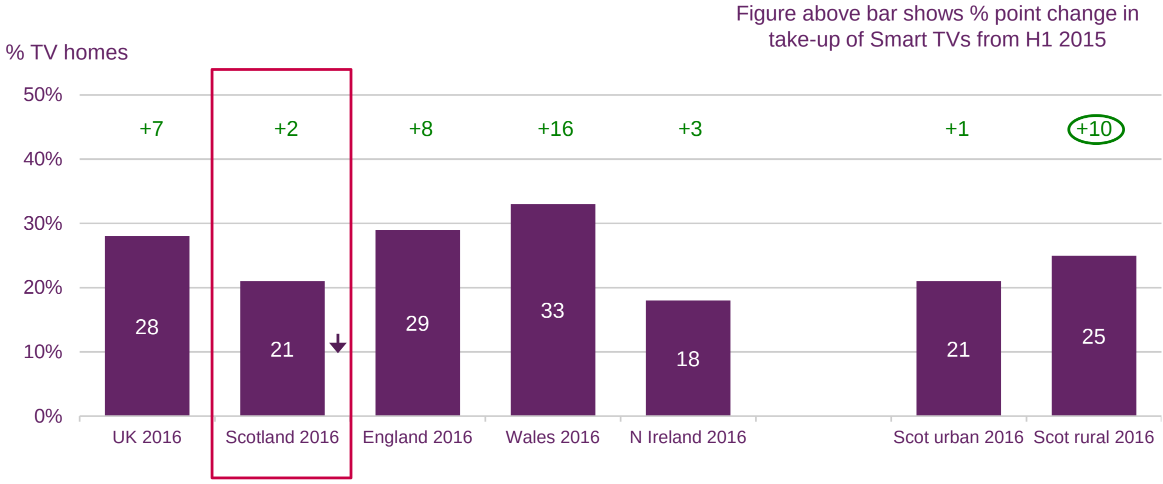
Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ with a TV in the household (n = 3606 UK, 491 Scotland, 2148 England, 471 Wales, 496 Northern Ireland, 246 Scotland urban, 245 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016
QH53: Is the main TV in your household an HDTV set or HD ready?/ QH54: Although you have an HDTV ready set, to actually watch TV channels and programmes that are broadcast in high definition, you need an HD set top box or a TV with built-in HDTV receiver. For the main TV set, does your household have an HD TV service?

Two in five TV households in Scotland have a connected TV, and one in five have a smart TV set

Among those with a TV set in the household, 21% claimed to have a smart TV; this has not changed significantly since 2015. Compared to the UK overall, smart TV ownership is lower in Scotland (21% vs. 28%). There has been an increase of 10pp since 2015 in rural household ownership of smart TV sets (now 25%).

Using a smart TV's inbuilt internet functionality is only one way of connecting a TV to the internet. Set-top boxes, game consoles and dongles can also be used to make a TV internet-enabled. The proportion of households in Scotland with a connected TV is likely to be greater than the smart TV take up figure of 21%.

Figure 2.4 Smart TV take-up



Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ with a TV in household (n = 3606 UK, 491 Scotland, 2148 England, 471 Wales, 496 Northern Ireland, 246 Scotland urban, 245 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QH62: Are any of your TV sets smart TVs? These are new types of TV that are connected to the internet and can stream video directly onto your television screen, without the need for a computer, set-top box or games console.

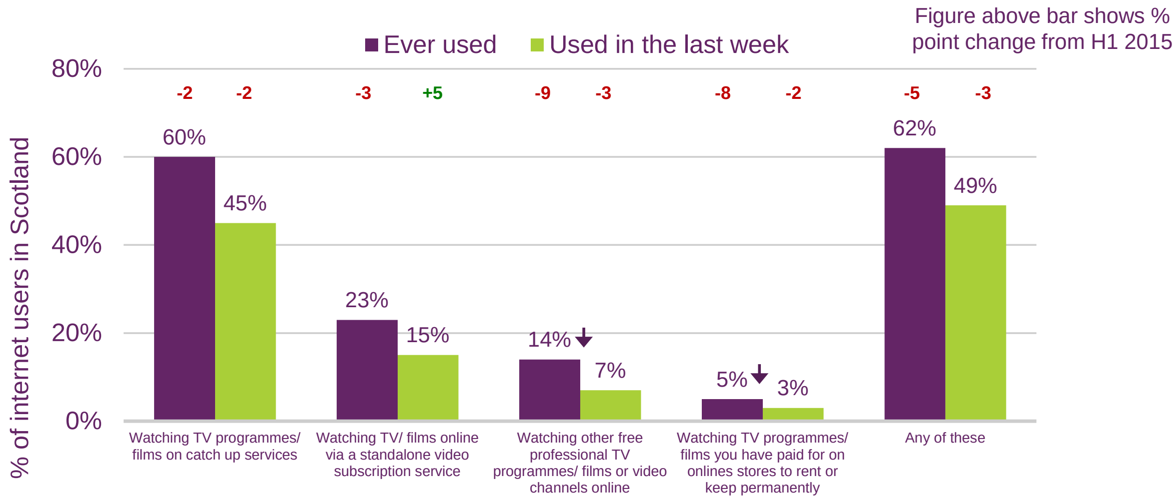
Catch-up services were the most popular way to watch TV programmes and films online

Among those who use the internet at home or elsewhere (e.g. on their smartphone, tablet or laptop), three in five said they had ever watched TV programmes or films on a catch-up service (e.g. BBC iPlayer, All4, Demand 5, Sky On Demand). Just under half claimed to have watched these services within the last week.

Stand-alone video subscription services (e.g. Netflix, Amazon Prime) and free professional sources (e.g. official YouTube channels, producers' websites) were less popular, with around a quarter of internet users claiming to have ever used them. Five per cent of internet users had ever watched TV programmes or films that they had bought or rented digitally.

Slightly more than a third of adults in Scotland who use the internet at home or elsewhere had never used any of these services.

Figure 2.5 TV programmes and films: on-demand on any service



Source: Ofcom Technology Tracker, H1 2016
Base: All Scotland adults aged 16+ who use the internet at home or elsewhere (n = 405)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland 2015 and 2016.
QH46: Thinking about your personal use of TV programmes and films online and on-demand services that you may use on any device (e.g. smartphone, TV set, tablet or laptop) anywhere, which of the following, if any, have you personally ever used? / QH47: And which, if any, of these have you used in the last week?

2.3 Broadcast television content

Definitions

Broadcast TV viewing

BARB analysis is based on viewing of scheduled TV programmes such as those listed in TV listings magazines or on electronic programme guides (EPGs) on TV sets. Broadcast TV viewing refers to programmes watched on the TV set live at the time of broadcast, or recordings of these programmes, or viewing of these programmes through catch-up player services (referred to as time-shifted), up to seven days after they were televised.

The STV licence area is referred to throughout as ‘Scotland’. Where the ITV Border region is shown in charts, it includes the two sub-regions of ITV Border Scotland and ITV Border England, unless specified in relevant footnotes.

Channel groups are referred to as **‘main five PSB channels’, ‘PSB portfolio channels’** and **‘PSB family’ or ‘PSB broadcaster’** channels. These are defined as:

Main five PSB channels:

BBC One, BBC Two, Channel3/ITV (inc ITV Breakfast), Channel 4 and Channel 5. Includes HD variants but excludes +1s.

PSB portfolio channels:

BBC: BBC Three, BBC Four, BBC News, BBC Parliament, CBBC, CBeebies, BBC red button channels

ITV: Channel3/ITV+1 , ITV2, ITV3, ITV4, CITV, ITVBeITV Encore

Channel 4: Channel 4+1, E4, More4, Film4, 4Music, 4seven,

Channel 5: Channel 5+1, Channel 5+24, 5*, 5USA, Spike.

+1 and HD variants are included where applicable.

PSB family or PSB broadcaster channels:

The main five PSB channels and all PSB portfolio channels combined.

All viewing data is based on individuals aged 4+.

People in Scotland spend an average of four hours per day watching TV

In 2015, people in Scotland spent an average of four hours per day watching television[10], less than in Wales (4 hours 10 minutes) but more than in Northern Ireland (3 hours 45 minutes) and the UK average (3 hours 36 minutes). Of the four hours spent watching television daily, 2 hours 50 minutes were spent watching the PSB family of channels[11].

Figure 2.6 Average minutes of television viewing per day, by nation: 2015

Source: BARB, individuals (4+). Please see definitions for list of PSB channels.
**Note: This figure reflects the average across the English regions with the highest in Border at 4 hours 10 minutes and the lowest in West at 3 hours 17 minutes respectively.*

Over half of all viewing is to the main five PSB channels

In 2015, the main five PSB channels accounted for a combined 51.5% share of the total TV audience in Scotland, just below the combined share in Wales but higher than the average

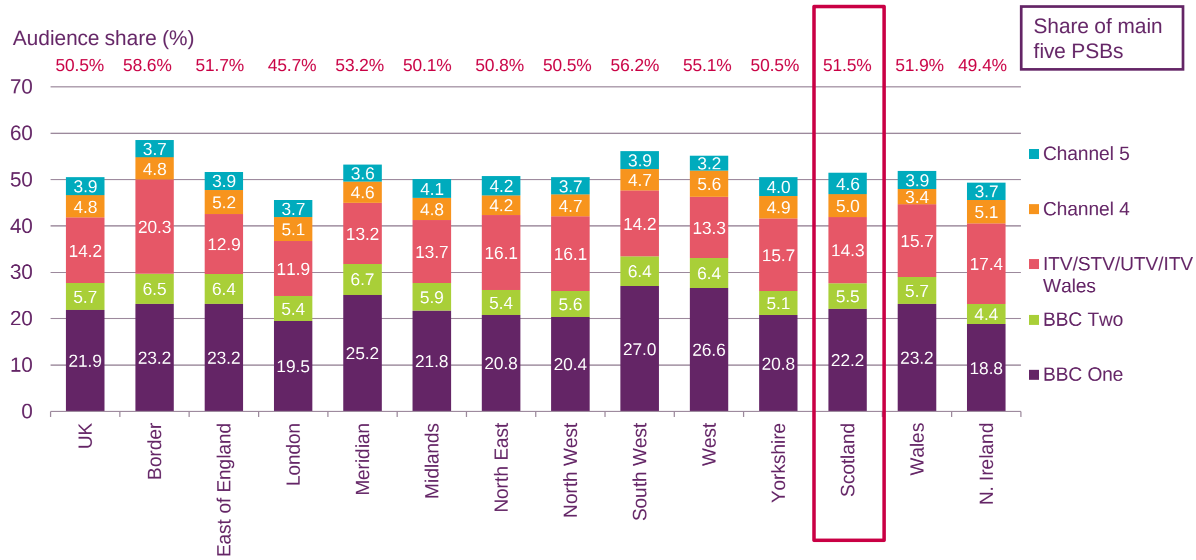
[10] Individuals in the Scottish areas of the ITV Border region watched 4 hours 23 minutes of TV each on an average day across 2015. Note: the Scottish and English sub-regions of the ITV Border area are not standard BARB regions, so we created a customised audience segment to undertake this analysis. The audience was created using BARB's 'BBC/ITV area segments' feature by selecting the BBC Scotland element of the ITV Border region and running the viewing analysis against the ITV Border panel. The ITV Border region is representative at an overall level rather than by geographical segments and the segmentation data, which is also based on a fairly low sample size of 113, should therefore be treated with caution. Only 'average daily minutes' is robust enough for indicative analysis.

[11] Individuals in the Scottish areas of the ITV Border region watched 3 hours 31 minutes of the PSB broadcasters (main five PSBs plus their portfolio channels) on an average day in 2015. 60% of daily TV viewing minutes were attributed to the main five PSBs, with their portfolio channels adding an additional 22%.

50.5% share across the UK. In Scotland the distribution of viewing share across each of the main five PSB channels is broadly similar to the UK as a whole. However, as in 2014 Channel 5 gained a larger share of viewing in Scotland (4.6%) compared to the UK (3.9%), Wales (3.9%), Northern Ireland (3.7%) and any English region.

Scotland's Rugby World Cup quarter-final match with Australia generated one of the highest audiences for the sport for a decade. BARB data provided by STV, the national rights holders for the tournament, showed an audience reach of 3.3 million Scots for the tournament, two-thirds of the national population.

Figure 2.7 Share of the main five PSB channels, by UK nations and regions: 2015



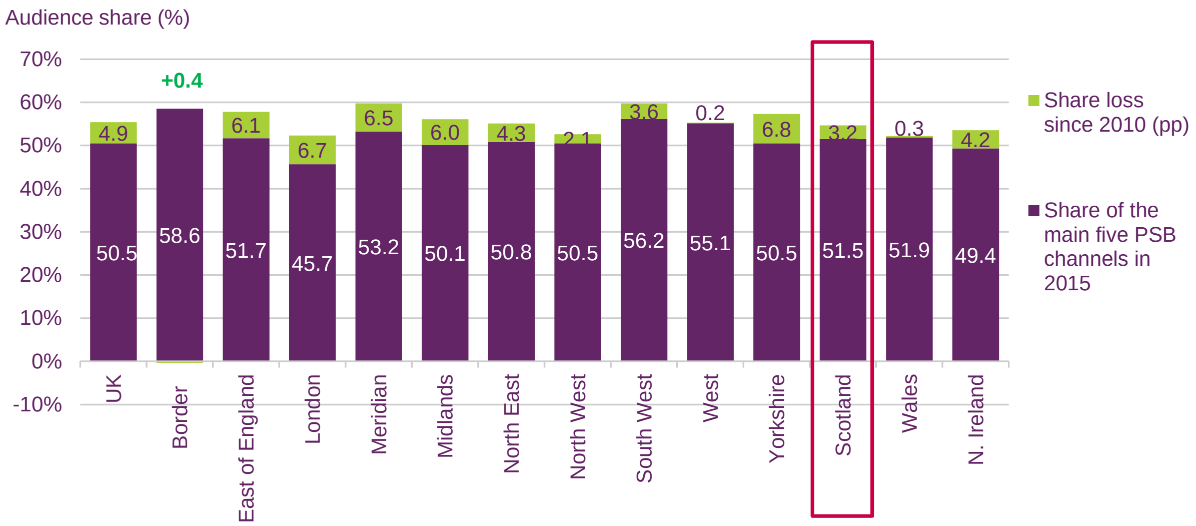
Source: BARB, individuals (4+).
Notes: Border includes the two sub-regions of ITV Border Scotland and ITV Border England. Chart shows figures rounded to one decimal place. Shares may not appear to sum up due to rounding.

The combined share of the main five PSB channels has decreased

Between 2010 and 2015 there was a 3.2pp reduction in the combined share of the main five PSB channels in Scotland. This reduction was lower than the decrease across the UK as a whole (4.9pp) and in Northern Ireland (4.2pp).

All UK nations and regions saw a reduction in the combined share of the main five PSB channels between 2010 and 2015. The exception was in the whole ITV Border region where share increased by 0.4ppt to 58.6% in 2015, the largest audience share for the main PSBs in all nations and regions overall.

Figure 2.8 Reduction in combined share of the main five PSB channels: 2010 and 2015

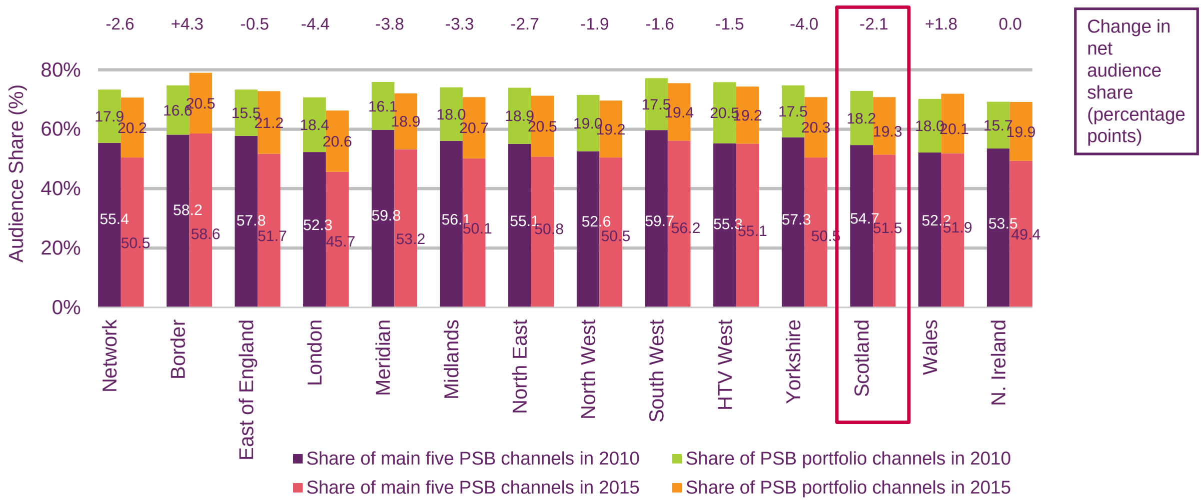


Source: BARB, individuals (4+). Please see definitions for list of PSB channels.
Note: Border refers to the region as a whole including viewers in the two sub-regions of ITV Border Scotland and ITV Border England.

The total share of the main five PSBs and their families of channels decreased between 2010 and 2015

While the main five PSB channels' share of viewing decreased by 3.2pp, the PSB portfolio channels increased their share of viewing in Scotland by 1.1pp between 2010 and 2015. This resulted in a net share loss overall of 2.1pp for the main five PSBs and their families of channels. This is a smaller decline than the UK average, which had a loss of 2.6pp, and compares to a steady picture in Northern Ireland (no change) and an increase in Wales (+1.8pp).

Figure 2.9 Net change in the audience share of the main five PSB channels and their portfolio channels, all homes: 2010 and 2015



Source: BARB, individuals 4+. Please see definitions for list of PSB channels. Shares may not add to 100% due to rounding.
Note: Border refers to region as a whole, including viewers in the two sub-regions of ITV Border Scotland and ITV Border England.

Regional news and HD channels

Channel 3/ITV

ITV does not currently broadcast regional HD variants for all of its regions. This means that in some areas, an out-of-region HD version is shown on the ITV HD channel. London, Meridian, Wales, Central, Granada, Anglia*, Yorkshire*, Tyne Tees* and STV** currently offer the HD service, so in the remaining areas, the local news shown on the HD variant is not the local news for that region (e.g in Border, the Granada news feed is shown). The chart below includes all viewing to any early evening news programming, even if it is not the relevant local one to the area. The ITV early evening news bulletin share analysis in the 2014 CMR excluded the ITV HD variants and looked just at the SD share. Note: ITV HD is not reported against the ITV Ulster panel.

BBC One

There are BBC One HD channels for Scotland, Wales and Northern Ireland which show local news in HD. At the moment BBC One HD in the English regions cannot show local news (a message prompts viewers to turn over to BBC One during the regional news slot). The chart below reflects viewing of the early evening news on BBC One HD where available.

The reporting of BBC One remains unchanged from the CMR 2014.

*On 31 March 2016 ITV launched these regions in HD on Sky and Freesat (Freeview and Virgin Media pending).**The HD variant for STV changed to Glasgow in 31 March 2016.

BBC One’s and STV’s early evening local news bulletins attracted a greater share in Scotland than the UK average for the same weekday time period

Reporting Scotland, BBC One’s early evening news bulletin, drew, on average, 30.9% of TV viewers in Scotland between 6.30pm and 7.00pm in 2015. This was higher than the BBC One UK average for the same slot (29.6%). *STV News at Six,* STV’s counterpart bulletin, attracted a lower share than BBC One’s *Reporting Scotland,* although at 24.3% it was still higher than the Channel 3 UK average (18.5%).

In the Border area BBC One’s *Reporting Scotland* share decreased by 0.3pp compared to the 2014 24.6% share. *ITV News Lookaround* achieved 41.9%[12] share of TV viewing between 6pm to 6:30pm, higher than the Channel 3 UK average of 18.5% share for the same time period.

[12] It is not possible to analyse granular programme-level viewing in the Scottish and English regions within the ITV Border licence area in a statistically robust way. Analysis has therefore been included for the ITV Border licence as a whole.

Figure 2.10 BBC One and ITV/ STV/ UTV/ ITV Wales early evening news bulletin shares: 2015

Source: BARB, individuals (4+). BBC One includes HD variant. ITV includes HD variant but excludes +1. Early evening ('local') news bulletin figures are based on the 'regional news' genre, start time range 5.55pm-6.35pm, 10mins+ duration, weekdays. UK figures are based on share to respective early evening news bulletin slot times. BBC One's early evening news bulletin is transmitted between 6.30pm-7pm and ITV/ STV/ UTV/ ITV Wales' is transmitted between 6pm-6.30pm.
Note: Border refers to the region as a whole including viewers in the two sub-regions of ITV Border Scotland and ITV Border England.

Over six in ten adults in Scotland used TV as their main source of UK and world news in 2015

In Scotland, the use of TV for UK and world news was in line with the UK as a whole, at 64% of adults. The second most popular source for UK and world news were websites or apps.[13] Just over one in ten adults (11%) used newspapers as their main source of news in 2015; again, this was in line with the UK overall.

[13] These include websites or apps accessed using a computer, laptop, netbook or tablet or using a mobile phone.

Figure 2.11 Respondents' main media source for UK and world news, by nation: 2015

Source: Ofcom Media Tracker 2015.
Base: All (2,107); England (1,607); Scotland (180); Wales (164); Northern Ireland (156). Prompted, single code. Responses ≥ 3% labelled. Significance testing shows any difference in the main source of news between any nation and all adults in 2015

2.4 TV programming for viewers in Scotland

The following section outlines spend and hours of programming specifically for viewers in Scotland, Wales, Northern Ireland, and the English regions, provided by the BBC and STV/ UTV/ ITV. The figures exclude Gaelic and Welsh-language programming but include some spend on Irish-language programming by the BBC. For information on BBC Alba, see section 2.5.

