

National Assembly for Wales
Research paper

Broadband internet in Wales

August 2013

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Research paper

Broadband internet in Wales

August 2013

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This paper looks at current broadband levels in Wales, the UK and Europe, and explains what different levels of government – from the Welsh Government to the EU - are doing to improve them. It provides an overview of the technology used to provide superfast broadband services, and looks at why policy-makers deem it necessary to intervene in the market-led roll-out of superfast broadband infrastructure.

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Broadband internet in Wales

1. Introduction

Since 2011, all telephone exchanges in Wales have been able to provide basic broadband internet services.¹ Talk has since turned to next generation – or “superfast” – broadband, where fibre-optic cabling is introduced into the network and customers can access speeds far in excess of those possible on BT’s copper telephone network.

However, deployment of next generation services has focussed on larger urban areas, which provide an attractive case for commercial investment. People in rural areas are left struggling to achieve basic broadband provision of 2 megabits per second (Mbps), whilst those in urban areas enjoy superfast services in excess of 30 Mbps.

Policy-makers have responded to this growing “digital divide” by providing public funding to spur investment in broadband in commercially unattractive areas. In Wales, a Welsh Government and BT partnership is behind a £425 million project (using money from the Welsh Government, UK Government and the EU, as well as BT’s own investment) that will see BT rolling out superfast broadband throughout the country, which it hopes will transform Wales into one of the best-connected countries in the world.

This paper seeks to answer the following questions:

- What is broadband?
- What is the current availability of broadband services like in Wales, the UK and Europe?
- How are public bodies – from the Welsh Government to the EU – intervening in the broadband market?
- Why is broadband thought to be so important?

1.1. Background: what is broadband?

Broadband policy in the UK focuses on two levels of broadband access, referred to as “first generation” and “next generation” (or “superfast”) broadband. In broad terms, first generation broadband makes use of the existing network of copper telephone cables, and in a next generation network some, or all, of this network is superseded with fibre-optic cables, enabling far greater connection speeds.

¹ Some premises are still unable to receive basic broadband provision, however, due to their distance from the local exchange and signal deterioration along copper cables.

1.2. First generation broadband

Accessed through BT's copper telephone network, though faster than dial-up broadband, the connection speed of "first generation broadband" is limited by the length and quality of copper wires running from the telephone exchange.

Broadband over this network is available from virtually every telephone exchange in the UK (and every exchange in Wales since 2011), although the ability to receive a service at a given property is dependent on the length and quality of the telephone line.

"Broadband" has previously been defined as being faster than 144 kbps.² 2 Mbps is the sort of speed required to use the BBC iplayer, and is the speed commonly used by policy-makers as a minimum acceptable speed of broadband access.

1.3. Next generation broadband

With "next generation", or "superfast" broadband, sections of the copper network are replaced by fibre-optic cables, enabling far greater speeds than those possible with copper alone.

There are two main types of fibre deployment:

- Fibre To The Cabinet (FTTC), where fibre is run from the exchange to a street cabinet serving an average of around 300 premises, but the existing copper cables connect the cabinet to those premises; and
- Fibre To The Premises (FTTP), where fibre is run directly to the customer's premises.

Fibre-broadband enables speeds in excess of those possible with the copper network (24 mbps), with some providers offering speeds of up to 120 Mbps.

² Culture, Media and Sport Committee, [Broadband Delivery UK - Minutes of Evidence](#), 3 July 2012, HC 474-I, 2012-13, Q24

1.4. *Alternative broadband connections*

Conventional broadband connections require some level of physical engineering work between the broadband network and the premises themselves. In some instances, local factors – such as remoteness, challenging geography or planning issues – make this engineering work difficult. The following are some of the alternative methods of connecting to broadband internet that could be considered in these cases:

- **Satellite broadband:** is available almost anywhere in the UK using a dish. However, satellite transmissions may be affected by weather conditions or local obstructions, and the cost of installing and running satellite broadband can be quite expensive compared with other types of broadband.
- **Mobile broadband:** is available almost anywhere in the UK with 3G coverage (currently 97.6 per cent of premises in Wales, according to the latest figures from Ofcom). Typically, though, speeds are slower than with a fixed connection. In February 2013 Ofcom auctioned off mobile spectrum to 4G mobile operators. Once rolled-out, 4G mobile broadband can be expected to be faster than 3G services.³
- **TV white space:** this is an innovative plan to use the gaps in radio spectrum, known as “white spaces” that exist between airwaves reserved for digital terrestrial TV broadcasting to transmit broadband internet. Ofcom is planning a UK pilot intended for autumn 2013, with the potential to roll-out white space services in 2014.⁴

³ Ofcom, [Ofcom announces winners of the 4G mobile auction](#), February 2013 [Accessed 19 June 2013]

⁴ Ofcom, [Ofcom invites industry to pilot "white space" devices](#), April 2013 [Accessed 19 June 2013]

2. Current levels of broadband internet access

This section compares broadband access between countries in the UK, and between Member States in the EU.

