Superfast Broadband
Digital Scotland

Delivering on our Commitment in

SCOTLAND

(Final)

As of June 2020

Contents

Ensuring rural areas had superfast broadband was at the heart of the DSSB programme. (L-R) Andy Hepburn, Build Director Openreach, Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands, Mike Grant, Openreach Engineer and Programme Director Sara Budge

1 Foreword by Sara Budge, DSSB Programme Director

'Ground-breaking', 'determined' and 'successful'. These are just some of the ways the award-winning[1] £300.9m[2] (public and private sector investment) Digital Scotland Superfast Broadband (DSSB) programme in the 'Rest of Scotland' area has been described. It has certainly supported Scotland's longstanding reputation for innovation and application, and we're really proud of all of the people who've worked in such strong collaboration to ensure its ultimate success.

From the very outset we recognised that extending superfast broadband across the country was about so much more than simply supporting economic growth. It's also been about enhancing quality of life, creating and retaining jobs locally, reducing Scotland's carbon footprint, and improving access to health and education.

In these exceptional times brought about by Covid-19, digital connectivity has played a major role in ensuring we can continue to access vital services and connect with friends and family, albeit in different ways to those we're used to.

The growth in virtual medical consultations is a great example of this. Near Me is a video-consulting service that means people can have health and social care appointments from home, or wherever is convenient. Near Me requires an internet connection for video calls, using either a desktop, smartphone or tablet. What's more, it's fully secure and approved for use by the Scottish Government and NHS Scotland.

The original incentives for Near Me were to reduce travel in remote and rural areas and improve access to care for those who couldn't travel – thereby also reducing the environmental impact of private car use, and overcoming some of the logistical obstacles the workforce was faced with. Staff can far more easily, and just as effectively, work from home if required, and patients needn't travel for consultations, with Near Me consultations rising from 300 to 6,000 per week throughout 2020.

As one of the largest infrastructure projects in Europe, DSSB (alongside commercial coverage and the Highlands and Islands Programme) represents a major success on many levels. It means over 98.2% of premises in Scotland now have access to superfast fibre broadband, compared to just 66% coverage before we began. In some Local Authority areas, access to fibre broadband had been as low as 25.1% before DSSB.

In achieving our goals we've introduced some pioneering technologies, and applied genuine innovation to overcome complex geographical and engineering challenges.

When the Rest of Scotland programme drew to a close in June 2020, DSSB had deployed superfast broadband to over 950,000 homes and businesses across Scotland, through both the Rest of Scotland and Highlands & Islands contracts. We've reached from the Shetland Isles to Eyemouth, and in the Rest of Scotland area we've extended from Portsoy in Aberdeenshire to Drummore in Dumfries and Galloway.

In April 2019, a report by global research consultants Analysys Mason, commissioned by the DSSB Programme, revealed the programme's overall benefit to the Scottish economy to be £2.76 billion over 15 years. It also noted significant qualitative benefits, such as social inclusion, improved e-health, and enhancements to social care provision – with the programme providing a strong platform for realising future potential.

Meanwhile, our commitment to marketing and communications has achieved a 66.8%[3] adoption rate compared with our initial target of 20%.

This document explains in detail how the DSSB programme has built on what we promised from the outset in 2013 for the 'Rest of Scotland', and what has been achieved as at the end of June 2020. Our remarkable achievements have been guided by investment principles of parity and fairness across all Local Authority areas, a commitment to significantly increased broadband speeds, value for money; and above all, the efficacy of our existing fibre infrastructure in complementing ongoing fibre programmes.

Throughout Stage 2 our focus was within the rural and very rural geo-types of the programme, this has arguably been the most difficult aspect of the build, of which 87% was classified as rural and 24% 'remote rural'. With far fewer premises served by a fibre structure, and far greater value-for-money challenges, this 'final furlong' of an immense infrastructure undertaking has called on significant ingenuity, effort and resource.

The report then covers how further demand was stimulated, and details the benefits realised across the Rest of Scotland.

This report showcases the outstanding collaborative attitude of everyone involved, and our dedication to ensuring access to fibre for people who live and work in the Rest of Scotland areas. It also highlights how we've risen to the many and varied challenges.

I am very aware that until every home and business in Scotland enjoys access to fibre, there is more to do. DSSB has laid a fantastic foundation for future programmes such as R100, which will help to ensure that the country reaches 100% coverage with universal service standards.

With very best wishes and sincere thanks to all our investing partners, and to Openreach, who have ensured we not only did what we set out to do, but also far exceeded it.

Sara Budge
DSSB Programme Director

[1] DSSB was Highly Commended at the Connected Britain Awards 2018, a finalist at the Civil Service Awards 2018, the World Communications Awards 2018 and the European Broadband Awards 2019
[2] The total DSSB pan Scotland funding was £464 million
[3] At October 2020

2 Purpose of Document

This document details the DSSB programme's aims and achievements across the Rest of Scotland area. It is fully transparent about what the programme has accomplished at the close of our extended contract, in June 2020.

In 2013, the DSSB programme boldly set out to ensure that, when combined with commercial coverage, 85% of Scotland could enjoy access to fibre broadband by the end of 2015 – and that 95% would have access by the end of 2017.

Thanks to the steadfast partnership approach among our contractual partners: The Scottish Government, UK Government, BT Group, Scotland's Local Authorities and the European Regional Development Fund, plus the 14 contributing Authorities and Openreach, the programme met its commitments on time and budget.

L-R Andy Hepburn, Build Director Openreach, with Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands in Rankinston, East Ayrshire with an Openreach engineer

3 Programme Background

The DSSB Rest of Scotland programme continued beyond March 2018 thanks to a clawback of funding made available to the programme as a direct result of take-up in the Rest of Scotland intervention area. Clawback funding remained State Aid compliant, and Building Digital UK's (BDUK) 'change control assurance' oversaw the process for incorporating the clawback funding into the contract. As a result of programme efficiency and innovation, the available funding meant our investment could enhance the incr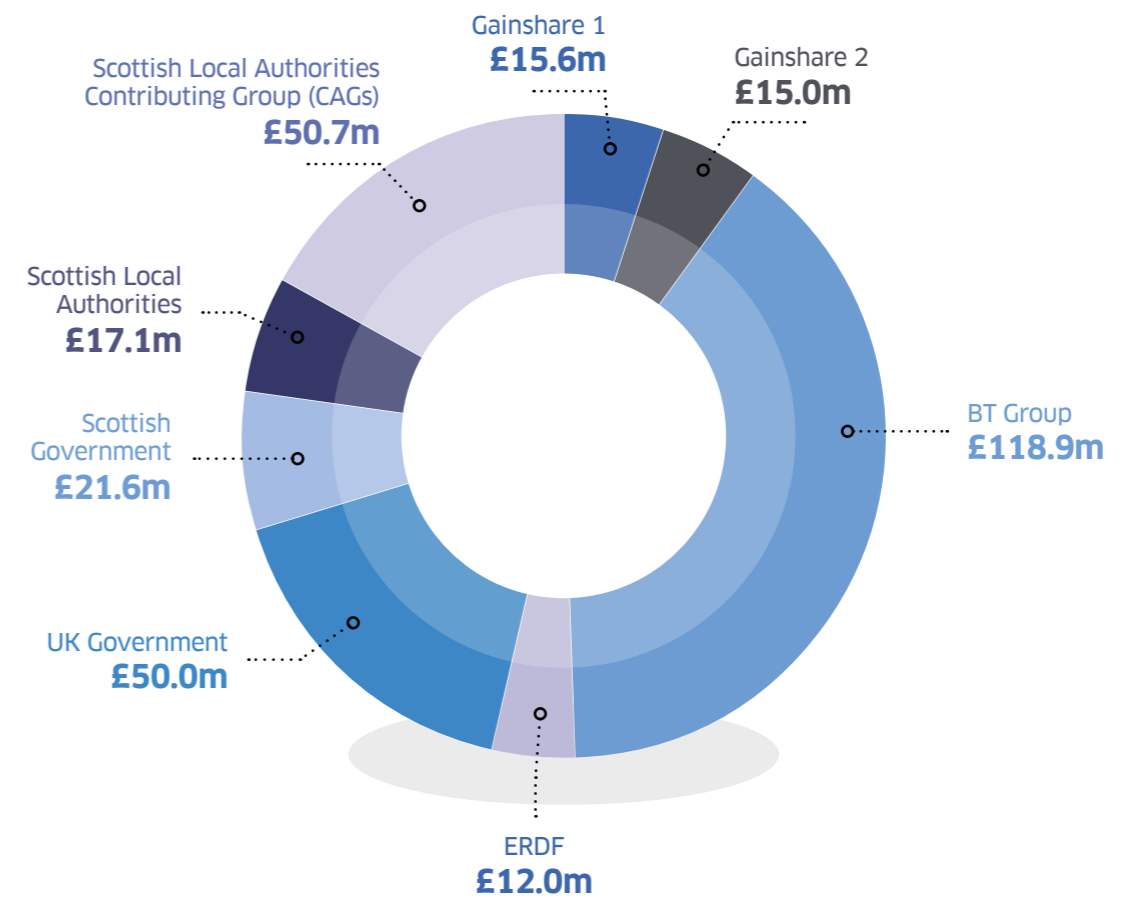emental build. The funding helped to achieve greater broadband parity among the 27 Local Authorities in the programme, and to address fibre infrastructure shortcomings in our more rural and very rural communities.

In this document, as well as in other final reports, Stage 1 deployment refers to initial build under the contract, while Stage 2 extended build deployment refers to the period where clawback and all available funding streams were maximised. This document builds on the previous National Document, which reported on programme activity until March 2018.

