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Superfast Cornwall
Cornwall Development Company

Superfast Cornwall Project Evaluation Report

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1 Executive summary

PFA Research has been commissioned by Cornwall Development Company (CDC) to undertake an evaluation of the superfast broadband roll out in Cornwall between 2017 and 2021. This evaluation will build on the 2011-15 programme and previous evaluation work – assessing the economic impact of superfast across this period.

There are three distinct Superfast Cornwall programmes

- 2011-2015 Superfast Cornwall Programme
- 2016-2017 Superfast Cornwall Extension Programme (SEP)
- 2018-2020 Superfast 2

On-going impact of 2011-2015 Superfast Cornwall Programme will be determined alongside 2016-2017 SEP and 2018-2020 Superfast 2.

The first deliverable from the evaluation contract was a baseline summary report in May 2017. This work used the economic model developed for the previous Superfast Cornwall Evaluation combined with up to date estimated take-up figures, to estimate the current business take-up figures and the economic impacts in terms of jobs and GVA.

This 2019 report represents the third deliverable of the overall 2017-2021 evaluation and follows on from the second report in June 2018. It provides an update on the impact of the roll out of superfast broadband based on new primary data and estimated take up figures. The report primarily includes the impact of 2011-2015 Superfast Cornwall Programme, as per the evaluation plan, though some businesses and households connected under the 2016-2017 programme are included and will be assessed in two years once take up has grown and use matured. All surveyed businesses have been connected for 12 months or more and households 6 months or more.

1.1 Superfast programme

Cornwall's 2011-2015 Next Generation Broadband (NGB) Infrastructure project, known as Superfast Cornwall, had an initial target to make fast, fibre based broadband available to at least 80% of the baseline of 253,000 premises (homes and businesses) in Cornwall by the end of 2014. The initial target was extended to 95% of the baseline premises with access to fibre broadband, due to efficiency gains and high take-up¹. By March 2015 the extended target had been exceeded. By the end of the 2011-2015 Superfast Cornwall Programme there were 238,000 premises covered by 24+ Mbps of which 232,000 premises were covered by 30+Mbps².

¹The 253,000 premises was a baseline contract figure that excluded the area of Saltash (which was out of scope due to the presence of a second infrastructure in Virgin Media) and any new builds that came on-line since the BT were appointed in 2009 (approximately 2,200 per annum).

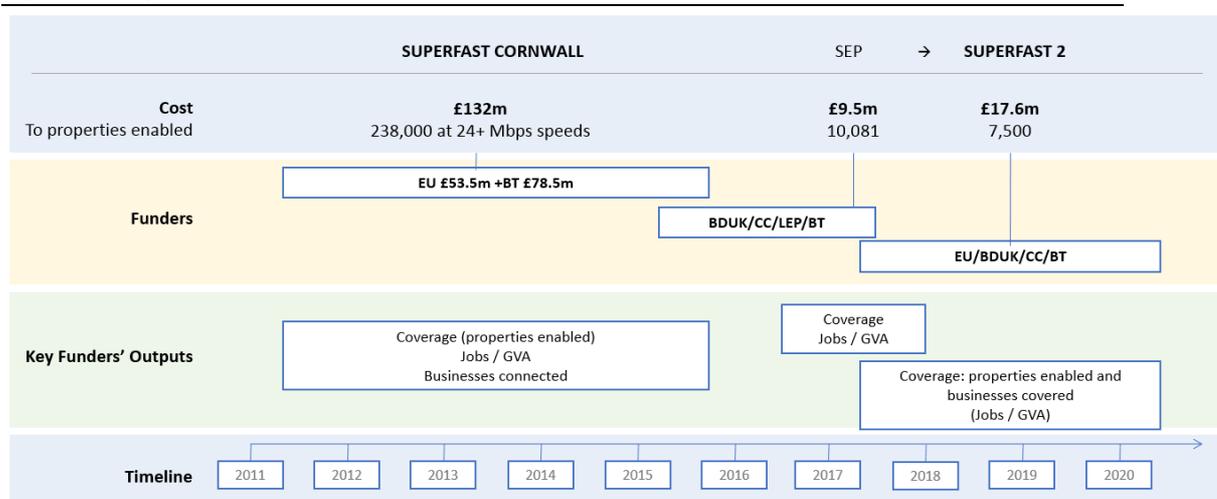
²After the start of the programme in 2010, superfast broadband was subsequently defined as 24Mbps by UK Government and 30+Mbps by the EU.

As the roll-out progressed, take-up steadily increased and reached 66,537 connected premises in June 2015, an estimated 90,000 by March 2017 and the estimated number of total connections to March 2019 is 128,400.

A third programme, “Superfast 2”, is underway from 2018 to 2020. Superfast 2, which is a part-EU and Cornwall Council funded programme, will roll out superfast broadband to a further estimated 7,500 premises.

The timelines and funding inputs of the three programmes are illustrated in Figure 1-1 below, updated for the 2019 report based upon recent figures from the programme closure work.

Figure 1-1 Programme Phases



1.2 Role of March 2019 report

This evaluation builds on the 2011-15 programme and previous evaluation work led by CDC’s Research and Evaluation Manager and SERIO at Plymouth University. Wherever possible, the same or very similar methodology as the 2011-15 evaluation has been applied to ensure consistency.

PFA Research delivered a baseline summary report in May 2017 and a first phase report in 2018 following a first round of new primary research. This work used the economic model developed for the previous Superfast Cornwall Evaluation combined with up to date estimated take-up figures, to estimate the current business take-up figures and the economic impacts in terms of jobs and GVA.

This 2019 report provides an update on the impact of the roll out of superfast broadband based on new primary data (from two survey rounds) and estimated take up figures. For businesses, this report includes the impact of 2011-2015 Superfast Cornwall Programme and the Superfast Extension Project (2015-2017), as all surveyed businesses have been connected for 12 months or more. The household survey was undertaken with residents which were connected more than 6 months prior to the interview.

Between January and May 2018, 102 businesses and 100 households were surveyed. A further 155 businesses and 100 households were interviewed between January and April 2019, giving a combined survey of 257 businesses and 200 households.

Note in this report, all business numbers are displayed to the closest 50, job numbers to the closest 10, connections to the closest 50 and GVA to the closest £100,000.

1.3 Roll out, coverage and take up

An estimated 128,400 premises were connected by March 2019. For household connections, the estimated number of total connections to March 2019 is 114,650.

Overall business and households indicate a high level of satisfaction with both speed and reliability of network performance.

- **Businesses:** 81% satisfied with speed of connection and 76% satisfied with reliability
- **Households:** 76% satisfied with speed of connection and 79% satisfied with reliability.

1.4 Business impact

Businesses report positive impacts of using superfast broadband.

- Internet based inter-personal communications, such as web conferencing and internet telephony, are being used significantly more as a result of businesses' superfast connections. Half use remote data storage more and nearly half have increased their use of cloud computing.
- Four in ten (39%) have changed one or more of their business processes, like sales, administration or marketing, etc., since connecting and most commonly through faster/easier down/uploading (36%), the increased use of cloud based services (24%) and being more efficient/effective (17%).
- The strongest impact reported by businesses was their saving time and/or money (77% agreed with this) – a finding that is in keeping with the previous research. Businesses also agree that superfast broadband enables them to raise productivity (73%) and work in new and different ways (72%).
- 42% indicated that superfast has helped them develop new goods/services.

Financial performance. About half (51%) of the businesses gave an indication of their annual turnover and of those nearly a third (31%) indicated a growth in turnover since connecting to superfast. There is some evidence of superfast having contributed to this growth – 46% attribute over 10% of their turnover uplift to their superfast connection. Superfast has had a limited impact on profits, however nearly half of respondents say that superfast has reduced their costs (12% significantly, 32% slightly).

Sales and market expansion. 54% of respondents indicated that superfast broadband has helped generate sales, win new business contracts and access new markets. Nearly one in four indicate that their new sales are mainly international which indicates superfast broadband has contributed to some export led growth. Around one in five firms believe connecting to superfast has provided a market advantage and 40% of these indicate that this advantage will last ‘years’.

Without superfast broadband. About two-thirds (64%) of businesses indicated that if their business could not have connected to superfast, they would have been negatively impacted – suggesting that not having a superfast broadband rollout in Cornwall would have meant too many businesses would have been left behind.

Overall, businesses are positive about the overall benefits to upgrading to superfast broadband, with 39% indicating the service has been extremely beneficial and a further 49% suggesting it has been ‘quite’ beneficial.

1.5 Economic impact

Businesses connected in March 2019. It is not possible to record the number of businesses connected to Superfast accurately. There are two different ways this can be estimated. Only one method attempts to include unregistered as well as registered businesses. This method estimates that in March 2019 there are 24,700 businesses connected. The other method, which includes only registered businesses, suggests that there is approximately 13,750.

New business start-ups. By March 2019 the roll out of superfast broadband had led to or contributed to around 9,300 new businesses being set up.

Net economic impact. Net economic impact is the change that can be attributed to superfast connection and incorporates the knock on economic impacts of the programme. Up to March 2019 the Superfast programme delivered an estimated 4,090 new FTE jobs and a GVA uplift of £154,600,000. It also safeguarded 7,120 FTE jobs and £277,800,000 of GVA.

Table 1.1 – Economic Impact

		Employment FTE	GVA
Established businesses	Gross increase	11,390	£455,500,000
	Attributable increase	2,000	£79,800,000
	Net increase	2,010	£80,300,000
	Attributable safeguarded	6,900	£276,100,000
	Net safeguarded	6,950	£277,800,000
Start-ups	Attributed businesses start-ups	2,070	£82,800,000
	Net increase	2,080	£83,300,000
Combined	Overall uplift (net)	4,090	£154,600,000
	Safeguarded (net)	6,950	£277,800,000

1.6 Wider impact

The new raw data collected through the 2018 and 2019 evaluation surveys has highlighted wider impacts of superfast broadband, especially around flexible working:

- A net balance of 21% (22% increased, less 1% decreased) of businesses say superfast broadband has helped increase the proportion of employees able to work remotely.
- 9% of businesses say superfast has allowed them to retain and/or recruit staff, that otherwise would have been unable to work for the business.
- 56% of household survey respondents say that they or someone in the home uses the internet to do work or business related activities.
- Of respondents who work from home, 61% do so for more than one day a week (and an average 2.4 days) whereas before superfast 69% worked from home less than 20% of the time (i.e. one day per work-week.)
- Working from home has resulted in a reduction in commute to a place of work for 49%, most commonly a car journey (93%) which has saved on average 134 commute miles per week.

1.7 Conclusions and recommendations

The report draws conclusions and recommendations as follows:

1.7.1 Outputs

By the end of March 2019, the 2016-2017 Superfast Extension Programme (SEP) rolled out superfast broadband **coverage** to 10,000 properties and the Superfast 2 Programme has covered a further 3,750 properties from March 2018-19. The total number of properties in Cornwall able to connect to 24+ Mbps superfast in March 2019 is approximately 252,000.

The specific number of **connections** to superfast was estimated to be 103,400 in March 2018. Based on past take up rates, this is projected to be 128,400 by March 2019.

The number of **businesses connected** continue to grow in line with these figures. The most accurate estimate of the total number of registered and unregistered businesses connected in March 2019 is 24,700. The number of **households connected** is estimated to be 114,650 in March 2019. The impact of SEP at this early stage is estimated to be 4.0% of total impact, as the SEP impact matures its impact will continue to grow. The final report will aim to calculate the impact of the separate programmes.

Superfast motivated many households to **start-up businesses**. It is estimated that by March 2019 superfast has contributed to 9,300 new businesses to start trading.

Overall there is high level of **satisfaction** from customers – both businesses and households – with the speed of the connection. 13% of business customers and 14% of households were dissatisfied with the reliability of their connection, indicating there may be some problems with this.

1.7.2 Business impact

Overall businesses are positive about the impact of superfast. Firms are using **online services** such as web conferencing, internet telephony and remote data storage more as a result of their connection. Without the connection, the majority of firms would have experienced negative impacts – suggesting that not having superfast would be a barrier to growth.

Superfast is benefiting businesses in many ways. Importantly superfast is helping companies **save money and time and to be more productive**. This is reflected in that one in five firms indicate superfast has had a positive impact on their turnover. There is evidence that connection to superfast is contributing to export growth for some business. Around 19% of businesses indicating **new international** sales as a result of superfast.

The evidence around the impact of superfast on **innovation** is mixed – with roughly even numbers of respondents indicating superfast help them develop new goods and services and saying it did not.

Improving access to services and work is an important driver for the Superfast Programme. Businesses do not appear to see their connection to superfast as a particularly strong enabler to employ those who would be otherwise excluded from working for the firm. Only 9% of those firms indicated superfast contributed to this and almost of half of these, suggested the reason for this was due to expanded sales rather than for reasons of accessibility.

1.7.3 Economic impact

The net economic impact of superfast is the change that can be attributed to superfast and incorporates the knock on economic impacts of the programme. Up to March 2019, the net impact of Superfast Cornwall Programme 4,090 FTE jobs and £154,600,000 GVA. Safeguarded jobs (net) delivered is estimated to be 6,950 and associated GVA £277,800,000.

Table 1.2 - Summary of economic impact

		Employment FTE (2019)	Employment FTE (2017 Baseline)	GVA (2019)	GVA (2017 Baseline)
Established businesses	Gross increase	11,390	5,180	455,500,000	£189,500,00
	Attributable increase	2,000	1,490	79,800,000	£88,000,000
	Net increase	2,010	1,500	80,300,000	£88,600,000
	Attributable safeguarded	6,900	3,410	276,100,000	£135,400,000
	Net safeguarded	6,950	3,430	277,800,000	£136,200,000
Start-ups	Attributed businesses start-ups	2,070	1,620	82,800,000	£ 49,800,000
	Net increase	2,080	1,620	83,300,000	£50,100,000
Combined	Overall uplift (net)	4,090	3,120	154,600,000	£138,600,000
	Safeguarded (net)	6,950	3,430	277,800,000	£136,200,000

It is too early to assess the impact of the SEP, as delivery of roll out only completed in March 2018. Our models assume that it takes one year for business and six months for household impacts to emerge. Also, the survey methodology depends on being able to identify and interview businesses and households that were connected specifically as a result of that programme.

1.7.4 Wider impact

Superfast enables **flexible working**. Over half of households indicate that someone in their house uses their connection for work or business-related activities. The amount of time people are working at home has increased since connecting to superfast and two thirds of households indicate that superfast is a key enabler for home-working. The uplift in home working has positive environmental consequences – taking an average of 134 miles off the typical weekly commute.