2.1. Levels of broadband access in Wales and the UK

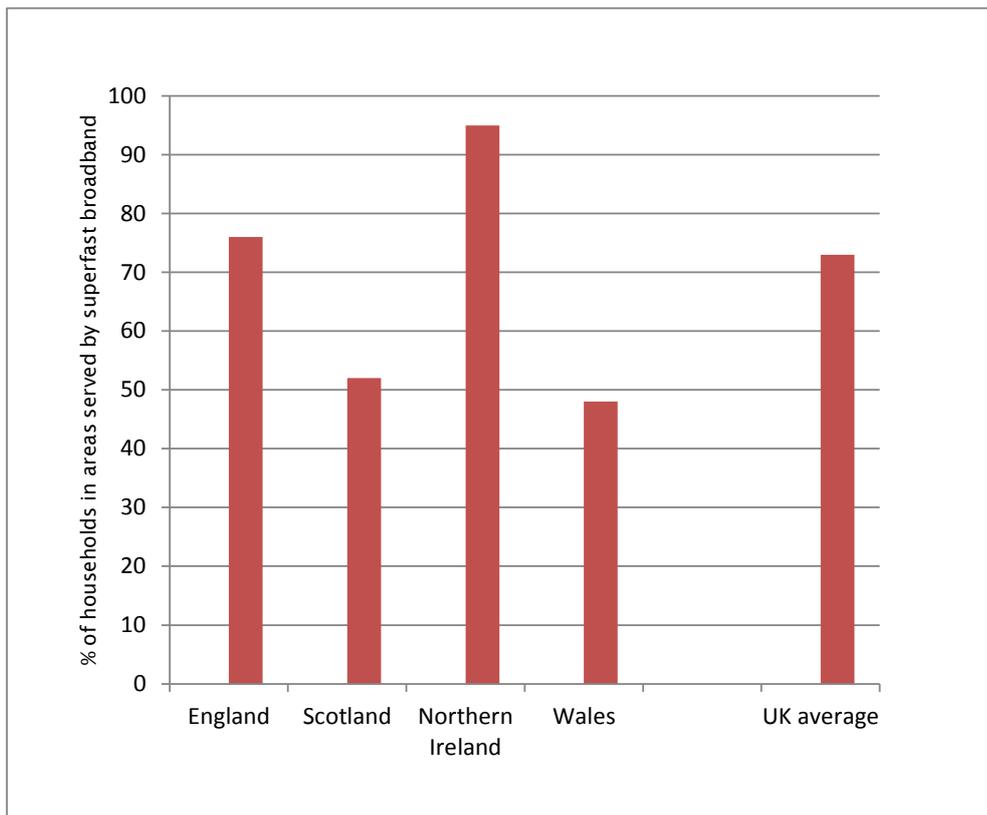
Table 1.1: Broadband availability in Wales and the UK in 2012

Country	Premises in potential not-spots*	Connections operating below 2 Mbit/s	Availability of superfast broadband services			
			Nation average	Urban areas	Semi-urban areas	Rural areas
England	1.3	10	68	85	69	17
Scotland	1.7	10	45	70	47	5
Northern Ireland	0.6	15	95	97	96	91
Wales	1.8	15	37	88	32	6
Total UK	1.3	10	65	84	65	19

Source: Ofcom/operators, [Ofcom: Infrastructure Report 2012 Update](#)

*Ofcom's estimates are based on the total residential and small business premises in postcodes where its data indicates no broadband connections. The percentages given are the likely upper limit for the potential number of premises, due to the methodology used. In practice the actual percentage of premises in 'not-spots' may be considerably lower.

Figure 1.1: Superfast broadband availability in Wales and the UK in 2013



Source: Ofcom/operators, June 2013 data, [Communications Market Report 2013: Wales](#) Note: this data is not currently available to the level of detail provided in Table 1.1 (above)

As Table 1.1 and Figure 1.1 demonstrate, **Wales currently has the largest proportion of premises in potential not-spots, and the lowest availability of superfast – or next generation - broadband services in the UK.** The profound urban/rural split in the availability of superfast broadband services is further demonstrated by the map below (where the darker colour represents postcodes in which superfast broadband is available):