In January 2014, there was a change in the licensing obligations of the ITV Border region, creating two sub-regions: ITV Border Scotland and ITV Border England. While the majority of the broadcast content in these sub-regions is simulcast, ITV is required to transmit a weekly average of 86 minutes of local and Scotland-centric content, other than news, to ITV Border Scotland. This includes the current affairs programmes *Representing Border* and *Border Life.* For the purposes of the report, from 2014 onwards hours and spend data for ITV Border Scotland is attributed to Scotland, whereas hours and spend data for ITV Border England is attributed to England. Prior to 2014, all ITV Border data was attributed to England.

Historical financial figures are presented in nominal terms and not adjusted for inflation. The reason for this is to align the CMR suite of reports and to provide a 'base' view of the overall market to inform any further analysis.

Definitions

First-run originations - Programmes commissioned by or for a licensed public service channel with a view to their first showing on television in the United Kingdom in the reference year.

First-run acquisitions - A ready-made programme bought by a broadcaster from another rights holder and broadcast for the first time in the UK during the reference year.

Repeats - All programmes not meeting one of the two definitions above.

Spend on output includes all costs incurred by the broadcaster on content; these usually include production costs for in-house productions and licensing costs for commissioned and acquired programmes.

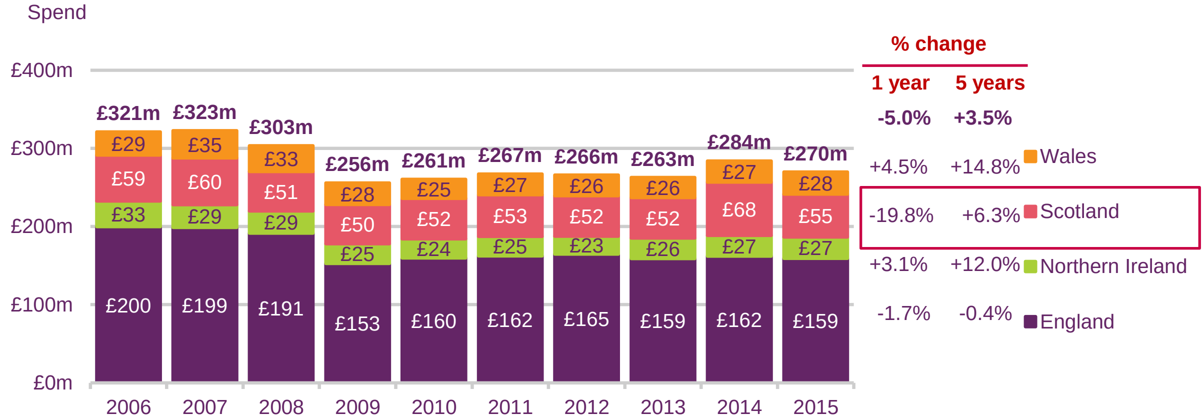
For comparative reasons it is important to note that two exceptional events took place in Scotland in 2014: the 2014 Commonwealth Games, held in Glasgow during July and August, and the Referendum on Scottish Independence in September. An increase in BBC programme investment in Scotland resulted in the production of a range of non-news programmes, which complemented the news and current affairs coverage of these events across the UK. STV's spending also increased in Scotland, but to a lesser degree.

BBC, STV and ITV Border Scotland spend on first-run originated content for viewers in Scotland decreased by £14m in 2015 but remains greater than in 2010

Since 2010, spend on first-run originated nations' and regions' output by the BBC and ITV/ STV/ UTV across the UK has risen by £9m, reaching £270m in 2015. This figure is down by £14m in nominal terms year on year.

Nominal spend by PSBs on first-run originated programming for viewers in Scotland had remained steady at around £52m in the four years preceding 2014. However, due to the unique events and programming discussed above, PSB spend in 2014 on first-run originated programmes for viewers in Scotland increased to £68m. In the year to 2015 there was a nominal decrease of £14m, bringing levels of spending on first-run originated content more broadly in line with those seen before 2014.

Figure 2.12 Spend on first-run originated nations' and regions' output by the BBC/ ITV/ STV/ UTV



Source: Broadcasters. All figures are nominal.
Note: Spend data for first-run originations only. Excludes spend on BBC Alba and S4C output but includes some spend on Irish-language programming by the BBC. Spend on content broadcast in the Scottish part of the ITV Border region is included within England from 2006 to 2013, but in Scotland thereafter. These figures do not include spend on network content. For more information on BBC Alba please see Section 2.5.

In 2015, total spend on nations' programming in Scotland, including acquisitions and repeats, increased by 6.3% compared to 2010

Total BBC, STV and ITV Border Scotland spend on first-run originated output in Scotland increased by 6.3% in the five years to 2015. In 2010, spend was £52m, growing to £56m by 2015. Year on year, spend on programming commissioned for Scotland as a whole decreased by 19.8% in nominal terms, falling from an exceptional 2014 peak.

Total BBC, STV and ITV Border Scotland spend on current affairs programming for viewers in Scotland decreased by 19% in nominal terms in 2015. This fall can be attributed in part to the exceptional nature of 2014 and the increased spending seen due to the Referendum and the Commonwealth Games.

Spend on news increased by 1% on the year (a 16% increase since 2010) and spend on non-news/non-current affairs decreased by 28%, constituting a 4% decrease on 2010 spending. Again, this sharp year-on-year decrease in spending non-news/non-current affairs spending is probably attributable to the Commonwealth Games being held in 2014.

Figure 2.13 Change in total spend on nations' and regions' output, by genre and nation: 2010-2015

	UK		England		N. Ireland		Scotland		Wales	
	1yr (%)	5yr (%)	1yr (%)	5yr (%)	1yr (%)	5yr (%)	1yr (%)	5yr (%)	1yr (%)	5yr (%)
Current affairs	-10%	-1%	-1%	-28%	11%	68%	-19%	34%	-7%	11%
News	0%	2%	-1%	-1%	4%	17%	1%	16%	-3%	0%
Non-news/non-current affairs	-14%	1%	0%	-25%	1%	-4%	-28%	-4%	14%	28%
Total spend in 2015	£271m		£159m		£27m		£56m		£29m	

	UK		England		N. Ireland		Scotland		Wales	
	1yr	5yr	1yr	5yr	1yr	5yr	1yr	5yr	1yr	5yr
Change in spend	-5%	1%	-2%	-4%	3%	12%	-20%	6%	5%	15%

Source: Broadcasters. All figures are nominal.
Note: Excludes spend on BBC Alba and S4C output but includes some spend on Irish-language programming by the BBC. These figures do not include spend on network content. Spend on programming for the ITV Border region is divided between England and Scotland in 2014-2015 and attributed to England only prior to 2014.

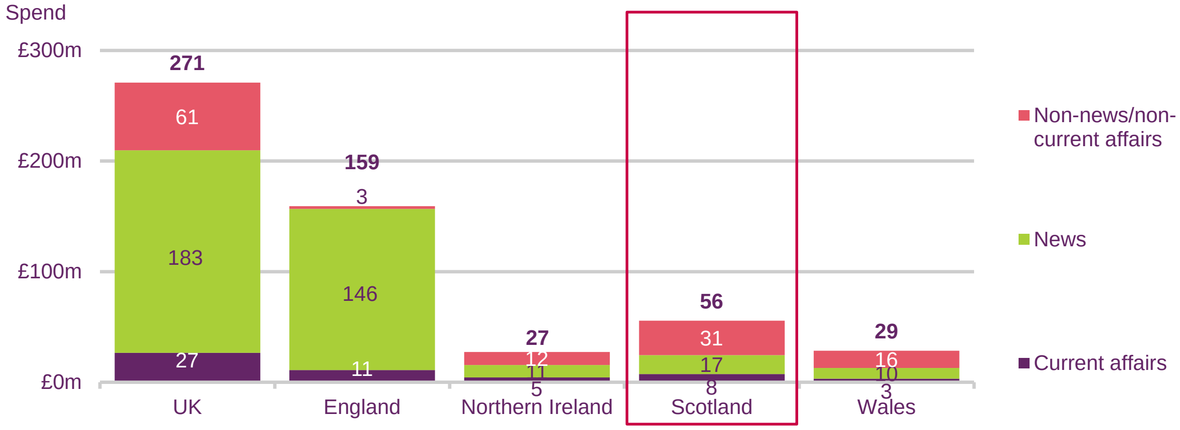
Expenditure in Scotland on PSB programming fell by nearly a fifth in 2015, although was up by 6% versus 2010

Most probably due to an exceptional 2014, expenditure on content broadcast by the BBC and STV for people in Scotland decreased in nominal terms, from £69m in 2014 to £56m in 2015.

Spend on non-news/ non-current affairs accounted for over half of spending in 2015, while current affairs had the smallest share of spend (14%).

In addition to this, the BBC spent £28m in delivering other content to S4C under the terms of the operating agreement, and contributed £5m to BBC Alba in Scotland. See Section 2.5 for more detail on BBC Alba.

Figure 2.14 Total spend by the BBC/ ITV/ STV/ UTV on nations'/ regions' output for the main PSB channels (BBC One and Channel 3): 2015



Source: Broadcasters.
Note: Excludes spend on BBC Alba and S4C output ,but includes some spend on Irish-language programming by the BBC. These figures do not include spend on network content. Scotland figures include programming for viewers of ITV Border in Scotland. This was 73 hours of current affairs in 2015. BBC includes BBC One and BBC Two channels.

Total first-run originated hours for Scotland have increased more than in any other nation since 2010

The BBC and ITV/ STV/ UTV produced a total of 11,076 hours of first-run originated content for the English regions, Scotland, Wales and Northern Ireland in 2015. This figure was down by 123 hours compared to 2014. Over a five-year period, Scotland had the highest proportional increase in hours of first-run original content, up by 26% compared to England (0%), Northern Ireland (-7%) and Wales (-4%).

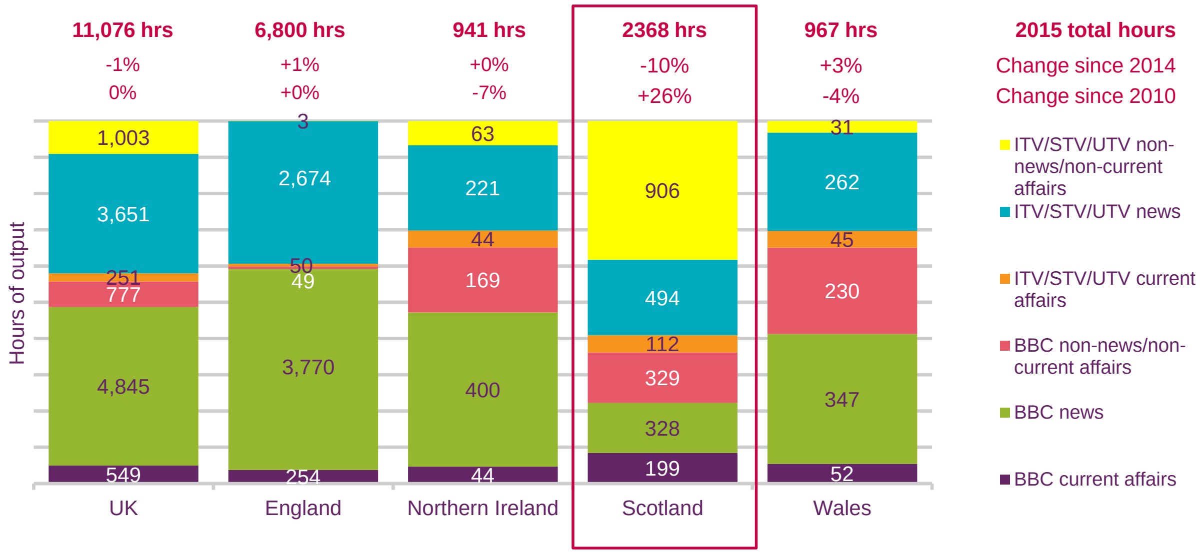
The number of first-run originated hours produced specifically for viewers in Scotland decreased by 277 hours in 2015. This is mostly likely to be due to the high relative increase in 2014 due to Commonwealth Games and Referendum programming.

The greatest year-on-year decrease in Scotland during 2015 was in ITV/STV non-news/non-current affairs programming, falling from 1,161 hours in 2014 to 906 hours in 2015. This was driven by a decrease in hours from STV's *Nightshift,* which ran for seven months in 2015 rather than the full year as in 2014.

For comparative purposes, Figure 2.15 does not include first-run originated BBC Alba programming hours funded by the BBC, or BBC hours provided to S4C.There is a more detailed breakdown of BBC Alba programming in Figure 2.18.

Since 2014, the hours and spend of ITV Border Scotland have been partly attributed to Scotland, which will contribute somewhat to an increase in the number of hours of first-run originated content.

Figure 2.15 Hours of first-run originated nations'/regions' output, by genre and broadcaster: 2015



Source: Broadcasters. All figures are nominal.
Note: Excludes spend on BBC Alba and S4C output but includes some spend on Irish-language programming by the BBC. These figures do not include spend on network content. Scotland figures include programming for viewers of ITV Border in Scotland. This was 73 hours of current affairs in 2015.

Total cost per hour on total nations' output for Scotland has increased by 1% in nominal terms since 2010

When analysing the cost of making programmes for the nations, cost-per-hour calculations show that, when measured in nominal terms, Scotland's cost per hour on total nations' output increased slightly between 2010 and 2015, remaining at approximately £20k per hour.

Over a five-year period, Scotland's cost per hour increased by 1%, lower than the total UK's increase of 5% and slightly lower than England's increase of 2% between 2010 and 2015.

In the year to 2015, Scotland's per-hour spend on nations' output fell by 11% (from £23k) compared with an average UK year-on-year decrease of 3%.

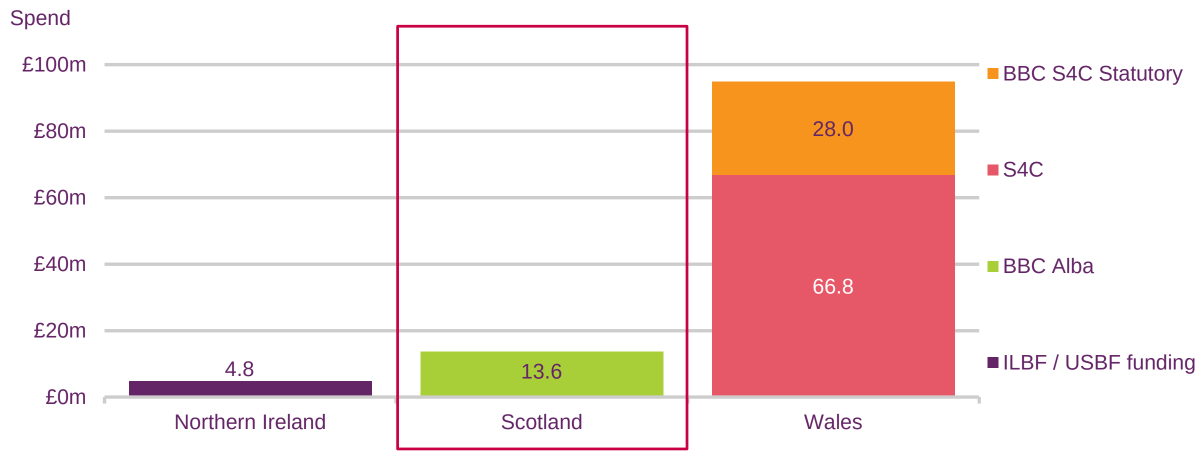
Figure 2.16 Cost per hour of total nations and regions output, by nation: 2010-2015

Source: Broadcasters. All figures are nominal.
Note: Excludes spend on BBC Alba and S4C output but includes some spend on Irish-language programming by the BBC. These figures do not include spend on network content. Scotland figures include programming for viewers of ITV Border in Scotland. This was 73 hours of current affairs in 2015.

2.5 Gaelic-language programming

Figure 2.17 shows other spend in the devolved nations. BBC Alba spent £13.6m on all programming, including sports rights, in 2015. The channel is jointly funded by the BBC and MG Alba.

Figure 2.17 Other spend on other programming in the devolved nations: 2015



Source: Broadcasters.
Note: BBC S4C Statutory refers to the cost to the BBC of programming supplied to S4C by the BBC as part of their statutory agreement. ILBF / USBF refers to additional production contributions by the Irish Language Broadcast Fund and the Ulster Scots Broadcast Fund. S4C figures cover the 2015/2016 financial year, BBC Alba and ILBF / USBF figures cover the 2015 calendar year

BBC Alba

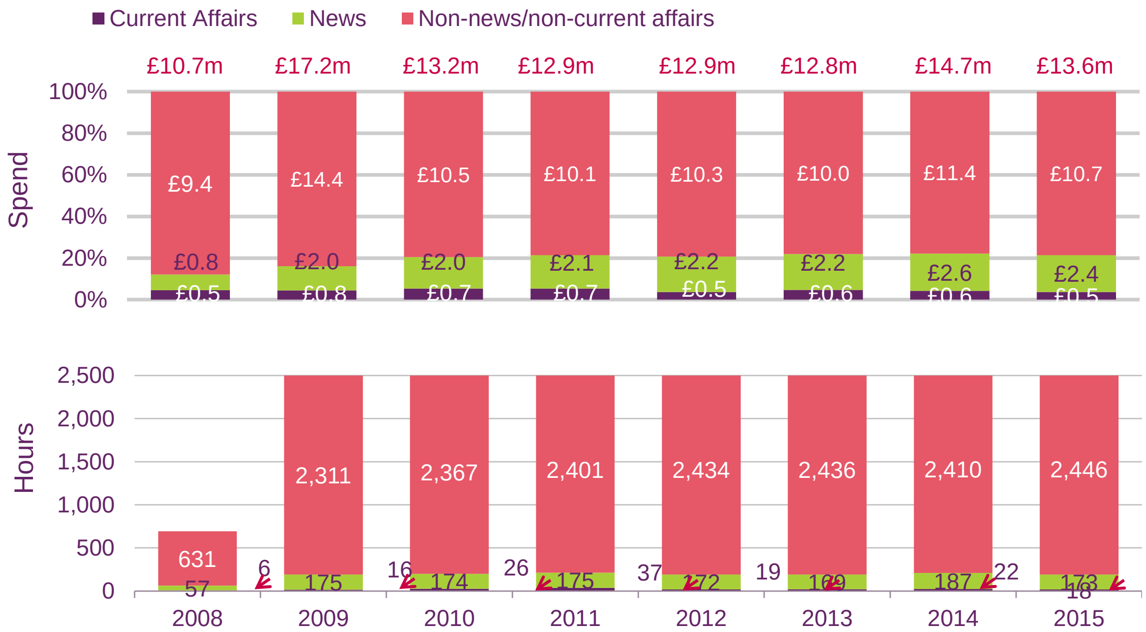
BBC Alba is the Gaelic-language service backed by the BBC and MG Alba, which launched in September 2008.

Figure 2.18 shows that £13.6m was spent on total programming output for BBC Alba in 2015.

Nominal spend on non-news programming fell by 6%, spend on news decreased by 8%, and current affairs spending fell by 19% year on year. BBC Alba spend overall decreased by 7% in nominal terms.

In 2015 BBC Alba broadcast 2,637 hours in total, eighteen hours more than in 2014. Of this, the vast majority was non-news/non-current affairs.

Figure 2.18 BBC Alba total spend: 2008-2015



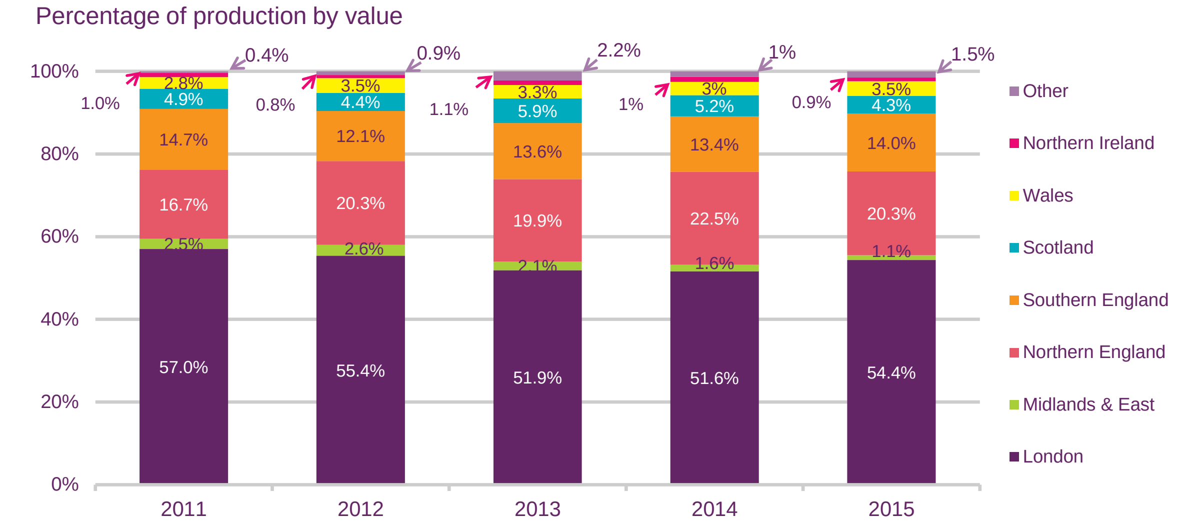
Source: BBC, total hours and spend. All figures are nominal.

2.6 Network television productions made in Scotland

Figure 2.19 and Figure 2.20 below illustrate the proportion of qualifying first run PSB commissions that were produced in the nations and regions over the last five years, in terms of expenditure and volume respectively.