Superfast is **widening digital access** for those who are connected. For many households, superfast has helped access to goods and services (78% agree/strongly agree). For example, more are using the internet to access more Government and Public services online than before they were connected with superfast broadband. It is also contributing to skill development both in terms of digital skills specifically and skills more widely.

1.7.5 Recommendations

Assist businesses to address issues with reliability. The business survey indicates there may be issues with the reliability for some of the connections for businesses. Whilst satisfaction with speed increases, businesses are increasingly using cloud

computing, remote data storage, web conferencing and internet telephony, and they are becoming increasingly dependent on reliable service. Real or perceived issues with reliability may lead to firms not being able to take full advantage of internet services that being connected to superfast bring, therefore business could be advised on how to resolve these.

Aligned activities to promote workforce access. There is little evidence to suggest that superfast connection in and of itself is encouraging businesses to provide opportunities for those who face barriers to accessing work opportunities (e.g. those with caring responsibilities, based in remote areas, etc.) Targeted activity around this may be required to address this.

Understanding innovation. Businesses split on how important superfast is for innovation. For half of the sample, superfast is a key enabler of innovation, for the other half it is not. This is an area that would be worth further investigation in subsequent field work. It would be interesting to try to understand a bit more about why this might be the case and explore if aligned activity could help support innovation using superfast (or subsequently available digital services) to stimulate the development of new products and services.

Non-connected businesses in enabled areas. During the recruitment process for the telephone interviews, 256 businesses were identified that said they could not get connected to superfast broadband although they are located in highly enabled areas.

2 Superfast Programme

Cornwall's 2011-2015 Next Generation Broadband (NGB) Infrastructure project, known as Superfast Cornwall, had an initial target to make fast, fibre based broadband available to at least 80% of the baseline of 253,000 premises (homes and businesses) in Cornwall by the end of 2014. A total of £53.5m of funding was provided by the European Regional Development Fund (ERDF) in the roll out of the project, making it the largest single EU Convergence Programme investment, while an additional £78.5m was invested by BT. The project aimed to have a real economic transformation and leave a long term legacy for Cornwall and the Isles of Scilly.

The initial target was extended to 95% of the baseline premises with access to fibre broadband, due to efficiency gains and high take-up³. By March 2015 the extended target had been exceeded. By the end of 2011-2015 Superfast Cornwall Programme there were 238,000 premises covered by 24+ Mbps of which 232,000 premises were covered by 30+Mbps⁴. The county has the second best coverage, after Japan, of the 13 comparator areas assessed by Analysys Mason in its 2015 Benchmarking report⁵.

As the roll-out progressed, take-up steadily increased and reached 66,500 connected premises in June 2015 and an estimated 90,000 by March 2017.

The Superfast Extension Programme (SEP) started in 2016 and ran until March 2018, with a second programme "Superfast 2" being delivered after this, from 2018 to 2020. The second programme (SEP) aimed to cover 8,000 24+Mbps premises by the end of 2017 and was funded by Broadband Delivery UK (BDUK), Regional Growth Fund (RGF), Growth Deal, Cornwall Council and private sector investment from BT. The rollout concluded with circa 10,000 premises upgraded.

Superfast 2 is a part-EU and Cornwall Council funded programme to roll out superfast broadband to a further estimated 7,500 premises between 2017 and 2020. The £17.6 million programme includes £8.4m ERDF, £3m BDUK, £1.1m Cornwall Council and £5.1m from BT.

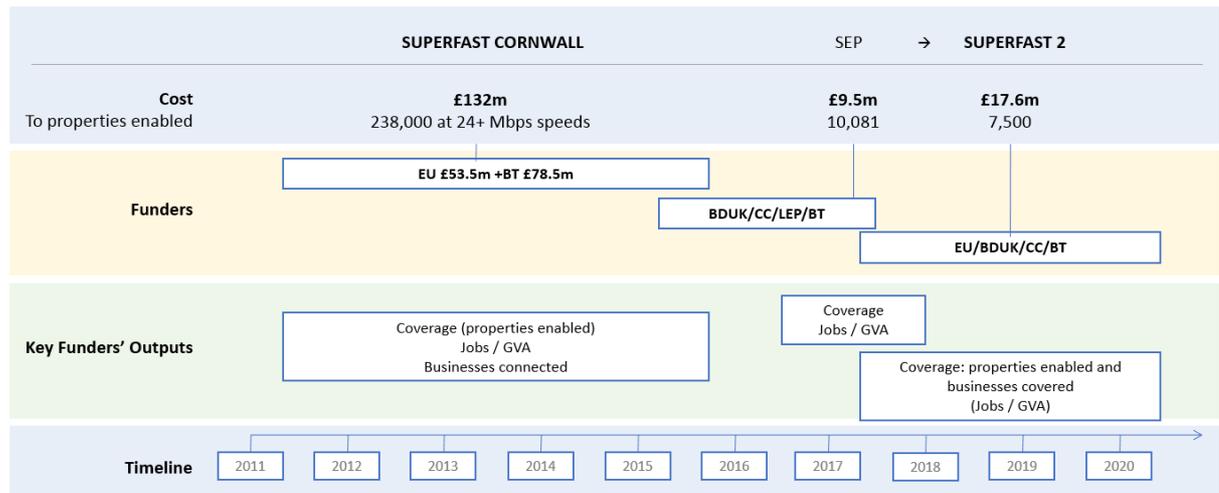
³The 253,000 premises was a baseline contract figure that excluded the area of Saltash (which was out of scope due to the presence of a second infrastructure in Virgin Media) and any new builds that came on-line since the BT were appointed in 2009 (approximately 2,200 per annum).

⁴Since the start of the programme in 2010 superfast broadband has been defined as 24Mbps by UK Government and 30+Mbps by the EU.

⁵Analysys Mason was commissioned by CDC to conduct a benchmarking analysis of the anticipated Superfast Cornwall network in March 2015 against 12 comparator areas. Ref: Analysys Mason (2015) Benchmarking the Superfast Cornwall Landing Point.

The phases of the programme are illustrated in the diagram below (see Figure 2-1).

Figure 2-1 – Programme Phases



3 Project Aims and Objectives

The SEP and Superfast 2 continue the work of the pioneering Superfast Cornwall programme. However the scope of the project’s aims and objectives are somewhat scaled back to reflect the smaller funding figure, as well as reflecting the increasing costs required to upgrade remaining rural areas. The overarching ‘project logic’ of SEP and Superfast 2 is set out in the table below. The evaluation questionnaire and methodology focuses on the key outputs, outcomes and impacts identified here.

Table 3.1 – SEP and Superfast 2 Project Logic

Objectives	Inputs	Activities	Outputs	Outcomes	Impact
Build on the existing superfast broadband network to connect a further 16,000 premises	Funding from BDUK Private sector investment	Install superfast broadband infrastructure – fibre to the premises, fibre to the cabinet	2,880 businesses benefits from upgraded ICT infrastructure (including 1,200 ERDF businesses for Superfast 2)	777 jobs created 441 jobs safeguarded £27 million gross increase in GVA £16 additional safeguarded GVA	£15m net additional GVA
Continue to transform Cornwall’s economy by providing a superfast broadband network for high growth, high value businesses to increase productivity, innovation, collaboration and global opportunities	Cornwall Council Investment Regional Growth Fund Growth Deal EU Funding CDC delivery management team SAV Strategic leadership Influence and engagement	Communicating the benefits to businesses SAV Enabling research and innovation projects	Number of households connected Take-up Satisfaction with network performance	New business start ups Businesses introducing new product/services Positive environmental benefits – flexible working, access to work, and services	337 net additional jobs Net additional new business start-ups (associated GVA and jobs)

3.1 Role of the March 2019 Report

In early 2017, PFA Research was commissioned by Cornwall Development Company to undertake an evaluation of the superfast broadband roll out in Cornwall between 2017 and 2021. This evaluation builds on the 2011-15 programme and previous evaluation work led by CDC's Research and Evaluation Manager and SERIO at Plymouth University. Wherever possible, we have used the same or very similar methodology as the 2011-15 evaluation to ensure consistency. Where approaches differ the case for change is clearly stated.

There are three distinct Superfast programmes

- 2011-2015 Superfast Cornwall Programme
- 2016-2017 Superfast Cornwall Extension Programme (SEP)
- 2018-2020 Superfast 2

On-going impact of 2011-2015 Superfast Cornwall Programme will be determined alongside 2016-2017 SEP and 2018-2020 Superfast 2.

The first deliverable from the evaluation contract was the baseline summary report in May 2017. This work used the economic model developed for the previous Superfast Cornwall evaluation combined with up to date estimated take-up figures, to estimate the current business take-up figures and the economic impacts in terms of jobs and GVA. No new raw data was collected at this stage but the underlying model was adjusted to reflect available new data.

The second deliverable report in 2018 provided an update on the impact of the roll out of superfast broadband based on new primary data and estimated take up figures. For businesses, the 2018 report included only the impact of 2011-2015 Superfast Cornwall Programme, as all surveyed businesses will have been connected for 12 months or more. Equally, the household survey was undertaken with residents which were connected more than 6 months prior to the interview. Between January and May 2018, 102 businesses and 100 households were surveyed.

This third deliverable, the 2019 interim report, updates the findings from 2018. A further 155 businesses were interviewed (that have been connected to superfast broadband for 12 months or more) and 100 households (connected for 6 months or more). This report includes the impact of the 2011-2015 Superfast Cornwall Programme as well as the 2015-2017 SEP programme.

4 Outputs: Roll-out, Coverage, Take-up and Satisfaction

4.1 Roll out and coverage

At the end of the Superfast Cornwall programme in 2015, approximately 238,000 properties were able to connect to Superfast 24+ Mbps. By March 2018, SEP connected a further circa 10,000 properties. By March 2019, Superfast 2 has connected a further 3,750 properties.

Table 4.1 – Coverage

Programme	Date	Cumulative new properties covered by SEP	Total number of properties covered by Superfast Broadband	Proportion of total coverage enabled by SEP
Superfast	2015		238,000	0%
SEP	March 2017	3,200	241,200	1.3%
	Sept 2017	6,000	244,000	2.5%
	March 2018	10,000	248,000	4.0%
Programme	Date	New properties covered by SF2	Total number of properties covered by Superfast Broadband	Proportion of total coverage enabled by SF2
Superfast 2	March 2019	3,750	251,750	1.5%

The number of premises connected to superfast (take up figures) is known to BT although, due to commercial sensitivity, these numbers are not provided to the same degree of accuracy and are available only at certain points in time. When take up figures are quoted, they are estimates provided by the CDC Superfast team.

This report adopts the same assumptions as the 2011-2015 Superfast Cornwall Programme Evaluation. In this evaluation, it is assumed that for businesses, it takes one year from connection for an economic impact (such as jobs or GVA growth) to emerge. For households, the lag is assumed to be six months between connection and economic impact. Therefore, to ascertain the economic impact at March 2019, the model considers only those businesses who have been connected for 12 months or more (i.e. the number connected in March 2018).

The Superfast broadband team estimate that in March 2017 there were 90,000 connections to Superfast, 103,400 by March 2018 and the total number of connections is estimated at 128,400 by March 2019. For household connections we need to further estimate the number of connections to September 2018. Using an average growth rate in connections between June 2015 and March 2017, and a modelled growth (from survey data) after that, the estimated number of total connections to September 2018 is 115,900.

4.2 Number of businesses connected

It is not possible to know exactly how many businesses are connected to superfast. BT holds some commercial records of the number of business phone lines, however these will not adequately capture those businesses connecting through domestic agreements. The number of businesses connected must be estimated. There is no 'silver bullet' method for estimating this number, therefore in the 2011-2015 Superfast Cornwall Evaluation, the results from three different methods were compared. One of the methods (Method 2) has not been updated for this report as the market research on which it was based is now out of date. Method 1 and Method 3 are set out and updated in the methodology in section 9.1.

The following table displays estimates of the number of businesses connected to superfast in March 2017 to March 2019.

Table 4.2 – Connected Businesses

Calculation method	March 2017	March 2018	March 2019
Method 1	9,650	11,100	13,750
Method 2	Not used	Not used	Not used
Method 3	16,350	19,000	24,700

Method 3 is a more accurate estimate of businesses for registered and unregistered businesses – so the total number of business connections to March 2019 is estimated as 24,700. Due to our approach to sampling, Method 1 is the correct figure to use for the economic impact modelling.

4.3 Number of households connected

The number of households connected is simply the reverse of the business estimates. The estimates that drive the economic impact assessment are based on Method 1 and are set out below:

Table 4.3 – Households Connected

Date	Estimated number of households connected
March 2016	68,400
March 2017	80,350
September 2017	86,350
March 2018	92,300
September 2018	103,500
March 2019	114,650

The number of households connected to September 2018 is the key figure used for the economic impact calculations.

4.3.1 Number of start-ups

The number of start-ups is estimated from the number of households connecting. The household survey asks whether the household has set up a business using the internet and if they have, how important was the superfast broadband connection to their decision to start a business.

According to the most recent primary research, 40 households in the sample set up a business using the internet – an average of 0.2 businesses per household connected (gross figures). In terms of attribution to superfast, and taking only those businesses for which superfast broadband was ‘very important’ (45%) in the decision to set up, provides an estimate of an average 0.09 business start-ups per household as a result of their connection to superfast.

In the previous evaluation report, a wider definition of attribution was used – to include those for which broadband was ‘very important’ and ‘important’. In 2015, primary survey work found an average number of start-ups per household as a result of superfast was 0.044. Using this broader definition and applying to the much smaller sample carried out for this report, reveals a corresponding figure of 0.115.

The wider definition of attribution is likely to overestimate the attributed impact to superfast and using the new data from what is still a smaller group of businesses is potentially problematic. However, the research team has confidence in the data collected and, on balance in consideration of an economic environment where freelancing is common, agrees it is reasonable to adopt the new figure of 0.09 business start-ups per household for this and subsequent reports (see section 6.3), to be further refined as the sample size increases.

The number of new start-ups attributable to superfast is displayed in Table 4.4.