Figure 1.2: Superfast broadband network coverage in the UK in 2012

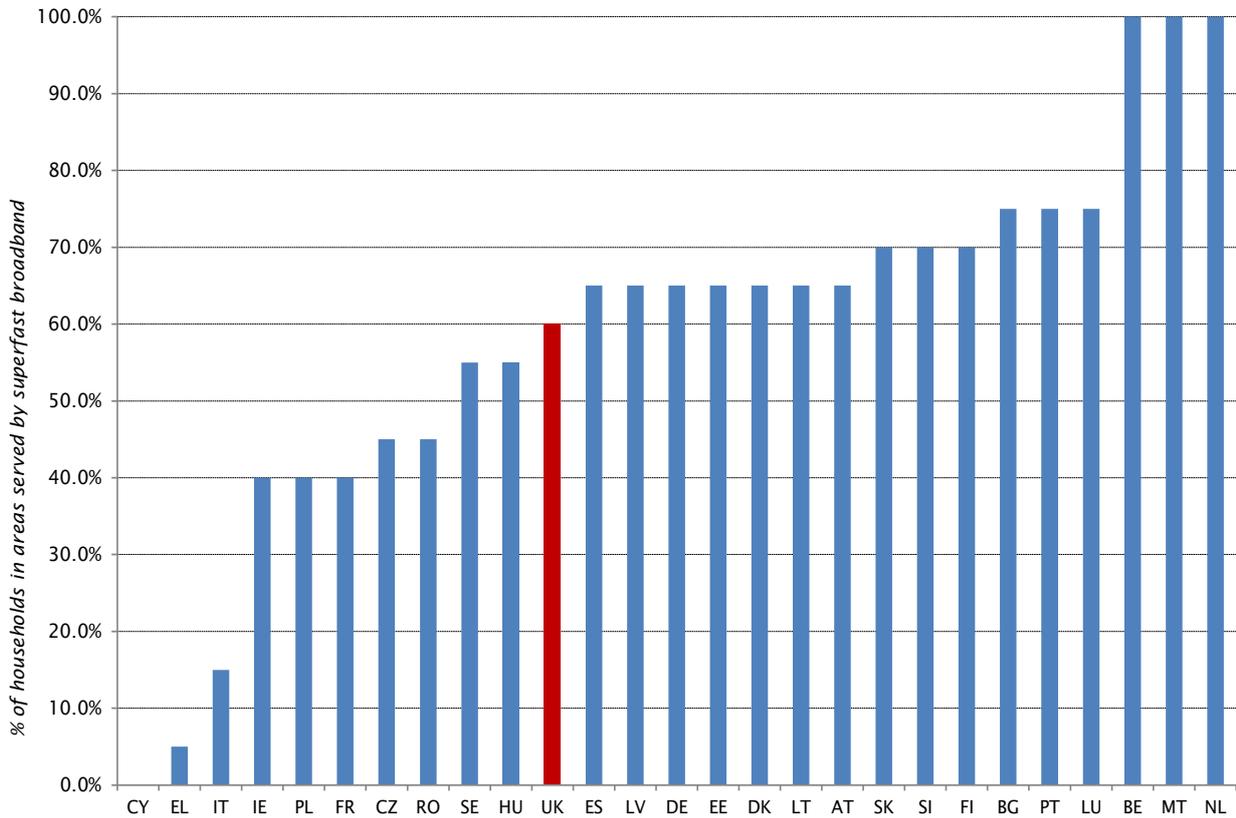


Source: Ofcom/operators based on postcode data, [Ofcom: Infrastructure Report 2012 Update](#)

Furthermore, Ofcom has produced a map showing fixed line broadband data by local authority in 2012, which is available on its website [here](#). In terms of overall performance (taking into consideration a number of factors including broadband take-up, availability of superfast broadband and number of broadband not-spots), a number of Welsh local authorities are rated by Ofcom as being among the worst performing in the UK for broadband services. All local authorities are ranked on a scale of 1 to 5 for overall performance (with 1 being the best and 5 the worst), and 10 Welsh local authorities receive a ranking of 5.

2.2. Levels of broadband access across Europe

Figure 2.1: Percentage of households in areas served by superfast broadband (at year-end 2011)



Source: Ofcom, [the European Broadband Scorecard](#), Point Topic/EC, Broadband Coverage in Europe 2011, November 2012. Note: (1) Data refer to year-end 2011. (2) Ofcom has banded Point Topic's figures within a range between the nearest integers divisible by 5. (3) 'Superfast broadband' refers to NGA technologies, including VDSL, FTTP and DOCSIS3.0 cable, those needed to provide 30Mbit/s download speeds for end users.

In terms of **basic broadband coverage** (defined as that capable of providing headline speed of at least 144kbit/s and less than 30Mbit/s download speed for end-users), and **wireless broadband coverage** the **UK has 95-100 per cent coverage**, along with the majority of countries in the EU (as recorded at year-end 2011).

As the above graph indicates, the **UK is currently mid-ranking in Europe in terms of superfast broadband coverage**. Ofcom has chosen to focus on the UK's performance compared to EU5 countries (UK, France, Spain, Germany and Italy) rather than the entire EU27.⁵ This is because the factors that affect the development of broadband networks, such as geography, population size and density and legacy infrastructure, differ significantly between the 27 EU Member States: as such, it deems it more appropriate to compare the UK's broadband network with those in other major European economies than with those in all EU27 countries.