An Openreach Engineer prepares for work

4 Our Investors

The programme comprised a range of partners at local, national and European levels that contributed to the programme's success. The 'Rest of Scotland' project is funded to the value of £300.9m (public and private sector investment), which includes £30.6m of clawback funding.

Finances and deployment were assured quarterly, ensuring the total capital expenditure and claims against the project finance model remained in line with plans and forecasts. This resulted in both pragmatic financial management throughout the programme, and the appropriate allocation of funding across all sources.

Gainshare 1
£15.6m

Gainshare 2
£15.0m

Scottish Local Authorities Contributing Group (CAGs)
£50.7m

Scottish Local Authorities
£17.1m

Scottish Government
£21.6m

BT Group
£118.9m

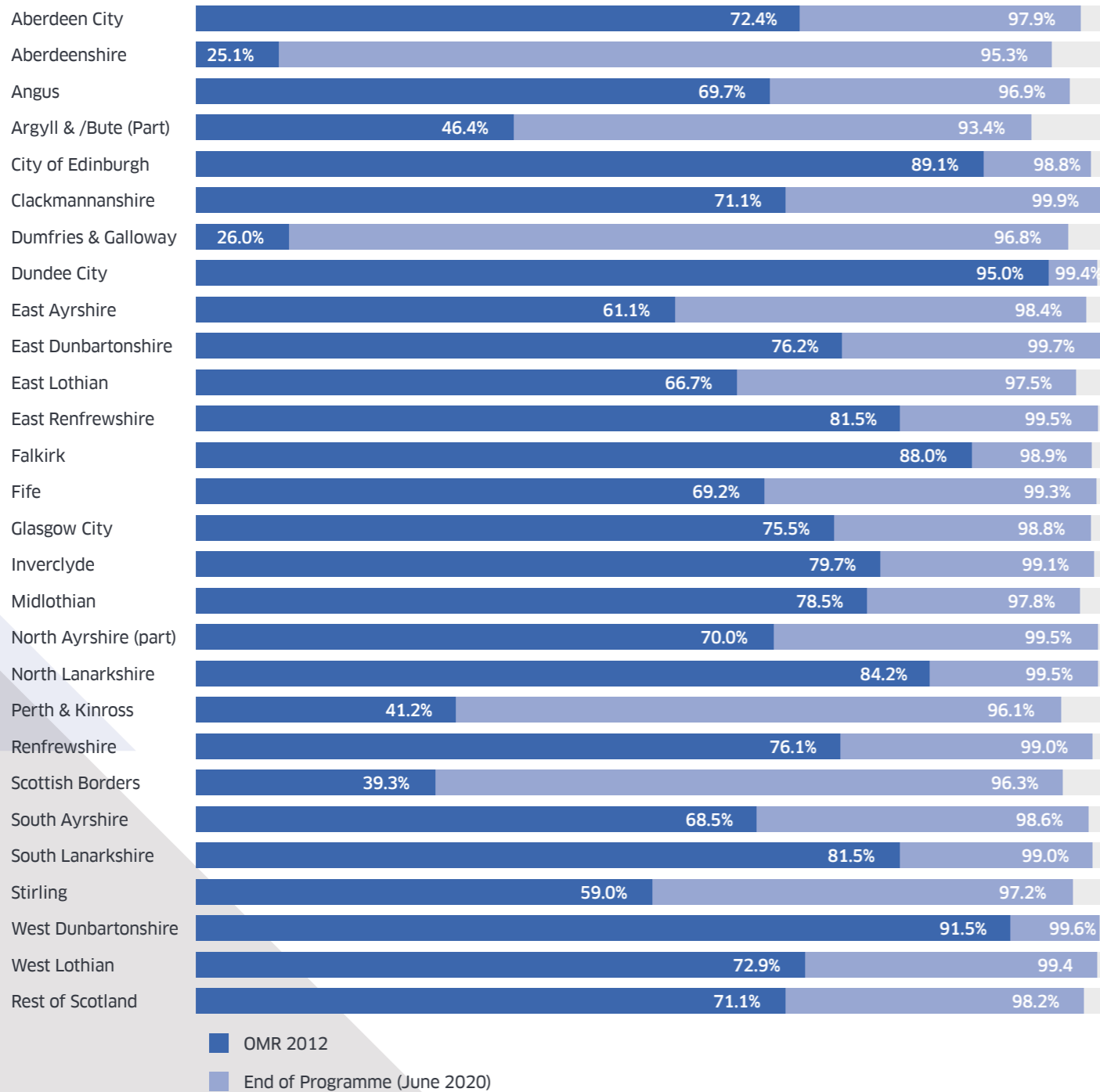UK Government
£50.0m

ERDF
£12.0m

An Openreach Engineer hard at work

5 Deployment

The bold and innovative thinking that has served us so well since the programme began in 2014 has supported us in building on the extensive infrastructure we put in place during our Stage 1 deployment. It has also ensured far-reaching success in Stage 2 deployment. Thanks to the clawback funding, triggered by DSSB, exceeding key take-up targets, we've connected an additional 42,110 premises.
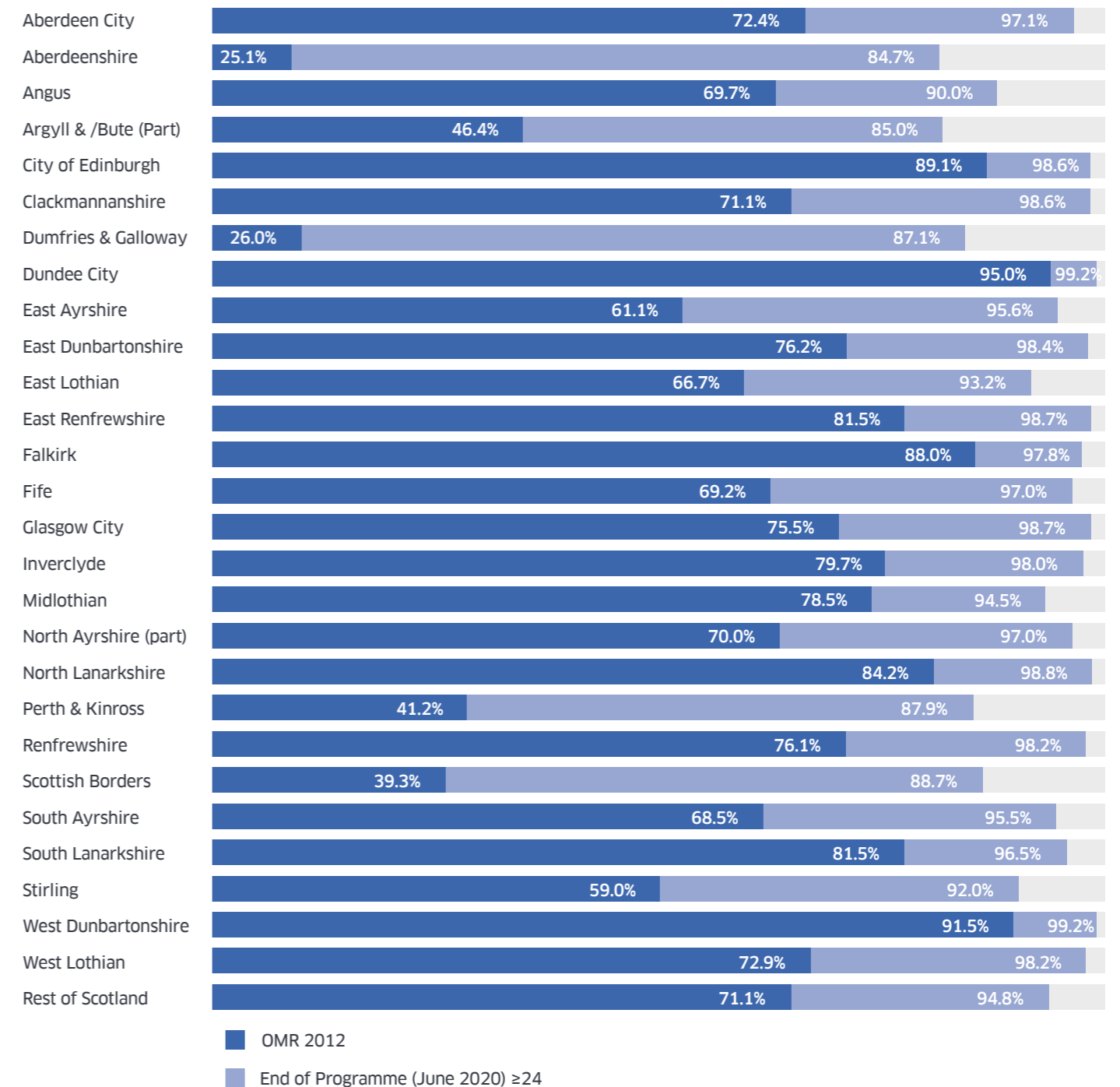
Coverage

Region	OMR 2012	End of Programme (June 2020)
Aberdeen City	72.4%	97.9%
Aberdeenshire	25.1%	95.3%
Angus	69.7%	96.9%
Argyll & /Bute (Part)	46.4%	93.4%
City of Edinburgh	89.1%	98.8%
Clackmannanshire	71.1%	99.9%
Dumfries & Galloway	26.0%	96.8%
Dundee City	95.0%	99.4%
East Ayrshire	61.1%	98.4%
East Dunbartonshire	76.2%	99.7%
East Lothian	66.7%	97.5%
East Renfrewshire	81.5%	99.5%
Falkirk	88.0%	98.9%
Fife	69.2%	99.3%
Glasgow City	75.5%	98.8%
Inverclyde	79.7%	99.1%
Midlothian	78.5%	97.8%
North Ayrshire (part)	70.0%	99.5%
North Lanarkshire	84.2%	99.5%
Perth & Kinross	41.2%	96.1%
Renfrewshire	76.1%	99.0%
Scottish Borders	39.3%	96.3%
South Ayrshire	68.5%	98.6%
South Lanarkshire	81.5%	99.0%
Stirling	59.0%	97.2%
West Dunbartonshire	91.5%	99.6%
West Lothian	72.9%	99.4
Rest of Scotland	71.1%	98.2%

- ■ OMR 2012
- ■ End of Programme (June 2020)

Speed

With a focus on speed uplift, and a shift towards more FTTP deployment, being key elements of our extended build, the volume of work per structure remained the same but the THP return lessened and the relative costs increased. The more rural the fibre build, the less existing network was available to be utilised.