Table 4.4 – New start-ups

Date	Estimated number of households connected	Number of business start-ups attributable to superfast (6 month lag)
September 2018	103,500	8,300
March 2019	114,650	9,300

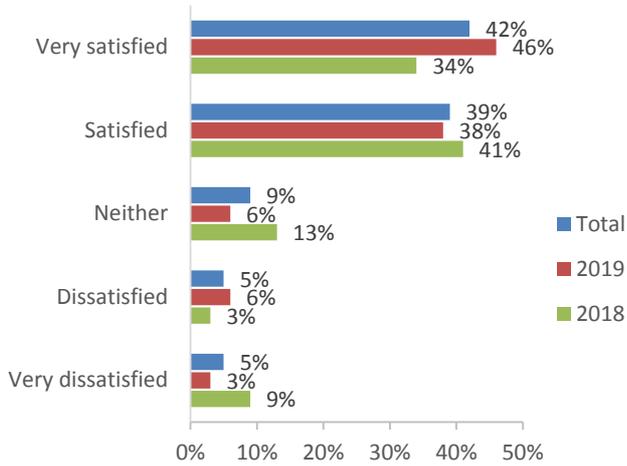
It should be noted that due to different calculation methodologies, it is not possible to combine the number of start-ups with the estimates for the number of businesses connected without a risk of double counting.

4.4 Satisfaction with network performance

Overall business and households indicate a high level of satisfaction with both speed and reliability of network performance. For businesses, 81% of respondents were very satisfied or satisfied with speed. Slightly fewer (76%) were very satisfied or

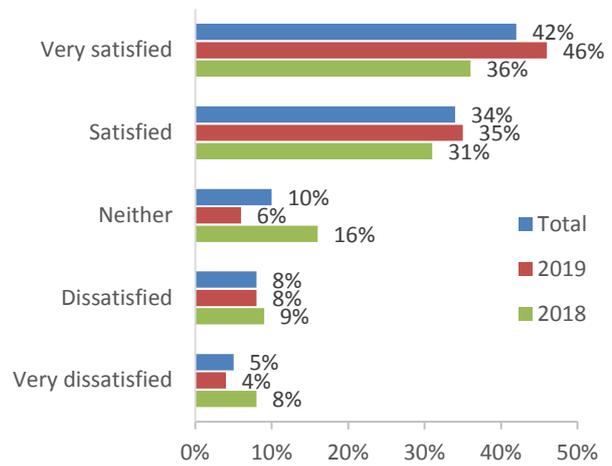
satisfied with reliability, indicating some may have had problems with disruptions in service. Households indicated a similarly high level of satisfaction with speed (76% were satisfied or very satisfied) and reliability received better satisfaction scores for households than for businesses (79% were satisfied or very satisfied).

Figure 4-1 – Speed Satisfaction (Businesses)



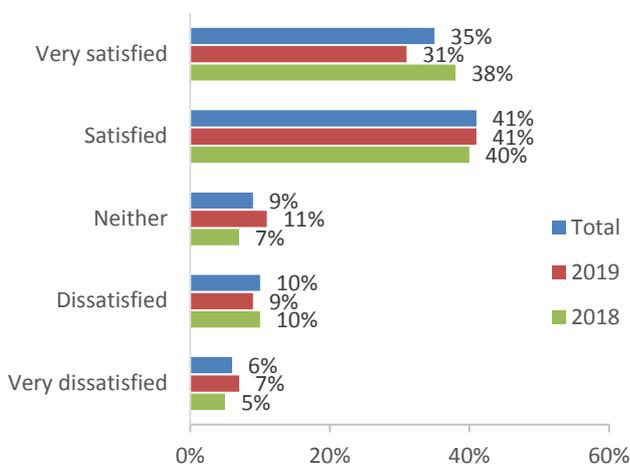
Base: All respondents, n=257

Figure 4-2 – Reliability Satisfaction (Businesses)



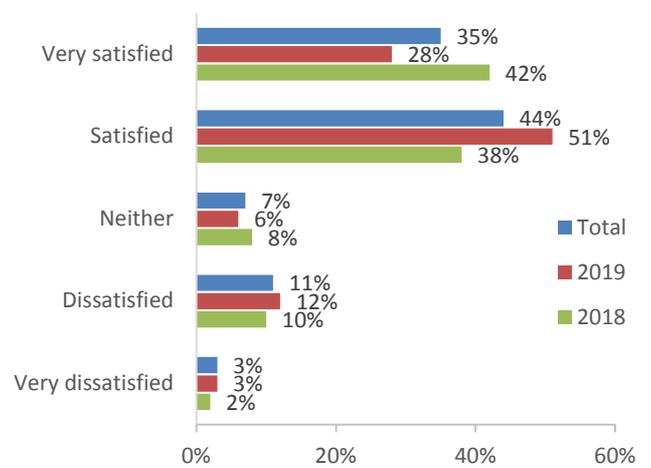
Base: All respondents, n=257

Figure 4-3 – Speed Satisfaction (Households)



Base: All respondents, n=199

Figure 4-4 – Reliability Satisfaction (Households)



Base: All respondents, n=199

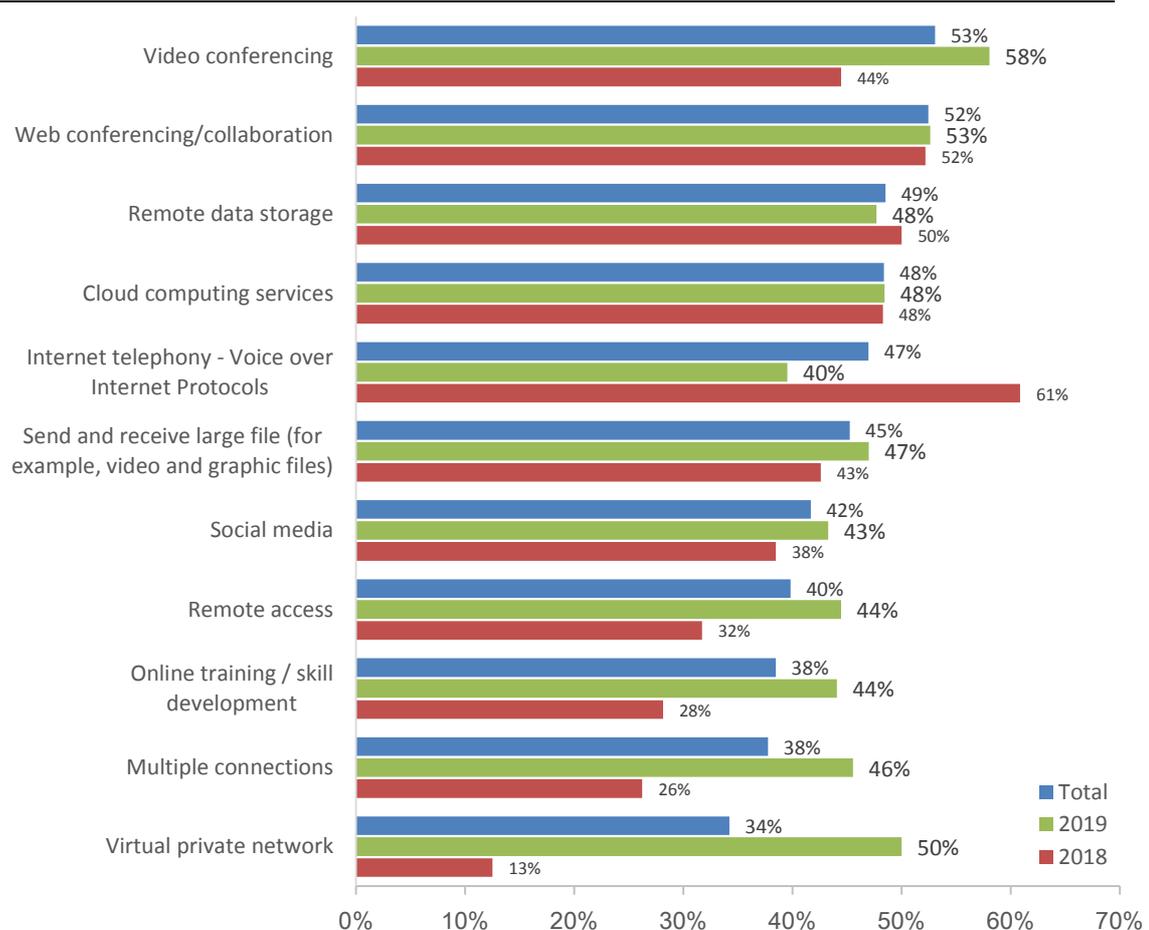
5 Business impact

In order to assess the impact of 24+Mbps superfast broadband on connected businesses, 257 randomly selected Cornish businesses have been surveyed over two waves (to date), between January and March 2018 (n=102) and 2019 (n=155). Businesses were contacted via phone and screened to confirm they had been connected to superfast broadband for 12 months or longer. Within eligible businesses senior decision makers were interviewed. With a sample size of 257, the error margin for the business survey is +/-6.07% at the 95% confidence level.

5.1 Change in use of broadband

Businesses were asked to identify what they are using their connection for and how this has changed since they upgraded to superfast. Of those businesses using video conferencing, 53% overall say they use it more since being connected to superfast broadband. Web conferencing is used more by 52% and 49% now use remote data storage more than before they were connected to superfast broadband. Use of VPNs has increased substantially in 2019.

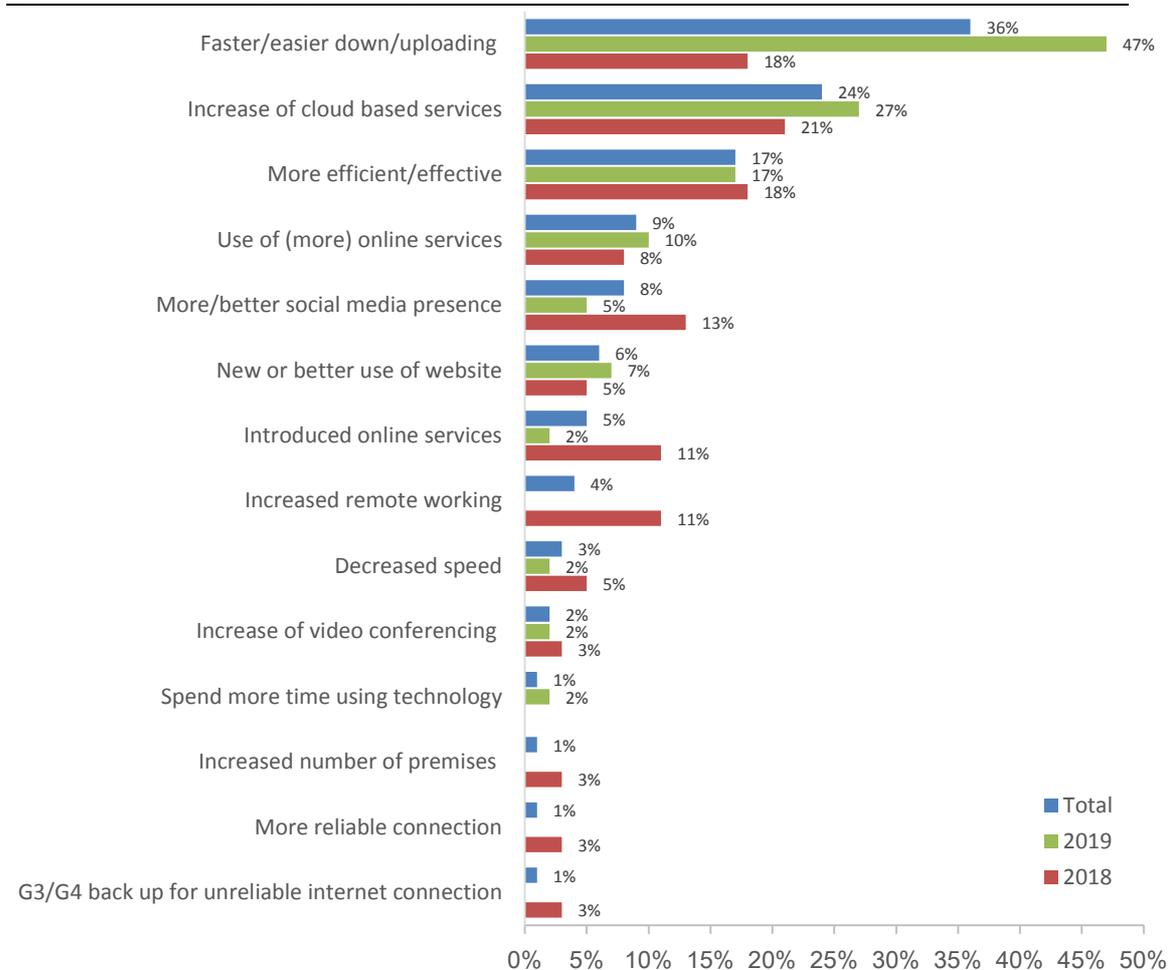
Figure 5-1 – Function Usage Increase (Businesses)



Base (Total): 49/61/101/93/66/137/156/113/91/151/38

Almost 4 in 10 businesses (39%) have changed one or more of their business processes, like sales, administration or marketing, etc., since connecting to superfast broadband. When asked how these processes have changed (displayed in Figure 5-2), the most common mechanism was through faster/easier down/uploading (36%), the increased use of cloud based services (24%), and being more efficient/effective (17%).

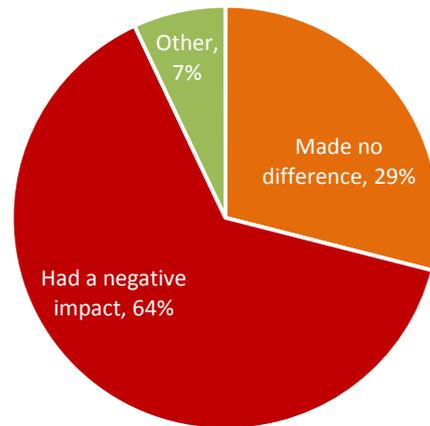
Figure 5-2 – Process Changes (Businesses)



Base: Those who have changed business processes, n=98

Over 6 in 10 businesses indicated that if their business could not have connected to superfast, they would have been negatively impacted – suggesting that not having a superfast broadband rollout in Cornwall would have meant too many businesses would have been left behind.