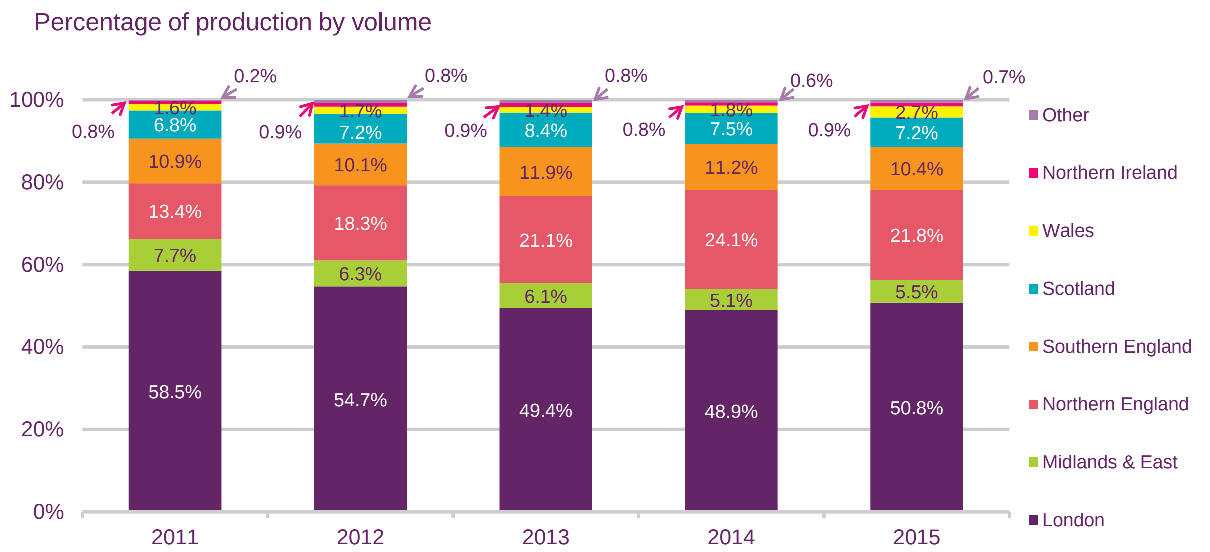
In 2015 4.3% of network broadcast spend on original first run productions was directed toward Scotland in return for 7.2% of all originated hours. This indicates that the average cost per hour of production was less than the UK average. Cost per hour can vary depending on the type of programme being produced, so any comparisons across the nations and regions should be treated with caution.

Figure 2.19 Expenditure on originated network productions: 2011-2015



Source: Ofcom/broadcasters
Note: This expenditure does not include network news production .The category 'other' refers to programmes made by producers based within the M25 that qualify as regional productions on the grounds that 70% of total spend and 50% of off-screen talent spend was outside the M25, but not all in one macro-region, and therefore cannot be attributed to a single region. See http://stakeholders.ofcom.org.uk/broadcasting/guidance/programme-guidance/reg_prod/ on Ofcom website for further details.

Figure 2.20 Volume of originated network productions: 2011-2015



Source: Ofcom/broadcasters
Note: These hours do not include network news production . The category 'other' refers to programmes made by producers based within the M25 that qualify as regional productions on the grounds that 70% of total spend and 50% of off-screen talent spend was outside the M25 but not all in one macro-region, and therefore cannot be attributed to a single region. See http://stakeholders.ofcom.org.uk/broadcasting/guidance/programme-guidance/reg_prod/ on Ofcom website for further details.

3 Radio and audio content

3.1 Recent developments in Scotland

Local analogue commercial radio

Following the surrender by Real Radio (Scotland) Limited of the local analogue commercial radio licence for Paisley, Ofcom advertised a new local analogue commercial radio licence in west central Scotland using the same frequency. The licence award is still in process at the time of publication.

Small-scale digital radio

In February 2016 Ofcom extended the trial of the ten UK-wide small-scale digital multiplexes, including the Glasgow multiplex, for a further two years. The Glasgow multiplex, licensed to Scrimshaws Information Directories, currently carries eight smaller radio stations, such as community stations, enabling them to broadcast on DAB digital radio. The trial licences were originally awarded in June 2015 for a nine-month period. Ofcom wishes to continue to monitor the longer-term performance of this approach, while we develop a framework to enable services to be licensed throughout the UK on a non-trial basis.

Internet radio

Scottish-based internet radio station, Scotland69am, has been voted one of the best in the world by the listeners of StreamFinder.com and V-tuner.com, two of the leading internet radio directories.

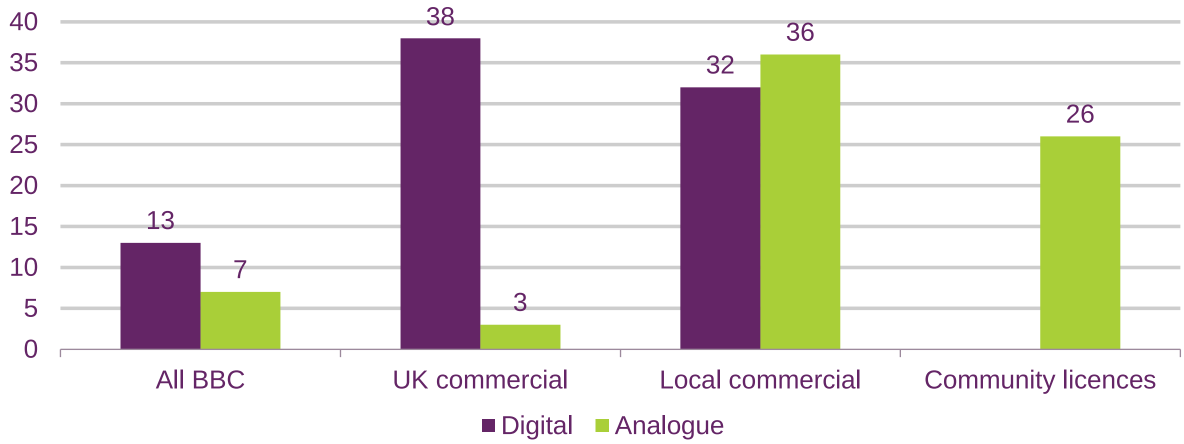
3.2 Radio station availability

There are now 83 stations broadcasting on DAB in Scotland

With the launch of the Sound Digital multiplex in March 2016, there are now 83 stations available on DAB in Scotland. The second national multiplex brings an additional 18 stations, adding to the 13 digital services available from the BBC, the 12 stations on the Digital One multiplex and the 40 UK and local commercial stations that are broadcasting on local DAB multiplexes.

However, not all of these stations will be available on DAB to listeners across all of Scotland. As Figure 3.2 shows, the proportion of households within the coverage area for each type of station varies, and there are different services on each of the local DAB multiplexes serving different parts of Scotland. There are also 72 analogue stations available in Scotland. Many of these are simulcasts of DAB stations, but the 26 community radio services and some of the local commercial radio services are available on analogue only in their local coverage areas. Community station Castle FM ceased broadcasting in February 2016.

Figure 3.1 Radio station availability



Source: Ofcom, May 2016
Note: This chart shows the maximum number of stations available; local variations and reception issues mean that listeners may not be able to access all of them.

3.3 DAB coverage

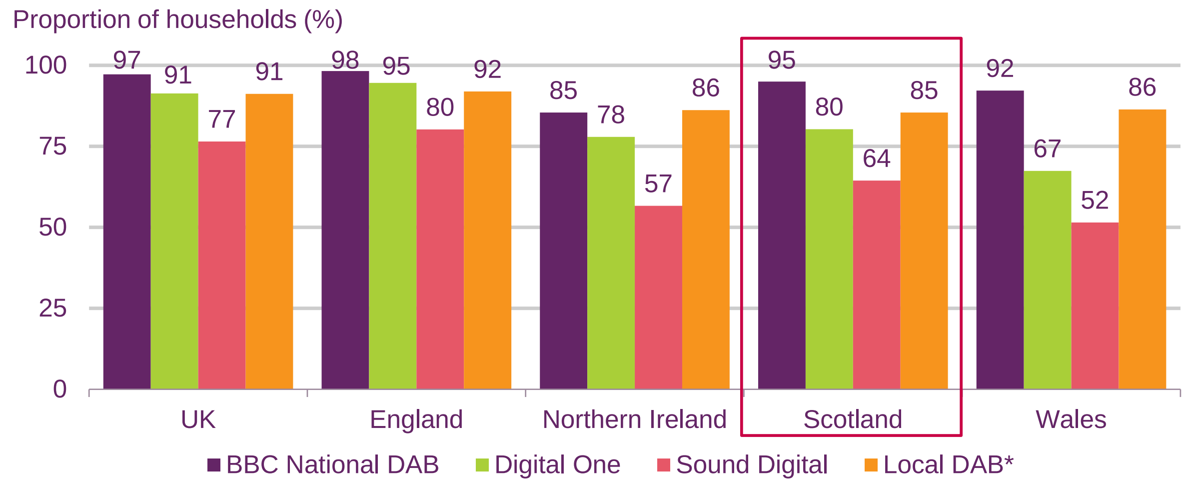
DAB services from the BBC are available to 95% of households in Scotland

Household coverage of the BBC national multiplex has increased to 95% from 92% in 2015, and coverage from UK-wide commercial multiplex Digital One has increased by 4pp to 80%.

Coverage from the new multiplex from Sound Digital is more limited than from other multiplexes. UK-wide indoor coverage currently reaches 77% of households. In Scotland, the figure is 64%.

Coverage from the local DAB multiplexes in Scotland, as well as across the UK, is currently being extended with the addition of new transmitter sites. By autumn 2016, the expected coverage of local DAB in Scotland is 85% of households. This will be a 20pp increase compared to coverage in 2015.

Figure 3.2 Household coverage of DAB



Source: BBC, Arqiva, Ofcom, May 2016
**Figures for local DAB are projections of expected coverage for Autumn 2016 based upon a planned list of transmitter sites. The plan is continuing to be refined and actual coverage may differ slightly from those figures when the current programme of expansion completes.*

3.4 Listening to audio content

The average time spent listening to radio in Scotland is on par with the UK average

During an average week in 2015, 87.9% of adults in Scotland listened to the radio and tuned in for an average of 21.1 hours each week. Although the reach of radio was slightly lower than in the UK overall, the time each listener spent listening to radio was broadly the same. Radio listeners in Scotland spent more time with the radio in 2015 than in 2014. The average weekly listening time has increased from 19.9 hours to 21.1 hours.

Figure 3.3 Average weekly reach and listening hours: 2015

	England	Scotland	Wales	Northern Ireland	UK TOTAL
Average weekly listening	21.4 hours	21.1 hours	22.1 hours	20.2 hours	21.4 hours
Reach	89.6%	87.9%	93.6%	86.6%	89.6%

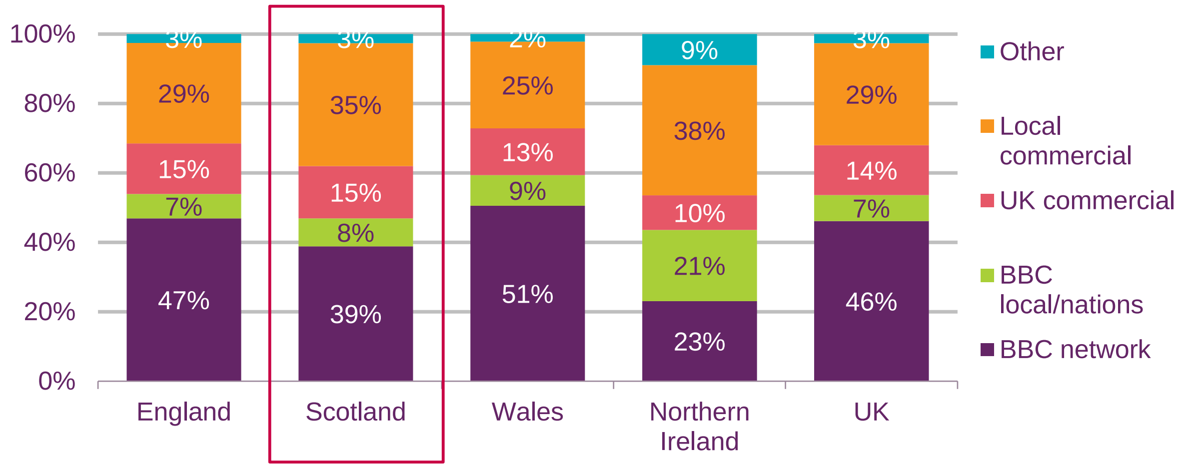
Source: RAJAR, All adults (15+), year ended Q4 2015. Reach is defined as a percentage of the area's adult population who listen to a station for at least five minutes in the course of an average week.

Half of the time spent listening to radio in Scotland is spent with commercial services

Commercial stations accounted for 50% of listening hours in Scotland in 2015. This is 7pp higher than the UK average and the highest across any of the UK nations. The majority of commercial listening in Scotland is to local commercial stations, and this type of station accounts for over one-third of total listening hours.

The share of listening to BBC stations overall in Scotland is lower than the UK average and higher only than in Northern Ireland. Four in ten listening hours are to BBC network stations, compared to 46% for the UK average.

Figure 3.4 Share of listening hours, by nation: 2015



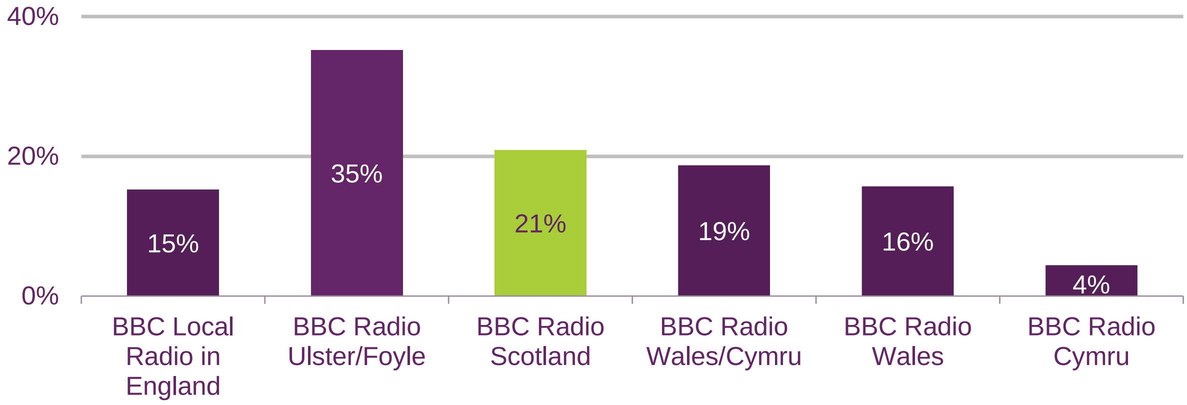
Source: RAJAR, All adults (15+), year ended Q4 2015

One-fifth of people in Scotland listened to BBC Radio Scotland in 2015

In an average week in 2015, the weekly reach of BBC Radio Scotland was 21%, 6pp higher than the aggregate reach for BBC local services in England and 5pp higher than BBC Radio Wales. The reach for BBC Radio Scotland increased by 1pp year on year, although its share of total listening hours remained the same.

In 2015, Radio nan Gàidheal reached 68.9% of Gaelic speakers aged 16+ in Scotland. Listening to this radio station is measured separately to other radio services through a panel of Gaelic speakers by TRP Research[14], and figures are not comparable to listening as measured by RAJAR.

Figure 3.5 Weekly reach for nations'/local BBC services: 2015



Source: RAJAR, All adults (15+), year ended Q4 2015
Note: BBC Radio nan Gàidheal is not measured by RAJAR and so is not shown.

3.5 Digital radio set ownership and listening

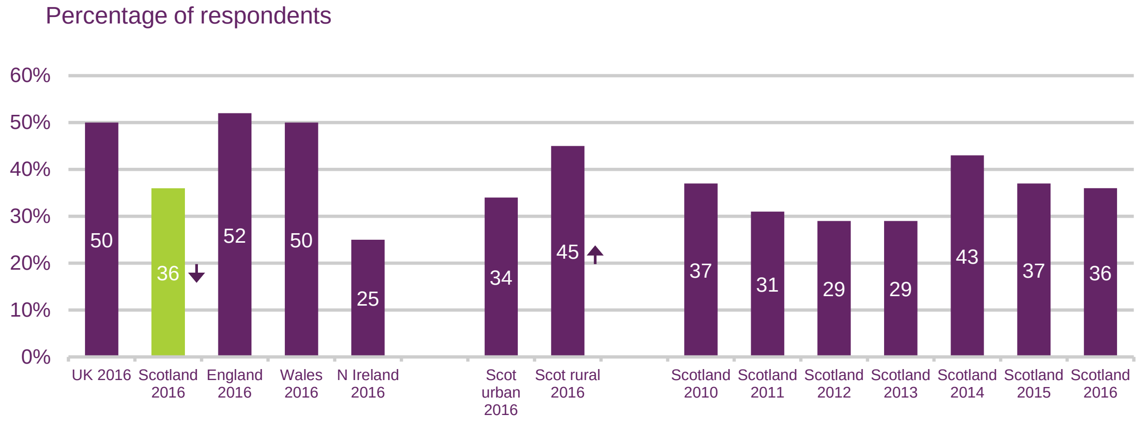
Almost four in ten adults in Scotland who listen to radio have a digital radio set

Thirty-six per cent of adults who listen to radio say they have at least one DAB radio set at home, unchanged since 2015. In 2016, ownership of DAB digital radios in Scotland (36%) is lower than the UK average (50%).

Radio listeners in rural areas of Scotland are more likely to own a DAB set (45%) compared to those in urban areas (34%), following a significant increase in ownership between 2015 and 2016 for rural radio listeners.

[14] Please note: the panel operator changed from Lèirsinn to TRP at the start of 2015. This makes comparisons with earlier years difficult.

Figure 3.6 Ownership of DAB digital radios

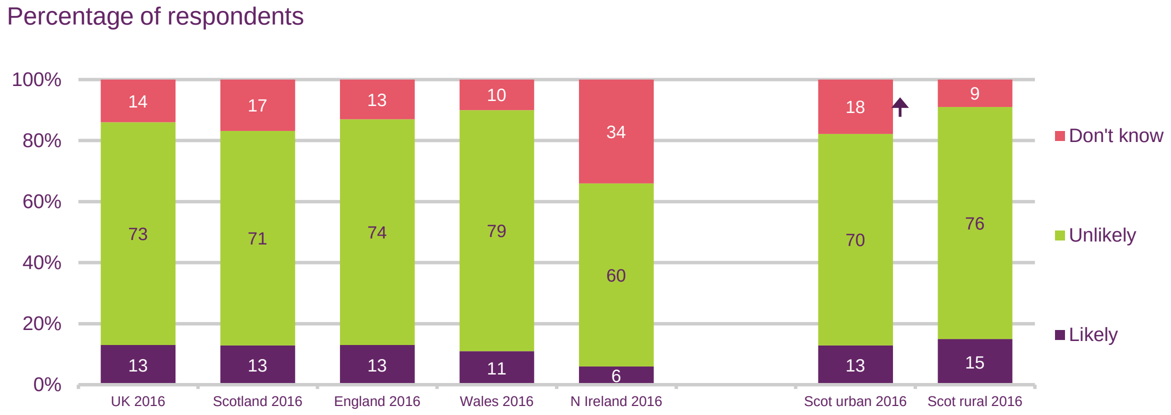


Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who listen to radio (n = 2832 UK, 384 Scotland, 1693 England, 399 Wales, 356 Northern Ireland, 196 Scotland urban, 188 Scotland rural, 1034 Scotland 2010, 357 Scotland 2011, 364 Scotland 2012, 375 Scotland 2013, 392 Scotland 2014, 386 Scotland 2015, 384 Scotland 2016)
NB. Data in 2011 based on those who listen to radio and have any radio sets in the household that someone listens to in most weeks
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QP9: How many DAB sets do you have in your household?

One in eight radio listeners in Scotland without a DAB set say they are likely to buy one within the next year

Thirteen per cent of radio listeners in Scotland who do not have a DAB set say they are likely to purchase one in the next 12 months. This figure does not differ from that for the UK as a whole and does not vary by location in Scotland. Radio listeners in urban areas who do not currently own a DAB set are, however, twice as likely as those in rural areas to be unsure whether they will buy one in the next 12 months (18% vs. 9%).

Figure 3.7 Likelihood of purchasing a DAB radio within the next year



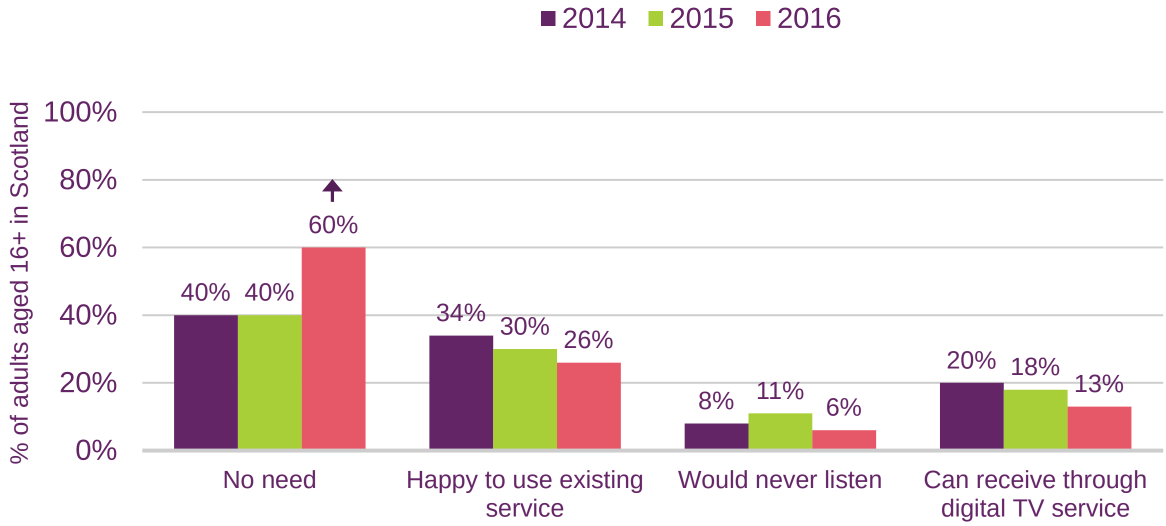
Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who listen to radio and do not have a DAB set (n = 1593 UK, 236 Scotland, 870 England, 212 Wales, 275 Northern Ireland, 131 Scotland urban, 105 Scotland rural).
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016.
QP12: How likely is it that your household will get a DAB radio in the next 12 months?