The more rural the premises being served, the less feasible it becomes to deploy FTTC technology. This is when FTTP becomes the best technical solution, and also better meets the Programme's objectives of value for money and demonstrating responsible use of funding.

Region	OMR 2012	End of Programme (June 2020) ≥24
Aberdeen City	72.4%	97.1%
Aberdeenshire	25.1%	84.7%
Angus	69.7%	90.0%
Argyll & /Bute (Part)	46.4%	85.0%
City of Edinburgh	89.1%	98.6%
Clackmannanshire	71.1%	98.6%
Dumfries & Galloway	26.0%	87.1%
Dundee City	95.0%	99.2%
East Ayrshire	61.1%	95.6%
East Dunbartonshire	76.2%	98.4%
East Lothian	66.7%	93.2%
East Renfrewshire	81.5%	98.7%
Falkirk	88.0%	97.8%
Fife	69.2%	97.0%
Glasgow City	75.5%	98.7%
Inverclyde	79.7%	98.0%
Midlothian	78.5%	94.5%
North Ayrshire (part)	70.0%	97.0%
North Lanarkshire	84.2%	98.8%
Perth & Kinross	41.2%	87.9%
Renfrewshire	76.1%	98.2%
Scottish Borders	39.3%	88.7%
South Ayrshire	68.5%	95.5%
South Lanarkshire	81.5%	96.5%
Stirling	59.0%	92.0%
West Dunbartonshire	91.5%	99.2%
West Lothian	72.9%	98.2%
Rest of Scotland	71.1%	94.8%

- ■ OMR 2012
- ■ End of Programme (June 2020) ≥24

5.1   Premises Reached across Rest of Scotland Intervention Area

Aligning with the key principles of extended build, the technology mix was somewhat different from Stage 1 deployment. During Extended Build there were 28,897 connections to cabinet based technology, while FTTP connections accounted for a further 13,213 premises of those delivered.

As with our Stage 1 deployment, it was crucial to focus on balancing urban and rural needs to support our value-for-money commitments to investors and to ensure rural builds benefitted from an appropriate level of investment.

Achieving this has required considerable innovation, and recognition of the investment required to achieve the best fibre reach to more remote rural areas.

• 757,612 premises now have access to fibre infrastructure
• 4,227 live cabinets (FTTC)
• 892 live Passive Optical Networks (PONs) (FTTP)

757,612

Total premises connected to fibre infrastructure

THP Split Per Geo-type

Urban **12%**

Suburban **21%**

Rural **31%**

Very Rural **36%**
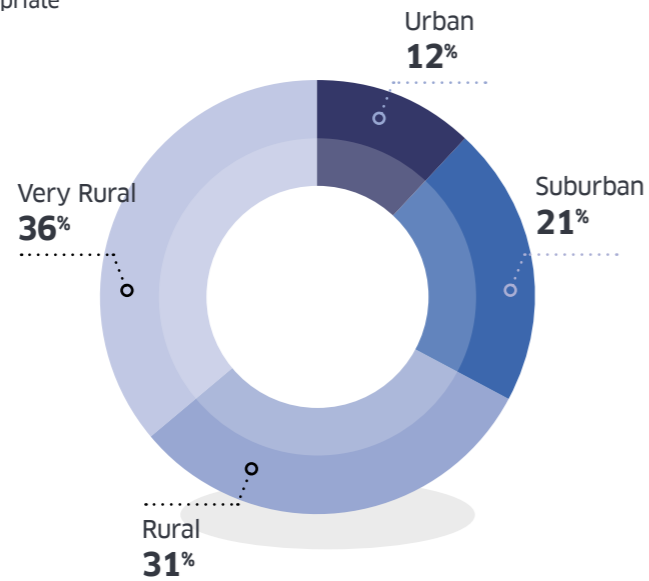
5.2   Meeting the Challenges

Building the broadband network has been a complex task, with each area of the country presenting new and unique challenges – including building cabinets in seemingly inaccessible locations and often obtaining multiple wayleave signatures for PON builds. Cabinet-based connections often required new power supplies, which meant continuous collaboration with power companies to ensure safe and satisfactory connection and handover.

Much of our extended build has been in rural locations, and given the nature of the terrain and layout of the road network, this often required traffic management and out-of-hours working to ensure communities could continue routines with minimal impact. To maximise efficiency, we worked collaboratively with utilities companies and Local Authorities to minimise disruption to everyday life.

By the project's very nature, and due to its unprecedented scale, many challenges only became clear when engineers arrived on site to lay cables, build cabinets, or build the nodes that take fibre direct to the premises. Of course, when the network was in a good state of repair and there was
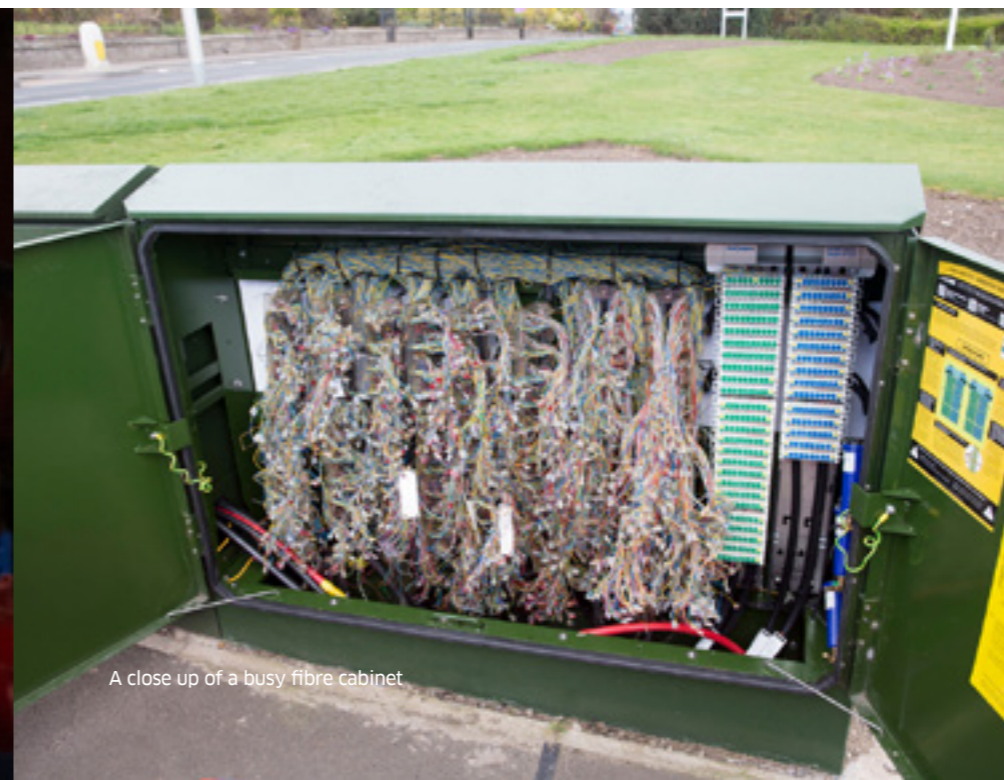
sufficient space underground in undamaged ducting for more cables, we were able to provide superfast broadband quickly and efficiently. But where nature or other infrastructure development has taken its toll, or with damaged ducts or restricted access, some projected timelines slipped while we made sure we achieved what we pledged to.

Building new ducts, digging up roads, removing tree branches… the challenges have been many and varied, and often unique from structure to structure, but overcoming them has been hugely rewarding, on so many levels.

Deployment across Rest of Scotland can be seen in the maps available in Appendix 4 of this document.