Figure 5-3 – Impact of Non-Connection (Businesses)

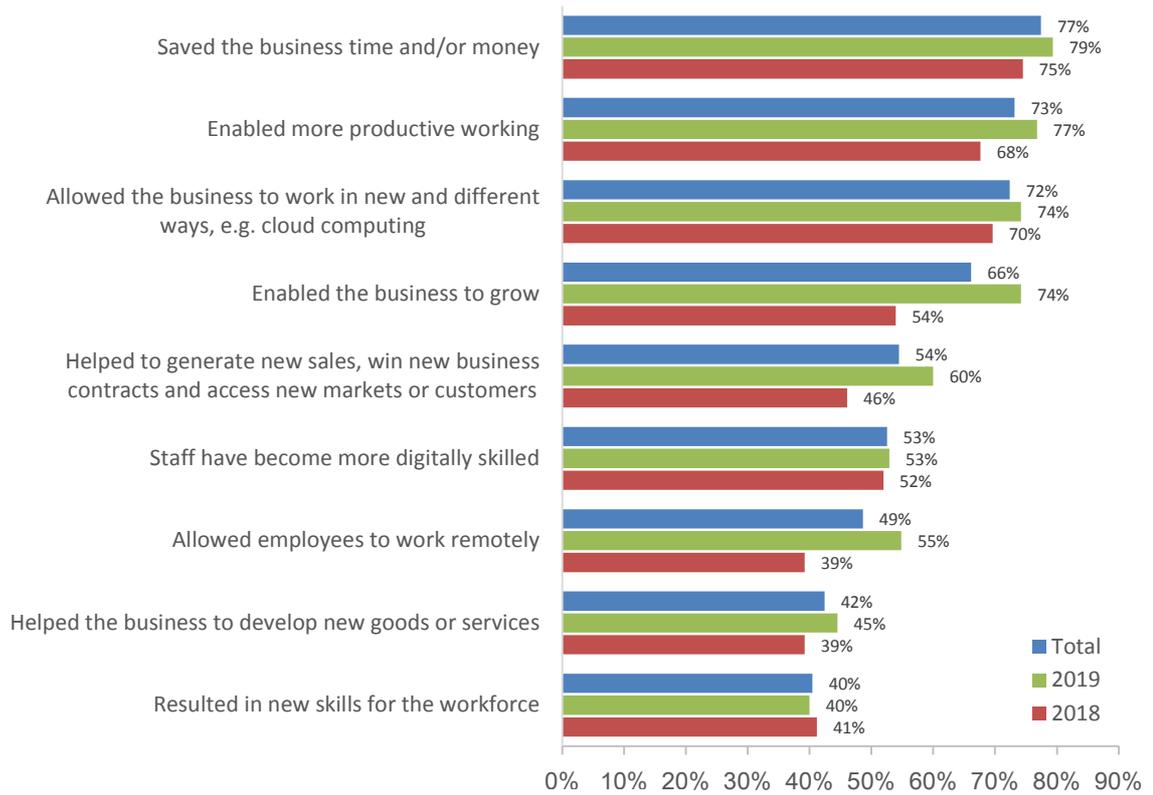


Base: All respondents, n=252

The impact of superfast manifests in many ways, as shown in Figure 5-4. According to the businesses interviewed, the strongest impact was experienced through businesses saving time and/or money (77% overall agree with this) – a finding that is in keeping with the previous Superfast Cornwall evaluation research (2015). Other strong impacts are (i) raising productivity and (ii) enabling businesses to work in new ways.

There is some evidence that upgrading to superfast broadband enabled innovation (42% indicated superfast helped them develop new goods/services), although the impact is not as obvious as for other impacts considered here. This figure is seven percentage points lower than for previous Superfast Cornwall evaluation research (2015), suggesting that a superfast connection may be less of a driver for innovation than it previously was, although the 2019 score is higher than 2018.

Figure 5-4 – Superfast Broadband Impact - % agreeing or strongly agreeing with statement (Businesses)



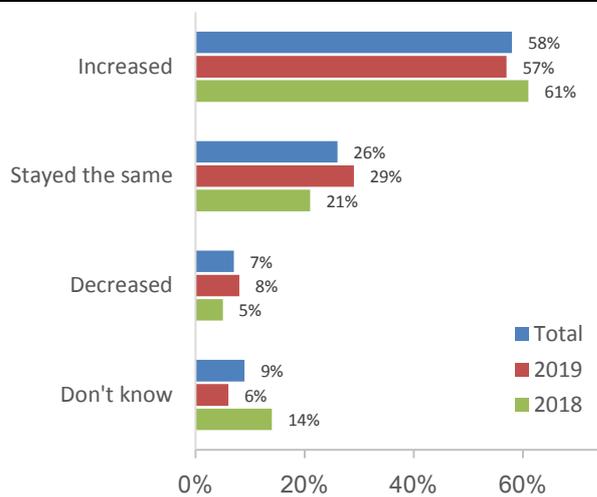
Base: All respondents, n=257

5.2 Turnover, profit and costs

130 out of a total 257 firms were willing and able to provide their company turnover. Their combined turnover for the last financial year was £144.2 millions, an average of £1.1 millions per business. These 130 businesses employ 8.7 people on average, reflecting a skew towards slightly larger businesses in the survey sample (rather than micro-businesses and sole traders).

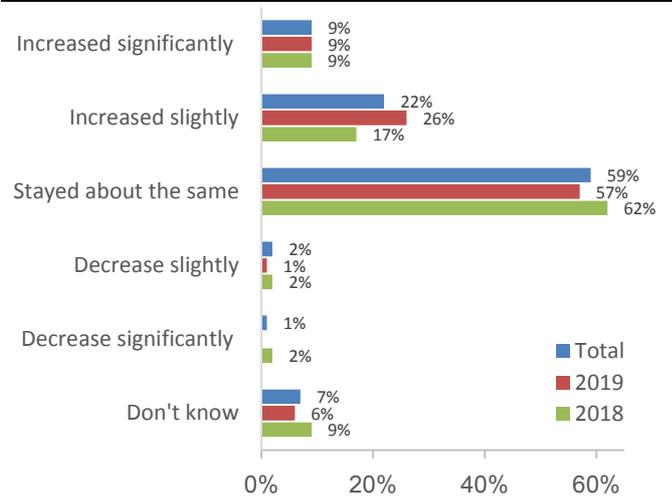
58% of firms surveyed indicated that they anticipate their turnover to be higher in the current financial year than the last, although a similar proportion suggest that their turnover has stayed about the same since they connected to superfast broadband (which was between 12 and 36 months ago for the majority of firms participating).

Figure 5-5 – Current Financial Year (Businesses)



Base: All respondents, n=257

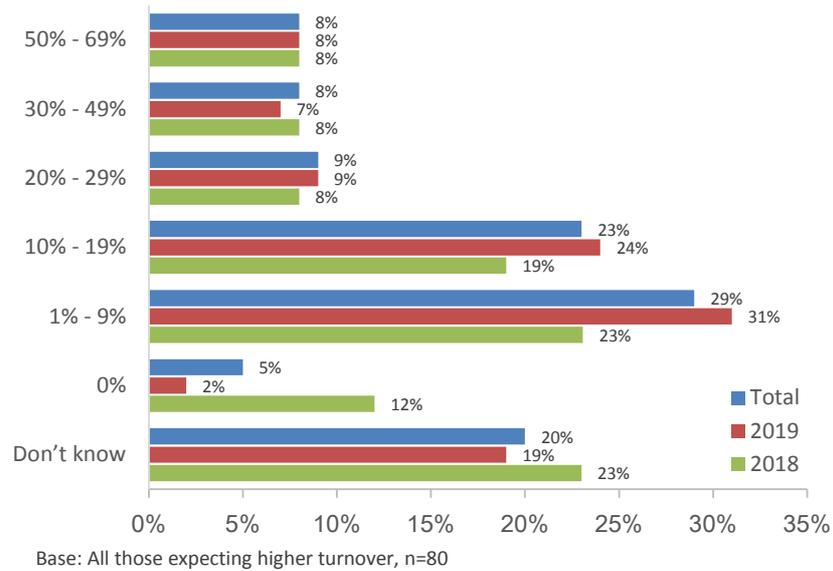
Figure 5-6 – SFBB Effect on Turnover (Businesses)



Base: All respondents, n=257

Of the 80 which indicated a growth in turnover since connecting to superfast, there is some evidence of superfast having contributed to this growth – 46% of these attribute over 10% of their turnover uplift to their connection. The results in Figure 5-7 indicate a high number of 'don't know' responses, suggesting that many find it hard to determine the impact of superfast on their growth.

Figure 5-7 – Proportion of turnover uplift attributable to upgraded connection (Businesses)



Superfast has had a limited impact on profits, however nearly half of respondents say that superfast has reduced their costs (12% significantly, 32% slightly).

Figure 5-8 – Profit Levels (Businesses)

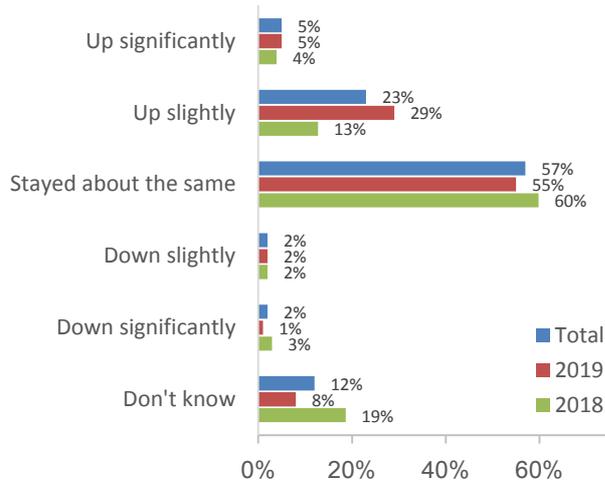
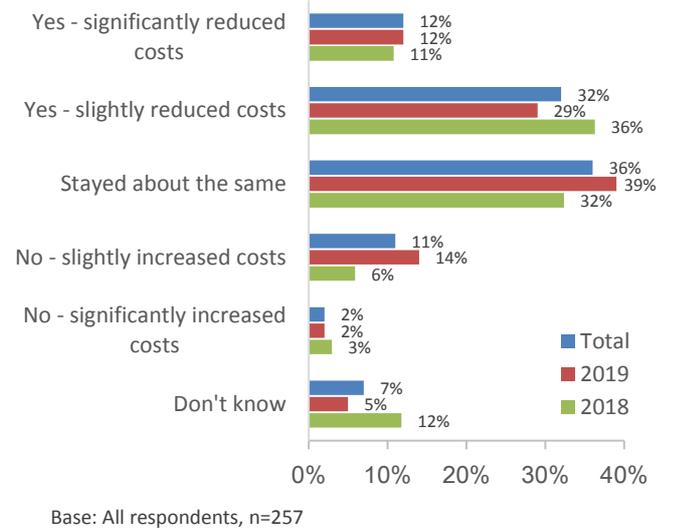


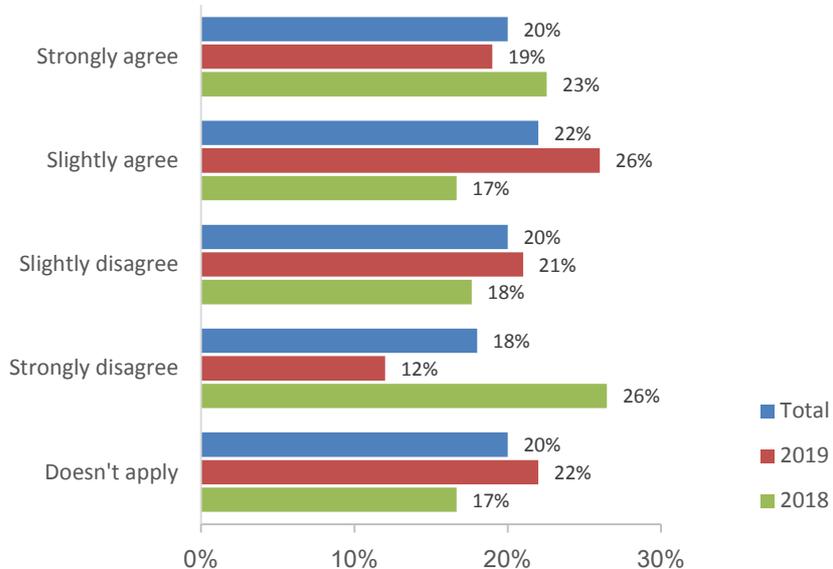
Figure 5-9 – Cost Levels (Businesses)



5.3 Businesses introducing new products and services

In terms of innovation, the evidence of the impact of superfast on firms’ ability to develop new products and services is divided – with almost as many businesses strongly agreeing or strongly disagreeing with the statement “superfast helped the business to develop new goods and services” as strongly or slightly agreeing.

Figure 5-10 – New Products or Service (Businesses)



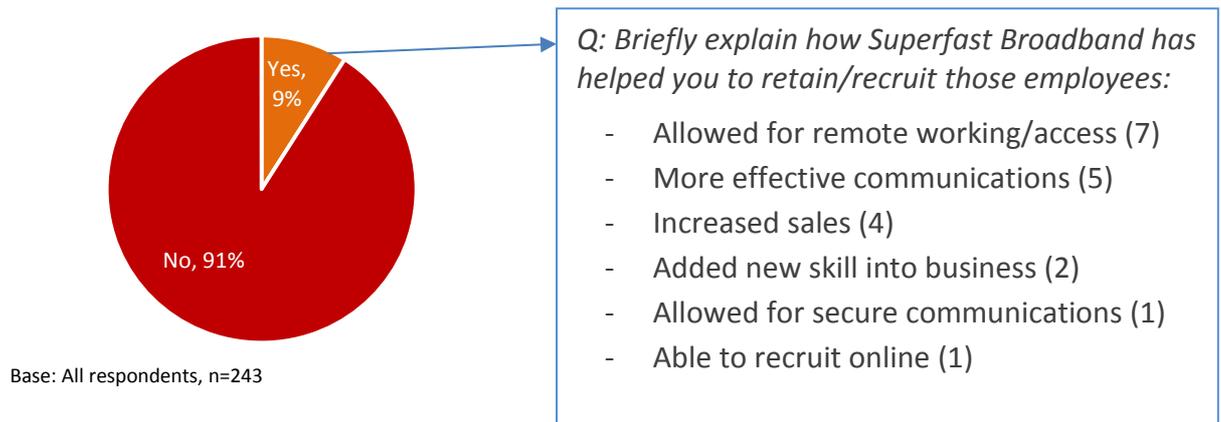
Base: All respondents, n=257

5.4 Recruitment and sales

One of the desired added value outcomes of the programme is to make work more accessible for those who may find it difficult to work due to their circumstances, such as because they live in remote locations or have caring responsibilities.