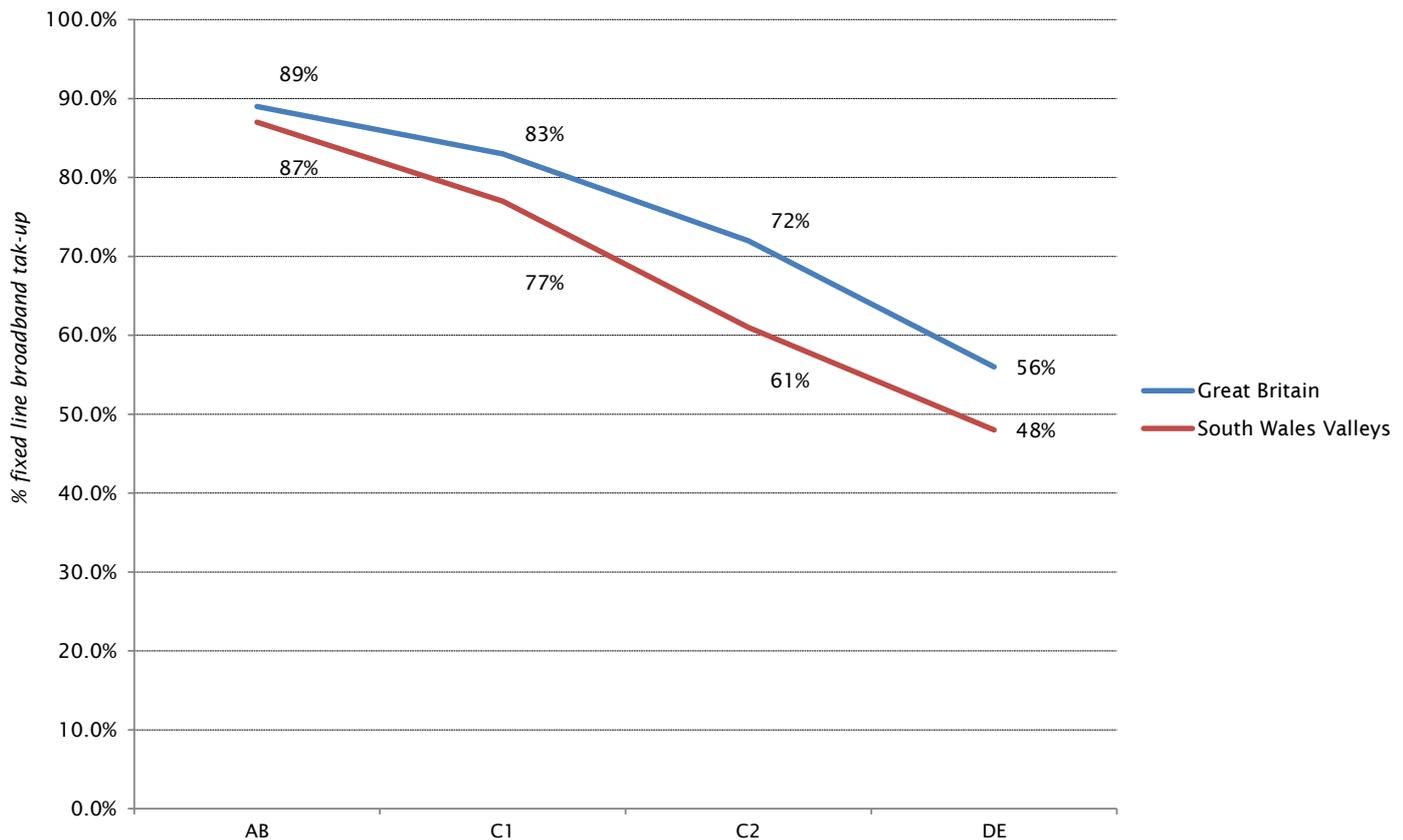
2.3. Coverage versus take-up

It is worth noting that broadband internet coverage is only part of the problem of reducing inequality in broadband access, as take-up typically mirrors other existing inequalities within society.

Figure 1.3 (below) shows that those in socio-economic groups C2DE are less likely to subscribe to fixed-line broadband services at home than those in groups ABC1; and people in the South Wales Valleys are less likely to subscribe than those in the rest of Great Britain.

⁵ Ofcom, [The European Broadband Scorecard](#) [Accessed 16 July 2013]

Figure 2.2: Fixed broadband take-up, by socio-economic group in the South Wales Valleys (2011)



Source: Ofcom, [Communications Market Report 2012, Wales](#)/British Population Survey, January-September 2011. Base: GB adults aged 15+, (n = 62,669 GB, 981 South Wales Valleys). For the purpose of this analysis, the South Wales Valleys are considered to be the Welsh local authority regions of Blaenau Gwent, Rhondda Cynon Taff, Neath Port Talbot, Merthyr Tydfil, Torfaen and Caerphilly.

This trend suggests that significant digital inclusion work is required if broadband – and superfast broadband – services are not to exacerbate existing divisions within society.

3. Public sector broadband policy

The previous section suggests that if left to the market, broadband speeds in urban areas will continue to accelerate, whilst rural areas – which are considered unattractive cases for commercial deployment – will be left in the broadband slow-lane. A consensus has therefore emerged – at the Welsh, UK and EU levels, that state intervention is required to prevent a widening rural/urban broadband divide.

3.1. Welsh Government broadband policy

3.1.1. Legislative competence

Regulation of the internet is not an area devolved to the National Assembly for Wales. Schedule 7 to the *Government of Wales Act 2006* lists the subjects in the 20 devolved areas, in which the National Assembly for Wales can pass Assembly Bills. “Telecommunications” and “internet services” are both listed as exceptions to the “economic development” subject. As such, the Assembly cannot legislate in these areas: they remain within the competence of the UK Government.