FTTP

24,992
PREMISES

FIBRE

EXCHANGE

FTTC

732,620
PREMISES

COPPER

CABINET

FIBRE

EXCHANGE
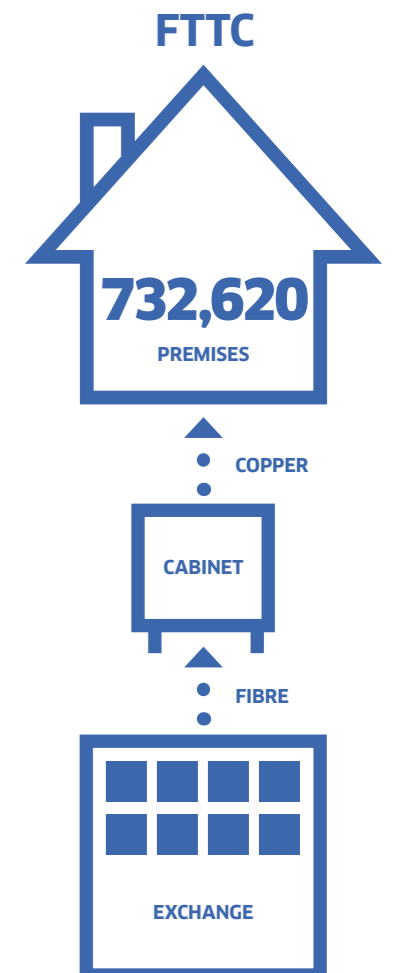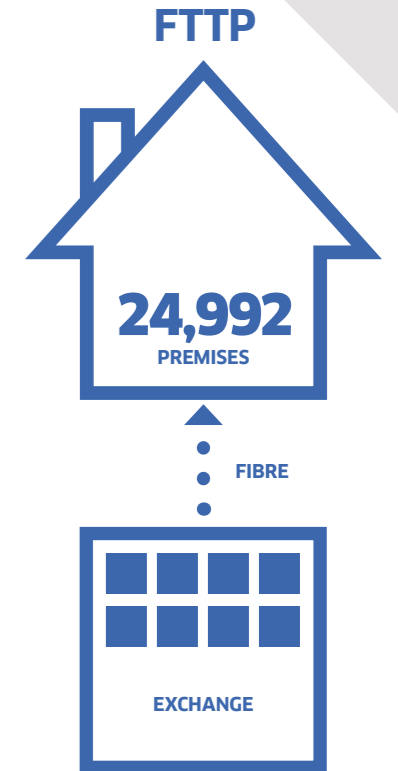
An Openreach Engineer with fibre and cables

A close up of a busy fibre cabinet

6 Local Authority Operations

Local Authority Operations was the key link between the DSSB programme and the 30 approval bodies (comprising the 27 Local Authorities, two National Parks, and Transport Scotland and its Operating Companies), liaising with Openreach and its project teams. Any issues or concerns from the approval bodies, from Councils and other infrastructure and planning bodies, went through Local Authority Operations.

Problems with cabinet locations, roadworks noticing, substandard workmanship, land ownership and wayleaves, traffic management; or concerns about delayed survey responses, were all mediated and resolved proactively and fairly through this function, balancing the requirements of the Local Authority with the quality standards and rollout commitments of the DSSB programme.

Local Authority Operations also kept authorities updated continuously on overall programme progress, while the Roads Authorities and Utilities Committee Scotland helped share information, concerns and common themes emerging across the areas. This has been instrumental in supporting timely fibre deployment across the country.

We would also like to highlight the significant contribution made by each Council's 'Single Point of Contact' (SPoC), and other officials in technical, economic development, planning and roads departments, in resolving real and potential issues to support smooth progress.

7 Benefits of the DSSB Programme

In 2018, the DSSB programme commissioned Analysys Mason (who also assessed the economic benefits of the programme before procurement in 2012) to produce an updated appraisal of its economic impact noting that further benefits have yet to be realised.

Published in April 2019, the report estimated the total benefit associated with the programme to be £2.76 billion over 15 years. That's a hugely impressive £11.60 of economic benefit generated (for businesses and consumers) per every £1 of public funding.

The report also outlined that the DSSB programme has achieved several longer-term qualitative benefits that are of considerable importance to the economy and society of Scotland, and will continue for generations. These include encouragement for social inclusion and cohesion, improved access to health, education and jobs, as well as stimulating economies of all scales.

Read the Analysys Mason report here.

7.1   Mobile Connectivity

Although not directly linked to mobile roll-out, new fibre routes provided by the DSSB programme have the potential to enhance mobile connectivity, thanks to the availability of new backhaul – i.e. the new connections between the exchange and the core network. You can read more about mobile connectivity in Scotland here.

7.2   Broadband Speed Information

For all performance data, please refer to an independent third party source, such as Ofcom or ThinkBroadband.

Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands, and an Openreach Engineer with a PON.

Community Project Officer, Stephen Chambers, and Openreach Engineer, Terry McCloskey, with a PON. This equipment provides FTTP (Fibre to the Premises) to nearby properties.

8 Keeping Our Partners and Stakeholders Informed and Engaged

8.1   About Our Stakeholders

The programme has a vast range of stakeholders, from senior business representatives to individuals and community groups across the demographic spectrum, all keen to know how the programme will affect them. Accordingly a multi-channel strategy was designed and implemented to inform and engage effectively with them all, and to let national and local audiences know precisely what the programme would mean to their lives and businesses.

Local communications and media campaigns supported all the awareness-raising community engagement events, as well as our encouragement to adopt fibre in each Local Area. We also highlighted national milestones and announcements to raise stakeholder awareness. Messages were most impactful when localised and current. We also noticed a common misconception that upgrading to fibre happens automatically, so we factored this and other insights into our communications.

Our communications, stakeholder and demand-stimulation team organised:

• photo calls and cabinet launches across the Rest of Scotland intervention area with senior representatives of the programme's partners and investors;
• quarterly news releases on major deployment milestones at local and national level;
• joint events and publications with partner organisations and Local Authority business and community partnerships;

• case studies highlighting the benefits of fibre through local press, traditional and social media;
• MP and MSP one-to-one meetings to update on rollout in their constituencies
• constituency 'drop-ins';
• twice-yearly informal 'drop-ins' at Holyrood and Westminster;
• our quarterly 'In the Loop' newsletter plus website and digital campaign updates;
• internal communications through Local Authority distribution points;
• formal quarterly Partnership Briefings to engage with our Local Authority SPoCs.

Our SPoCs have been integral to the programme's success, as the 'go to' subject matter experts for all DSSB activity within Local Authorities.

8.2   Case Studies

Case studies have genuinely helped to bring the programme to life and provide context to its challenges and achievements. They've also repeatedly shown how the arrival of fibre broadband has improved people's personal and professional lives across the country.

Case studies have focused on six core themes:
• Stimulating the Scottish economy
• Creating and retaining jobs locally
• Tackling depopulation
• Reducing Scotland's carbon footprint
• Improving access to health and education
• Tackling social isolation

Examples of case studies can be found at Appendix 1 of this document.

8.3   The Right Information, on the Right Channels

The programme gained consistent and significant national and local coverage in print, broadcast and social media, raising awareness of its many remarkable achievements and benefits. For many, this was how they knew when fibre had arrived in their area, how they could access it, and what it might mean for their lives and businesses. It was also a vital channel for providing information and updates on future initiatives – especially for those not covered by this stage of the rollout.

The interactive map on the DSSB website was adopted beyond our expectations, but then it has been very effective in providing our stakeholders with a straightforward and user-friendly way to follow the fibre journey to their communities and premises. At August 2020 the map had been used over 300,000 times.

Finally, with so many competing messages, from such a wide range of organisations, about fibre, we had a duty to ensure people had clear and correct information about the partners and investors involved in DSSB and their respective roles in providing faster broadband across the Rest of Scotland area.

As well as checking regularly to ensure our media coverage was conveying our key messages to our target audiences, we also applied an industry standard measure to assess the value of the messages. The Advertising Value Equivalent (AVE) equates the coverage gained to the cost of buying the equivalent volume of advertising space in the same publications and channels. By this measure, the value of media coverage secured was over £4.5 million over the life of the programme.

8.4   Enquiries

Overall, the Enquiries Team responded to almost 12,000 enquiries – the vast majority from the public, typically regarding the 'where' and 'when' of access to superfast broadband. However, the closer we came to final deployment, the lower the volume of enquiries with most of these focusing on follow-on programmes.

Community Project Officer, Samantha Lindsay-Dorward, with the Ad Van in Stonehaven, Aberdeenshire

Community Project Office, Stephen Chambers, with the Ad Van

8.4.1 Public Enquiries

The volume of Public enquiries per year, over the lifetime of the DSSB Programme. Public enquiries accounted for 81% of our enquiries.

8.4.2 Senior Stakeholder Enquiries

The volume of enquiries per year submitted by Senior Stakeholders & Elected Members over the lifetime of the DSSB Programme. Senior Stakeholder and Elected Member enquiries accounted for 15% of our enquiries.

8.4.3 What Did You Want To Know?

The majority of our enquirers (78.3%) wanted to know when fibre would be available in their area.

9 Alternative Solutions

For those living or working in areas not connected to fibre by the DSSB programme, there were still ways to access much faster internet speeds.

The programme administered the UK Government's Better Broadband Subsidy Scheme in Scotland. This ran until the end of 2019, ensuring that the very few homes and businesses not covered by the DSSB programme could nevertheless enjoy a minimum broadband speed of 10Mbps by satellite or fixed wireless options, while waiting for 100% superfast coverage. Eligible applicants received a grant of up to £350 towards the installation of equipment to achieve such speeds. From July 2016 to December 2019 we received over 11,000 applications nationally.

The initiative incorporated 30 partner suppliers across the country, and ensured no household or businesses paid more than £400 a year to access Better Broadband products.