Three in five radio listeners without a DAB set in Scotland are unlikely to get one in the next 12 months because they feel they have no need

Radio listeners stating they were unlikely to get DAB radio in the next 12 months were asked to say – without prompting - why they were unlikely to do so. Three in five (60%) said it was because they did not have a need for it, while 26% said it was because they were happy using an existing service. Around one in eight (13%) said they could receive digital radio through their TV service and 6% said they would never listen to DAB radio.

Since 2015 there has been an increase in the proportion of those unlikely to buy a DAB radio because they say they have no need for it (60% vs. 40% in 2015).

Figure 3.8 Reasons why unlikely to purchase DAB in the next year

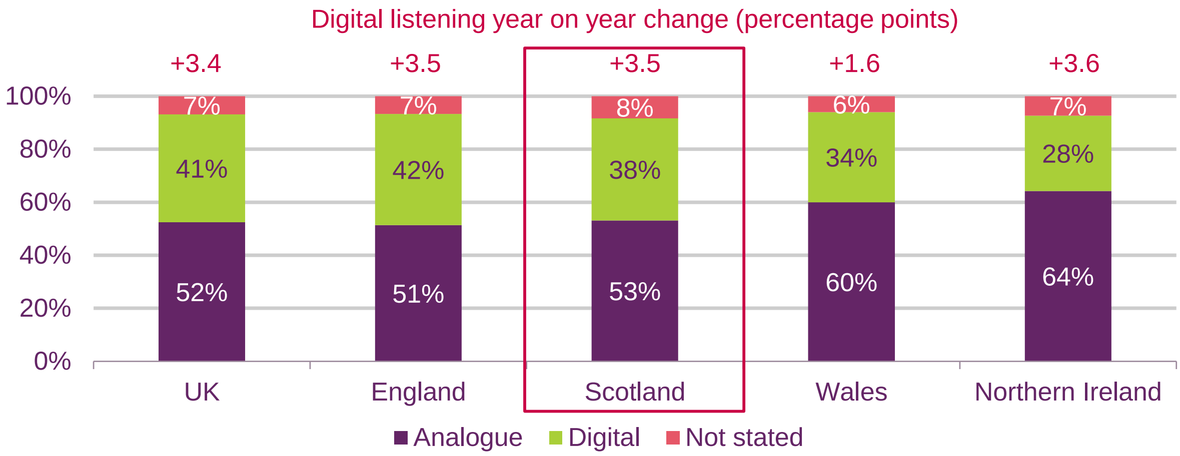


Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ who listen to radio and are unlikely to get DAB radio in the next 12 months (Scotland 2014 = 137; Scotland 2015 = 148; Scotland 2016 = 174)
Responses shown for spontaneous mentions by 5% or more at a UK level
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland 2015 and 2016.
QJ14: Why are you unlikely to get digital radio in the next 12 months?

Digital platforms[15] have a 38% share of listening hours in Scotland

Digital share of listening increased by 3.5pp year on year in Scotland, and accounted for 38% of all listening hours. Although still slightly lower than the UK average, the increase in digital share of listening was on a par with growth for the UK overall.

Figure 3.9 Share of listening hours via digital and analogue platforms: 2015



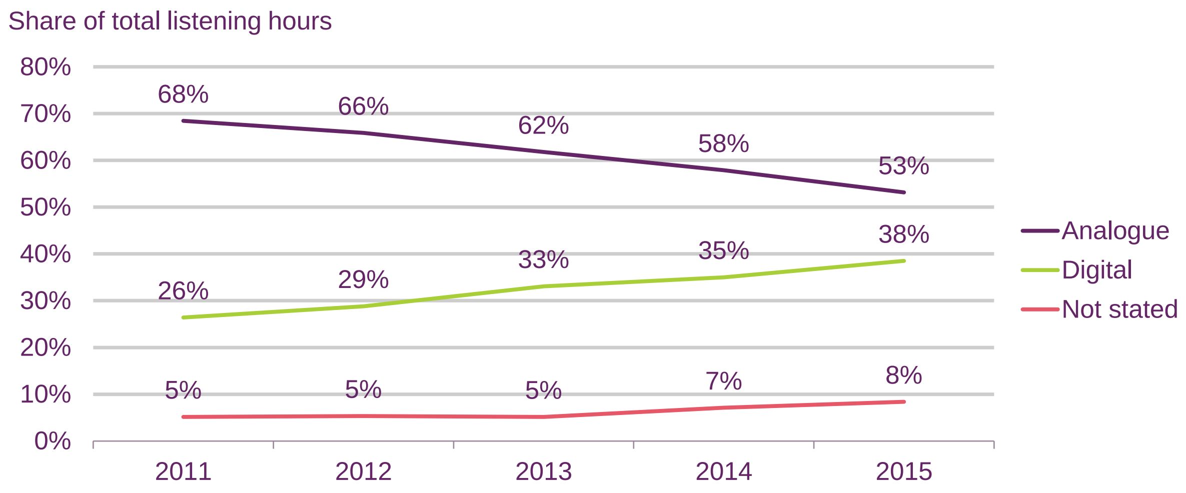
Source: RAJAR, All adults (15+), year ended Q4 2015

[15] DAB, digital television and the internet.

Growth in digital share of listening has grown steadily since 2011

With the exception of 2014, growth in digital share of listening in Scotland has increased by at least 3pp each year since 2011, rising from 26% to 38%. Listening through analogue methods now accounts for just over half of listening hours, down from two-thirds in 2011.

Figure 3.10 Share of listening hours via digital and analogue platforms in Scotland: 2011-2015



Source: RAJAR, all adults, calendar years 2011-2015

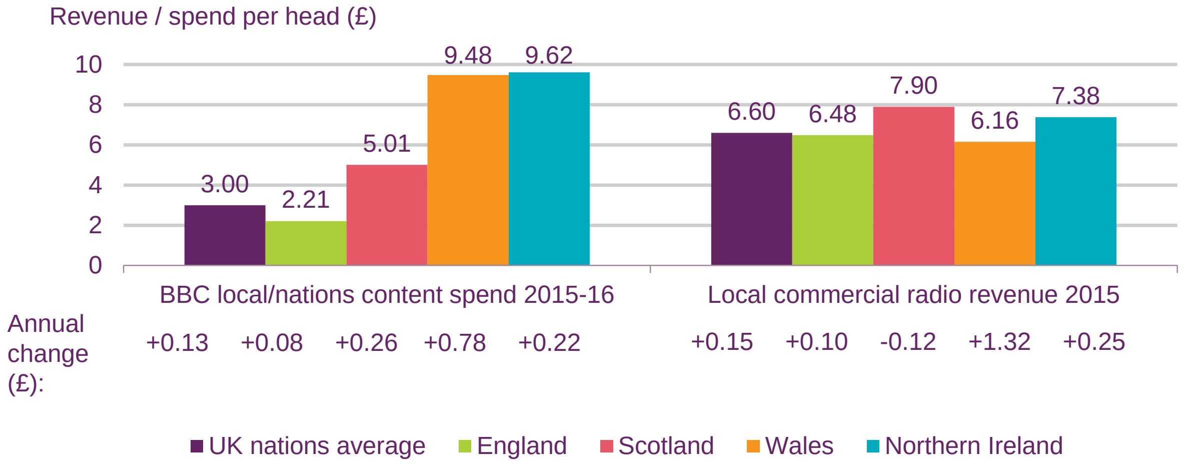
3.6 The radio industry

Local commercial radio revenue per head is highest in Scotland

Despite a fall of 12p per head of population in 2015, Scotland has by far the highest local per-capita commercial radio revenue. At £7.90 per head, it is higher than the UK average. Nevertheless, Scotland was the only nation where local commercial radio revenue fell in 2015.

BBC spend on content for BBC Radio Scotland and BBC Radio nan Gàidheal increased by 5.5% in 2015-16. On a per-capita basis, the spend on radio content for local/nations' services in Scotland is higher than the UK average, but is lower than in Wales or Northern Ireland.

Figure 3.11 Local/nations' radio spend and revenue per head of population: 2015



Source: Broadcasters
Note: The UK total shows the average for local commercial radio across the four nations and therefore excludes services broadcast UK-wide. Figures are nominal.

4 Telecoms and networks

4.1 Recent developments in Scotland

Commercial investment has made progress with some innovative EE and CityFibre investments

In March 2015, CityFibre announced that it was to invest in a pure-fibre network in Edinburgh, enabling speeds of up to 1GBit/s. As part of CityFibre's 'Gigabit Cities' programme, 150km of fibre will be deployed in Edinburgh, the second city in Scotland to benefit from CityFibre investment, alongside Aberdeen.

In April 2016, EE launched a 'network-in-a-box', to help improve 4G network coverage in the Scottish Highlands.[16] The software can be programmed to accommodate different types of wireless services, helping to reach areas where fibre deployment is difficult. The University of the Highlands and Islands will be the first to use the network development kits, and will participate actively in the project. This launch came after EE switched on its 4G network in Shetland, with support from the BT Group, and announced its ambition to increase 4G coverage from 60% of UK landmass to 95%.[17]

Reports demand better connectivity and advocate digital skills

The Federation of Small Businesses (FSB) published a report in December 2015 urging small businesses to assess how technology could help them grow and become more efficient. The report, *Digital Disruption and Small Businesses in Scotland*[18], voiced concern that Scottish businesses could be swept away if they did not adapt to new ways of working.

The Glasgow Digital Ambassadors programme, a collaboration between seven organisations including Scottish Enterprise, is being trialled in Scotland as part of the Digital Tourism Scotland programme. It is the first pilot of its kind in Scotland. The aim of the programme is to develop a national group of digital ambassadors who will act as case studies for the tourism sector through sharing their experiences and by motivating other businesses to capitalise on the opportunities that digital has to offer.

A focused plan for members of the tourism industry, linked to the Tourism 2020 strategy, was launched, with the aim of improving and developing the digital knowledge and skills of tourism businesses in Scotland.

A number of public sector initiatives are driving infrastructure roll-out

The Scottish Government continues to lead the Digital Scotland Superfast Broadband Programme (DSSB). The programme met its initial target of 25 Mbit/s speeds for 85% of households across the whole of Scotland (including commercial coverage) and currently

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16 http://telecoms.com/472108/ee-launches-software-defined-basestation-in-uk-4g-coverage-expansion-effort/
17 http://ee.co.uk/our-company/newsroom/2016/04/25/EE_launches_new_strategy_to_onshore_100_of_service_calls_and_expand_4G_coverage_to_95_of_UK
18 http://www.fsb.org.uk/LegacySitePath/policy/rpu/scotland/assets/fsb%20scotland%20-%20disruption%20report%20-%20final.pdf

covers 550,000 premises. It plans to give access to at least 95% of premises by the end of 2017[19] and 100% by the end of Session 5 of the Parliament (2021)[20].

A second phase of public investment has been identified that will seek to build on the DSSB coverage footprint and the planned Community Broadband Scotland activity, with the aim of delivering 100% coverage by the end of 2021. DSSB is split into two projects: one for the Highlands and Islands and one for the Rest of Scotland. In the Highlands and Islands, around 122,500 premises now have access to fibre broadband. The Rest of Scotland project is now 66% of the way through its infrastructure deployment, and over 430,000 premises have access to fibre broadband.

Community Broadband Scotland (CBS), as part of Highlands and Islands Enterprise, is currently supporting 106 community organisations through project development, and has approved grant funding for 67 projects with a value of over £2.5m. In addition to the core offering from CBS, a £9m broadband scheme under the Scottish Rural Development Programme was launched in August 2015 and will be administered by CBS.

As part of the World Class Digital Infrastructure programme, the Scottish Government and Scottish Futures Trust (SFT) are collaborating on a programme of activity to scope what infrastructure is required to support delivery of world-class connectivity across Scotland, and investigate how the public sector can most effectively intervene to stimulate and accelerate the necessary private investment.

The Scottish Government has agreed a Mobile Action Plan[21] with the major mobile operators to deliver improved coverage in Scotland. The proposals include commitments to introduce non-domestic rates relief for new mobile masts in non-commercial areas, to further reform the planning process for commercial investment, to introduce a data-sharing agreement between the mobile operators, the Scottish Government and Ofcom, and to hold a joint workshop to explore future-proofing sites for 5G-ready infrastructure.

The Scottish Government has continued to support the Rural Parliament with £200,000 allocated to support the Rural Action Plan. Two of its objectives relate to communications: to improve mobile phone signal significantly in rural areas over the next five years; and to ensure that broadband of sufficient speed reaches all rural communities as quickly as possible.

The Scotland Office announced that Inverness will benefit as part of a UK City Deal programme[22] that will invest money in projects designed to help the economic growth of Inverness and the Highlands, including a city Wi-Fi scheme.

Nuisance calls

The Scottish Government held a nuisance calls summit in summer 2016, bringing together consumer groups, industry, regulators and government to tackle the issue.

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[19] Figures correct as of late March 2016.
[20] http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_16-57_Digital_Connectivity.pdf
[21] http://news.scotland.gov.uk/imagelibrary/downloadmedia.ashx?MediaDetailsID=4965&SizeId=-1
[22] https://www.gov.uk/government/news/uk-city-deal-invests-315-million-in-inverness-and-the-highlands

4.2 Availability of fixed broadband services

Basic broadband availability in Scotland is slightly lower than in the rest of the UK

Three main technologies are used to provide fixed broadband services in the UK: exchange-based ADSL, cable (over a hybrid fibre-coaxial network) and fibre to the cabinet (using VDSL from the street cabinet).[23] Of these three technologies, ADSL is the most widely available, partly because it is the cheapest to deploy as it uses the existing copper telephony network to transmit data to the end-user. In most cases it does not require an upgrade to the existing copper access network, and the only costs are associated with the installation of the new equipment in the local exchange and the end-user's premises. By comparison, cable and fibre roll-out both involve the deployment of new infrastructure to connect local exchanges/nodes to the end-user.

BT has around 5,600 local exchanges across the UK, and almost all of these have been upgraded to offer ADSL broadband services. Across the UK as a whole, 99.98% of premises (i.e. homes and offices) were connected to an ADSL-enabled exchange by the end of 2015 (Figure 4.1). In Northern Ireland and Wales, all the BT local exchanges had been upgraded to offer ADSL broadband services, while in England and Scotland there remain a small number of exchanges that are not ADSL-enabled.

It is important to note that some premises in ADSL-enabled areas may not be able to receive broadband services, or may only be able to access very low speeds. Potential reasons for this include the long length, or poor quality, of the copper telephone line from the premises to the local exchange.

What is local loop unbundling (LLU)?

Local loop unbundling (LLU) operators are able to offer fixed broadband services by placing their own equipment in the incumbent provider's local exchange. This equipment is then connected to the LLU provider's backhaul network and ADSL broadband services are provided over the copper lines from the exchange to the end user; these lines are leased from the incumbent provider. LLU operators are able to benefit from economies of scale that are not available when purchasing wholesale services on a per-unit basis, and are better able to differentiate their services from those offered by their competitors. Similarly, consumers living in LLU-enabled exchange areas have a greater choice of ADSL broadband services and, typically, access to lower-cost (particularly bundled) broadband services.

By the end of 2015, 95% of UK premises were served by unbundled local exchanges (a small increase compared to the previous year). As there are a larger number of premises to be served in urban areas, roll-out of any fixed telecoms network tends to be concentrated there, at least initially. This is reflected in the fact that almost all premises in urban areas (over 99%) were connected to an unbundled local exchange at the end of 2015. In rural areas, 77% of premises were connected to an unbundled local exchange by the end of 2015. England had the highest proportion of premises connected to an unbundled local exchange at the end of 2015, at 96%, followed by Wales with 93% availability and then Scotland and Northern Ireland (both 90%).

[23] A small proportion of premises are also served by fibre to the premises (FTTP).

Figure 4.1 Proportion of premises connected to ADSL-enabled and unbundled exchanges

Source: Ofcom / BT, December 2015 data

Ninety-three per cent of premises in Scotland were able to receive broadband services with speeds of 10Mbit/s or higher in June 2016

In 2015, the UK Government announced its intention to establish a 10Mbit/s universal service obligation (USO) for fixed broadband services. Data provided to Ofcom by fixed broadband providers[24] show that by June 2016, 95% of UK premises were able to receive actual fixed broadband speeds of 10Mbit/s or higher, up from 92% a year previously. As with basic broadband services, availability was higher in urban areas, with 98% of urban premises able to receive speeds of 10Mbit/s and above, compared to 76% in rural areas. In Scotland, 93% of premises could receive broadband speeds of 10Mbit/s or higher by June 2016, the second highest proportion among the UK nations, after England, and up from 86% in June 2015.

[24] This analysis is a preliminary assessment of coverage and is based on data from a limited number of national and larger regional providers. We are continuing to analyse the data we have received, including integrating data from additional, smaller providers, and our final assessment of coverage will be published in the *Connected Nations Report* later this year.

Figure 4.2 Proportion of premises able to receive broadband services at 10Mbit/s speeds and above

Source: Ofcom / operators, June 2016 data
Note: UK urban and rural figures are not comparable to those published in the 2015 report due to a change in the urban/rural classifications.

Eighty-three per cent of premises in Scotland were able to receive superfast, or higher, broadband speeds in June 2016

When collecting data to inform its work in monitoring the UK's communications market infrastructure in 2016, Ofcom asked operators to provide data regarding the proportion of premises that could receive superfast, or higher, fixed broadband speeds,[25] i.e. a fixed broadband service with an actual speed of 30Mbit/s or higher.

It is important to note that not all cable and fibre broadband connections are capable of providing superfast broadband services. For example, the speed achievable on a fibre-to-the-cabinet (FTTC) line will depend on the length and quality of the copper connection from the street cabinet to the user's premises (as is the case with ADSL).

As shown in Figure 4.3 below, the proportion of premises that were able to receive superfast or higher broadband services in the UK was 88% in June 2016. This represented an increase of five percentage points compared to a year previously. Availability was much higher in urban areas, with 93% of urban premises able to receive superfast or higher broadband, compared to 58% in rural areas. Scotland, together with Northern Ireland, had the joint lowest proportion of premises that were able to receive superfast or higher broadband, at 83%, with availability in Scotland having increased from 73% in June 2015.

The UK Government defines superfast broadband as having download speeds of 24Mbit/s or higher. We would expect the coverage of services at these speeds to be higher than the 88% of UK premises that are able to receive speeds of 30Mbit/s or more.

[25] This analysis is a preliminary assessment of coverage and is based on data from a limited number of national and larger regional providers. We are continuing to analyse the data we have received, including integrating data from additional, smaller providers, and our final assessment of coverage will be published in the *Connected Nations Report* later this year.

Figure 4.3 Proportion of premises able to receive superfast or higher broadband services

Source: Ofcom / operators, June 2016 data
Note: UK urban and rural figures are not comparable to those published in the 2015 report due to a change in the urban/rural classifications.

4.3 Mobile network coverage

Overview

Mobile network availability varies across the UK, with some areas (known as 'mobile not-spots') having no mobile coverage. These areas are often characterised by low population density and/or hilly terrain, which present physical and economic obstacles, and deter mobile network operators (MNOs) from deploying mobile network infrastructure. Other areas (known as 'partial not-spots') have mobile coverage but only from some of the UK's four operators.

How we measure the availability of mobile telephony for this report

The coverage information presented in Ofcom's *Communications Market Reports* and the *Connected Nations* report is collected by Ofcom from the four UK mobile network operators (MNOs). Information on coverage is provided by each operator for each 100m x100m 'pixel' of landmass across the UK. This information is then correlated with maps of premises to give the premises' coverage figures.

The signal strength thresholds used by Ofcom to determine where 2G, 3G and 4G mobile services are available differ from those used in last year's reports. As such, the mobile coverage data in this report are not comparable to those published last year. These thresholds may also differ from those used by MNOs in their reporting. UK urban and rural figures are also not comparable to those published in the 2015 report due to a change in the urban/rural classifications.

The availability figures in this report all refer to outdoor coverage. Coverage figures for indoor reception are likely to be lower because radio signals are weakened as they pass through the fabric of buildings. Indoor reception is highly dependent on the building, as well as the user's location in the building, making it difficult to calculate accurate indoor coverage figures.

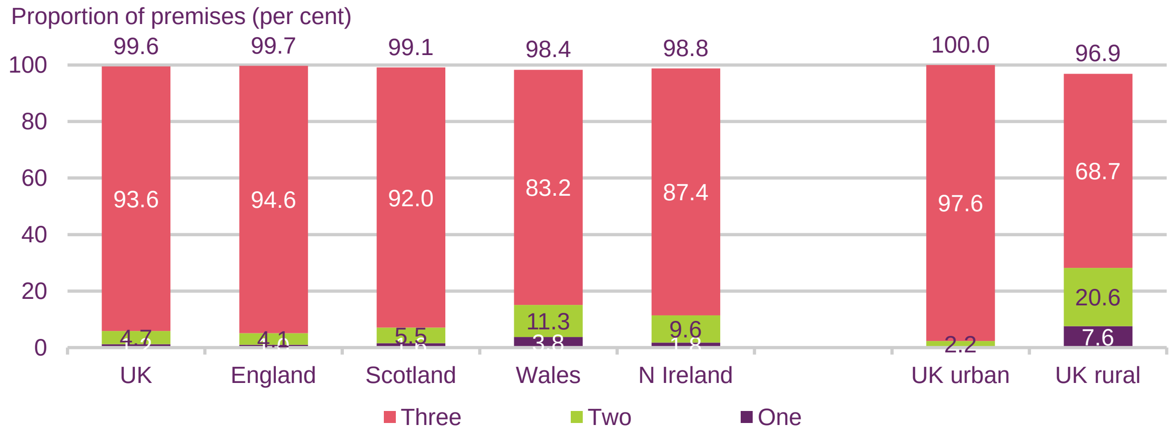
Figure 4.4, Figure 4.5 and Figure 4.6 show coverage levels for 2G, 3G and 4G mobile services respectively.[26] 2G is considered satisfactory for telephone calls and text messaging, while 3G is considered the minimum required to access mobile data services. 4G generally provides a better user experience than 3G when accessing mobile data, as it offers faster download and upload speeds.