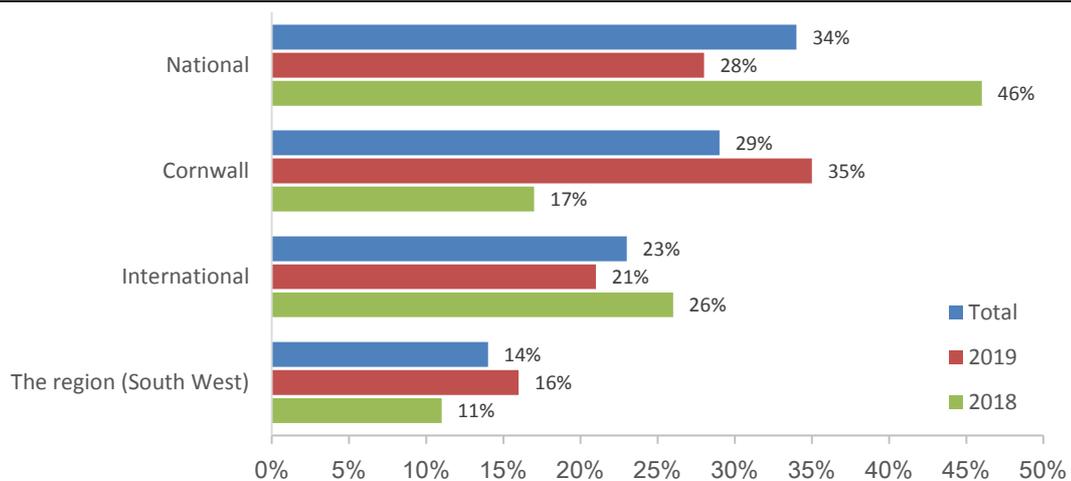
To consider from the business perspective, survey participants were asked if connecting to superfast had enabled them to retain and/or recruit staff that would have been unable to work for the business (e.g. who need to work from remote locations, etc.). The results (displayed in Figure 5-11), indicate a small proportion for which this impact is apparent.

Figure 5-11 – Ability to Employ/Retain Staff (Businesses)



54% of respondents indicated that superfast broadband has helped generate sales, win new business contracts and access new markets. In terms of the location of these new sales, the picture is quite mixed, as Figure 5-12 suggests. However, nearly one in four (23%) of these indicate that their new sales are mainly international which indicates superfast broadband has contributed to some export led growth.

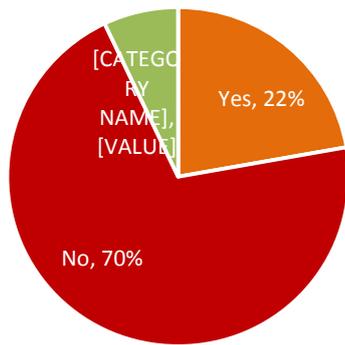
Figure 5-12 – New Customer Areas (Businesses)



Base: Those who slightly/strongly agree superfast helped generate sales, n=135

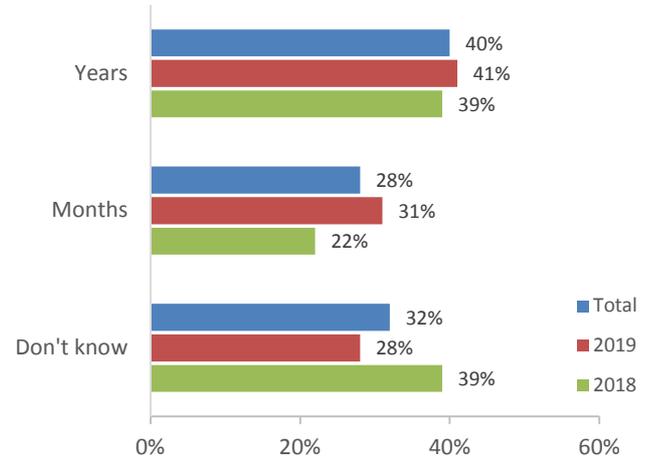
Around one in five firms believe connecting to superfast has provided a market advantage and 40% of these indicate that this advantage will last 'years'.

Figure 5-13 – Market Advantage (Businesses)



Base: All respondents, n=257

Figure 5-14 – Advantage Duration (Businesses)

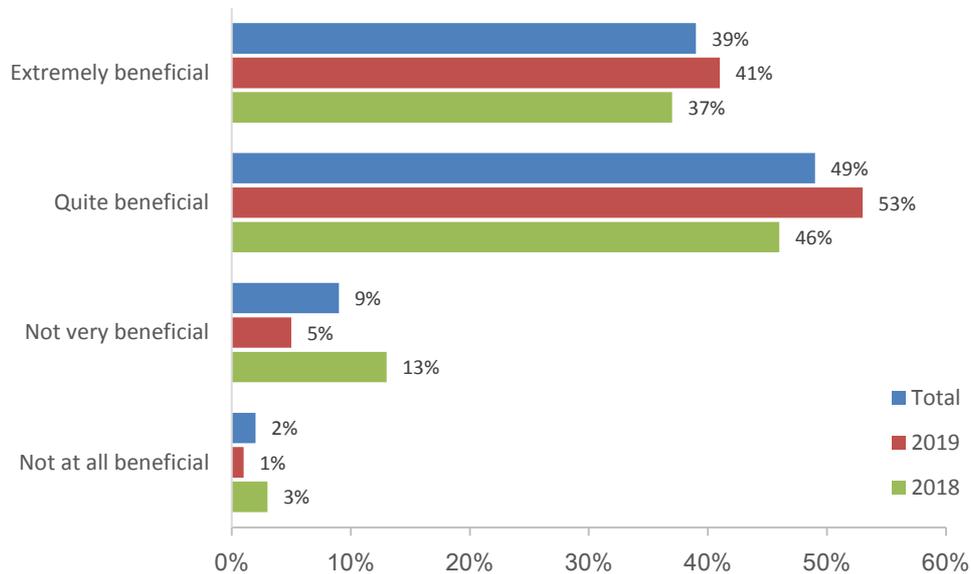


Base: All valid respondents, n=57

5.5 Overall benefit

Overall, businesses are positive about the overall benefits to upgrading to superfast broadband, with 39% indicating the service has been extremely beneficial and a further 49% suggesting it has been 'quite' beneficial. Only 2% said that upgrading was 'not at all beneficial'.

Figure 5-15 – Overall Benefit (Businesses)



Base: All responding, n=184

6 Economic impact

No economic development project takes place in a vacuum and it is essential to take into account what would have happened in the absence of the intervention and isolate the impact of the intervention. In line with government guidance, the following factors are included in the economic impact model and are referred to in the rest of this section:

Gross impact. Gross jobs or GVA created is the total change in the jobs/GVA during the previous two years in those businesses connected to superfast.

Attributable impact. The attributable figure is the amount of the change that can be attributed to connections to superfast broadband.

Net impact. The net impact considers the wider economic effects to Cornwall – both positive and negative. It takes account of:

- Displacement. The degree to which the benefits of the project are offset by reductions of employment or output elsewhere in Cornwall. An estimate of 19.5% is used⁶.
- Leakage. The project benefits which are outside the target area. However, since the survey asks only about jobs and growth this is assumed to be zero.
- Substitution. When a firm substitutes one activity for a similar one to take advantage of public sector assistance. However, the previous research assumed substitution to be zero since the programme was being rolled out across Cornwall.
- Multiplier. This is the further economic effect caused in Cornwall by new jobs or growth in profits or wages in Cornwall through the local supply chain or through wage spending in the local economy. This is estimated to be 1.25⁷.

6.1 Jobs and GVA created (established business)

Gross jobs created and GVA

The business survey has covered 257 companies, representing 5,284 employees (incl. sole-traders and those self-employed), with a median of 5 employees per company. 55% are micro businesses and only one person working for the business.

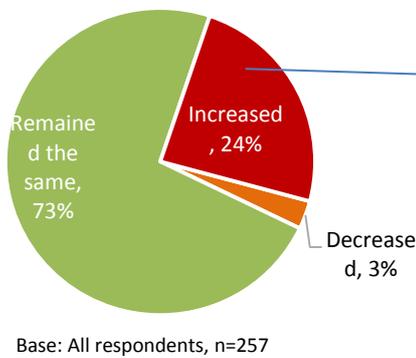
Although the majority of firms have seen no employment growth in the two years prior to interview, 24% of businesses indicate that they employ more people than they did two years before (only 3% indicated a decrease). On average across the sample, that represents an average increase in (gross) employment of 1.03 per firm.

⁶ This figure was used in the previous impact evaluation and came from BIS Occasional Paper No.1 “Research to Improve the Assessment of Additionality”.

⁷ Multiplier estimate from the same BIS Occasional paper.

Using the estimated number of business connections to March 2018 (highlighted on page 18), as 11,100, the total number of gross jobs created from established businesses is 11,390 FTEs.

Figure 6-1 – Staffing Levels (Businesses)



Q: Approximately how many more/fewer people are you employing to two years ago? (n=61, those with increased staffing levels)

- 10 or more staff (6)
- 5 - 9 more staff (8)
- 4 more staff (10)
- 3 more staff (9)
- 2 more staff (12)
- 1 more staff (16)

Totalling 264 jobs created over each respondent's previous two years.

The methodology for calculating GVA is set out in detail in the annex. It uses a different methodology from the previous evaluation report for a number of reasons – firstly as ONS now produce sub-regional productivity measures, and secondly the methodology employed to determine GVA per FTE is based on the methodology from the South West Regional Accounts which have not been updated since 2010, meaning it is now out of date. Although there is no sector specific figures available, the robustness of the ONS estimates outweighs the benefits of the additional granularity of estimated sector specific figures.

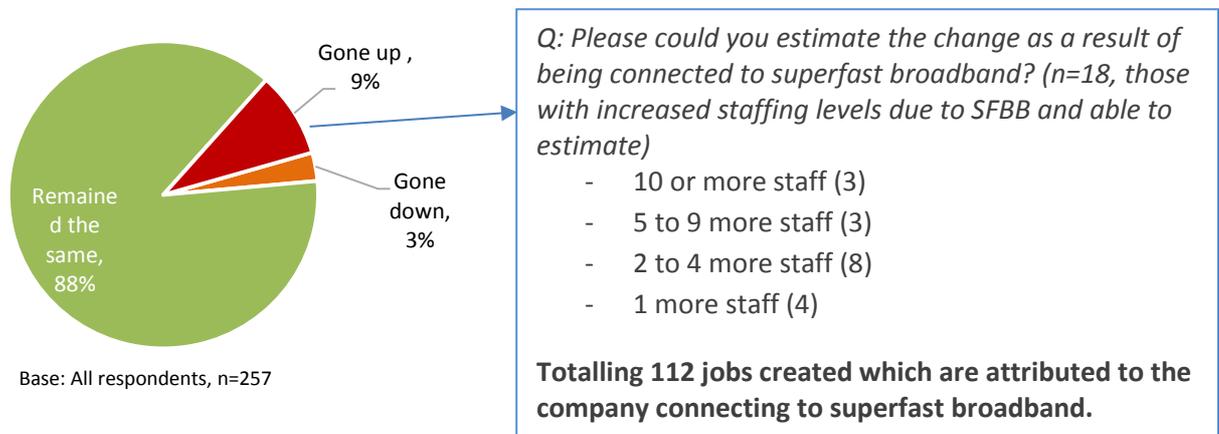
To enable transparency of approach, we have chosen to use an average GVA per hour worked figure for Cornwall published by ONS which is £23.80 per hour. Assuming on average a full time worker works 35 hours a week, 48 weeks a year, this gives an estimate of £39,984 per FTE. Using this, Gross GVA to March 2019 is estimated to be £455,500,000.

Attributable jobs and GVA

In the previous evaluation, the amount of job growth attributable to superfast broadband was determined through a robust counterfactual method – comparing the growth of firms connected to superfast with those which were not. This approach provide an average FTE uplift of 0.18 per firm.

The evaluation plan and budget for this report does not allow for a counterfactual survey, so the questionnaire includes a question to explore how much impact can be attributed to superfast. Respondents were asked to estimate the number of jobs that have been created as a result of superfast broadband. The vast majority (84%) of businesses do not attribute any employment growth with their connection to superfast. Only 13 businesses in the interview sample indicated employment growth attributable to superfast broadband – working out as an average of 0.44 jobs per firm. However as indicated in Figure 6-2, this figure (as can be the case with very small response groups) is dominated by an outlier response that indicated their connection to superfast led to 40 new jobs in the firm. While this is possible, it would not be appropriate to apply this figure to the whole of the sample and it is significantly higher than the 0.18 figure obtained through the counterfactual method. Removing the outlier gives an average attributable job uplift of 0.28 jobs per firm, although this is still based on a small number of responses and therefore may not be reliable.

Figure 6-2 – SFFB Influence on Staffing Levels (Businesses)



Reason for Job Gain	Reason for Job Loss
Increased sales/orders (9)	Lost trade due to unreliable service (1)
Better/more communications possible (7)	Circumstantial timing (1)
Essential to the business operations (3)	
More effective product sourcing (1)	
Established remote premises (1)	

On balance, we believe the 0.18 figure from the previous evaluation, while quite out of date, provides a more robust figure than relying on a small number of respondents self-declaring the impact.

The attributable number of jobs to March 2019 is therefore 11,100 multiplied by 0.18 which gives an estimated number of jobs from established businesses of 2,000. Using the same average GVA per FTE figure, the total attributable GVA is £79,800,000.

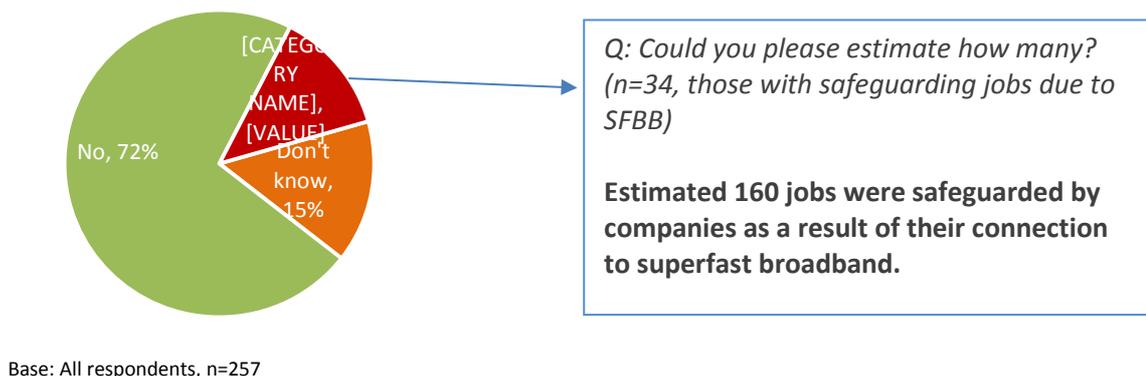
Net jobs and GVA

Employing the displacement and multiplier factors estimates net jobs created to be 2,010 and GVA to be £80,300,000.