Community Project Officer, Samantha Lindsay-Dorward at the Secret Bunker in Fife

Michael Matheson MSP, former Cabinet Secretry for Transport, Infrastructure and Connectivity, with a PON

10 Encouraging Fibre Adoption

10.1 Encouraging Fibre Adoption

Our overriding priority throughout the DSSB programme has been to encourage more businesses and homes across Scotland to sign up to fibre broadband services. Doing this effectively has helped us to 'close the digital divide' between rural and urban communities, and to release £30.6m of funding back into the programme through various initiatives.
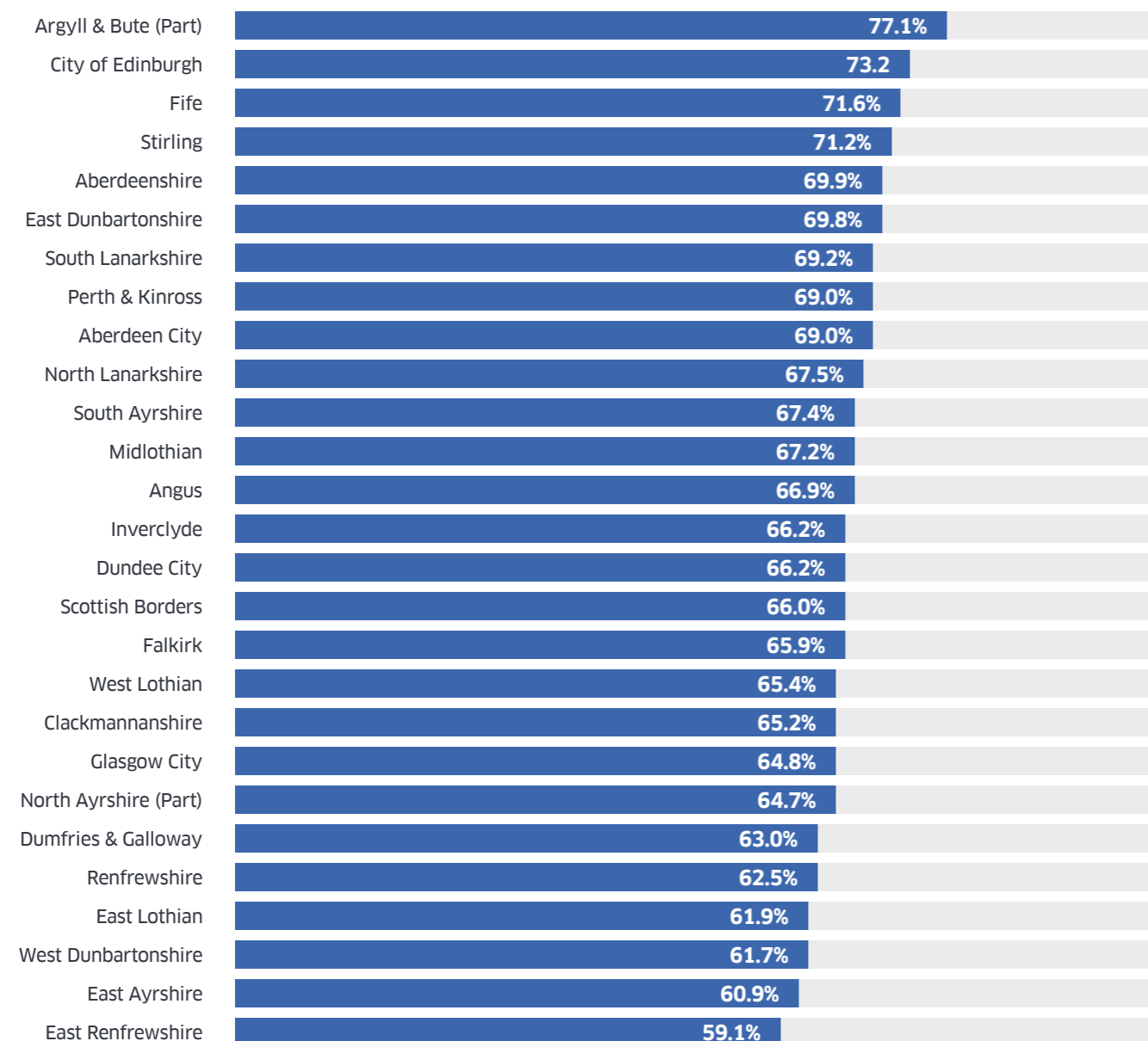
All Local Authorities benefited from this additional funding, ensuring more rural homes and businesses were able to access superfast broadband, or significantly higher download speeds. In areas with recent deployment or low adoption, we expedited fibre adoption and enabled more

homes and businesses to connect to faster broadband, through local and national advertising campaigns.

In areas with low take-up we increased fibre adoption and enabled more homes and businesses to connect to faster broadband through targeted advertising campaigns. Our eight 'Up Your Street' campaigns were the flagship of our marketing and communications, while community sponsorship, such as the Alloa Half Marathon and the Scottish International Air Show, also encouraged fibre adoption. We also achieved excellent results through local information campaigns and community events, press and media activity.

Alongside our Marketing and Communications activity, the team worked with a wide range of groups – community councils, Business Federations, council departments and the general public – providing numerous Local Authority Area briefings.

As at October 2020 joint fibre adoption had reached 66.8% across the 'Rest of Scotland' area – a tremendous achievement.

Local Authority	Adoption %
Argyll & Bute (Part)	77.1%
City of Edinburgh	73.2
Fife	71.6%
Stirling	71.2%
Aberdeenshire	69.9%
East Dunbartonshire	69.8%
South Lanarkshire	69.2%
Perth & Kinross	69.0%
Aberdeen City	69.0%
North Lanarkshire	67.5%
South Ayrshire	67.4%
Midlothian	67.2%
Angus	66.9%
Inverclyde	66.2%
Dundee City	66.2%
Scottish Borders	66.0%
Falkirk	65.9%
West Lothian	65.4%
Clackmannanshire	65.2%
Glasgow City	64.8%
North Ayrshire (Part)	64.7%
Dumfries & Galloway	63.0%
Renfrewshire	62.5%
East Lothian	61.9%
West Dunbartonshire	61.7%
East Ayrshire	60.9%
East Renfrewshire	59.1%

Michael Matheson MSP, former Cabinet Secretry for Transport, Infrastructure and Connectivity, meets Mark Hazell distiller of Bardowie Gin, who have benefttted from fibre-to-the-premises thanks to the programme

10.2 Events and Campaigns

Throughout the original and extended build stages, the Demand Stimulation, Stakeholder Engagement and Communications teams worked all over Scotland promoting the programme and giving key milestones and achievements the spotlight they deserved.

An integrated blend of channels and approaches across Scotland were used to convey our messages, raising awareness and understanding of the programme's aims and stimulating demand at national and local levels. Across the country, we tailored messages and channels to suit local needs – from rurally focused information at large farming events, to messaging at music festivals to appeal to youth audiences, and using an Ad Van to cover residential areas.

Four and eight-week targeted local campaigns were run in towns and villages where our data showed fibre had been deployed but not everyone had taken advantage. These campaigns boosted take-up consistently, and within very short timescales, and proved to be an excellent return on investment.

To raise the programme's profile and demonstrate its benefits, we:
• provided daily social media updates;
• generated hundreds of news releases;
• completed eight phases of the national 'Up Your Street' marketing campaign;
• used region-specific campaigns; and
• obtained case studies to show how better connectivity has improved people's lives and businesses across the country.

The Demand Stimulation team focused on increasing awareness and take-up in partnership with the 27 Local Authorities and many community councils, community groups and local business associations, ensuring all of them remained up to date with local deployment progress.

10.3 Photo calls

From the very first cabinet launch in Kirkton of Skene in April 2014, we conducted a vast array of eye-catching photo calls that celebrated cabinet launches, programme milestones and businesses who benefited from the programme. Those featured include:-
• Birks Cinema, Aberfeldy
• Caledonian Railways
• The Scottish Crannog Centre
• Sorn Castle
• Gilnockie Tower
• Gartmore House
• Hopetoun Gardens
• Bathgate Regal Theatre
• Cinecosse
• Scarletts Honey
• Bardowie Gin

10.4 Events

Throughout the programme the Demand Stimulation team attended high-profile events some of which were sponsored. Examples include:-
• The Alloa Half Marathon
• Youthbeatz Festival in Dumfries and Galloway
• Mofest in Angus
• The Scottish International Air Show
• The Ideal Home Show
• The Royal Highland Show
• The Stewarty Show
• Stirling Winter Festival
• The Aberdeen Home Show.

10.5 Up Your Street

The Demand Stimulation and Communications teams ran several national marketing campaigns, including eight phases of the 'Up Your Street' campaign, which comprised mail drops, social media, digital advertising, radio advertising, a branded Ad Van touring the deployment areas, and press and media opportunities. This was complemented by DSSB Openreach Community Project Officers' 'Feet on the Street' and community activities.

10.6 'Feet on the Street'

This was a staple of our demand stimulation strategy in towns and villages across all Local Authorities, and included cabinet stickering along with leaflet distribution in high streets, shopping centres, train stations, libraries, council hubs, hospitals and local shops. DSSB Openreach Community Project Officers identified and encouraged countless residents and business owners who benefitted significantly from upgrading to fibre broadband. Additionally, posters and railing banners were distributed and displayed, along with pole boards that illustrated where FTTP would be available in local areas.

Meanwhile, working in partnership with groups such as Business Gateway and local online forums helped the programme to distribute information to the business community.

10.7 Social Media and Website

From the start of the programme and well into the extended build phase, the 'Up Your Street' campaigns generated numerous Facebook appearances, generated over 146,500 sessions on the DSSB website with over 78,000 views of the campaign landing page.

10.8 Awards

In 2019, our continued success in stimulating demand for and adoption of fibre broadband saw the programme recognised as a Finalist in the 2019 European Broadband Awards in Brussels. The programme was also a Finalist at the Civil Service Awards 2018, Highly Commended at the Connected Britain Awards in 2018, as well as Finalists at the World Communications Awards in 2018.

Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands unveils the programme's 5000 cabinet in Roberton

The Programme celebrated reaching 950K in Innerleithen with local business owner Andy Weir. (L-R) Sara Budge, DSSB Programme Director; AndyWeir; Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands; and Robert Thorburn, Openreach Programme Director

11 Next Steps

The DSSB programme was devised and designed to maximise fibre infrastructure's reach across Scotland, and has achieved its bold ambition to achieve 95% fibre broadband coverage. In fact, the coverage at December 2020 was 98.2%.

Following on from DSSB's success, the Scottish Government has pledged firmly (and uniquely in the UK) to provide every home and business in Scotland with broadband speeds of at least 30Mbps, via the Reaching 100% (R100) programme. This will make Scotland one of the best-connected countries in Europe, and underpin its continued economic growth. Achieving this will also create further 'backhaul' that will support a wide range of technologies, including 4G and 5G mobile services.

The 100% commitment will be delivered through three strands of activity – the £600 million R100 contracts, the Scottish Broadband Voucher Scheme (SBVS) and commercial deployment. Work on the R100 contract build began in 2020, while the SBVS launched in September 2020.

12 Acknowledgements

We have delivered what we said we would, and more – consistently achieving and exceeding our key fibre deployment, speed and take-up milestones along the way. This achievement has only been possible through determined and focused innovation and sustained partnership approaches. With that in mind we are keen to formally acknowledge the considerable, invaluable and essential contributions of our contractual partners: The Scottish Government, UK Government, BT Group, Scotland's Local Authorities, the European Regional Development Fund and, of course, our delivery partner Openreach.

Paul Wheelhouse MSP, former Minister for Energy, Connectivity and the Islands gets up close to some fibre

Appendix 1 – Case Studies

Case Study 1 Cinécosse

Cinécosse is an award winning film and multimedia company based near Aberdeen in Scotland. Established in 1978 the company has produced and directed well-known commercials, videos and television programmes for global brands in Scotland and across the world.

For Graeme Mowat, owner of Cinécosse, faster broadband and a reliable internet connection has made such a difference to how his business is run.

As a result of the DSSB programme Graeme's company is one of many local businesses and organisations able to benefit from faster broadband using the most up-to-date Fibre-to-the-Premises (FTTP) or Fibre-to-the-Cabinet (FTTC) technologies across Aberdeenshire.

A faster broadband connection has made such a difference to how we engage with our clients

Graeme, says: "Thanks to the DSSB programme, faster broadband has improved how we work with our clients, enabling us to deliver creative briefs on time and to budget.

"Our clients are mostly from the corporate world, so we need to make sure that we nail the brief and production first time round. From tourist boards, food and drinks, public services to the oil and gas industries we have a diverse range of customers we need to keep happy.

A lot has changed digitally and to help us keep up with these new technologies, faster broadband has enabled us to remain relevant and adapt successfully to our clients' needs

"Since most of our work from concept, pre-production to delivery relies on a robust internet connection, it's been a great confidence boost knowing that we can keep producing the work at our multi-purpose studio thanks to the greater bandwidth. We can also stream progressive download high definition (HD) videos live for clients. This is particularly important because of the type of multimedia programmes we use and the large file sizes."

Increased digital connectivity has enabled creative companies to thrive in the North East
Graeme continued: "Aberdeenshire is a hotbed for the creative industries and we are proud that we are now a well established video and multimedia firm, celebrating over 40 years creativity since 1978. A lot of my team, myself included are ex BBC staff, so we have plenty of experience between us.

"A lot has changed digitally and to help us keep up with these new technologies, faster broadband has enabled us to remain relevant and adapt successfully to our clients' needs. Most of our output is sent to our clients online.

"To keep up with demand we've branched out to creating interactive media. This includes creating content for mobile, kiosks, websites including a rich visual environment for corporate presentations and educational applications. We also offer media training to our clients."

Day-to-day running of the office has been made easier

Graeme adds: "The day-to-day running of the office, and the paperwork which is essential to keep on top of our finances and ensure that we meet legal requirement has also been made much easier by getting online, where we can access forms instantly. Our website is the first port of call for most of our clients and we find that we receive a lot of enquiries from people getting our contact details online. Our website is also a great way to promote what we do.

"For my staff, I've moved to digital HR and payroll applications which has made life much easier for our finances and also ensures my team get paid on time!

Graeme concluded: "It's been such a huge benefit to have faster broadband, especially when we've had some difficulties in the past."

"We experienced very low speeds of 3mb download/0.6 mb upload and now we are able to access speeds of up to 69.8 download/20.1Mbps through fibre enabled broadband. I would encourage everyone to check the Digital Scotland website www.scotlandsuperfast.com/check-my-area to find out if you can upgrade to faster broadband."

Case Study 2 Sorn Castle

Set in remote countryside, Sorn Castle is well known as a premier wedding venue. The castle with its 8000 acre estate lies a few miles outside Mauchline, East Ayrshire. As well as benefiting the castle's wedding business and surrounding tenant farms, fibre broadband has made a positive impact on the environment.

Event Manager at Sorn Castle, Martyn Robertson explains: "It's not just castle staff and wedding guests that are benefitting from having fibre broadband, as well as the castle itself getting speeds of 330Mbps, the 16 farms and 32 cottages on the estate are also able to benefit from faster broadband.

Environmental benefits

"Managing our electricity and heating supply has also been made easier thanks to a reliable wi-fi connection. The castle has a biomass boiler, using the estate's sustainable timber and has re-developed a hydro scheme – turning water from a near-by weir into a sustainable electricity supply. Both of these modern, environmentally friendly systems are controlled by wi-fi, in-turn linked to my phone.

"The estate is completely self-sufficient and I can control the systems thanks to the strong wi-fi connection with my phone, while I'm on the move and dealing with guests or organising events."

Events live-streaming

Martyn adds: "This year already we have quite a number of weddings booked and the difference it makes in having decent, reliable broadband is amazing. Prospective customers always ask us whether we have internet and now we can confidently explain to guests that they can stream the event to friends unable to make the big day. To entertain the younger guests the kids are also able to access content on their tablets and consoles. Everyone is happy.

"Reliable broadband is a must for today's modern wedding and we can now offer this to our guests, thanks to the DSSB programme."

Martyn says: "I would encourage everyone to check the Digital Scotland website www.scotlandsuperfast.com/check-my-area to find out if you can get this service. The difference it has made to the castle and our wedding guests is just amazing."

Having FTTP has made a tremendous difference not only to how the castle operates but for a lot of the surrounding farms that sit on the estate itself. They all have superfast fibre availability which makes completing the various regulatory forms which are required easy, replacing the previous slow speeds which made this task a lot harder to complete.

Case Study 3 Jim Gales

Jim Gales MBE, who lives with his wife Janet and Guide Dog Yannick, in the village of Springfield, near Cupar, has been amazed at the difference fibre broadband has made to him.

Jim, who is blind, works from home managing and developing two different organisations that promote sport for people with disabilities in Scotland. These are Scottish Disability Golf and Curling and Vision Impaired Golf Alliance.

Improved accessibility

Jim says: "Before we got high speed fibre broadband, I used to really struggle with the internet, as our connection was less than 1Mbps. Now we can rely on speeds of 38Mbps download and 8Mbps upload. This is absolutely fantastic. It has been a real game changer for me."

Jim has built the websites for the three organisations himself, using a template he found through Digital Fife. This provides good accessibility through screen reader software. Jim adds: "These days, technology is designed with people with visual impairment firmly in mind. For example, with all Apple devices, you just need to press a certain button and it swaps over to voice. With high speed fibre broadband, I can now really make the most of digital technology - I am enjoying fantastic benefits both for work and play."

Faster and more efficient

"For work, the fast speed connections are helping in a number of ways. For the disability sports organisations, video is a particularly important medium for us, as it is through video that we can best convey the excitement of the sports we are promoting. So we make as much use of video as possible, both on our websites and on YouTube. I make some of the videos myself using Microsoft Movie Maker.

It now takes me five minutes to upload a video that would previously have taken me nearly two hours. The huge time saving means I can work more productively.

However, the video files are so large that it used to take ages to upload a video to the internet before we had fibre broadband. Now I can complete the task in a fraction of the time. To give you some idea, it now takes me five minutes to upload a video that would previously have taken me nearly two hours. The huge time saving means I can work more productively."

Face to face communications

Jim continues: "Another way that fibre broadband helps me at work is that I can now rely on a brilliant quality video conferencing connection on FaceTime. At Scottish Disability Golf and Curling, we use video conferencing regularly as it is such a brilliant way of getting together and holding meetings as we are all based in different locations scattered across Scotland."

Jim adds: "We have recently set up a sister organisation in North America. Again, we hold all our meetings and discussions with our colleagues in America over Skype or FaceTime. It is just as though we are all in the same room together. Before we had high speed fibre broadband, the quality was not nearly so crisp, sharp and reliable as it is now."

Revolutionised leisure time

"Fibre broadband is also making a difference to the quality of our leisure time at home. Up until now, it was impossible to stream films online or watch 'TV on demand.' But now we have fibre broadband, we use Amazon Prime to stream films, which means we constantly have thousands of films and TV programming at our fingertips. Both my wife and I love movies, so it is great to have all this choice instantly available to us.

"My wife, who was not at all interested in computers before, has been inspired by the opportunities fibre broadband provides and she is now an avid user of her iPad. She loves using Facebook to stay in touch with friends and family and she also uses FaceTime to chat face to face online with friends in Canada."

Jim adds: "We do practically all our shopping online now and to our delight that is practically instant with high speed fibre broadband. Books, groceries, clothes, gadgets – we buy them all online now."