Over 99% of premises in Scotland were in areas with outdoor 2G coverage in May 2016

Data provided to Ofcom by the UK's three national 2G mobile network operators (Vodafone, O2 and EE) show that by May 2016, 99.6% of UK premises were in areas with 2G coverage from at least one network, while around 0.4% of UK premises were in areas without any 2G coverage at all. The data show that most UK premises (93.6%) were in areas with outdoor 2G coverage from all three providers. The proportion of UK premises in areas with outdoor 2G mobile coverage in May 2016 was higher in urban locations (100.0%) than in rural ones (96.9%).

In Scotland, the proportion of premises in areas with outdoor 2G coverage from at least one network in May 2016 was 99.1%, the second highest proportion across the UK nations, after England. Similarly, the proportion of premises with outdoor coverage from all three national 2G networks was 92.0% in May 2016.

Figure 4.4 Outdoor 2G premises mobile coverage, by number of operators



Source: Ofcom / operators, May 2016 data
Note: Coverage is based on 100m² pixels covering the UK

Scotland had the lowest proportion of premises with outdoor 3G coverage in 2016

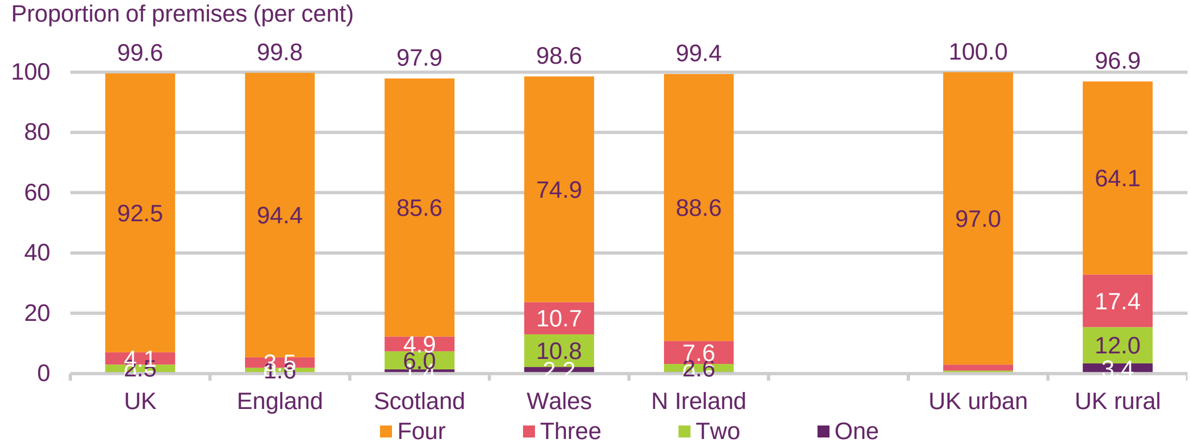
Data provided to Ofcom by the UK's four national 3G mobile network operators (the three national 2G providers plus Three) show that 99.6% of UK premises had outdoor coverage from at least one 3G network in May 2016, while 92.5% had outdoor coverage from all four 3G providers. The proportion of premises in areas with outdoor 3G coverage was higher in urban areas of the UK (100%) than in rural areas (96.9%).

Scotland had the lowest proportion of premises with outdoor 3G coverage from at least one mobile network, across the UK nations, in May 2016, at 97.9%. Similarly, 85.6% of premises

[26] The availability data provided by the MNOs are taken from network planning tools, which are subject to a margin of error. Local factors such as tall buildings or trees can also affect signal strength.

were in areas with 3G coverage from all four networks, the second lowest proportion after Wales.

Figure 4.5 Outdoor 3G premises mobile coverage, by number of operators



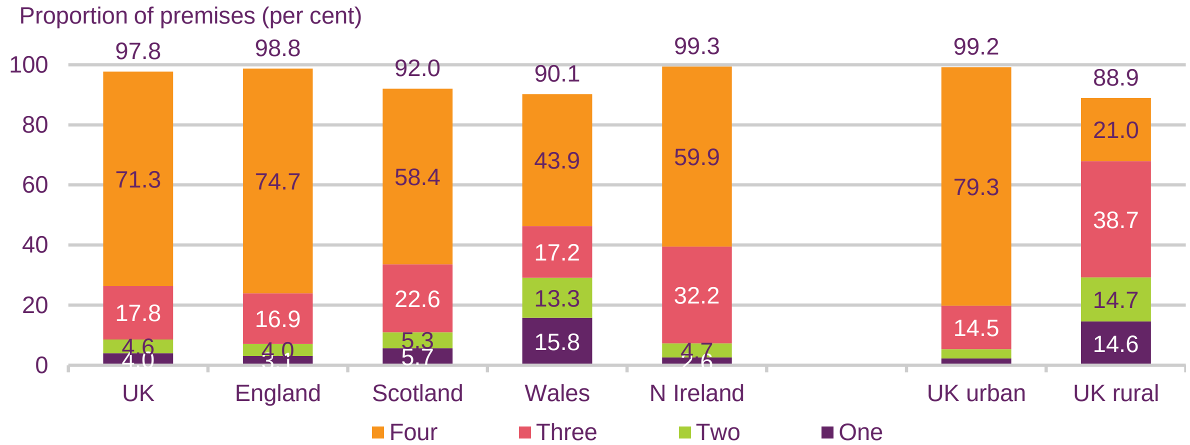
Source: Ofcom / operators, May 2016 data
Note: Coverage is based on 100m² pixels covering the UK

92% of premises in Scotland were in areas with outdoor 4G coverage in May 2016

The deployment of 4G mobile services has progressed rapidly in recent years, and 97.8% of UK premises were in areas with outdoor 4G mobile coverage from at least one national mobile network operator in May 2016. Similarly, the proportion of UK premises able to receive outdoor coverage from all four national MNOs was 71.3%. The difference between urban and rural 4G coverage was much more marked for 4G services than for 2G and 3G, with 99.2% of urban premises having outdoor 4G coverage, compared to 88.9% of those in rural areas.

In Scotland, 92.0% of premises were in areas with outdoor 4G coverage from at least one mobile network in May 2016. More than half (58.4%) of premises in Scotland had outdoor coverage from all four 4G networks, the second lowest proportion across the UK nations. Scotland experienced the slowest increase in 4G coverage by all four 4G networks across the UK nations, up by 21.4 percentage points compared to last year.

Figure 4.6 Outdoor 4G premises mobile coverage, by number of operators



Source: Ofcom / operators, May 2016 data
Note: Coverage is based on 100m² pixels covering the UK

4.4 Service take-up

Household computer ownership in Scotland remains lower than the UK average

As shown in Figure 4.7, while take-up levels for landlines and mobile phones in Scotland in 2016 were in line with the UK averages, ownership of any type of computer was below the UK average (79% vs. 84%). This was also true in 2015. Take-up of a 4G service was also lower in Scotland than in the UK as a whole (40% vs. 48%)

Adults in urban areas of Scotland were more likely than those in rural areas to own a smartphone (72% vs. 63%) or to have fixed broadband at home (80% vs. 69%). They were, therefore, also more likely to have any type of internet connection (86% vs. 78%). Take-up of a 4G service was also lower in rural areas, at 31%, compared to 42% in urban areas.

Figure 4.7 Take-up of communications services: 2016

		UK	Scotland	England	Wales	N Ireland	Scotland urban	Scotland rural
Individual								
Voice telephony	Fixed Line	**86%**	86%	86%	85%	86%	87%	84%
	Mobile phone	**93%**	91%	94%	91%	92%	91%	91%
	Smartphone	**71%**	70%	71%	65%	72%	72% ↑	63%
Internet	Computer (any type)	**84%**	79% ↓	85%	85%	80%	80%	74%
	Tablet computer	**59%**	56%	59%	67%	60%	56%	54%
	Total Internet[1]	**86%**	84%	87%	84%	83%	86% ↑	78%
	Broadband (fixed and mobile)[2]	**81%**	79%	81%	79%	78%	81% ↑	70%
	Fixed Broadband	**79%**	78%	79%	77%	77%	80% ↑	69%
	Mobile Broadband (via dongle/SIM)[3]	**4%**	3%	5%	4%	3%	3%	3%
	Web access on mobile phone[4]	**66%**	63%	66%	61%	69%	64%	59%
	4G service	**48%**	40% ↓	48%	44%	54%	42%	31% ↓

Source: Ofcom Technology Tracker, H1 2016
Notes: 1 Households with an internet connection of any description; 2 Households with a fixed broadband and/or dedicated mobile broadband (dongle/SIM) data connection (excludes households that solely use a mobile handset/s to access the internet); 3 HHGHhouseholds that use a dedicated mobile broadband (dongle/SIM) data connection to access the internet (excludes households that solely use a mobile handset/s to access the internet), 4 Households that use a mobile handset/s to access the internet (may also have any other type of internet access).
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016.
QC1: Is there a landline phone in your home that can be used to make and receive calls?/ QD2: Do you personally use a mobile phone?/ QD4: Do you personally use a smartphone?/ QD6: Do you have a 4G service?/ QE1: Does your household have a PC or laptop computer?/ QE2: Do you or does anyone in your household have access to the internet at home?/ QE9: Which of these methods does your household use to connect to the Internet at home?/ QD28A: Which if any, of the following activities, other than making and receiving voice calls, do you use your mobile for?

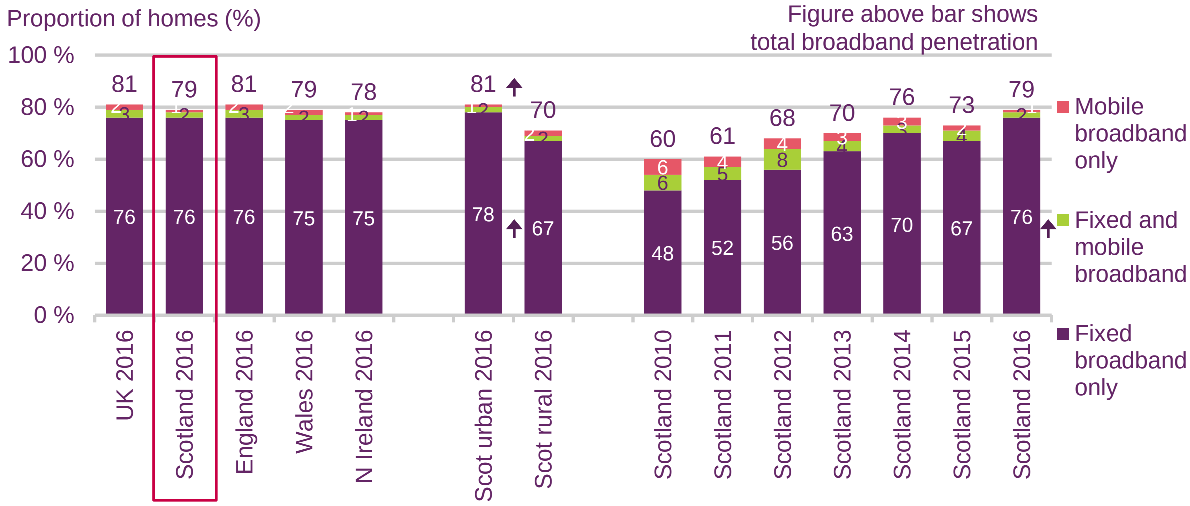
Total broadband penetration remains unchanged in Scotland since 2015

Total broadband penetration for households in Scotland was in line with that for the UK as a whole, and there has been no significant change in the total measure for Scotland since

2015. Conversely, the proportion of households in Scotland using solely a fixed broadband service has increased by 9 percentage points since 2015.

In 2016, households in urban areas of Scotland were more likely than those in rural areas to have any type of broadband at home (81% vs. 70%). This difference appears to be mainly driven by urban households being more likely than rural households to have fixed broadband (80% vs. 69% for rural households).

Figure 4.8 Overall household broadband take-up, by connection type



Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 1468 Scotland 2010, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016.
QE9: Which of these methods does your household use to connect to the internet at home?

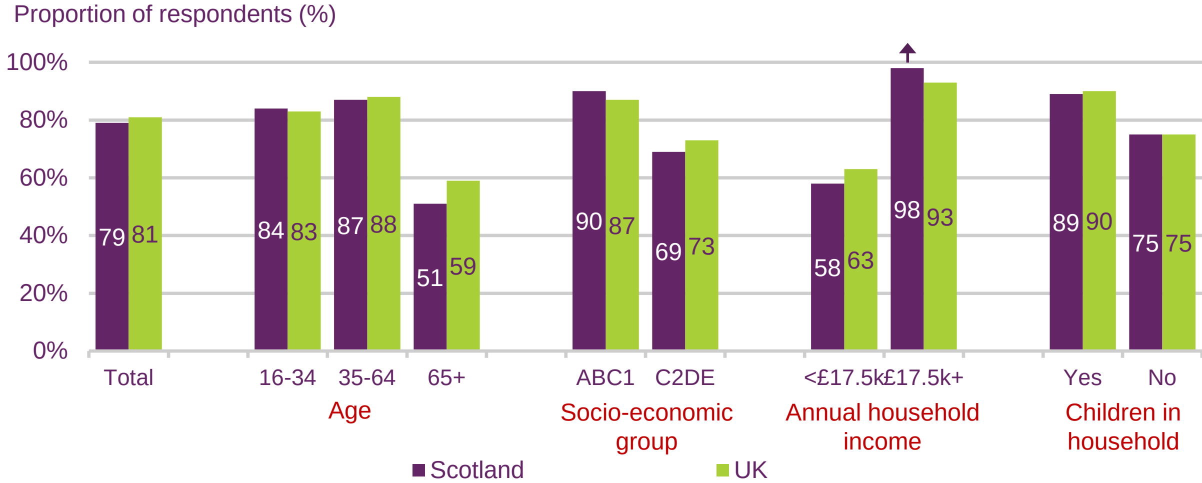
Take-up of broadband in Scotland is comparable to the UK as a whole

Household broadband take-up[27] in Scotland (79%) was comparable to the UK average (81%) in 2016. There was one difference between adults in Scotland and the UK overall: among those with a household income above £17.5k, respondents in Scotland were more likely than those in the UK overall to have broadband at home (98% vs. 93%).

As was the case across the UK, there were differences in broadband take-up in Scotland by age, socio-economic group and household income in 2016. Adults aged 65 and over were less likely than younger age groups to have broadband. Broadband take-up in Scotland was 21 percentage points higher among adults in the ABC1 socio-economic groups than among those in the C2DE groups (at 90% and 69% respectively). Similarly, there was a 40 percentage point difference in household broadband take-up between those with a household income below £17.5k (58%) and those with a household income above £17.5k (98%). Households with children were more likely than those without children to have broadband.

[27] This figure includes fixed and dedicated mobile broadband (via dongle/SIM) access, but excludes access on mobile handsets.

Figure 4.9 Overall broadband take-up in Scotland, by demographic

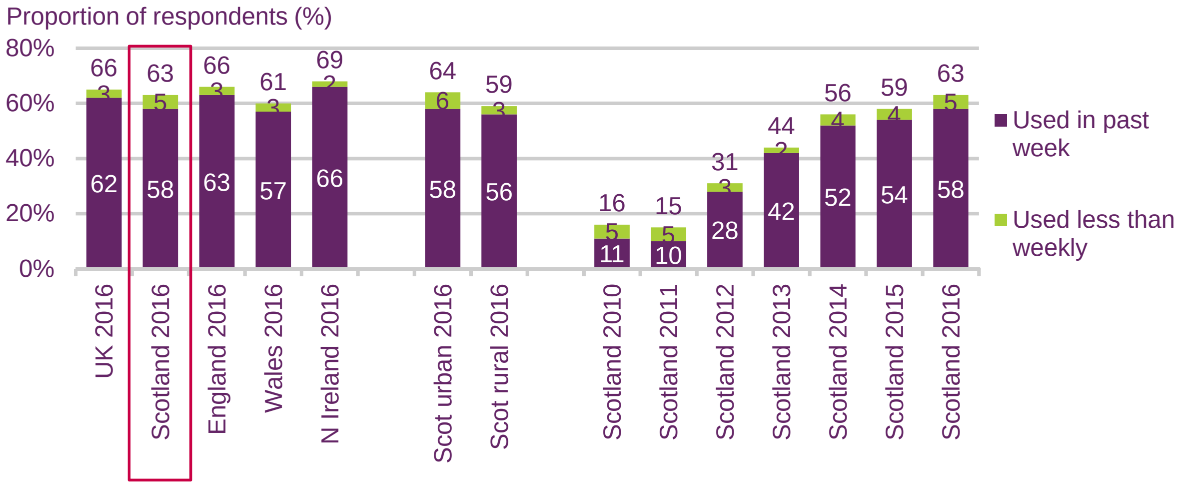


Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n =502 Scotland, 152 16-34s, 225 35-64s, 125 65+, 239 ABC1, 263 C2DE, 168 <£17.5k income, 140 £17.5k+, 143 children in home, 359 no children in home)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 for each measure.
QE9: Which of these methods does your household use to connect to the internet at home?

Six in ten adults in Scotland had been online using their mobile phone in the previous week

In 2016, more than six in ten adults in Scotland said they used their mobile phone to access the internet, with almost all of these respondents saying they had done so in the previous week. These figures were consistent with those for the UK as a whole. There was no significant change in the level of mobile phone use to access the internet in Scotland compared to a year previously.

Figure 4.10 Proportion of adults who have used a mobile phone to access the internet

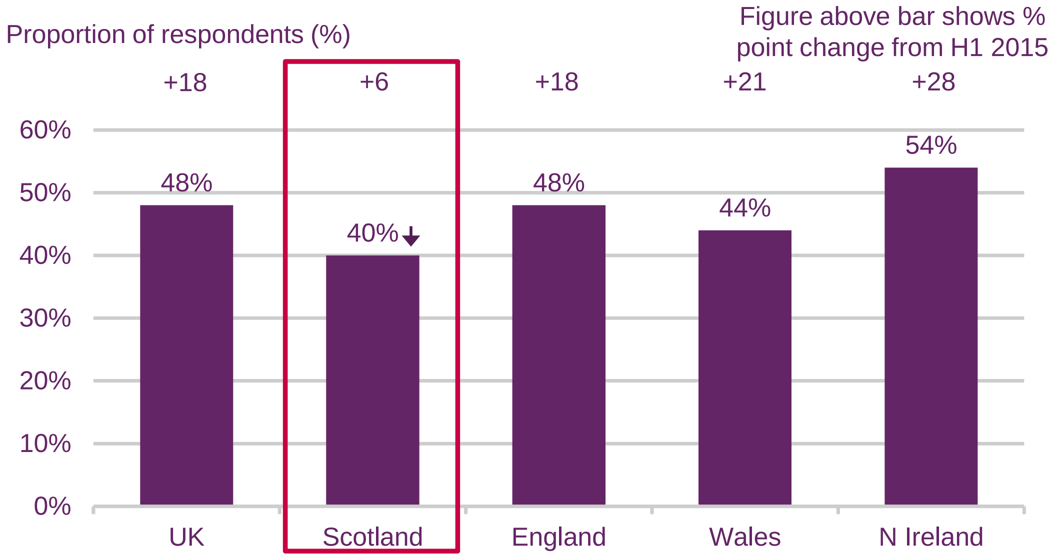


Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 1468 Scotland 2010, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016.
QD28A: Which, if any, of the following activities, other than making and receiving calls, do you use your mobile for? / QD28B: And, which of these activities have you used your mobile for in the last week?

4G take-up in Scotland is lower than the UK average

In Scotland two in five adults (40%) reported that they had a 4G mobile service in 2016, below the UK average of 48%. The proportion of adults with a 4G service in Scotland has not changed significantly since 2015, following an increase of 15 percentage points (to 34%) between 2014 and 2015.

Figure 4.11 4G take-up, by nation

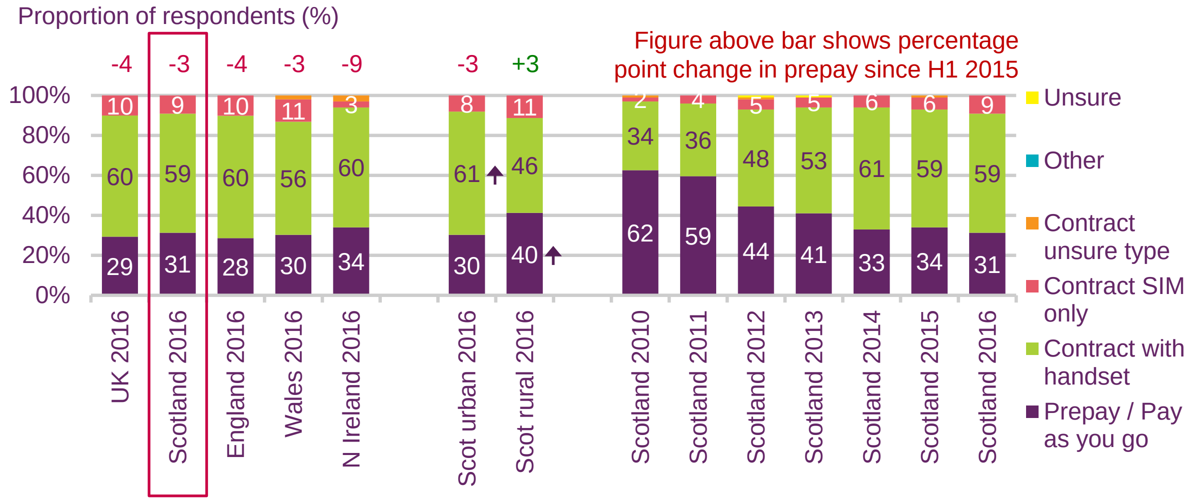


Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016. A circle around the +/- figure above the chart indicates any significant difference between 2015 and 2016 for Scotland.
QD41. Do you have a 4G service? This is a service that enables faster mobile internet access

Take-up of pre-pay and pay-monthly mobile services in Scotland remains in line with the UK average

In 2016, three in ten mobile phone users in Scotland had a pre-pay mobile phone service, unchanged since 2015 and in line with the UK average. Most mobile phone users in Scotland (68%) continued to have a pay-monthly mobile phone contract, as was the case for the UK overall (70%). The majority of these (59% of mobile phone users) had a contract including a handset, while 9% had a SIM-only contract. Mobile users in urban areas of Scotland in 2016 were more likely than users in rural areas to have a pay-monthly mobile phone contract (70% vs. 57%).