The Welsh Government cannot, therefore, alter the broadband regulatory framework in order to stimulate further deployment of broadband services in Wales. Instead, it has focused on providing financial support to broadband providers, or individuals, to improve broadband infrastructure in areas deemed unattractive for commercial deployment.

3.1.2. Superfast Cymru

In July 2012, the Welsh Government awarded the contract to deliver its next-generation broadband project, “Superfast Cymru”, to BT, following an EU procurement exercise. The project is intended to roll-out next-generation fibre-based broadband to 96 per cent of Wales by 2016.

Lots of information about the Superfast Cymru project is available on the [Superfast Cymru](#) website. The website includes a [map and postcode checker](#) that can be used to see when superfast broadband will be available in a given area.

Superfast Cymru is being funded with a mixture of Welsh Government funding, UK Government funding, EU funding and private investment, amounting to a total investment of £425 million. The breakdown of public funding is as follows:

- £58.6 million of Welsh Government funding:
 - £30 million of Centrally Retained Capital; and
 - £28.6 million of Economy, Science and Transport capital budget.
- £56.9 million of UK Government funding;
- £89.5 million of European funding:
 - European Regional Development Fund Convergence of £80 million; and
 - Competitiveness funding of £9.5 million;

When providing evidence to the Assembly's Enterprise and Business Committee, the Minister for Economy, Science and Transport's officials stated that the delivery speeds required of BT are "in line with the European vision for 2020" (see below).⁶

Anne Beynon, BT Director Wales, has stated that:

What we must provide in the contract is a level of 95%, which will have to have 24 megabits at least. Some 90% have to have 30 megabits [...] These new services will have an average that will easily be around 65 mbps.⁷

If the Superfast Cymru project delivers on the Welsh Government's aims, the Minister expects Wales to be placed in the top ten OECD (Organisation for Economic Cooperation) countries in the world for broadband coverage.⁸

The contract with BT is said to be "technology neutral": that is, it prescribes the speeds the contractor (BT) must achieve in Wales, but not the technology it has to use to achieve these results. However, given these speed requirements, it is very likely that a proportion of premises connected under the Superfast Cymru project will be done using Fibre To The Premises technology (currently the most future-proof connection available).

Not all of Wales is due to be served by Superfast Cymru. The Welsh Government and BT envisage that 4 per cent of premises will be deemed too inaccessible to cost-effectively be provided with next-generation broadband through this project. The location of these premises is currently unknown and will be gradually discovered by BT as their work progresses. Although many of these premises will be in geographically remote areas, some will be in urban centres – such as Cardiff and Swansea – where local issues (such as planning constraints or physical barriers to laying cable) impede access.

⁶ National Assembly for Wales, Enterprise and Business Committee, [Transcript](#), 2 May 2013 [Accessed 22 May 2013]

⁷ National Assembly for Wales, Enterprise and Business Committee, [Transcript](#), 24 July 2013 [Accessed 31 July 2013]

⁸ National Assembly for Wales, Enterprise and Business Committee, [Transcript](#), 2 May 2013 [Accessed 22 May 2013]

A further problem is presented where these hard-to-reach areas are in the middle of what is considered to be a commercial roll-out area. In these areas market-failure has to be proven before state intervention can take place, to avoid contravention of EU State Aid rules.

The Minister has stated that:

More detailed planning will help us identify those areas, but I have already asked my officials to start work to consider options for addressing high speed broadband availability at those homes and businesses not covered by this project. In the meantime, the Broadband Support Scheme will continue to operate across Wales.⁹

A BT official outlined the monitoring requirements placed on BT by the Welsh Government whilst giving evidence to the Assembly's Enterprise and Business Committee in July 2013. He explained that Schedule 9 to the Superfast Cymru contract lists the key performance indicators that BT must report on regularly, and that to this end BT meets monthly with Welsh Government officials at an operations board, and quarterly at a programme board.¹⁰

3.1.3. Broadband Support Scheme

The Broadband Support Scheme is the Welsh Government's scheme to provide funding to individuals or groups where they cannot currently access broadband faster than 2 Mbps. The scheme is currently scheduled to end in September 2013. Support for up to £1,000 is available per individual premises. Details of how to apply for funding are available on the Welsh Government website [here](#).