Jim concludes: "Fibre broadband has made a huge difference to me. It has transformed my work and revolutionised the accessibility options available for leisure time. It really has expanded horizons for both my wife and I. We now feel we can connect to the world, as though on a level playing field, from our home in the rural village of Springfield."

Case Study 4 Bardowie Gin

Bardowie Gin is a family run business based in the small hamlet of Bardowie near Milngavie in East Dunbartonshire. The company produce several varieties of craft gin, and have been commissioned to make customised batches for a leading supermarket.

Mark Hazell owns and operates Bardowie Gin a craft gin business on the outskirts of Glasgow. He's delighted that since upgrading to FTTP (Fibre to the premise) has made a positive impact to his business.

Although only a few miles from the town of Milngavie, the distillery is in a rural spot overlooking Bardowie Loch. Before the arrival of FTTP even downloading small documents was difficult, stressful and very time consuming.

Mark says: "Before I upgraded to FTTP, my broadband speed at the property was below 1Mbps. Most things were impossible."

Mark says: "Naturally distilling is one of the most important parts of my job, but another part of my business is filling in the necessary warrants. This is done on HMRC's website by filling out some forms. Without the forms being filled in and returned, I can't sell the gin!

"Before having FTTP installed, downloading a form would take forever and the web page would actually time out on the website – eventually I'd have to start again. I also have to pay spirit duty, and again a relatively simple bank transaction would take ages to complete. Delays and an unreliable internet connection, made my job quite stressful."

Now thanks to having FTTP these things take only a few minutes. I no longer have to factor in hours of my day, to do simple tasks. FTTP is really quick.

Installation

Because of Mark's rural location, FTTP was installed to his property via telegraph poles, which alongside underground cables, is a common alternative to connecting FTTP to your home.

Mark says: "Openreach were fantastic. We were kept informed of the process and we were notified when the poles were going in, which meant the road being closed for a few hours, so that the engineers could install my broadband, using FTTP. Being kept informed, made all the difference. A few weeks after that, a neighbour told me the service had gone live. As soon as I heard the good news, I ordered it!

A week later Mark had the service installed and was up and running.

Mark adds; "I would encourage everyone to check the Digital Scotland website www.scotlandsuperfast.com/where-when to find out if you can upgrade to faster broadband. The difference it has made to me and my business has been remarkable."

Appendix 2 – Technology Types

The DSSB Rest of Scotland programme has deployed Fibre to the Cabinet (FTTC) and Fibre to the Premises (FTTP) technology to connect 757,612 homes and businesses to fibre-enabled infrastructure. The technology mix was built on a value-for-money basis, ensuring fibre access extended as far as possible within the available funding.

The approach taken throughout Stage 1 (to extend the reach of fibre as far as possible) allowed our Stage 2 build to achieve not only new connections, but also much-improved broadband speeds for existing ones.

The vast majority of deployment was via FTTC, whereby fibre runs from an exchange to a local fibre cabinet (often referred to as a DSLAM), which then connects to premises by copper wiring from existing copper cabinets (PCPs). The speed benefits therefore mostly come from extending fibre infrastructure much further into communities – shorter copper runs mean less drop in speed. At the programme's outset, not all exchanges had been upgraded as part of commercial plans, so DSSB has effectively 'fibre-enabled' many exchanges to achieve its goals.

In many cases, there weren't even any existing copper cabinets, and premises were served directly from the exchange by copper wiring – often over significant distance. To overcome this, many existing copper wires in the network were intercepted and rearranged to create new PCPs, using a process known as copper rearrangement, or 'CuRe' for short. New PCPs were then connected to a DSLAM, as described above, creating FTTC EO (Exchange Only) connections. The overriding objective in placing these new PCPs was to secure a balance between the number of premises covered, maximising speed, and cost.

Fibre cabinets can serve over 400 premises, but when this falls below 128 there is an option to combine a new fibre and copper cabinet into one structure – an All in One (AIO) cabinet. Similarly, if the number of premises served is fewer than 16, it can make more sense to create a Fibre to the Remote Node (FTTRN), which is in effect a 'mini DSLAM' that can be installed on a pole or below ground. All fibre cabinet options require power from the electricity network.

FTTC technology can achieve speeds up to 80Mbps, depending on the distance from the cabinet to the premises and the quality of the cable used. Generally speaking, if copper wiring from a fibre cabinet to a premises is over a kilometre in length, broadband speeds can easily drop below the 24Mbps 'superfast' specification.