Figure 4.12 Type of mobile subscription



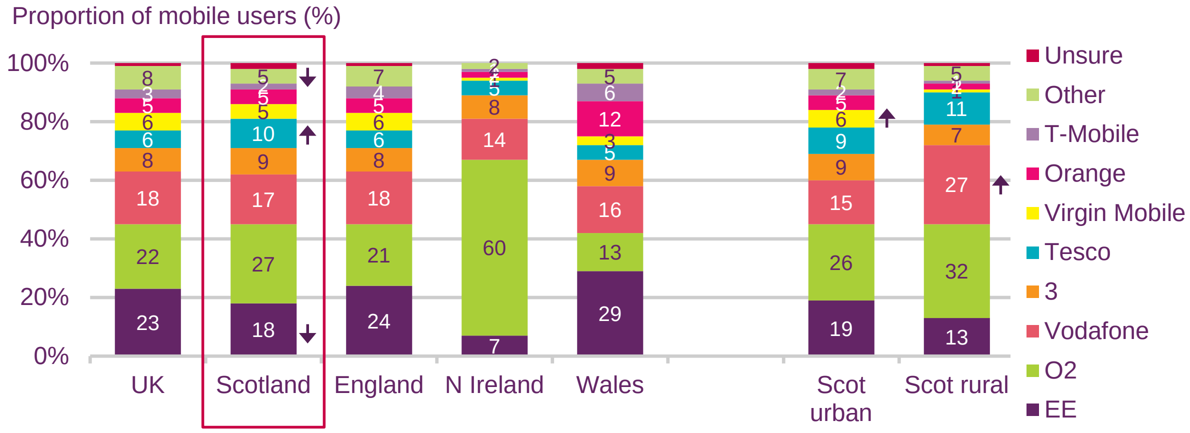
Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who personally use a mobile phone (n = 3425 UK, 451 Scotland, 2083 England, 445 Wales, 446 Northern Ireland, 226 Scotland urban, 225 Scotland rural, 1237 Scotland 2010, 425 Scotland 2011, 430 Scotland 2012, 464 Scotland 2013, 447 Scotland 2014, 450 Scotland 2015, 451 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QD11: Which of these best describes the mobile package you personally use most often?

Respondents in Scotland say that O2 was the mobile network provider they use most often

Twenty-seven per cent of mobile users in Scotland said O2 was the network they used most often. This was followed by EE (18%) and Vodafone (17%). While mobile users in Scotland were as likely as mobile users across the UK to use O2, they were less likely to use EE (18% vs. 23%). Conversely, while only 6% of mobile users in the UK overall said they used Tesco Mobile most often, this was higher for users in Scotland, at 10%.

There were two major differences by location in Scotland in 2016: while O2 was the most-used network in both urban and rural areas, rural users were more likely than urban users to say they mostly used Vodafone (27% vs. 15%) and urban users were more likely than rural users to say they mostly used Virgin Mobile (6% vs. 0%).

Figure 4.13 Mobile network provider used most often



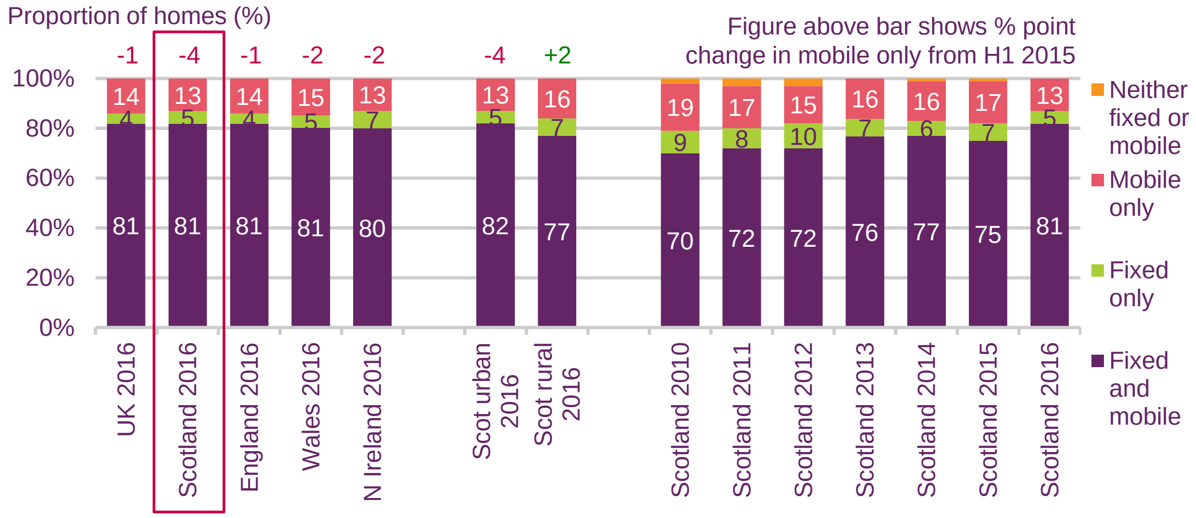
Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who personally use a mobile phone (n = 3425 UK, 451 Scotland, 2083 England, 445 Wales, 446 Northern Ireland, 226 Scotland urban, 225 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016.
QD10: Which mobile network do you use most often?

Around one in eight households in Scotland are mobile-only

As shown in Figure 4.14, in 2016 around one in eight households in Scotland (13%) used mobile as their only form of telephony. Five per cent of households in Scotland had access to a fixed line only, and four in five had access to both fixed and mobile telephone services. Each of these figures were in line with the UK average.

Since 2015 there has been no significant change in any of these measures for households in Scotland, and there were no differences in ownership of household telephony services by urban or rural location.

Figure 4.14 Cross-ownership of household telephony services



Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 1468 Scotland 2010, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QC1: Is there a landline phone in your home that can be used to make and receive calls? / QD1: How many mobile phones in total do you and members of your household use?

4.5 Satisfaction with telecoms services

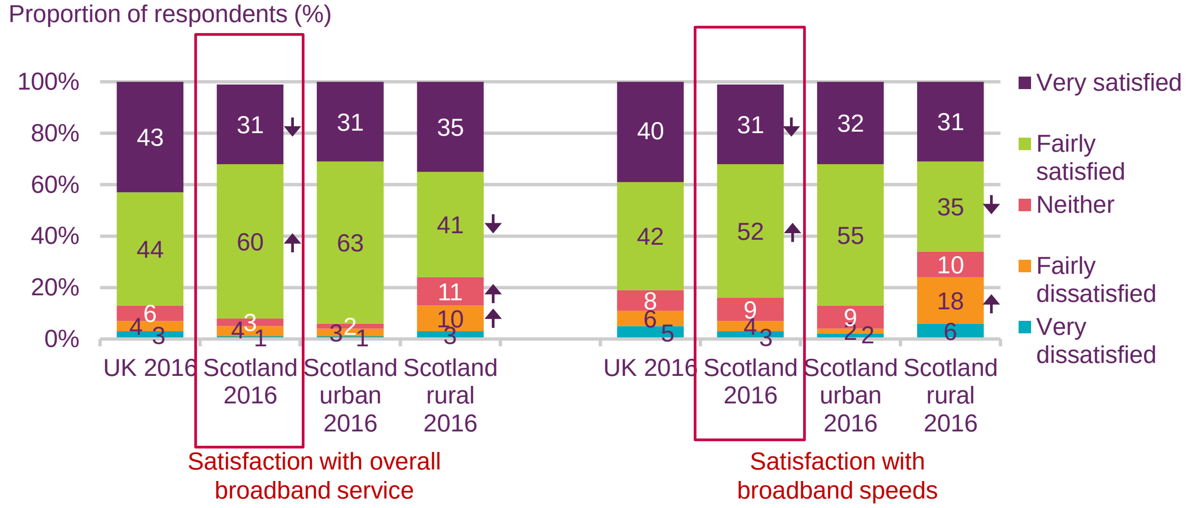
Fixed broadband users in Scotland are more likely than in 2015 to say they are satisfied with their broadband service

While overall satisfaction with a fixed broadband service in 2016 was higher in Scotland compared to the UK average (91% vs. 87%), this was mainly because users in Scotland were more likely to say they were 'fairly' satisfied (60% vs. 44%). By contrast, users in Scotland were less likely to say they were 'very' satisfied compared to the UK overall (31% vs. 43%). Compared to 2015, fixed broadband users in Scotland were more likely to say they were satisfied with their broadband service (91% vs. 85%).

As in the UK overall, fixed broadband users in Scotland were less likely to be satisfied with their broadband speed than with their overall broadband service. Overall levels of satisfaction with fixed broadband speeds in Scotland were comparable to those for the UK as a whole in 2016 (84% vs. 82%). Fixed broadband users in Scotland were, however, less likely to say they were 'very' satisfied (31% vs. 40% in the UK overall).

Fixed broadband users in urban Scotland were more likely than rural users to say they were satisfied with their overall service (94% vs. 76%) and with the speed of their connection (87% vs. 66%). The difference of approximately 20 percentage points between urban and rural users is attributable to rural users being less likely to say they were 'fairly' satisfied. Users in rural areas were more likely than those in urban areas to be dissatisfied with both their overall broadband service (14% vs. 4%) and broadband speeds (24% vs. 5%).

Figure 4.15 Satisfaction with overall service and speed of fixed broadband connection



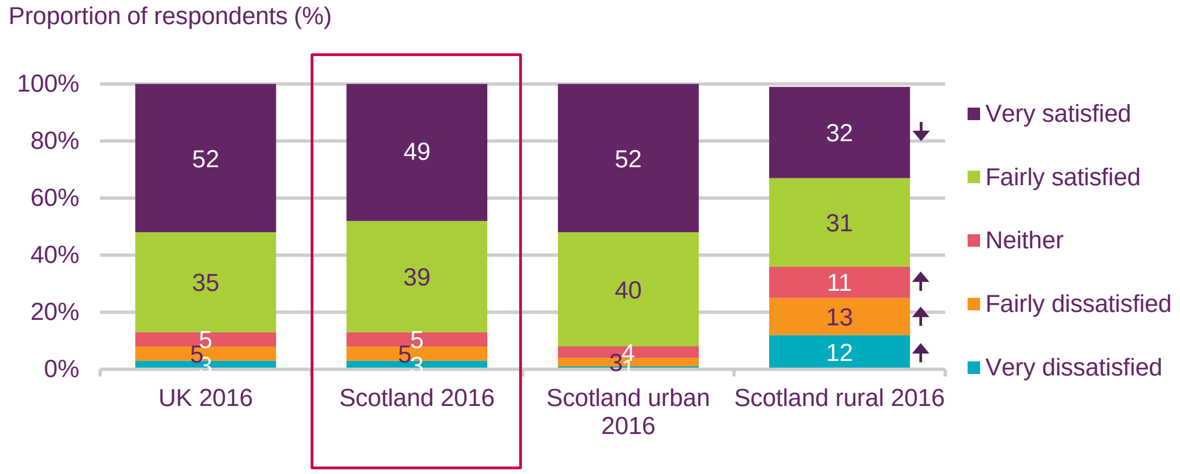
Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ with broadband connection at home (n = 2774 UK, 357 Scotland, 193 Scotland urban, 164 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016.
QE8A/B: Thinking about your fixed broadband internet service, how satisfied are you with (main supplier) for the overall service/ for the speed of your service while online (not just the connection)?

Mobile phone users in rural Scotland are less satisfied than in 2015 with their mobile phone reception

Around nine in ten (88%) mobile phone users in Scotland were ‘very’ or ‘fairly’ satisfied with their mobile reception in 2016, in line with the UK average (87%). Conversely, a significantly lower proportion of mobile users were either ‘very’ or ‘fairly’ dissatisfied, 8% in both Scotland and the UK as a whole.

Mobile phone users in urban areas of Scotland were more likely than those in rural areas to say they were satisfied with their mobile reception (93% vs. 63%). Compared to 2015, users in rural areas of Scotland were less likely to be satisfied (63% vs. 75% in 2015), and more likely to be dissatisfied (26% vs 4%) or neutral (11% vs. 4%).

Figure 4.16 Satisfaction with reception of mobile service

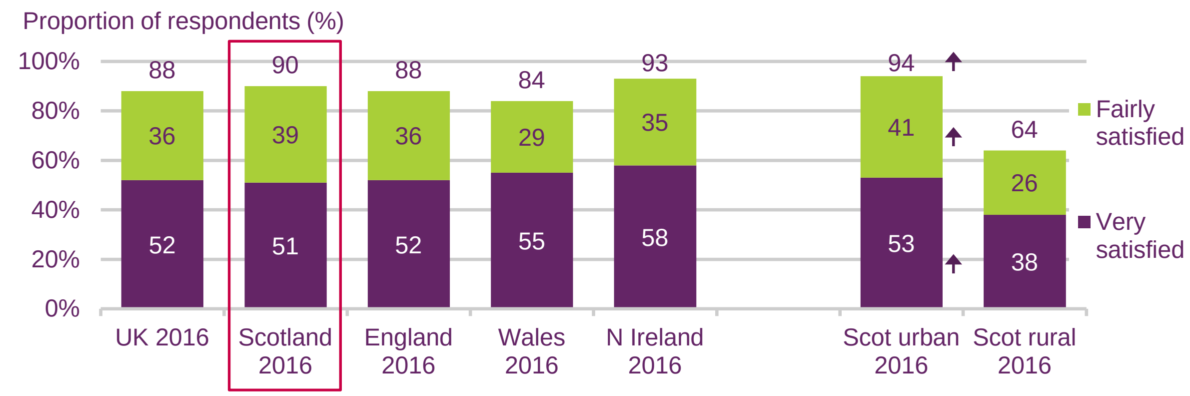


Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who personally use a mobile phone (n = 3425 UK, 451 Scotland, 226 Scotland urban, 225 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016.
QD21J: Thinking about your mobile phone service only, how satisfied are you with (main supplier) for reception/ accessing network?

Nine in ten smartphone users in Scotland are satisfied with their ability to connect to the internet via 3G or 4G

In 2016, 90% of smartphone users in Scotland were ‘very’ or ‘fairly’ satisfied with their ability to connect to the internet using their mobile network (via 3G or 4G). This was in line with the UK as a whole (88%). Satisfaction with the ability to connect to the internet via 3G or 4G was 30 percentage points higher among smartphone users in urban than in rural areas of Scotland (94% vs. 64%).

Figure 4.17 Satisfaction with ability to connect to the internet via 3G or 4G



Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who personally use a smartphone (n = 2487 UK, 319 Scotland, 1532 England, 291 Wales, 345 Northern Ireland, 170 Scotland urban, 149 Scotland rural)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016 and between Scotland urban and rural in 2016.
QD21K: Thinking about your mobile phone service only, how satisfied are you with (main supplier) for ability to connect to the internet using the mobile network (3G or 4G)?
Note: Figures above chart columns indicate the proportion of people who were ‘very’ or ‘fairly’ satisfied with the ability to connect to the internet using the mobile network

5 Internet and online content

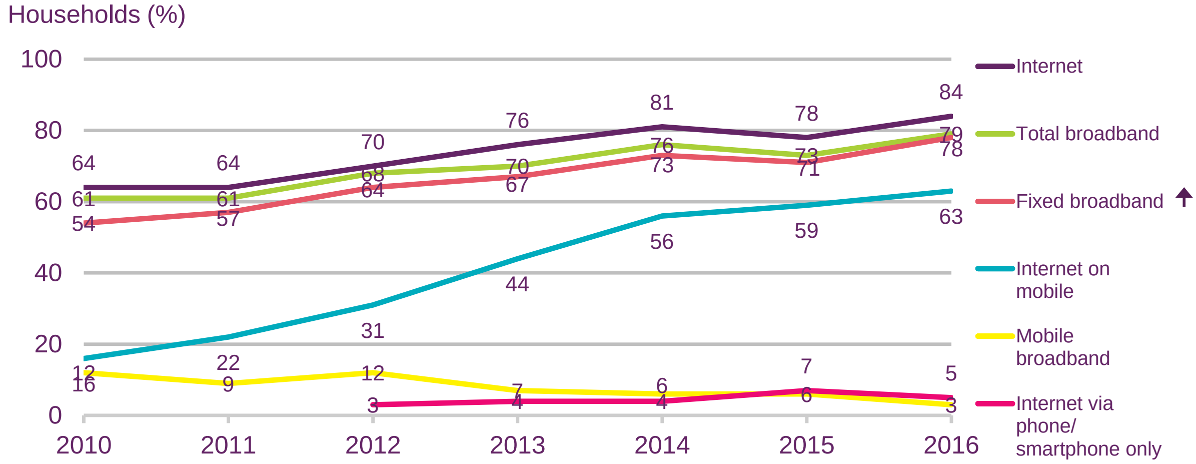
5.1 Internet take-up

Fixed broadband internet access in Scotland increased to 78% of households in 2016

More than three-quarters of households (78%) had access to fixed broadband at home - an increase of 7 percentage points (pp) since 2015. Just over six in ten adults (63%) had online access through a mobile phone.

In 2016, more than eight in ten households in Scotland (84%) had access to the internet.[28] This is consistent with 2015 figures.

Figure 5.1 Internet take-up, Scotland: 2010-2016



Source: Ofcom Technology Tracker. Data from Q1 2010-2014, then H1 2015-2016
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland 2015 and 2016.
Base: All adults aged 16+ (n = 1468 Scotland 2010, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Note 1: 'Internet' includes access to the internet at home (via any device, e.g. PC, mobile phone, tablet etc.
Note 2: 'Total broadband' includes the following methods to connect to the internet at home – fixed broadband (via phone line or cable service), mobile broadband (via a USB stick or dongle, or built in connectivity in a laptop/netbook/tablet with a SIM), tethering (via mobile phone internet connection on laptop/tablet), and mobile broadband wireless router (via 3G or 4G mobile network, which can be shared between devices).
Note 3: 'Fixed broadband' includes ADSL, cable and fibre services – perhaps using a Wi-Fi router. This would include superfast broadband services.
Note 4: 'Mobile broadband' is connecting a device using a USB stick or dongle, or built-in connectivity in a laptop or netbook or tablet computer with a SIM card.
Note 5: 'Internet on mobile' is the proportion of adults who use a mobile phone for any of the following activities: Instant messaging, downloading apps or programs, email, internet access, downloading video, video streaming, visiting social networking sites.

[28] This includes internet access via broadband or mobile phone. Incidences of narrowband are too low to report but would still count as 'internet access'

5.2 Internet-enabled devices

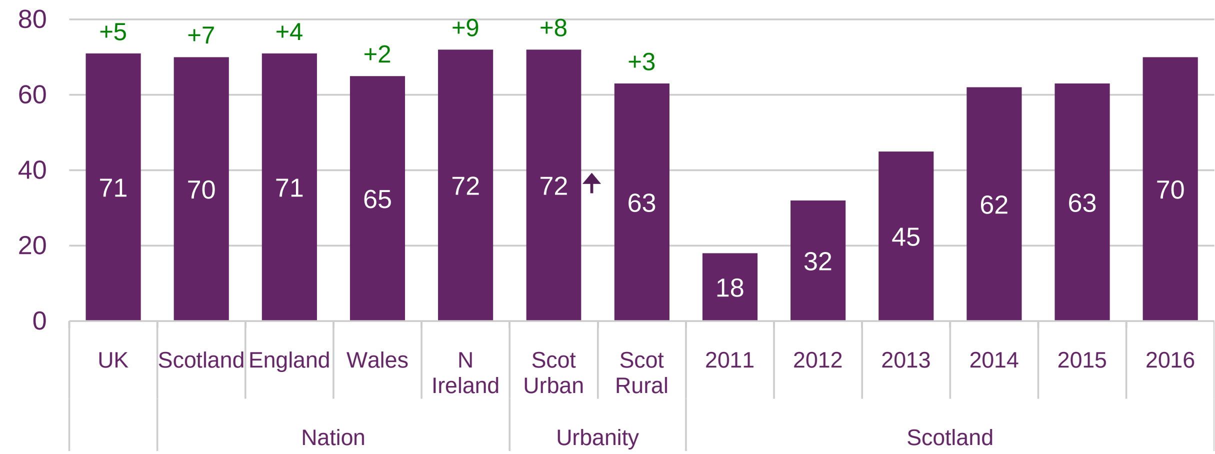
Take-up of smartphones in Scotland was steady at 70% of adults in 2016

Seventy per cent of adults in Scotland claimed to own a smartphone in 2016, in line with the overall UK average (71%). There has been no change in this figure for Scotland since 2015.

Smartphone ownership among adults in Scotland differed by location, with those in urban areas more likely than those in rural areas to own a smartphone (72% vs. 63%).

Figure 5.2 Take-up of smartphones in Scotland: 2011-2016

Adults 16+ (%) / percentage point change in take-up of smartphones since H1 2015

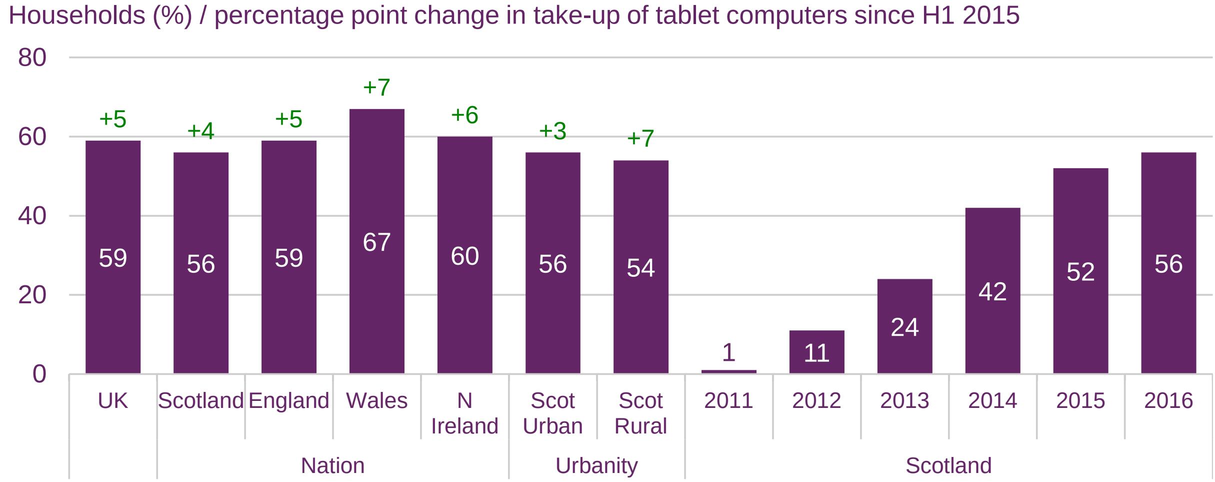


Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QD24B: Do you personally use a smartphone? A smartphone is a phone on which you can easily access emails, download files and applications, as well as view websites and generally surf the internet. Popular brands of smartphone include BlackBerry, iPhone and Android phones such as the Samsung Galaxy.