Between July 2010 and January 2013, 4,066 premises were provided with funding under the BSS. A breakdown by local authority was provided by the Welsh Government in response to a Freedom of Information request in February 2013.¹¹

The Minister has stated that a "slightly modified" successor to the Broadband Support Scheme will be available in September 2013, with details to be announced in summer 2013.¹²

⁹ Welsh Government, [Written Statement - Next Generation Broadband for Wales project – Announcement of Contract Award](#), 19 July 2012 [Accessed 17 July 2013]

¹⁰ National Assembly for Wales, Enterprise and Business Committee, [Transcript](#), 24 July 2013 [Accessed 31 July 2013]

¹¹ Welsh Government, [Bus331 Numbers funded under the Broadband Support Scheme](#) [Accessed 5 June 2013]

¹² National Assembly for Wales, Plenary, [RoP](#), 13 March 2013 [Accessed 5 June 2013]

3.2. UK Government broadband policy

As mentioned above, the Welsh Government's Superfast Cymru project includes £56.9 million of UK Government funding. The UK-wide effort to improve broadband connectivity is being coordinated by Broadband Delivery UK (BDUK), within the UK Government Department for Culture, Media and Sport (DCMS), under the Rural Broadband Programme. Within this approach, devolved administrations have responsibility for delivering improved broadband infrastructure in their area, with some funding provided by the UK Government.¹³

The National Audit Office recently published a report into the UK Government's Rural Broadband Programme¹⁴. This report concluded, among other things, that:

The rural broadband project is moving forward late and without the benefit of strong competition to protect public value.

Figure 3.1: BDUK funding allocations by country (updated March 2013)

Country	<i>£ million/premises</i>	
	Allocation	Modelled number of premises in locations eligible for public subsidy under EU state aid guidelines
England	294.8	6,603,443
Scotland	100.8	1,392,322
Wales	56.9	899,867
Northern Ireland	4.4	99,340
Total: whole UK	456.9	8,994,972

Source: UK Government Department for Culture, Media and Sport, [Broadband Delivery UK](#)

This table shows that Wales has been allocated 12.5 per cent of the funding provided by BDUK in the UK, and contains 10 per cent of the eligible premises in the UK.

3.2.1. State Aid

State Aid refers to forms of assistance from a public body, or publicly-funded body, given to selected undertakings (any entity which puts goods or services on the given market), which has the potential to distort competition and affect trade between member states of the European Union.

¹³ Department for Culture, Media and Sport, [BDUK Programme Delivery Model](#) [Accessed 5 June 2013]

¹⁴ National Audit Office, [The Rural Broadband Programme](#), 5 July 2013 [Accessed 12 July 2013]

The European Commission monitors and controls State Aid in the EU. Member States are obliged to notify and seek approval from the Commission before granting State Aid. This gives the Commission the opportunity to approve or refuse to approve the proposed measure.¹⁵

Welsh Government funding for superfast broadband must therefore comply with the relevant EU State Aid rules, which are the [*EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks*](#).

BDUK has put in place an umbrella scheme covering broadband projects within the UK, and has received State Aid clearance from the European Commission. Individual projects within the UK – such as Superfast Cymru – must therefore comply with the BDUK umbrella scheme to ensure that they meet State Aid guidelines.

The relevant State Aid rules were published on 26 January 2013. In evidence provided to the Assembly’s Enterprise and Business Committee in April 2013 the Minister stated that “they do not apply to aid decisions which pre-date that publication date”, and that the UK National Broadband Scheme (of which Superfast Cymru is a constituent part) was approved by the European Commission in November 2012.¹⁶

However, the Minister’s written evidence then states that:

...there is a proviso in the 2013 guidelines which requires Member States to take appropriate measures and amend, where necessary, existing aid schemes to bring them in line with the 2013 guidelines within 12 months after their publication. Therefore, Superfast-Cymru might be affected by changes which might need to be made to the BDUK (Broadband Delivery UK) scheme, but we should be notified in advance by BDUK of these changes and when they take effect.¹⁷

3.2.2. Super-connected Cities

The UK Government’s [*2011 Autumn Statement*](#) announced that the UK Government will invest £100 million to create up to ten “super-connected cities” across the UK, with 80-100 Mbps broadband and city-wide high-speed mobile connectivity. This was followed in 2012 by a further fund of £50 million for a “second wave” of cities to benefit from this programme.

The super-connected cities were announced in two waves. The first wave, announced in March 2012, was as follows:

¹⁵ From the Department for Business, Innovation and Skills, [State Aid](#) [Accessed 4 June 2013]

¹⁶ National Assembly for Wales, Enterprise and Business Committee, [Next Generation Broadband - Minister's paper](#), 2 May 2013 [Accessed 12 July 2013]

¹⁷ Ibid.

Figure 3.2: First wave of funding under the Super-connected Cities Programme

City	Base award	Maximum possible award
Manchester	12	12
Birmingham	7	10
Bristol	4.2	12
Belfast	6	13.7
Newcastle	4	6
Leeds and Bradford (joint proposal)	10	14.6
Edinburgh	8	11
Cardiff	7	12
London	10	25
Total	68.2	116.3

£m

Source: UK Government Department for Culture, Media and Sport, [Investing in Super-connected Cities](#)

In December 2012 a second wave of funding for Super-connected Cities was announced. The 12 cities included are: Brighton and Hove, Cambridge, Coventry, Derby, Oxford, Portsmouth, Salford, and York in England; Aberdeen and Perth in Scotland; **Newport in Wales**; and Derry/Londonderry in Northern Ireland. It was announced that each will take a share of the £50 million super-connected city fund.¹⁸

However, in June 2013 it was reported that the Super-connected Cities scheme had been scaled back following legal challenges from Virgin and BT, who felt the scheme would unfairly benefit their competitors and contravene EU State Aid rules.¹⁹

The DCMS has confirmed it will not push ahead with state-funded superfast networks in 22 cities, as originally envisaged. Instead, money will be used to provide vouchers for SMEs to cover connections to privately-funded networks. Plans to provide high-speed wireless networks in the cities are unaffected.