6.2 Jobs safeguarded (established business)

Safeguarded jobs are defined as those jobs which were forecast to be at risk, but are no longer at risk of being lost within the next year. 13% of the business survey sample indicated that as a consequence of connecting to superfast, jobs in the firm have been safeguarded. On average 0.62 FTE jobs were safeguarded per firm.

Figure 6-3 – Safeguarding Jobs (Businesses)



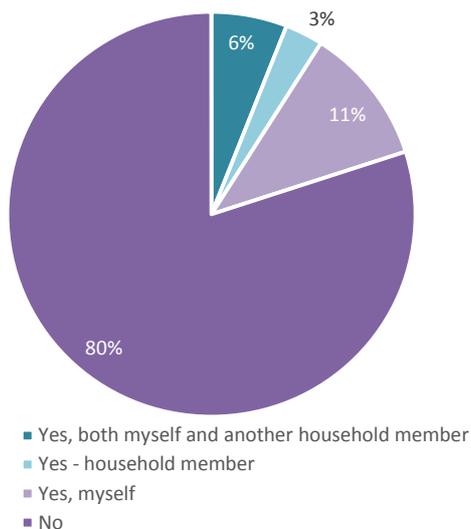
The **attributable** number of safeguarded jobs in March 2019 is 6,900. Associated safeguarded attributable GVA is £276,100,000.

Accounting for displacement and multiplier, the net safeguarded jobs figure is 6,950 and associated GVA is £277,800,000.

6.3 New business start-ups - jobs and GVA

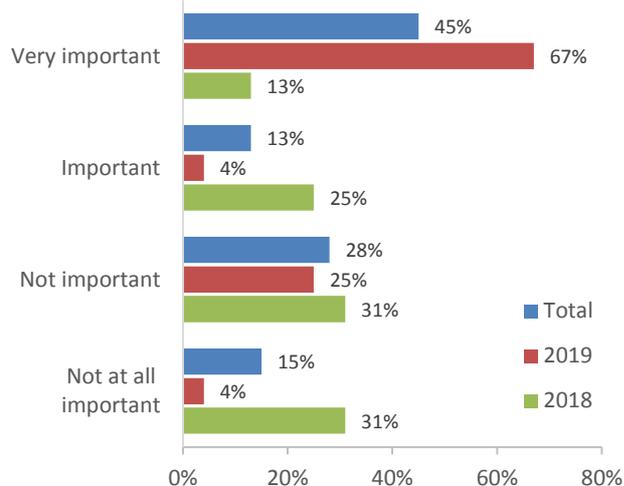
The motivation for starting up a business are varied, but previous research has indicated that access to superfast broadband has been a contributing factor to the decision to begin trading. The household survey gives us an insight into this. Respondents were asked, “Have you (and/or another household member) used the internet to set up your own business?” – see Figure 6-4.

Figure 6-4 – Home Business (Residential)



Base: All respondents, n=200

Figure 6-5 – Influence of SFBB to set up business (Residential)

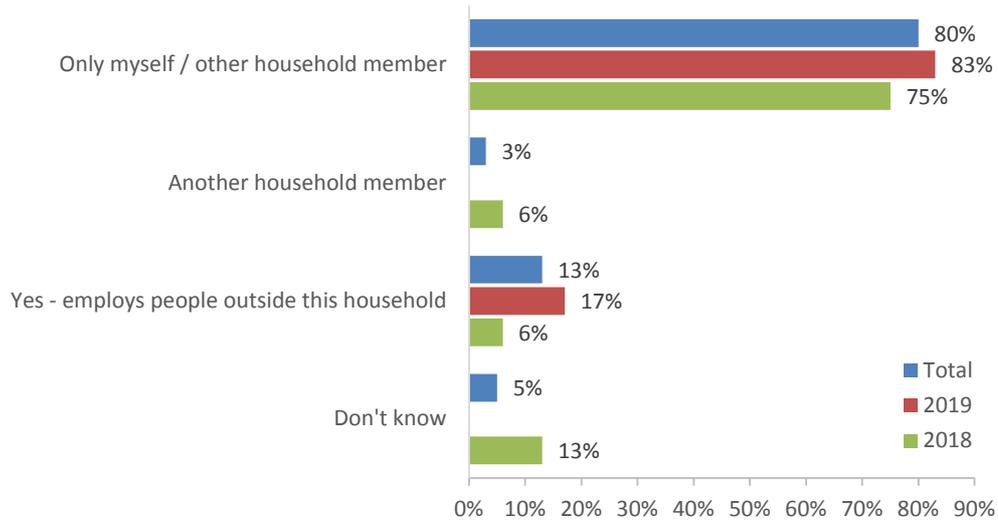


Base: All those with business set up, n=40

Figure 6-5 sets out the estimated number of business start-ups that is attributable to superfast. It is assumed that the impact on households is visible after 6 months, so the September 2018 start-up figures drive the model for determining the jobs and GVA. It is estimated that 9,300 have been established as a result of superfast connections (see Table 4.4)

The survey data provides some insight into employment in the start-ups businesses, although the base numbers are low (Figure 6-6). In the main, employment in these businesses is confined to those who set up the business and only a few employ anyone outside the household – meaning they are mainly sole traders.

Figure 6-6 – Home Business Employees (Residential)



Base: All those with business set up, n=40

In addition to 32 who said they employ themselves or another household member in a start-up business, an additional 13 ‘external’ people are employed in four businesses full time, and two businesses employ four part-time workers.

Of the 40 respondents saying they or a household member has used the internet to set up a business however, only 8 (20%) say that superfast broadband was influential in the decision to start a business and with further data confirming the business was set-up since they were connected. Some other businesses appear to have been established before superfast broadband was available to them and it is likely that their business activities diversified once they became connected. These 8 businesses account for 10 FTEs, though from the data it is not possible to say further whether the roles still exist or whether all of the sole trader roles are actually full time roles. This subset would suggest an average of 0.05 jobs per household connected to superfast broadband though the samples are too small to be able to project with great accuracy. The previous evaluation found an average of 0.02 jobs per household connected, so in the interest of erring on the side of caution we have retained this figure to be used in the calculations.

The attributable FTE is 2,070 and GVA is £82,800,000.

Accounting for substitution and multiplier effects the net jobs figure is 2,080 and GVA is £83,300,000.

6.4 Summary of economic impact

The table below sets out the key economic impact estimates for this 2019 report, compared to the 2017 baseline report.

Table 6.1 – Summary of economic impact

		Employment FTE (2019)	Employment FTE (Baseline)	GVA (2019)	GVA (Baseline)
Established businesses	Gross increase	11,390	5,180	£455,500,000	£189,500,000
	Attributable increase	2,000	1,490	£79,800,000	£88,000,000
	Net increase	2,010	1,500	£80,300,000	£88,600,000
	Attributable safeguarded	6,900	3,410	£276,100,000	£135,400,000
	Net safeguarded	6,950	3,430	£277,800,000	£136,200,000
Start-ups	Attributed businesses start-ups	2,070	1,620	£82,800,000	£ 49,800,000
	Net increase	2,080	1,620	£83,300,000	£50,100,000
Combined	Overall uplift (net)	4,090	3,120	£154,600,000	£138,600,000
	Safeguarded (net)	6,950	3,430	£277,800,000	£136,200,000

The vast majority of these impacts are from 2011-2015 Superfast Cornwall Programme as SEP only completed in March 2018. As the SEP impact matures, it will be possible to determine the impact of SEP.

7 Wider impact

This section presents findings from the Business Survey and the Household Survey to evidence some of the wider impacts experienced of superfast broadband.

7.1 Flexible working

A net balance of 21% (22% increased, less 1% decreased) of businesses say superfast broadband has helped increase the proportion of employees able to work remotely. 9% of businesses say superfast has allowed them to retain and/or recruit staff, that otherwise would have been unable to work for the business.

56% of household survey respondents say that they or someone in the home uses the internet to do work or business related activities. Of these, respondents work from home on average 2.4 days a week and other household members approximately 2.5 days a week (Figure 7-1 and Figure 7-3).

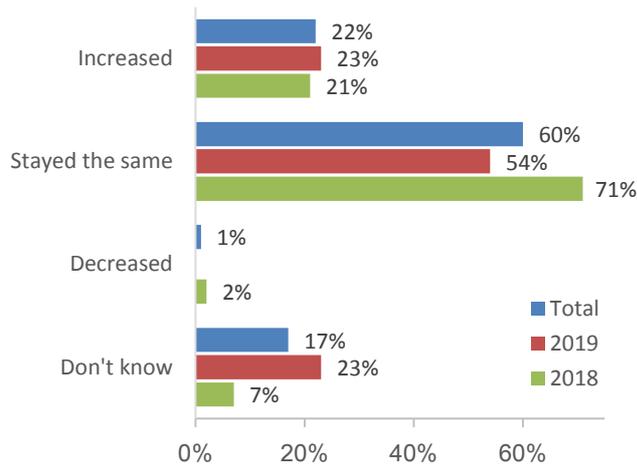
Superfast broadband has clearly made a difference to these respondents. Of the 49% of respondents who undertake work from home, 58% work more than one day from home whereas before superfast 70% worked from home less than 20% of the time (i.e. one day per work-week) (Figure 7-4 to Figure 7-7).

61% say that having superfast broadband was 'very important' (49%) or 'important' (12%) in their decision to work from home (Figure 7-8). Working from home has resulted in a reduction in commute to a place of work for 49%, most commonly a car journey (93%) which has saved on average 134 commute miles per week (Figure 7-9).

Q: Since connecting to superfast Broadband, has the proportion of employees being able to work remotely...?

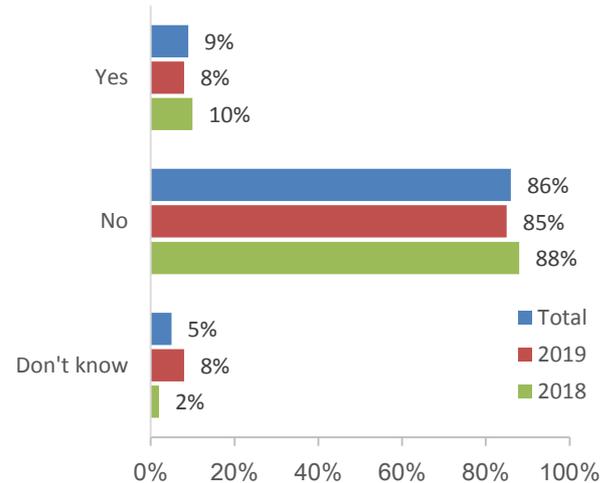
Q: Since connecting to Superfast Broadband, have you been able to retain and/or recruit staff, that otherwise would have been unable to work for the business? i.e. those who need to work remotely due to remote locations, those who have caring or child care responsibilities, etc.)

Figure 7-1 – Remote Working (Businesses)



Base: All respondents, n=257

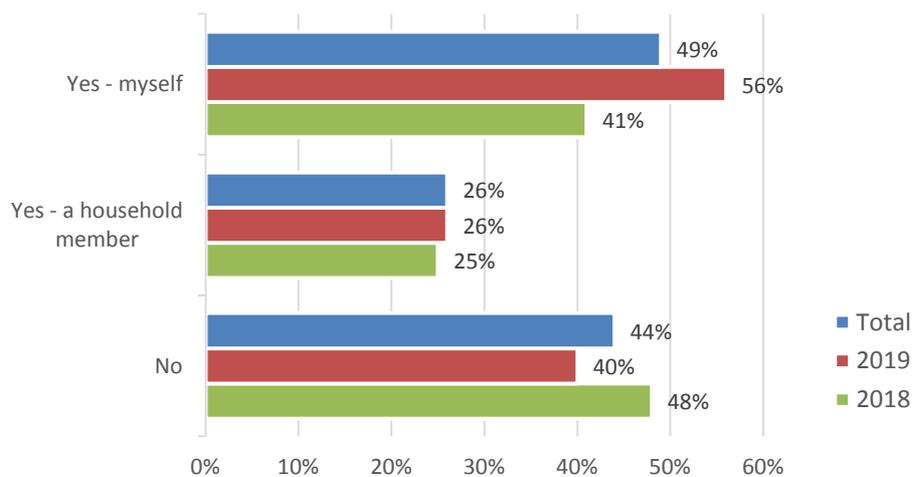
Figure 7-2 – Remote Workers Due to Necessity (Businesses)



Base: All respondents, n=257

Q: Do you or any other member of your household currently use the internet at home to do work or business related activities?