Almost six in ten households in Scotland own a tablet

Close to six in ten households in Scotland own a tablet computer (56%). This figure is unchanged since 2015, following a 10pp increase between 2014 and 2015 (from 42% to 52%). Ownership levels in Scotland in 2016 did not vary compared to the UK overall (59%) and there was no variation by urban or rural location.

Figure 5.3 Ownership of tablet computers in Scotland



Source: Ofcom Technology Tracker, H1 2016
Base: All adults aged 16+ (n = 3737 UK, 502 Scotland, 2239 England, 489 Wales, 507 Northern Ireland, 251 Scotland urban, 251 Scotland rural, 487 Scotland 2011, 500 Scotland 2012, 501 Scotland 2013, 501 Scotland 2014, 492 Scotland 2015, 502 Scotland 2016)
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and UK in 2016, between Scotland urban and rural in 2016 and between Scotland 2015 and 2016. Circles around the +/- figures above the chart indicate any significant difference between 2015 and 2016 for Scotland, urban and rural.
QE1: Does your household have a PC, laptop, netbook or tablet computer?

Smartphones are the most important device for accessing the internet in Scotland

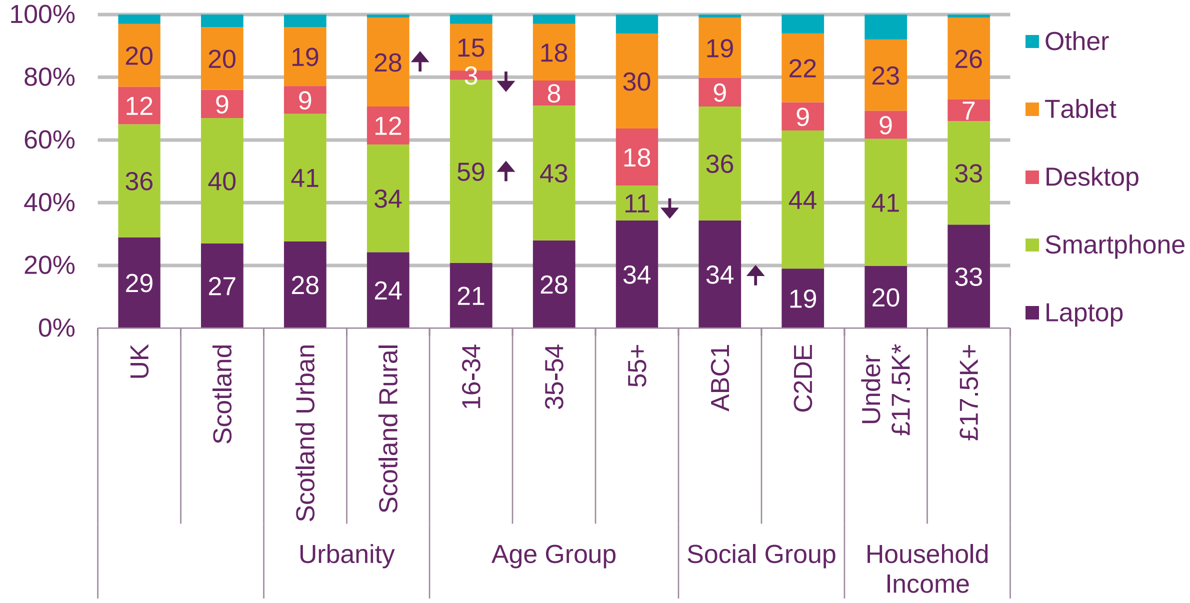
Internet users[29] in Scotland were most likely to consider smartphones their most important device for accessing the internet in 2016, with 40% choosing this device. In contrast, 27% of internet users thought a laptop was their most important device for internet access, while 20% selected tablets. There are no differences in these figures compared to the UK overall.

Compared to all internet users in Scotland, those aged 16-34 were more likely to say smartphones were their most important device (59% vs. 40%) and less likely to say this about desktop computers (3% vs. 9%). In contrast, internet users aged 55 and over were less likely to choose a smartphone as their most important device than all internet users in Scotland (11% vs. 40% respectively).

In 2016, internet users in rural areas of Scotland were more likely than those in urban areas to say that tablets were their most important device for going online (28% vs 19%). There was one difference by household socio-economic group: internet users in ABC1 households in Scotland were more likely than those in C2DE households to say that laptops were the most important device used to go online (34% vs. 19%). This is because ABC1 households are more likely than C2DE households to own a laptop (70% vs. 50%).

[29] Internet users are defined as those who ever go online,either at home or elsewhere.

Figure 5.4 Most important device for accessing the internet in Scotland



Source: Ofcom Technology Tracker, H1 2016
Base: Internet users aged 16+ (n = 3100 UK, 405 Scotland, 215 Scotland urban, 190 Scotland rural, 150 16-34, 134 35-54, 121 55+, 216 ABC1, 189 C2DE, 109 under £17.5K, 137 £17.5K+).
Significance testing: Arrows indicate any significant differences at the 95% confidence level between Scotland and the UK in 2016, between Scotland urban and rural in 2016, by age compared to all internet users in Scotland in 2016, between socio-economic groups in Scotland in 2016 and between household income groups in Scotland in 2016.
QE40: Which is the most important device you use to connect to the internet, at home or elsewhere?
'Other' responses include: netbook, e-reader, TV set, games console, other portable/handheld device, smartwatch, other device, none and 'don't know'.

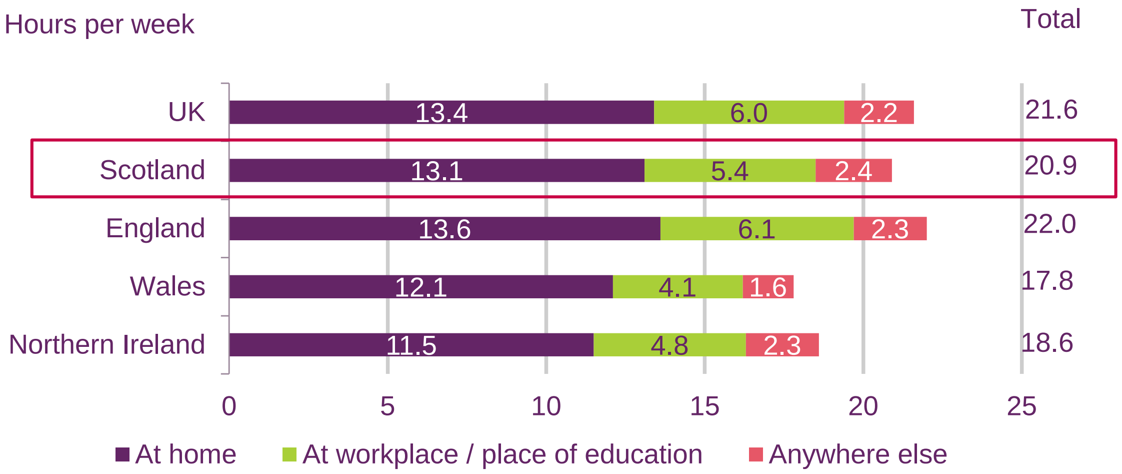
5.3 Internet use

Internet users in Scotland spent 20.9 hours a week on the internet in 2015

According to research conducted for Ofcom's *Adult Media Literacy Report,*[30] internet users in Scotland claimed to spend 20.9 hours on the internet per week in 2015. This was not statistically different to 2014. Consistent with observations across the UK and its nations, adults in Scotland spent the majority of their time online at home, followed by their workplace or place of education.

[30] Available online at http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/media-lit-10years/2015_Adults_media_use_and_attitudes_report.pdf

Figure 5.5 Claimed time spent on the internet in a typical week in 2015

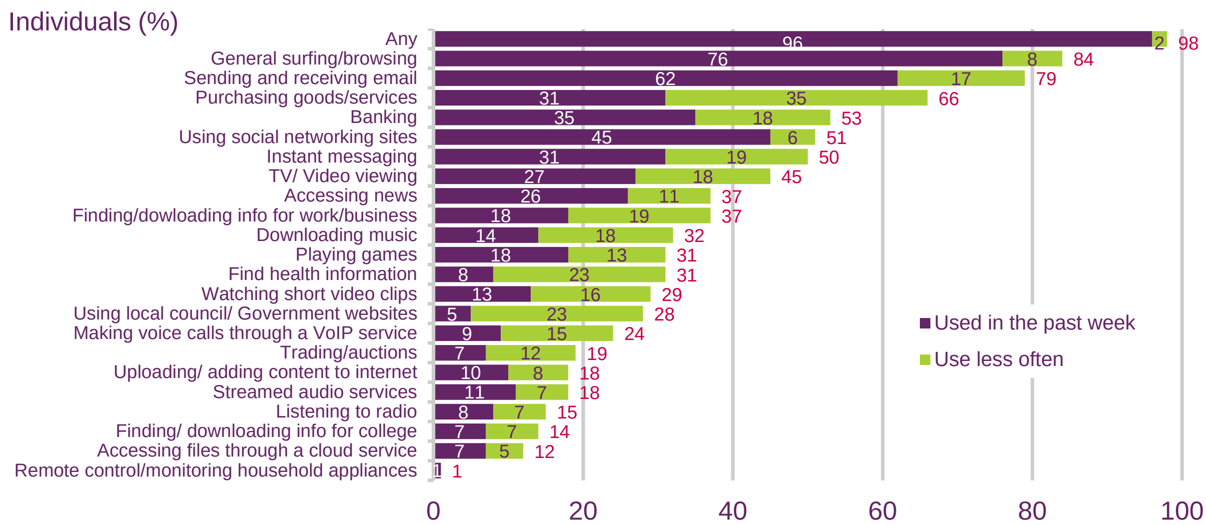


Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in October to November 2015
Base: All adults aged 16+ who use go online at home or elsewhere (1548 UK, 957 England, 168 Scotland, 163 Wales, 170 Northern Ireland).
Question: IN6A-C – How many hours in a typical week would you say you use the internet at home/ at your workplace or place of education/ anywhere else? (Unprompted responses, single coded)

General surfing or browsing and sending and receiving email were the most popular activities among internet users in Scotland in 2016

In 2016, three activities were undertaken by a majority of internet users in Scotland. These were: general surfing or browsing (84%), sending and receiving email (79%), and purchasing goods or services (66%). The first two of these activities had been undertaken in the previous week by more than six in ten internet users. A further two activities were undertaken by over half of internet users in Scotland; online banking (53%) and using social networking sites (51%).

Figure 5.6 Activities conducted online by internet users in Scotland



Source: Ofcom Technology Tracker, H1 2016
Base: Adults aged 16+ who use the internet at home or elsewhere (n= 405 Scotland 2016)
QE5A: Which, if any, of these do you use the internet for?

6 Post

A note on our postal tracker research

Ofcom Residential Postal Tracker

The residential postal tracker survey is run throughout the course of the year, via face-to-face interviews with 1,946 respondents aged 16+ in the UK. A total of 214 respondents were interviewed in Scotland. Postal tracking data in this report is cited as from 2015, with the fieldwork taking place from January to December 2015. In Quarter Three of 2015, we did not conduct any interviews, to allow a review of the survey methodology. For this reason, the samples achieved in Scotland, Wales and Northern Ireland are not directly comparable to previous years' data. The error margins of the sample in Scotland are approximately +/- 4-7%.

Ofcom Business Postal Tracker

The business postal tracker survey is run throughout the course of the year, via telephone interviews, among a sample of 1,200 people who are responsible for post in UK SMEs (businesses with 0-249 employees) and 156 SMEs in Scotland. Postal tracking data in this report is cited as from 2015, with the fieldwork taking place from January to December 2015. In Quarter Three of 2015, we did not conduct any interviews, to allow a review of the survey methodology. For this reason, the samples achieved in Scotland, Wales and Northern Ireland are not directly comparable to previous years' data. The error margins of the sample in Scotland are approximately +/- 5-8%.

6.1 Recent developments

Parcel surcharging

In September 2015, Citizens Advice Scotland published its latest report on parcel deliveries in Scotland. It found that consumers in rural and remote areas can face high delivery surcharges when ordering a parcel that falls outside the universal service, and that the problem continues to affect the Scottish Highlands and Islands more than other rural areas of the UK. Ofcom is in the process of gathering information to understand the prevalence of these surcharges, which locations they apply to and whether they are usually levied by retailers or delivery companies. Ofcom expects to publish some of these findings in its annual monitoring update on the postal market.

Parliamentary activity

In the previous session of the Scottish Parliament the cross-party group on postal issues, of which Ofcom was a member, took an interest in issues such as surcharges for deliveries in the Highlands and Islands, post offices, and Ofcom's *Review of the Regulation of Royal Mail*. In February 2016 it also discussed Ofcom's data on the consumer experience of the postal market.

Menzies Distribution acquires Scottish parcel operators

On the industry side, newspaper and magazine distributor Menzies Distribution acquired three Scottish parcel operators, signalling a move into the growing e-retail and parcels market. It bought both Oban Express, a parcel operator which serves Western Scotland and the Hebrides and delivers around 450,000 parcels each year, and AJG Parcels, which

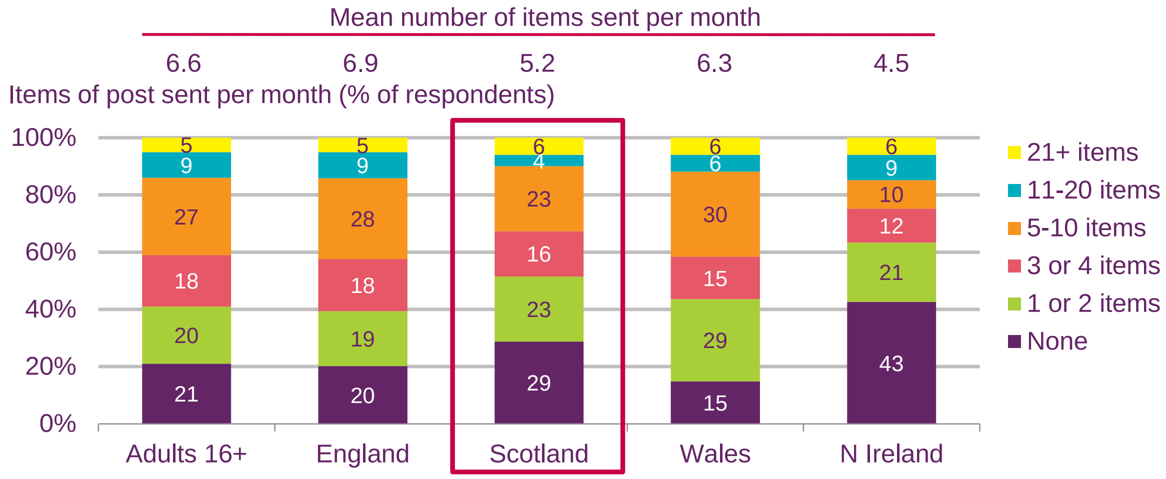
delivers around 3 million parcels across the Scottish Highlands each year. Both these operators specialise in final-mile delivery in harder-to-reach areas for a number of parcel operators in the UK. Menzies also bought Aberdeen's Thistle Couriers, which provides a UK-wide same-day service. These acquisitions represent Menzies' first move into delivery to residential customers.

6.2 Sending and receiving post: residential customers

Three in ten people in Scotland had not sent an item of post in the past month

Just below three in ten (29%) adults in Scotland said that they had not sent an item of post in the past month. This is higher than the proportion that said the same in Wales (15%) and England (20%). However, it is lower than in Northern Ireland, where 43% of adults said they had not sent an item of post in the past month. Adults in Scotland sent an average of 5.2 items of post each month, compared to the average of 6.6 items of post sent each month across the UK as a whole.

Figure 6.1 Approximate number of items of post sent in the past month

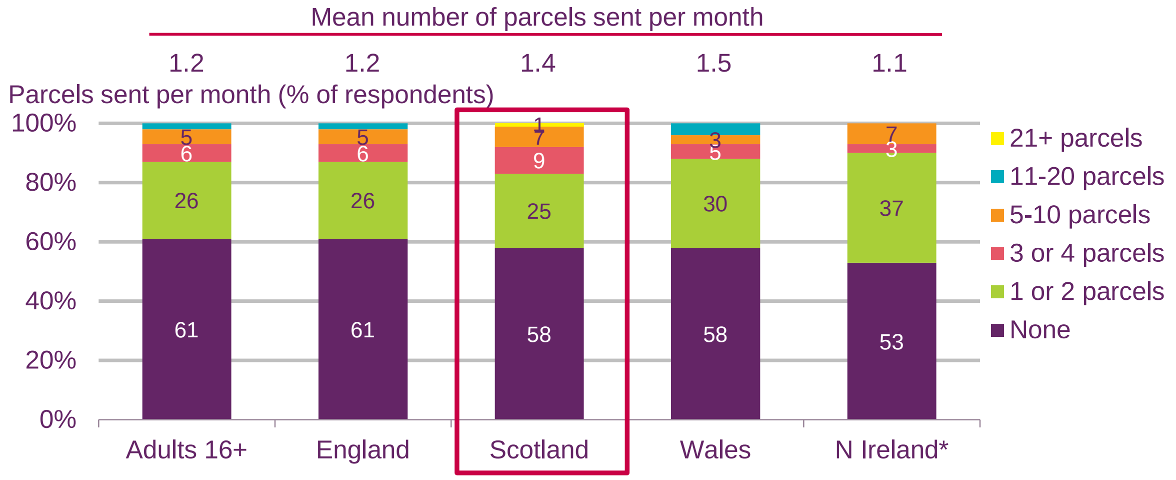


Source: Ofcom Residential Postal Tracker 2015
Base: All respondents (n = 1946 adults 16+, 1451 England, 214 Scotland, 151 Wales, 130 Northern Ireland)
QC1. Approximately how many items of post – including letters, cards and parcels – have you personally sent in the last month?

Adults in Scotland sent an average of 1.4 parcels per month

The average number of parcels sent by adults in Scotland was 1.4; this is in line with the UK average and with other nations. The majority of adults in Scotland (58%) said they had sent no parcels in the past month.

Figure 6.2 Parcels sent in the past month

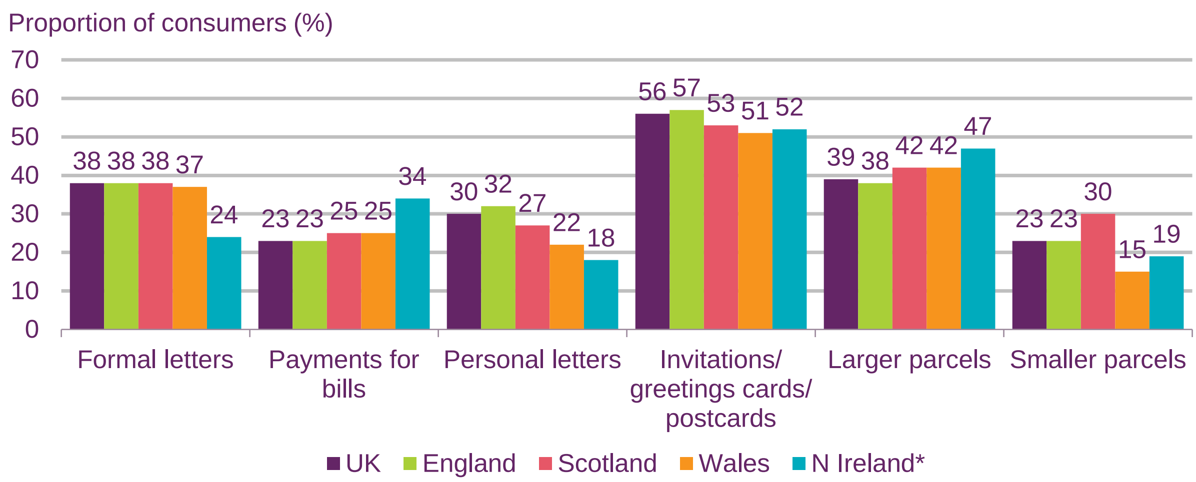


Source: Ofcom Residential Postal Tracker 2015
Base: All respondents who have personally sent any items of post in the last month (n = 1491 adults 16+, 1131 England, 152 Scotland, 127 Wales, 81 Northern Ireland)
QC2. And how many of these items sent in the last month were parcels rather than letters or cards?
**Caution: Low base*

Greetings cards, postcards and parcels were commonly sent by adults in Scotland

Three in ten adults in Scotland (30%) reported that they had sent a smaller parcel (one that fits through a letter box) in the past month by post. Just over a quarter of adults (27%) in Scotland said that they had sent a personal letter by post in the past month, whereas nearly four in ten (38%) said that they had sent a formal letter. This might reflect the general trend towards digital communication with friends and family, and the continued use of social media and digital messaging options.