A DCMS spokesperson said:

Following the revision in State Aid guidelines and developments in the broadband market, the Super Connected Cities programme will now focus on investments in connectivity that drive economic growth and demand for high-speed broadband, including a connection voucher scheme to address the relatively high cost of getting connected for some SMEs.

¹⁸ Department for Culture, Media and Sport, [Ultrafast broadband for 12 UK cities](#) [Accessed 5 June 2013]

¹⁹ Guardian, [George Osborne's high-speed broadband plans end in vouchers](#), 25 June 2013 [Accessed 12 July 2013]

3.3. EU broadband policy

When giving evidence to the Enterprise and Business Committee in May 2013, the Minister's official stated that the aspirations of the Welsh Government's broadband policy are designed to ensure that Wales meets the European Commission's targets for broadband internet access in the EU.²⁰

These targets are set out in the European Commission's *Digital Agenda for Growth*, the first of seven flagship initiatives under Europe 2020, the EU's strategy to deliver smart, sustainable and inclusive growth. In terms of broadband speeds, the Commission states:

To match world leaders like South Korea and Japan, Europe needs **download rates of 30 Mbps for all of its citizens and at least 50% of European households subscribing to internet connections above 100 Mbps by 2020**. The Digital Agenda aims to turn this ambition into reality by stimulating investments and proposing a comprehensive radio spectrum plan. (*My emphasis*)²¹

The Digital Agenda contains 101 actions, in 7 pillars, which the Commission believes will help to stimulate the EU economy and enable Europe's citizens and businesses to get the most out of digital technologies. It contains 13 specific goals, as follows:

- The entire EU to be covered by broadband by 2013;
- The entire EU to be covered by broadband above 30 Mbps by 2020;
- 50 per-cent of the EU to subscribe to broadband above 100 Mbps by 2020;
- 50 per-cent of the population to buy online by 2015;
- 20 per-cent of the population to buy online cross-border by 2015;
- 33 per-cent of SMEs to make online sales by 2015;
- The difference between roaming and national tariffs to approach zero by 2015;
- To increase regular internet usage from 60 per-cent to 75 per-cent by 2015, and from 41 per-cent to 60 per-cent among disadvantaged people;
- to halve the proportion of the population that has never used the internet from 30 per-cent to 15 per-cent by 2015;
- 50 per-cent of citizens to use eGovernment by 2015, with more than half returning completed forms;
- All key cross-border public services, to be agreed by Member States in 2011, to be available online by 2015;

²⁰ National Assembly for Wales, Enterprise and Business Committee, [RoP](#), 2 May 2013 [Accessed 5 June 2013]

²¹ European Commission, Digital Agenda for Europe, [Pillar IV: Fast and ultrafast broadband access](#) [Accessed 5 June 2013]

- To double public investment in ICT R&D to €11 billion by 2020;
- To reduce energy use of lighting by 20 per-cent by 2020.²²

Progress towards these goals is measured annually on the [Digital Agenda Scoreboard](#). A large amount of data is available on these pages of the Commission's website, enabling progress to be compared against various aims of the Digital Agenda, and between Member States.

²² European Commission, Digital Agenda for Europe, [About our goals](#) [Accessed 6 June 2013]

4. The value of broadband

A number of studies have sought to quantify the value of access to broadband or superfast broadband services, often as a premise for justifying state intervention in the broadband market. Claims made about the value of broadband include:

- Research undertaken in 2009 (Nina Czernich et al) suggested that every 10 per-cent increase in broadband penetration results in an increase in GDP growth of between 0.9 and 1.5 per-cent.²³
- On average, 9,320 direct jobs are created for each billion euros spent on broadband deployment.²⁴
- Research published in 2008 (Aston Campbell Associates) estimated that each contact and transaction with the UK Government switched online could save between £3.30 and £12.²⁵
- A European Commission study (*Megatrends in E-Learning*) in 2007 found that e-learning courses are 50 per-cent less expensive than face-to-face courses; and blended learning (which combines face-to-face and online learning) is 20 per-cent less expensive, and considered more efficient than solely online learning.²⁶
- A study in 2008 (Micus) suggested that companies adopting broadband-based processes improved employees' labour productivity by 5 per-cent in the manufacturing sector and 10 per-cent in the services sector.²⁷
- Research published in 2012 (Boston Consulting Group) placed the percentage of the UK's GDP derived from the internet economy at twice the G20 average, and suggested that online retail is expected to account for up to 23 per-cent of total UK retail in 2016 (it is worth noting, however, that online retail does not typically require fast – just widespread and consistent – broadband connections).²⁸