Figure 7-3 – Home Working (Residential)

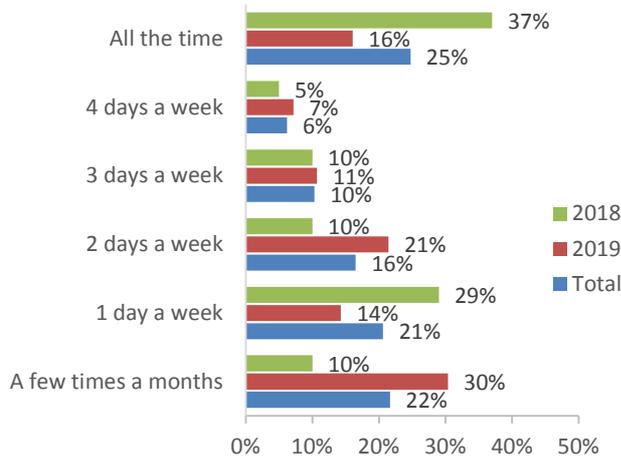


Base: All respondents, n=200

Q: Which statement best describes the frequency of this home working now? – Respondent

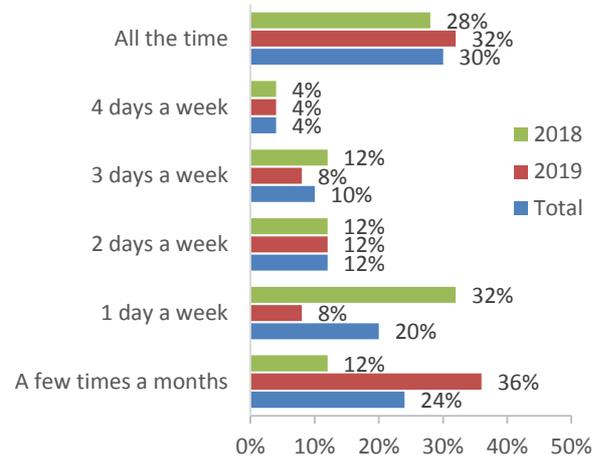
Q: Which statement best describes the frequency of this home working now? – Other household member

Figure 7-4 – Home Working – Respondent (Residential)



Base: All those respondents working from home, n=97

Figure 7-5 – Home Working – Household member (Residential)

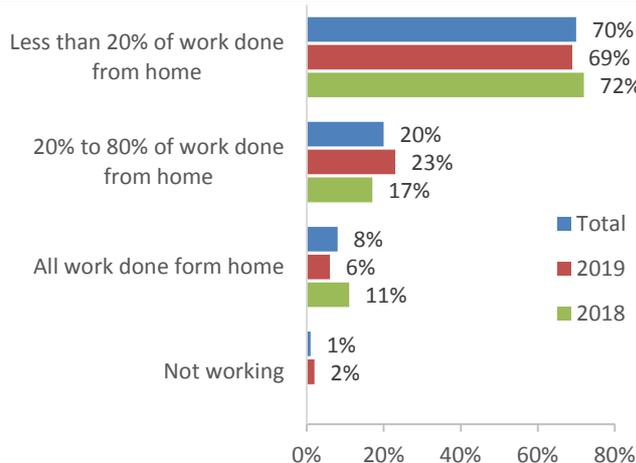


Base: All those household members working from home, n=50

Q: Which statement best describes the nature of your home working before connecting to superfast broadband?– Respondent

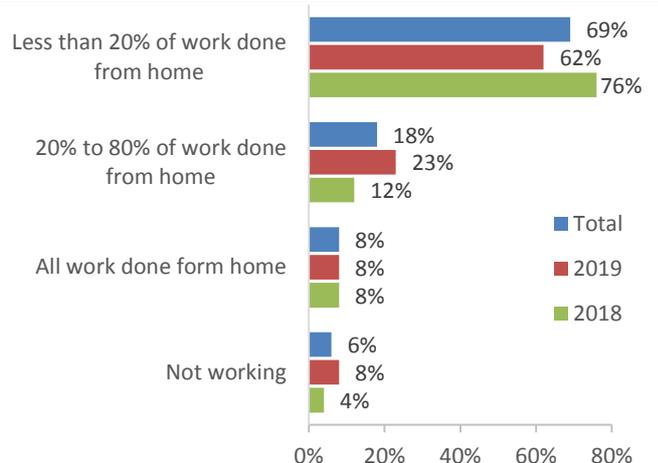
Q: Which statement best describes the nature of your home working before connecting to superfast broadband?– Other household member

Figure 7-6 – Home Working Prior to SFBB – Respondent (Residential)



Base: All those respondents working from home, n=97

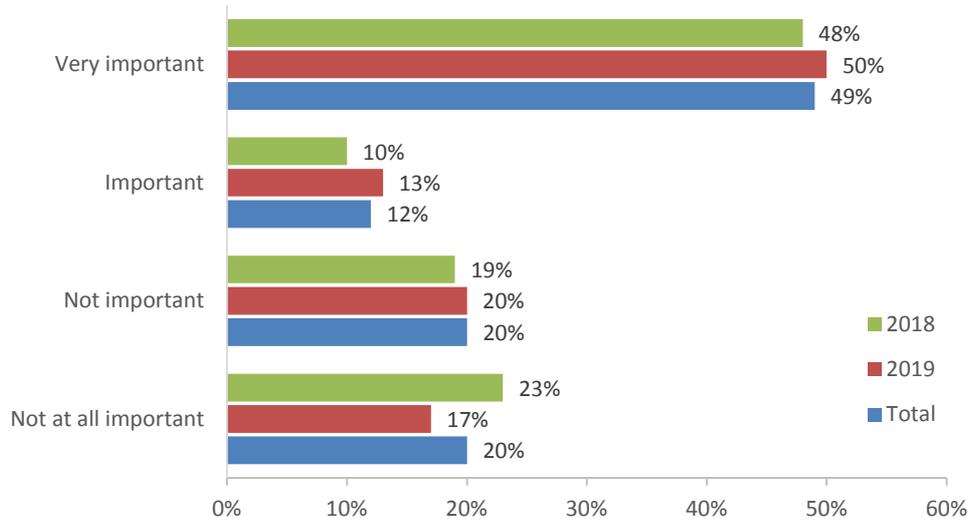
Figure 7-7 – Home Working Prior to SFBB – Household member (Residential)



Base: All those household members working from home, n=51

Q: How important was connecting to Superfast Broadband in your decision to work from home?

Figure 7-8 – Importance of SFBB in Home Working (Residential)

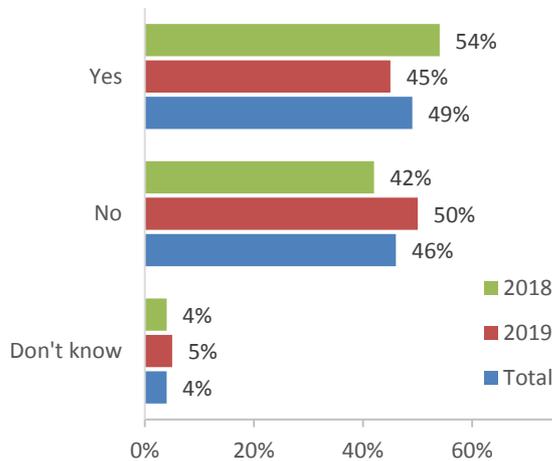


Base: All those with home working activity, n=112

Q: Does being able to work from home result in a reduction in your commute to another place of work?

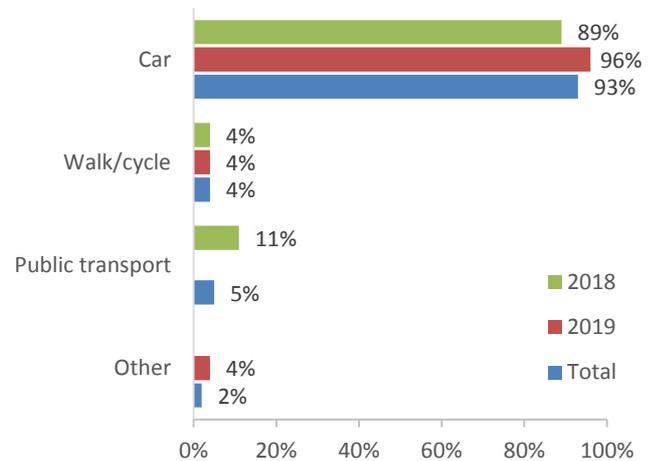
Q: How do/did you normally travel to work?

Figure 7-9 – Reduction in Commute (Residential)



Base: All those with home working activity, n=112

Figure 7-10 – Normal Commute Method (Residential)



Base: All those with reduced commute, n=55

Q: Can you estimate how many miles less you drive each week as a result of working from home?

On average households with a home worker have saved 134 miles/week on commuting, ranging from 4 miles to 1,000 miles.

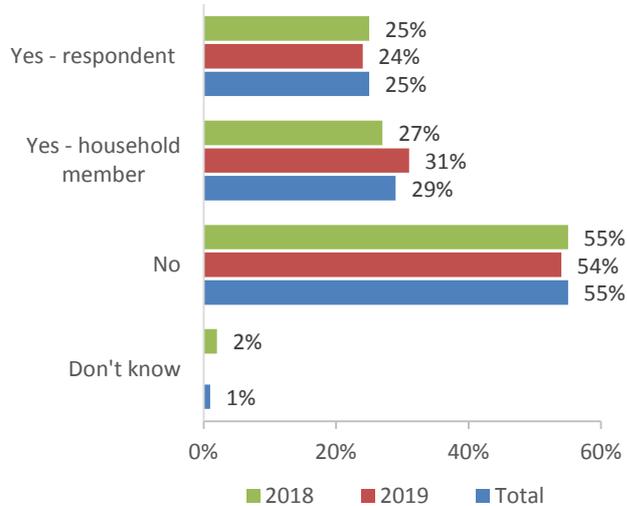
7.2 Finding work

44% of household survey respondents say that they or another household member has used the internet to look for a job since connecting to superfast broadband.

Q: Have you (and/or another household member) used the internet to look for a job since connecting to superfast broadband?

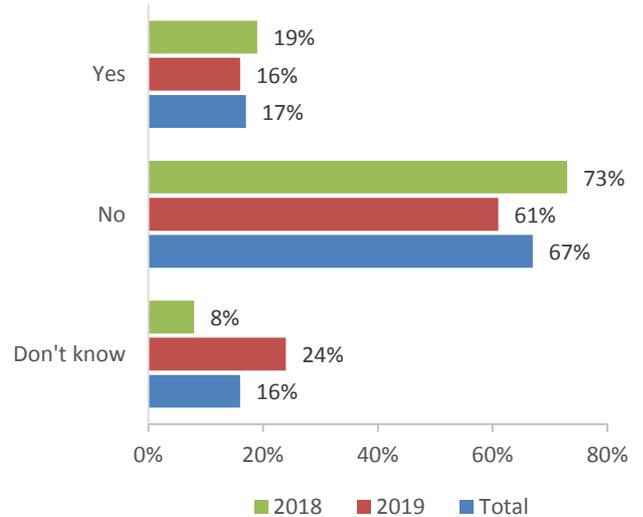
Q: Has connecting to superfast broadband changed the way you use the internet for your job search activities?

Figure 7-11 – Job Search (Residential)



Base: All respondents, n=200

Figure 7-12 – Changed Job Search Activity (Residential)



Base: All those job searching, 103

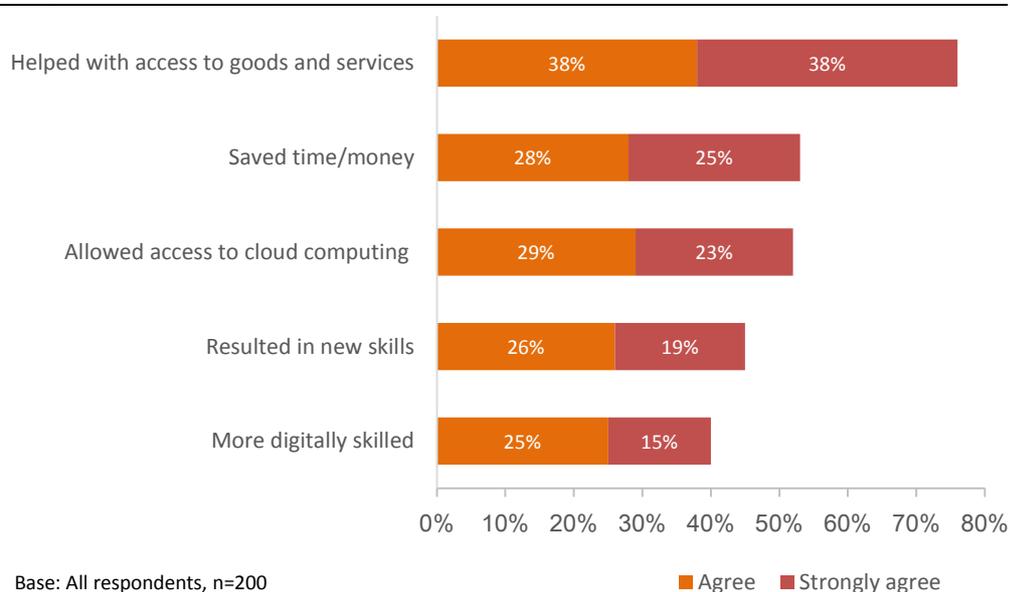
7.3 Widening access to digital

Household survey respondents mostly report positive impacts of superfast broadband on their household, most commonly that it has helped people with access to goods and services (e.g. online purchasing). Least of all, though still with 40% agreeing, respondents report that superfast has resulted in them being more digitally skilled - see Figure 7-13.

More households are using the internet to access more Government and Public Services online with superfast broadband than before they connected to superfast or upgraded from 'regular' broadband. See Figure 7-14 and Figure 7-15.

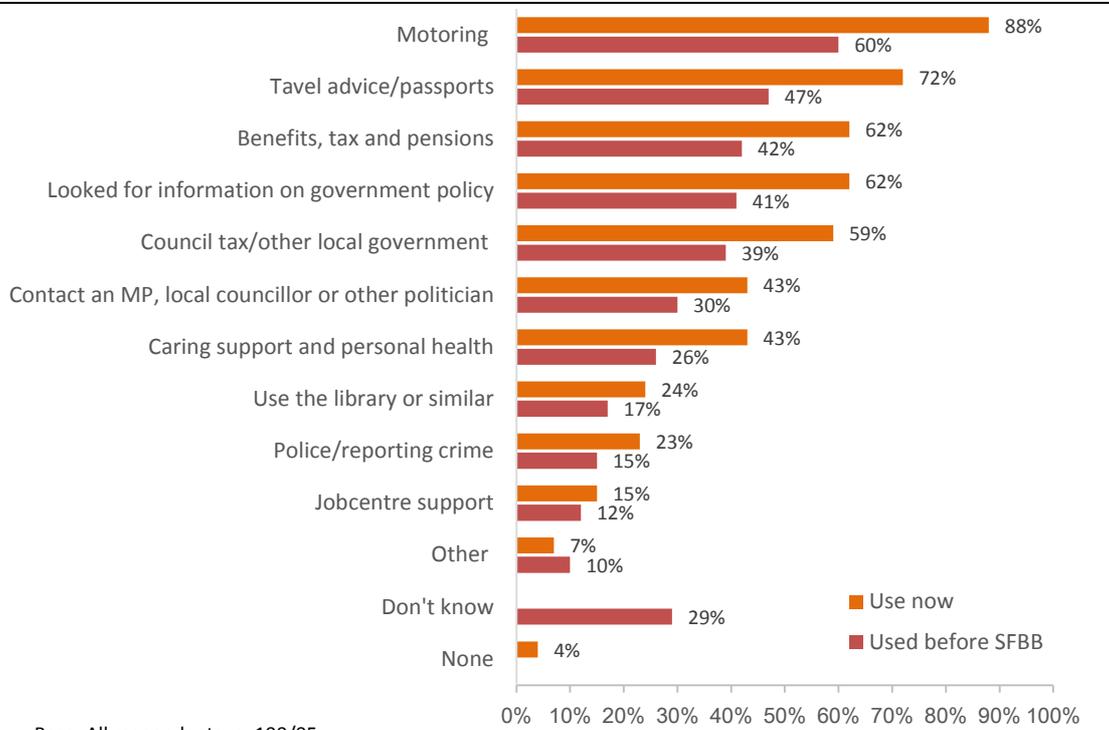
Q: How much would you agree or disagree with the following statements about the impact that Superfast Broadband had on your household to date?