Figure 6.3 Types of post sent in the past month

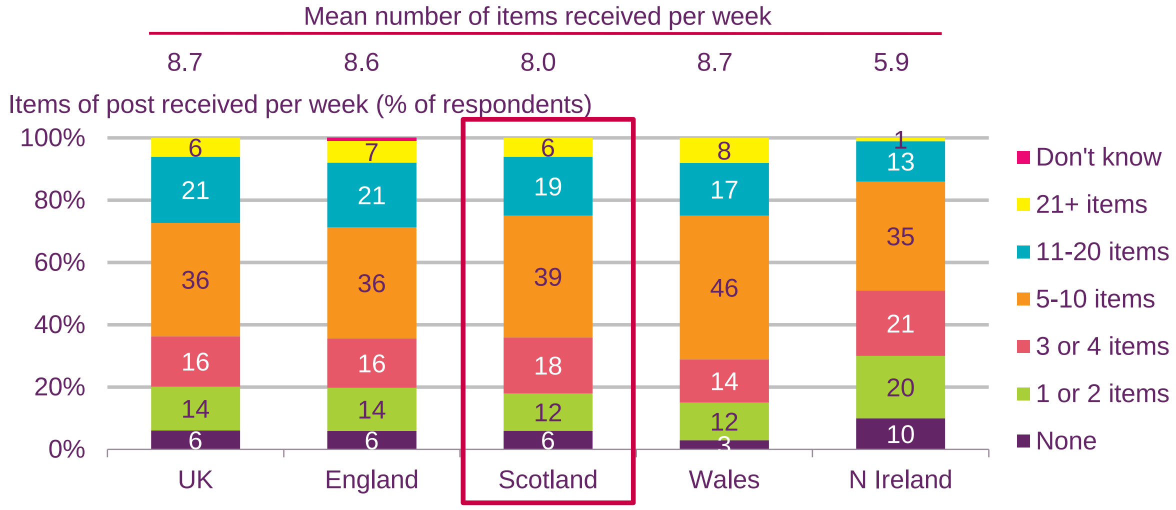


Source: Ofcom Residential Postal Tracker 2015
Base: All who have personally sent any items of post in the last week (n = 1491 UK, 1131 England, 152 Scotland, 127 Wales, 81 Northern Ireland)
*QC5. Which of these types of mail would you say you have personally sent in the last month by post? (MULTICODE) *Caution: low base*

People in Scotland received an average of eight items each week

Adults in Scotland received an average of eight items each week; more than in Northern Ireland but in line with the other nations and the UK as a whole. Four in ten adults in Scotland (39%) received between five and ten items of post per week.

Figure 6.4 Approximate number of items of post received in the past week

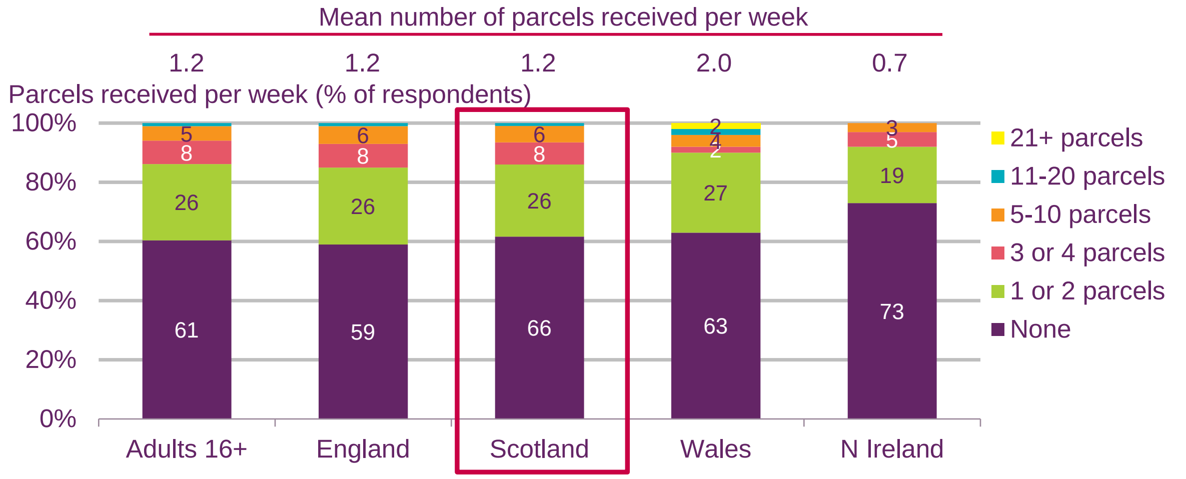


Source: Ofcom Residential Postal Tracker 2015
Base: All respondents (n = 1946 adults 16+, 1451 England, 214 Scotland, 151 Wales, 130 Northern Ireland)
QD1. Approximately how many items of post – including letters, cards and parcels – have you personally received in the last week?

Two-thirds of people in Scotland had not received any parcels in the past week

Two-thirds (66%) of people said they had not received any parcels in the past week, which is similar to other nations in the UK. A quarter (26%) said they had received one or two parcels in the past week. Adults in Scotland receive an average of 1.2 parcels per week.

Figure 6.5 Parcels received in the past week



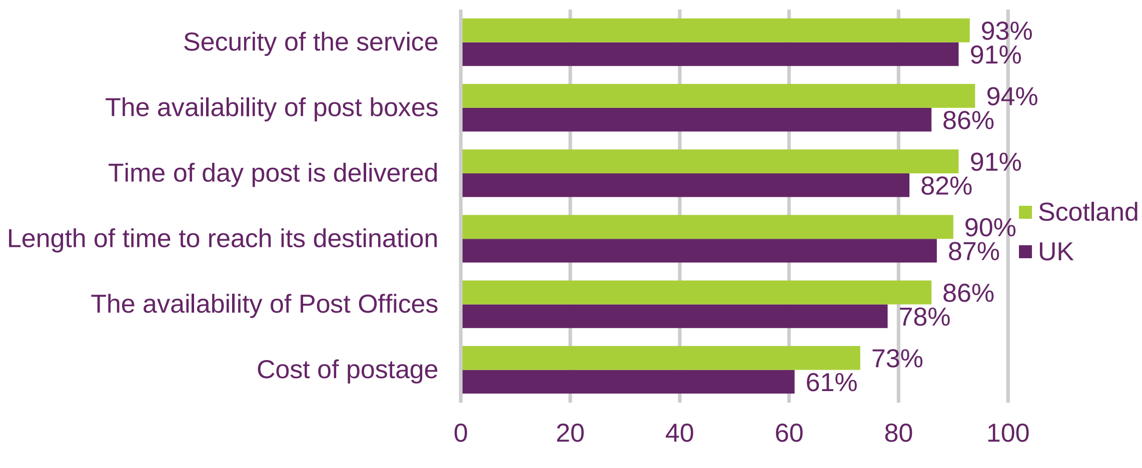
Source: Ofcom Residential Postal Tracker 2015
Base: All respondents who have personally received any items of post in the last week (n = 1824 adults 16+, 1258 England, 203 Scotland, 147 Wales, 116 Northern Ireland)
QD2. And how many of these items received in the last week were parcels?

6.3 Attitudes towards Royal Mail: residential customers

People in Scotland are generally highly satisfied with specific aspects of Royal Mail's service

When asked about their satisfaction with specific aspects of Royal Mail's services, over nine in ten people said they were satisfied with: the availability of post boxes (94%), the security of the service (93%), the time of day post is delivered (91%) and the length of time the post takes to reach its destination (90%). Nearly three-quarters (73%) of adults in Scotland said they were satisfied with the cost of postage. This is higher than the proportion of adults in England (60%) and Wales (51%) who said they were satisfied with the cost of postage.

Figure 6.6 Satisfaction with specific aspects of Royal Mail's service

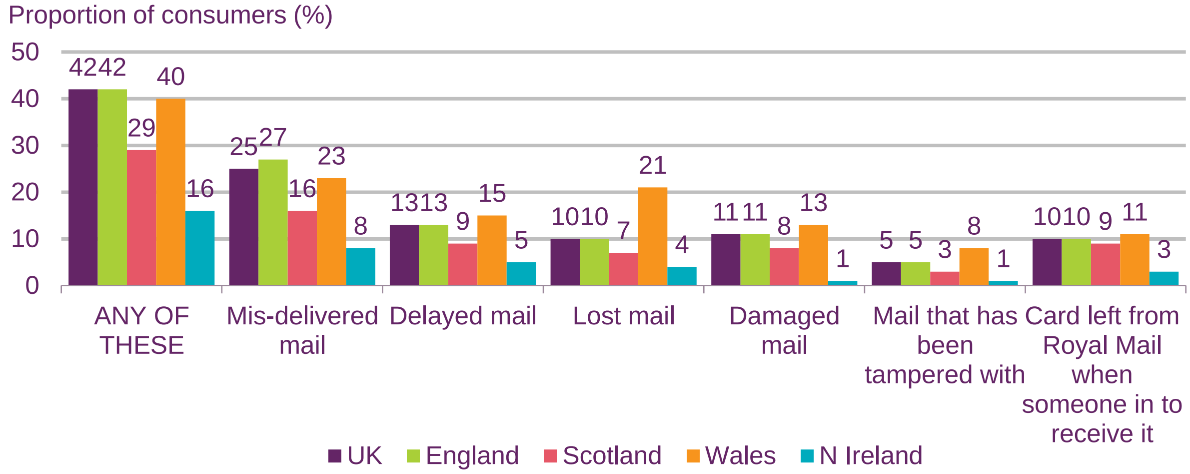


Source: Ofcom Residential Postal Tracker 2015
Base: All respondents in Scotland (n = 1946 UK, 214 Scotland)
QE3A-F. Satisfaction with specific aspects of Royal Mail's services – Ranked by proportion satisfied among adults in Scotland

People in Scotland have experienced fewer problems with Royal Mail in the past 12 months than the UK average

That less than three in ten adults in Scotland (29%) reported experiencing any problems with Royal Mail in the past 12 months may help to explain the high level of satisfaction with Royal Mail's service. More than one in ten adults in Scotland (16%) experienced mis-delivered mail, which was the most common problem reported, although this is less than the UK as a whole (25%). Less than one in ten adults in Scotland reported experiencing any of the other problems in the survey.

Figure 6.7 Problems experienced with Royal Mail in the past 12 months



Source: Ofcom Residential Postal Tracker 2015.
Base: All respondents (n = 1946 adults 16+, 1451 England, 214 Scotland, 151 Wales, 130 Northern Ireland)
QG1A-E. Problems experienced with Royal Mail service in the last 12 months – Ranked by proportion among all UK adults. Note: tampered mail is mail that has been subject to a deliberate attempt to identify or steal its contents

6.4 Sending and receiving post: business customers

Over one in ten businesses in Scotland send more than 100 letters each month

When asked about their use of mail, over one in ten businesses in Scotland (12%) said that they sent over 100 letters per month. The majority of business respondents in Scotland (57%) said that they sent fewer than 25 letters per month. The use of letter mail in Scotland for business is largely similar to the other UK nations.

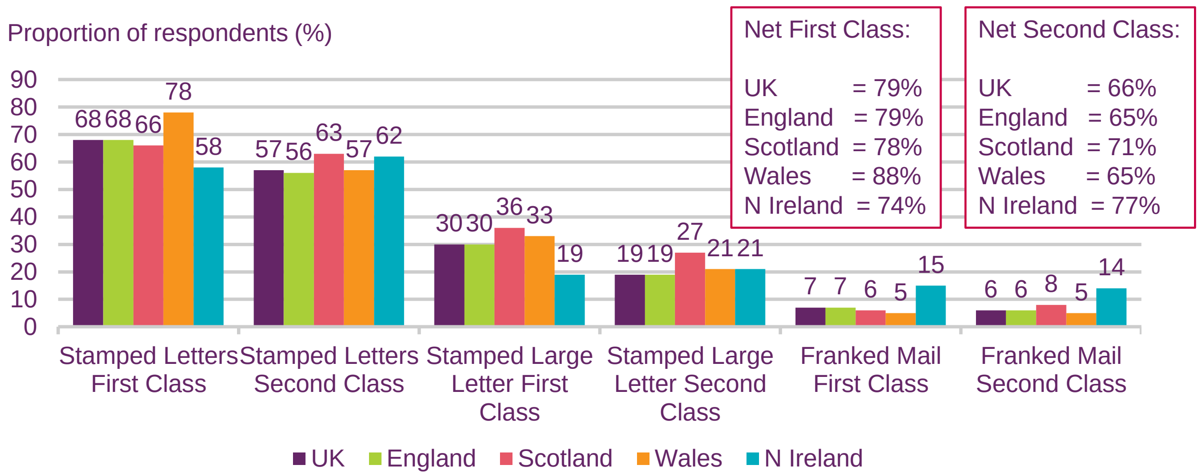
Figure 6.8 Average volume of letters sent each month

Source: Ofcom Business Postal Tracker 2015
Base: All respondents (n = 1200 UK, 734 England, 156 Scotland, 167 Wales, 143 N Ireland)
QV2a. On average, how many letter items does your organisation send per month? Please think only about all the letters and large letters you may send as an organisation.

A similar proportion of businesses in Scotland use First Class stamps and Second Class stamps

Two-thirds of businesses in Scotland (66%) said they used First Class stamps for letters, which is less than Wales but on a par with the UK as a whole. A similar proportion of businesses in Scotland said they sent letters using Second Class stamps (63%).

Figure 6.9 Royal Mail services used to send letters and large letters each month



Source: Ofcom Business Postal Tracker 2015
Base: All respondents using RM standard delivery services (n = 1121 UK, 686 England, 146 Scotland, 155 Wales, 134 N Ireland)
QV6d. Which, if any, of the following Royal Mail services does your organisation use to send your standard mail?

Scottish businesses are among the least likely to have switched from post to another communication method in the past 12 months

Businesses were asked whether they had moved any of their mail communication to other methods of communication over the past 12 months. Just over half of business respondents (52%) in Scotland said that they had moved some mail to other communication methods. This is (with Wales) the lowest rate in all of the nations in the UK.

Figure 6.10 Switched some mail to other communication methods over past 12 months

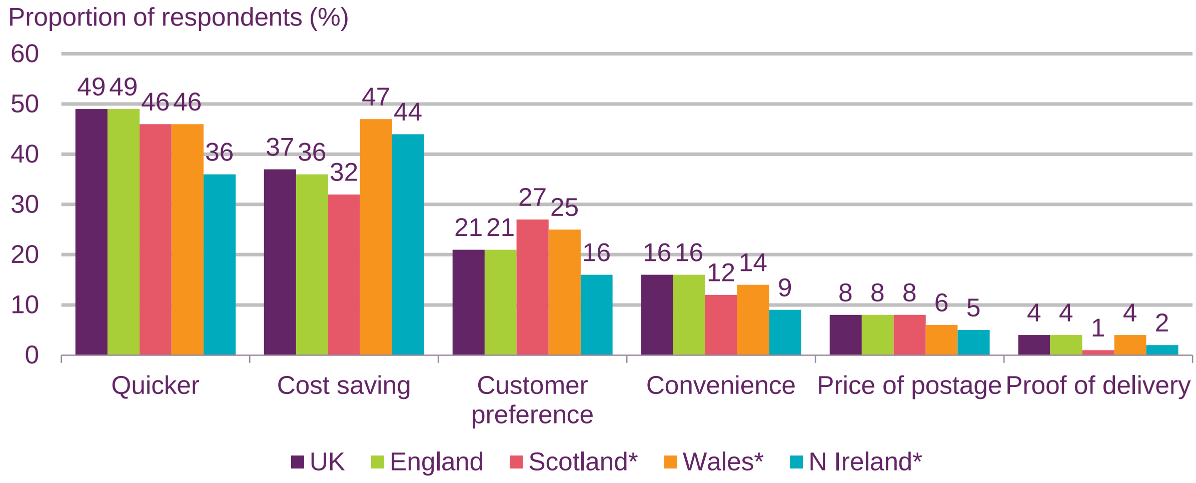
Source: Ofcom Business Postal Tracker 2015
Base: All respondents (n = 1200 UK, 734 England, 156 Scotland, 167 Wales, 143 N Ireland)
QF4. Over the last 12 months, has your organisation moved some mail to other communication methods?

The most likely reasons for switching are speed and cost

Of those businesses in Scotland who said they had moved some of their mail communication to other methods, speed of communication (46%) and cost saving (32%) were the most likely reasons given. More than a quarter of respondents (27%) in Scotland reported that the move to other forms of communication was due to customer preference.

Those that said they had not switched any mail to other communication methods over the past 12 months were asked why they hadn't, and the most popular response was "we have already moved everything that it is possible to move".

Figure 6.11 Main reasons for switching some mail to other communications methods over past 12 months

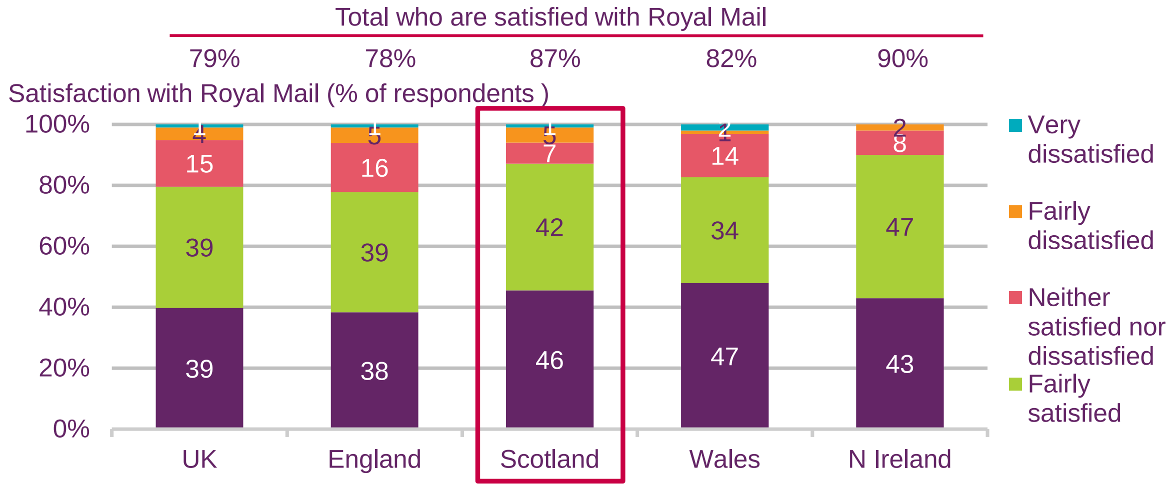


Source: Ofcom Business Postal Tracker 2015
Base: All who have moved to other communication methods (n = 720 UK, 452 England, 80 Scotland, 94 Wales, 94 N Ireland)
QF6: Why have you moved some mail to other communication methods? (open ended). Top 6 reasons shown
**Caution: low base*

6.5 Attitudes towards Royal Mail: business customers

Nearly nine in ten businesses in Scotland said they were satisfied with the quality of service from Royal Mail. Businesses were asked about their overall satisfaction with the quality of service they received from Royal Mail, both as a recipient and as a sender of mail. Nearly nine in ten (87%) of business respondents in Scotland said they were 'very satisfied' or 'fairly satisfied' with the service provided by Royal Mail. This is higher than in England (78%) but in line with the other nations.

Figure 6.12 Overall satisfaction with the quality of service from Royal Mail



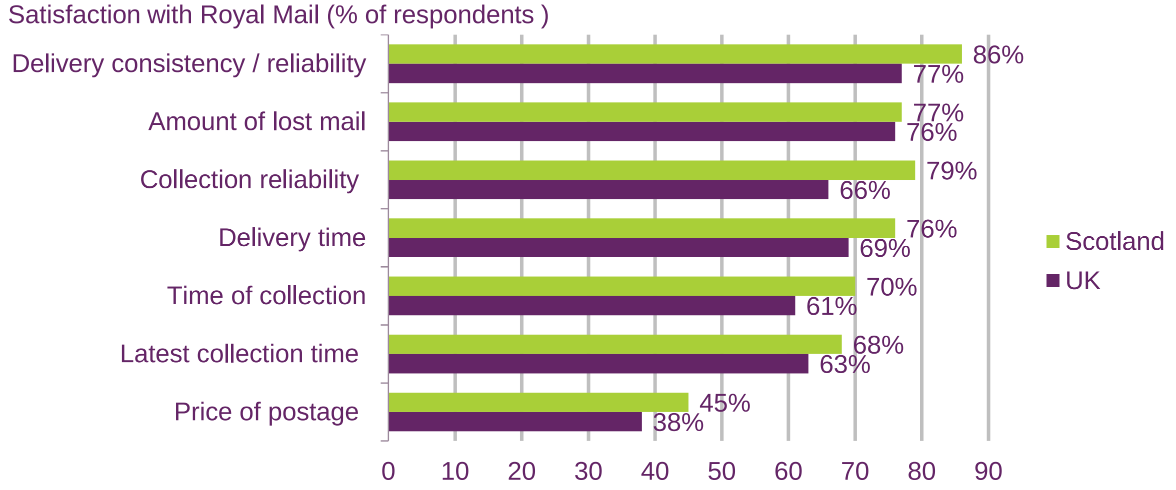
Source: Ofcom Business Postal Tracker 2015
Base: All respondents who use Royal Mail (n = 1185 UK, 727 England, 155 Scotland, 164 Wales, 139 Northern Ireland)
QRM2. Thinking generally about the service your organisation receives as a whole, on a scale of 1 to 5 where 1 is very dissatisfied and 5 is very satisfied, how satisfied are you with the overall quality of the services you receive from Royal Mail as a recipient and sender?

Satisfaction with the reliability and time of delivery, and collection, is high in Scotland

Business respondents who said they used Royal Mail were asked about their satisfaction with specific aspects of Royal Mail's service. Business respondents in Scotland said they were satisfied with the reliability or consistency of delivery (86%) and the reliability of collection (79%). Less than half of businesses (45%) in Scotland said they were satisfied with the price of postage; however, this is higher than in the UK overall (38%).

Among businesses in Scotland who use Royal Mail, more than eight in ten (85%) said they had had no problems with their service when sending or receiving mail in the past six months.

Figure 6.13 Satisfaction with specific aspects of Royal Mail's service



Source: Ofcom Business Postal Tracker 2015
Base: All respondents who use Royal Mail (n =1185 UK, 155 Scotland)
QRM3: How would you rate the performance of Royal Mail, as a recipient and sender, in the following areas on a 5 point scale where 1 is very dissatisfied and 5 is very satisfied?