²³ Quoted in European Commission, [Study on the socio-economic impact of bandwidth \(SMART 2010/0033\)](#), March 2013 [Accessed 17 June 2013]

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Boston Consulting Group, referenced in House of Lords Select Committee on Communications, [Broadband for all - an alternative vision](#), 31 July 2012 [Accessed 17 June 2013]

4.1. *An alternative view*

However, some commentators have suggested that the transformative nature of the internet has been exaggerated. For example, Cambridge professor of economics, Ha-Joon Chang has argued that improvements made to international communication in recent years have not been as revolutionary as those made in the late 19th century – with the advent of the telegraph – in relative terms.²⁹

Furthermore, he suggests that other inventions – such as the washing-machine, which vastly reduced the amount of time needed to complete domestic chores, and consequently led to more women joining the labour market – have made a greater impact on society, so far at least.

Other economists – such as Nobel laureate Robert Solow – have noted that, despite a popular belief in the revolutionary aspect of the computer age in general, this technological revolution has not been matched with a notable increase in productivity. As Solow stated, as long ago as 1987, “You can see the computer age everywhere but in the productivity statistics”³⁰.

Chang suggests that what he sees as a mistaken belief in the ability of the internet to transform people’s professional and personal lives is important. As he says, “these distorted perspectives have real impacts, as they result in misguided use of scarce resources”. Led by such views, he suggests, the state has intervened in the roll-out of broadband internet – to tackle the digital divide – in ways that are not comparable to the government’s role in the spread of other new forms of technology.

²⁹ Whereas the telegraph improved upon the previous fastest method of transmitting a message over the Atlantic – the steamship – by a factor of over 2,500 times, the email improved upon the previous fastest method for transmitting a message – the fax machine – by only a factor of 5. See Chang, H-J, (2010) *23 Things They Don't Tell You About Capitalism*. London: Penguin.

³⁰ Solow, Robert (1987) [We'd Better Watch Out](#), New York Times Book Review

5. Case studies: government-funded broadband schemes elsewhere

5.1. *Northern Ireland superfast broadband*

One of the first schemes in the UK to use targeted public funding to roll-out superfast broadband (SFBB) in non-commercially viable areas took place in Northern Ireland.

In 2009 the Northern Ireland Department of Enterprise, Trade and Investment (DETI) set a target to **provide broadband access to 85 per-cent of businesses in Northern Ireland**, with speeds of at least 2 Mbps in rural areas and 10 Mbps in urban areas. BT was awarded the subsequent contract and has invested over £30m of private funding, supported by over £18m from DETI, the Northern Ireland Department of Agricultural and Rural Development and the EU.

The programme was completed in April 2011 and exceeded the initial targets. Northern Ireland now has the **highest level of SFBB availability in the UK at 95 per cent of premises**, despite having the highest proportion of premises in rural areas (30 per-cent compared to a UK average of 14 per-cent). Cable broadband is available in Belfast and Derry, and BT has deployed Fibre To The Cabinet (FTTC) technology across most of the country. Not only is coverage more extensive than originally planned, the average modem sync speed of FTTC connection is over 39 Mbps. Even in postcodes where DETI recognises that provision of FTTC may be limited, the average speed of the existing connections is 27 Mbps, compared to an average of just 3 Mbps for existing ADSL³¹ connections.

For those living beyond the reach of the new fibre networks, DETI continues to support a scheme to ensure every premise has access to a basic broadband service. In 2012 DETI engaged OnWave to provide satellite broadband services to those citizens who are unable to receive 2 Mbps broadband services via fixed networks. DETI is currently undertaking further work to explore the extent to which 2 Mbps service can be delivered with technologies other than satellite.³²

³¹ ADSL stands for "Asymmetric Digital Subscriber Line". It is a method of transferring data over copper telephone lines.

³² Information taken from Ofcom, [Infrastructure Report 2012: Update](#) [Accessed 18 June 2013]

5.2. Cornwall superfast broadband

Superfast Cornwall – also being delivered by BT – is a project to roll-out high-speed broadband in Cornwall by 2015.³³ Of a total of £132 million total funding, £78.5 million is being provided by BT, and £53.5 million from ERDF (European Regional Development Fund) Convergence funding.³⁴

The Superfast Cornwall website states:

The programme will run until 2015, by which time **fibre optic superfast broadband will have been brought within reach of 95% of homes and businesses in Cornwall** and the Isles of Scilly.

Superfast Cornwall is aiming to connect up to **40% of these to superfast broadband through 'fibre to the premises'** - the most future proof of broadband technologies available anywhere in the world today.

For homes and businesses which are unable to connect to fibre optic broadband, Superfast Cornwall is aiming to bring faster broadband through alternative technologies, such as satellite, wireless and advanced copper.

This means that 100% of premises in Cornwall and the Isles of Scilly can have faster broadband as a result of the Superfast Cornwall programme. *(My emphasis)*

³³ [Superfast Cornwall](#) [Accessed 24 June 2013]

³⁴ Convergence Cornwall, [£132 Million Broadband Project to Transform Cornish Economy](#) [Accessed 24 April 2013]