Running directly from the exchange to premises, FTTP doesn't need a local cabinet or power supply. As it is pure fibre and doesn't involve copper telephone wires, FTTP is much faster than FTTC and can deliver speeds of up to 1000Mbps. It is however a much more expensive technology than FTTC as it means extending new fibre networks further into communities.
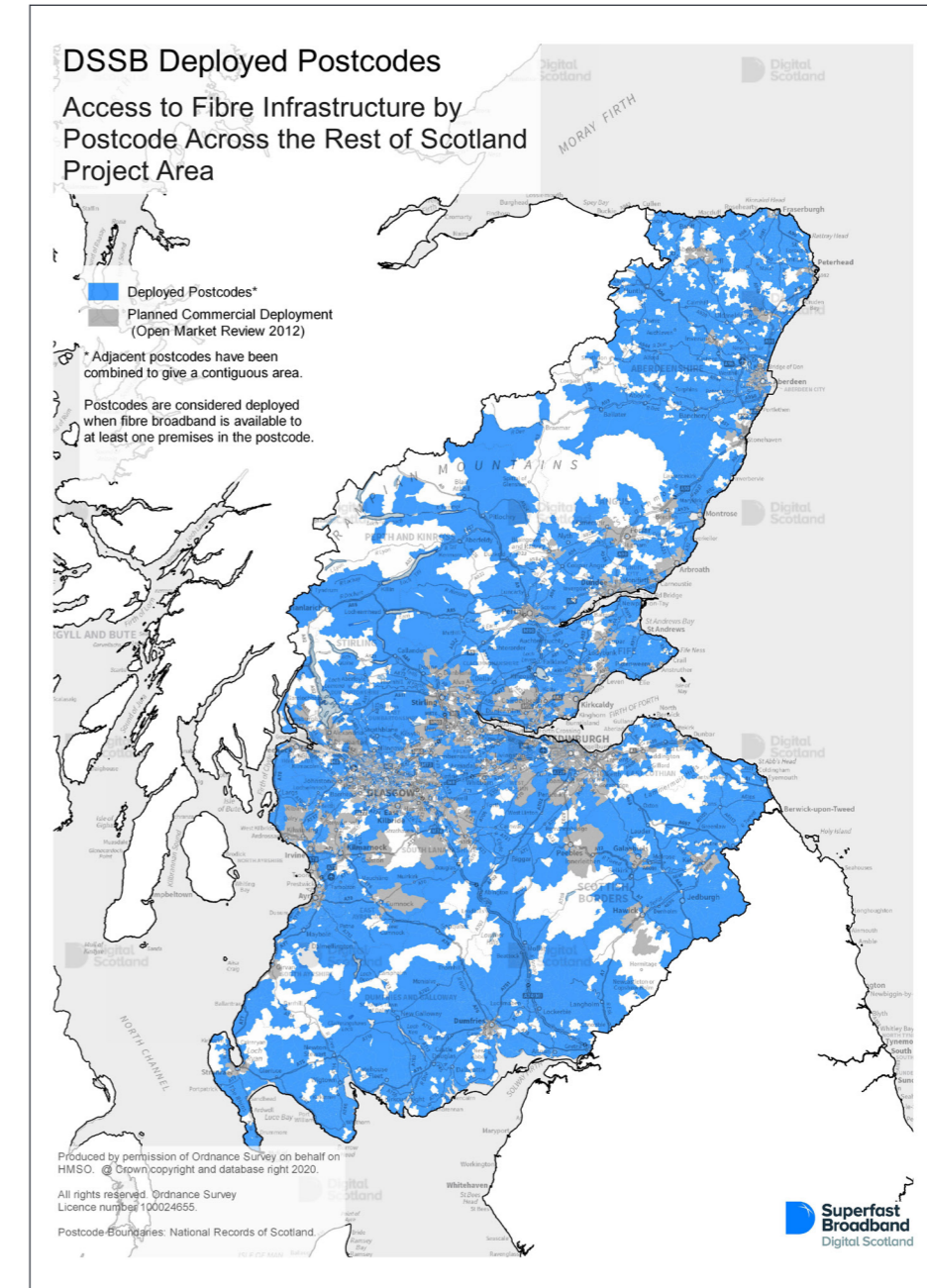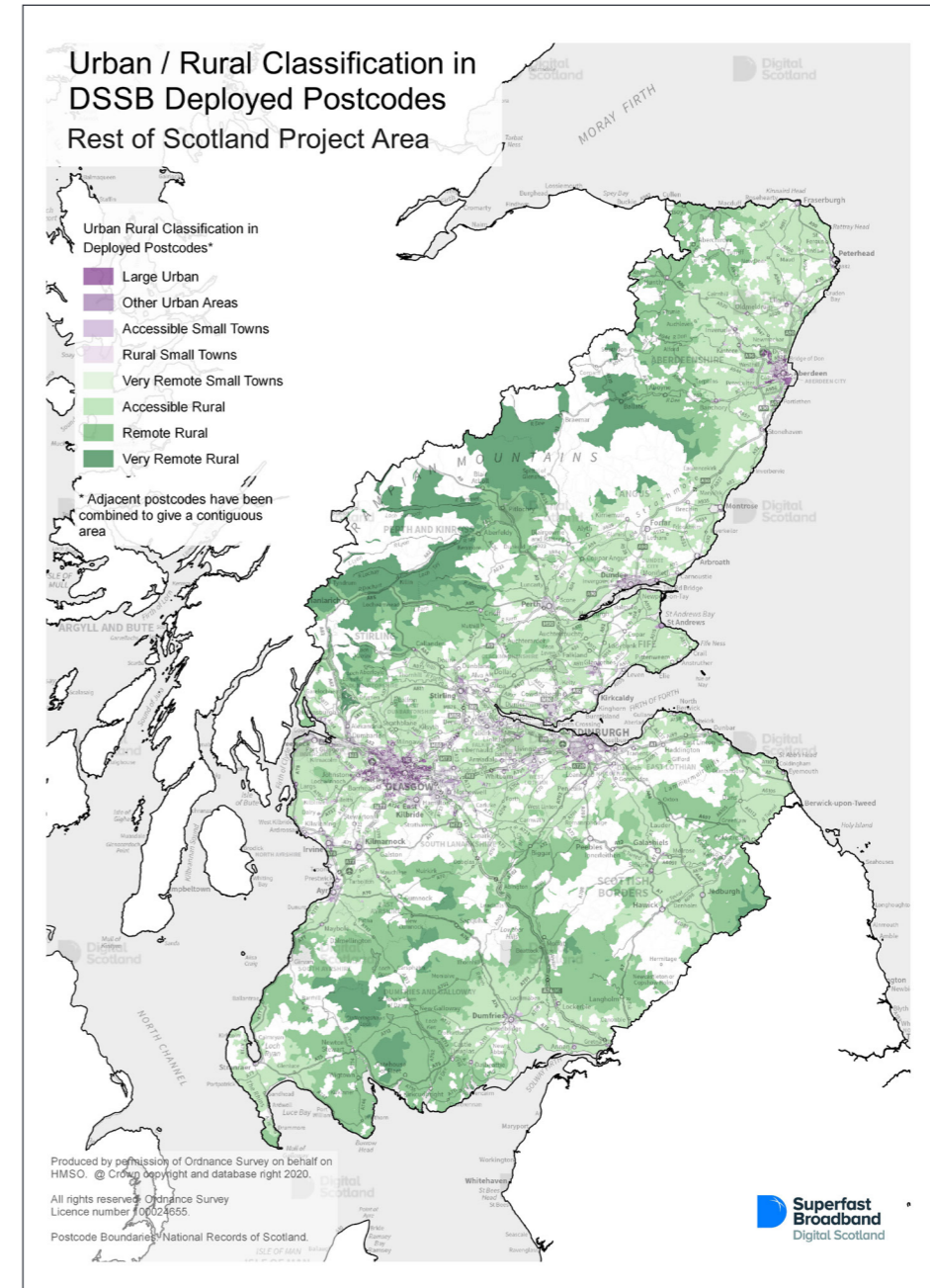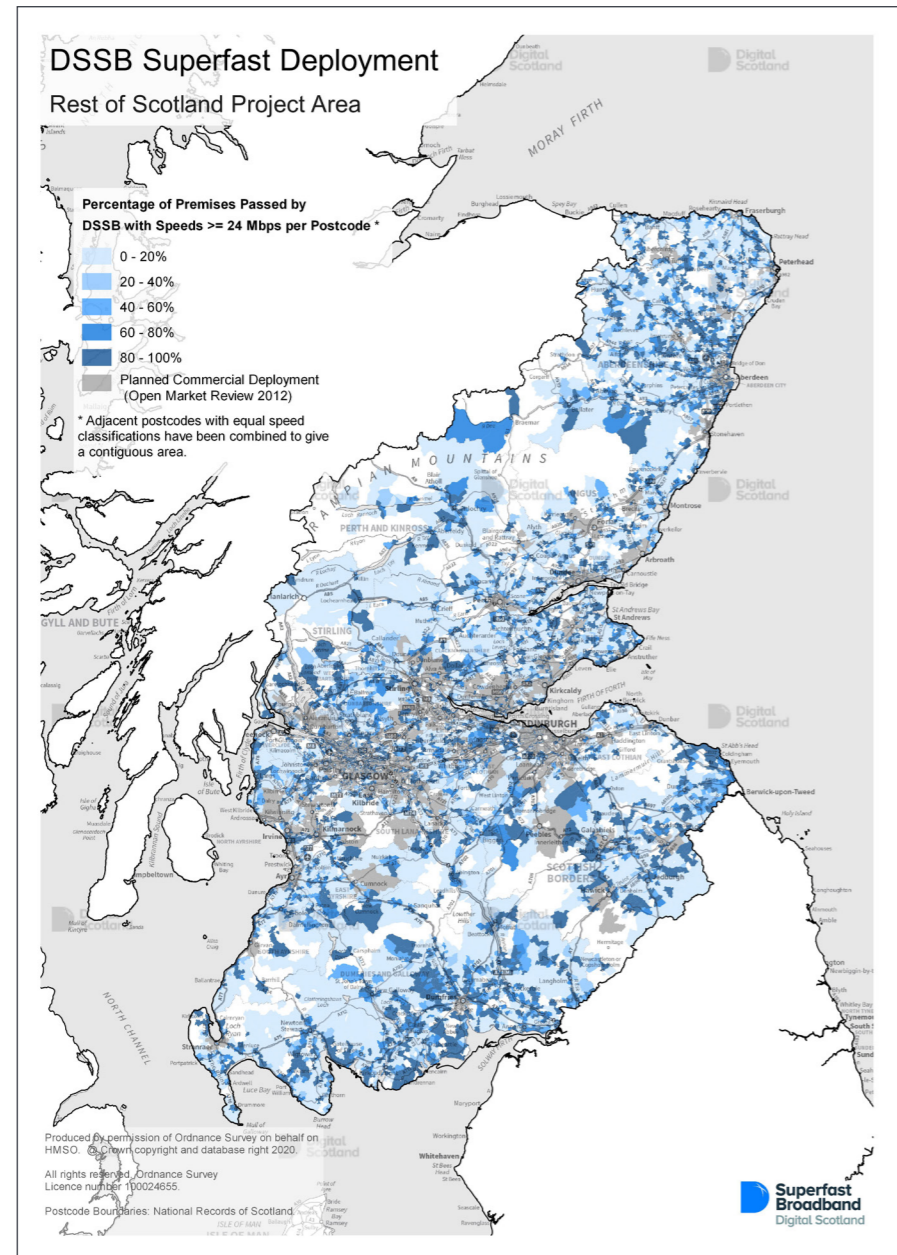

A cabinet goes into place

Appendix 3 – Glossary of Terms

Acronym/Description	Meaning
Ad Van	A van used to display an advertisement or message out to customers in a particular area
Backhaul	A high capacity link connecting exchanges to the wholesale (or core) network
BDUK	Broadband Delivery UK – part of Department for Digital, Culture, Media & Sport (DDCMS)
BT	British Telecom
Cabinet	Street Cabinet
CAG	Contributing Authority Group – consists of the local authorities that are contributing additional local subsidies
Clawback	Investment released back into the programme as a direct result of increased uptake of fibre products utilising infrastructure deployed via DSSB, subject to appropriate adherence to state aid regulations
CPO	Openreach Community Project Officer
CuRe	Copper Rearrangement (existing lines are moved from either an exchange or a cabinet, to a new cabinet)
DSLAM	Digital Subscriber Line Access Module (Street Cabinet).
Ducts	Underground infrastructure used by Openreach to lay fibre and copper cables
EO (Also FTTC EO)	Exchange Only – the copper connection runs from the exchange to the premise with no cabinet in-between.
FTTC	Fibre to the Cabinet
FTTP	Fibre to the Premise
Gainshare	See Clawback
Mbps	A standard measuring internet speed which stands for megabits per second as a measurement of the data transfer speed
NGA	Next Generation Access (also known as Super Fast Fibre access). A programme that is dedicated to shaping tomorrow's communications environment - an access network that's fit for the future.
Openreach	A BT company responsible for installing and maintaining telephone cables, ducts, cabinets and exchanges
PCP	A green telephone cabinet often found on street junctions.
PON	Passive Optical Network - FTTP
R100	Reaching 100% Programme
RoS	Rest of Scotland
Rural	Scottish Government Urban Rural Classification 2016 available here
SPoC	Single Point of Contact within a Local Authority or National Park
Structure	Collective term for FTTC and FTTP
Sub-Urban	Scottish Government Urban Rural Classification 2016 available here
Superfast	Download speeds over a given threshold, for the DSSB programme this is ≥24Mbps
THP	Total homes passed (includes residential and business)
Urban	Scottish Government Urban Rural Classification 2016 available here
Very Rural	Scottish Government Urban Rural Classification 2016 available here
VfM	Value for Money

Appendix 4 – Maps

DSSB Superfast Deployment

Rest of Scotland Project Area

Percentage of Premises Passed by
DSSB with Speeds >= 24 Mbps per Postcode *

- 0 - 20%
- 20 - 40%
- 40 - 60%
- 60 - 80%
- 80 - 100%
- Planned Commercial Deployment
  (Open Market Review 2012)

* Adjacent postcodes with equal speed
classifications have been combined to give
a contiguous area.

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Postcode Boundaries: National Records of Scotland.

Urban / Rural Classification in
DSSB Deployed Postcodes

Rest of Scotland Project Area

Urban Rural Classification in
Deployed Postcodes*

- Large Urban
- Other Urban Areas
- Accessible Small Towns
- Rural Small Towns
- Very Remote Small Towns
- Accessible Rural
- Remote Rural
- Very Remote Rural

* Adjacent postcodes have been
combined to give a contiguous
area

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