Figure 7-13 – Digital Access (Residential)



*Q: Do you or anyone else in the household use the internet to access any of the following Government or Public Services online:
 Q: And did you use broadband to access government services before you upgraded to superfast?*

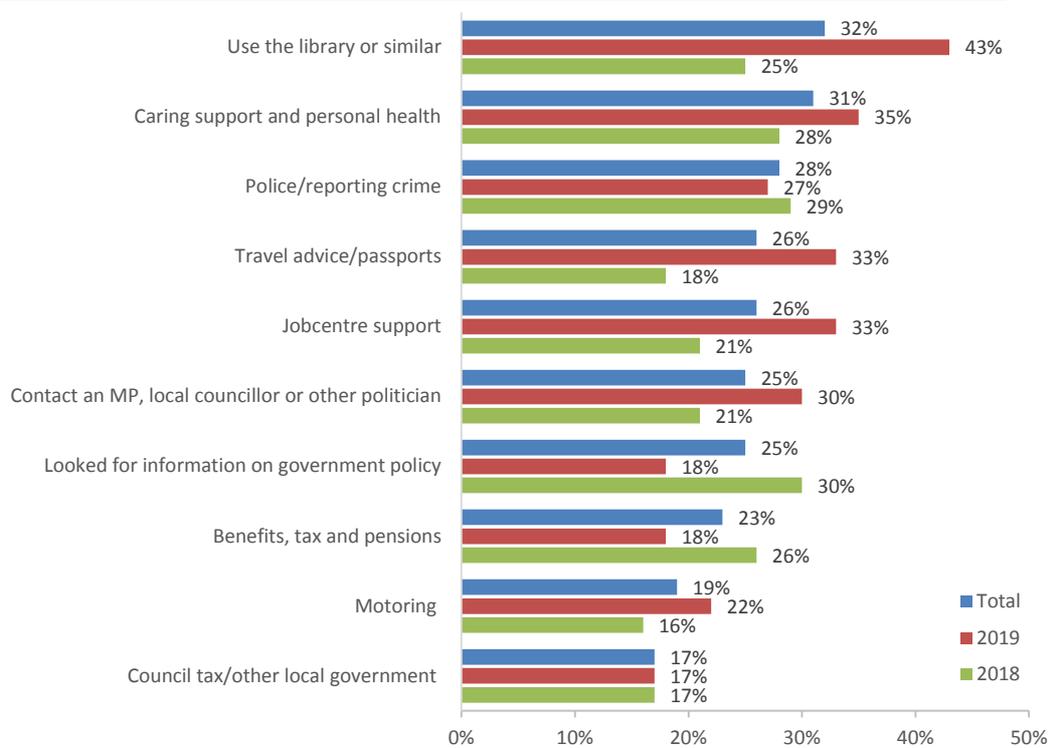
Figure 7-14 – Public Service Access (Residential)



Base: All respondents, n=100/95

Q: As a result of your upgrade to superfast broadband do you access government services more, less or the same as before you upgraded?

Figure 7-15 – Using More (Residential)



Base: All those using service, n=34/52/29/93/23/60/81/84/119/77

Table 7.1 – Online Government Services Used by Age

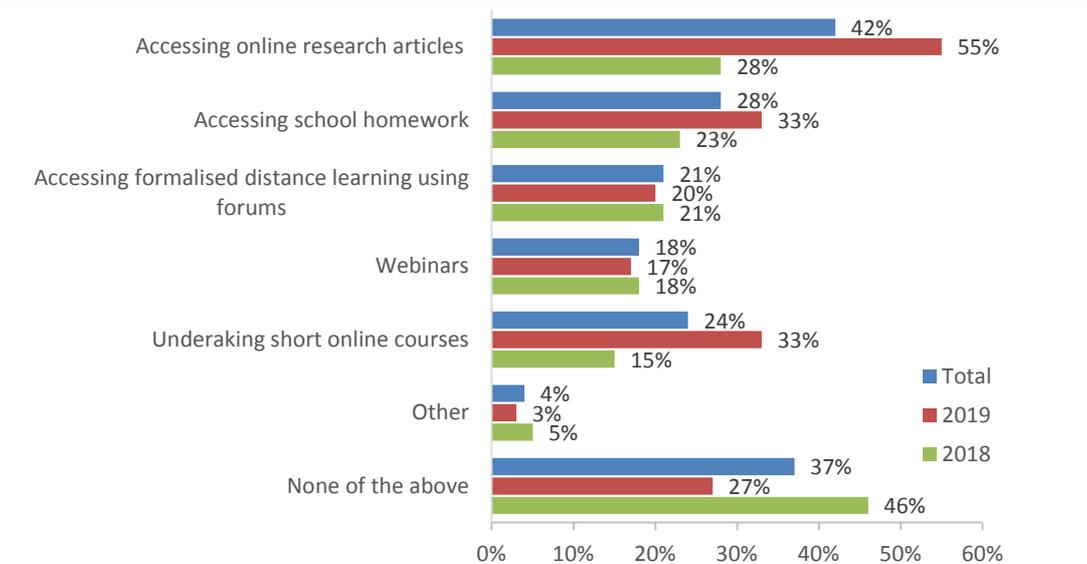
	Total	18 to 24	25 to 34	35 to 44	44 to 54	55 to 64	65 to 74	75 or older	Prefer not to say
Base	200	5	16	31	46	48	44	8	2
Motoring - road tax, licences etc.	88%	80%	75%	84%	91%	88%	93%	88%	50%
Travel advice/passports	72%	80%	44%	65%	78%	73%	75%	88%	50%
Benefits, tax and pensions	62%	80%	50%	61%	61%	77%	50%	50%	50%
Looked for information about government policy	62%	80%	44%	61%	61%	69%	64%	38%	50%
Council tax/other local government services	59%	60%	75%	68%	57%	54%	59%	38%	50%
Contact an MP, local councillor or other politician	43%	40%	31%	29%	33%	46%	66%	50%	0%
Caring support and personal health	43%	80%	38%	45%	30%	42%	48%	63%	50%
Used library or similar services	24%	20%	13%	35%	24%	21%	20%	38%	50%
Police/reporting crime	23%	20%	31%	16%	30%	21%	25%	0%	0%
Jobcentre support	15%	40%	25%	26%	20%	4%	11%	0%	0%
Other	7%	0%	0%	10%	0%	6%	16%	0%	0%
None	4%	0%	0%	3%	4%	4%	2%	0%	50%

7.4 Access to education

Most respondents (63%) use the internet to access education resources. 35% of these say they did not do this before they had superfast broadband, and 49% are using the internet for education more than they were before they had superfast.

Q: Do you or anyone else in the household use the internet to access education in any of the following ways?

Figure 7-16 – Access to Education (Residential)

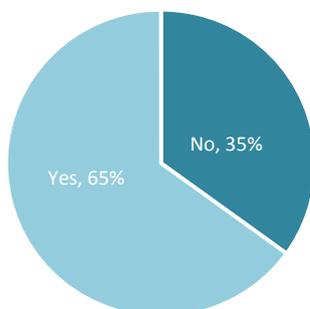


Base: All respondents, n=200

Q: And did you use broadband to access education resources before you upgraded to superfast?

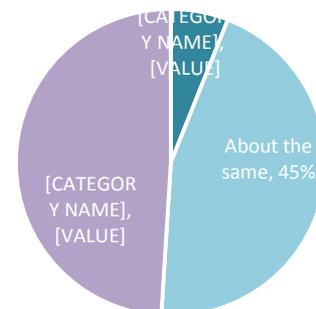
Q: As a result of your upgrade to superfast broadband do you access education resources more, less or the same as before you upgraded?

Figure 7-17 – Education Used Prior to SFBB (Residential)



Base: All those accessing education, n=127

Figure 7-18 –Increased Use since SFBB (Residential)



Base: All those accessing education, n=127

Table 7.2 – Education Accessed by Age

	Total	18 to 24	25 to 34	35 to 44	44 to 54	55 to 64	65 to 74	75 or older	Prefer not to say
Base	200	5	16	31	46	48	44	8	2
Accessed online articles	42%	40%	50%	39%	43%	50%	34%	13%	50%
Accessing school homework	28%	20%	19%	55%	54%	15%	7%	0%	0%
Undertaken short online course	24%	40%	13%	19%	37%	29%	14%	0%	50%
Formalised distance learning	21%	60%	13%	29%	30%	15%	11%	0%	50%
Webinars	18%	0%	19%	23%	22%	17%	14%	0%	50%
Other	4%	20%	0%	10%	4%	4%	0%	0%	0%
None of the above	37%	20%	38%	29%	24%	38%	45%	88%	50%

8 Conclusions and recommendations

8.1 Outputs

By the end of March 2019, the 2016-2017 Superfast Extension Programme (SEP) rolled out superfast broadband **coverage** to 10,000 properties and the Superfast 2 Programme has covered a further 3,750 properties from March 2018-19. The total number of properties in Cornwall able to connect to 24+ Mbps superfast in March 2019 is approximately 252,000.

The specific number of **connections** to superfast was estimated to be 103,400 in March 2018. Based on past take up rates, this is projected to be 128,400 by March 2019.

The number of **businesses connected** continue to grow in line with these figures. The most accurate estimate of the total number of registered and unregistered businesses connected in March 2019 is 24,700, and the most accurate estimate of the total number of registered businesses connected in March 2019 is 13,750. The number of **households connected** is estimated to be 114,650 in March 2019. The impact of SEP at this early stage is estimated to be 4.0% of total impact, as the SEP impact matures its impact will continue to grow. The final report will aim to calculate the impact of the separate programmes.

Superfast motivated many households to **start-up businesses**. It is estimated that by March 2019 superfast has contributed to 9,300 new businesses to start trading.

Overall there is high level of **satisfaction** from customers – both businesses and households – with the speed of the connection. 13% of business customers and 14% of households were dissatisfied with the reliability of their connection, indicating there may be some problems with this.

8.2 Business impact

Overall businesses are positive about the impact of superfast. Firms are using **online services** such as web conferencing, internet telephony and remote data storage more as a result of their connection. Without the connection, the majority of firms would have experienced negative impacts – suggesting that not having superfast would be a barrier to growth.

Superfast is benefiting businesses in many ways. Importantly superfast is helping companies **save money and time and to be more productive**. This is reflected in that one in five firms indicate superfast has had a positive impact on their turnover. There is evidence that connection to superfast is contributing to export growth for some business. Around 19% of businesses indicating **new international** sales as a result of superfast.

The evidence around the impact of superfast on **innovation** is mixed – with roughly even numbers of respondents indicating superfast help them develop new goods and services and saying it did not.

Improving access to services and work is an important driver for the Superfast Programme. Businesses do not appear to see their connection to superfast as a particularly strong enabler to employ those who would be otherwise excluded from working for the firm. Only 9% of those firms indicated superfast contributed to this and almost of half of these, suggested the reason for this was due to expanded sales rather than for reasons of accessibility.

8.3 Economic impact

The net economic impact of superfast is the change that can be attributed to superfast and incorporates the knock on economic impacts of the programme. Up to March 2019, the net impact of Superfast Cornwall Programme 4,090 FTE jobs and £154,600,000 GVA. Safeguarded jobs (net) delivered is estimated to be 6,950 and associated GVA £277,800,000.

Table 8.1 - Summary of economic impact

		Employment FTE (2019)	Employment FTE (2017 Baseline)	GVA (2019)	GVA (2017 Baseline)
Established businesses	Gross increase	11,390	5,180	£455,500,000	£189,500,00
	Attributable increase	2,000	1,490	£79,800,000	£88,000,000
	Net increase	2,010	1,500	£80,300,000	£88,600,000
	Attributable safeguarded	6,900	3,410	£276,100,000	£135,400,000
	Net safeguarded	6,950	3,430	£277,800,000	£136,200,000
Start-ups	Attributed businesses start-ups	2,070	1,620	£82,800,000	£ 49,800,000
	Net increase	2,080	1,620	£83,300,000	£50,100,000
Combined	Overall uplift (net)	4,090	3,120	£154,600,000	£138,600,000
	Safeguarded (net)	6,950	3,430	£277,800,000	£136,200,000

It is too early to assess the impact of the SEP, as delivery of roll out only completed in March 2018. Our models assume that it takes one year for business and six months for household impacts to emerge. Also, the survey methodology depends on being able to identify and interview businesses and households that were connected specifically as a result of that programme.

8.4 Wider impact

Superfast enables **flexible working**. Over half of households indicate that someone in their house uses their connection for work or business-related activities. The amount of time people are working at home has increased since connecting to superfast and two thirds of households indicate that superfast is a key enabler for home-working. The uplift in home working has positive environmental consequences – taking an average of 134 miles off the typical weekly commute.

Superfast is **widening digital access** for those who are connected. For many, superfast has helped access to goods and services (78% agree/strongly agree). For example, more household are using the internet to access more Government and Public services online than with their previous connection. It is also contributing to skill development both in terms of digital skills specifically and skills more widely.

8.5 Recommendations

Assist businesses to address issues with reliability. The business survey indicates there may be issues with the reliability for some of the connections for businesses. Whilst satisfaction with speed increases, businesses are increasingly using cloud computing, remote data storage, web conferencing and internet telephony, and they are becoming increasingly dependent on reliable service. Real or perceived issues with reliability may lead to firms not be able to take full advantage of internet services that being connected to superfast bring, therefore business could be advised on how to resolve these.

Aligned activities to promote workforce access. There is little evidence to suggest that superfast connection in and of itself is encouraging businesses to provide opportunities for those who face barriers to accessing work opportunities (e.g. those with caring responsibilities, based in remote areas). Targeted activity around this may be required to address this.

Understanding innovation. Businesses split on how important superfast is for innovation. For half of the sample, superfast is a key enabler of innovation, for the other half it is not. This is an area that would be worth further investigation in subsequent field work. It would be interesting to try to understand a bit more about why this might be the case and explore if aligned activity could help support innovation using superfast (or subsequently available digital services) to stimulate the development of new products and services.

Non-connected businesses in enabled areas. During the recruitment process for the telephone interviews, 256 businesses were identified that said they could not get connected to superfast broadband although they are located in highly enabled areas.

9 Appendices

9.1 Methodology

Research and evaluation was an important strand of activity during the Superfast Cornwall Programme. The evaluation was led by CDC's Research and Evaluation Manager and SERIO at Plymouth University was commissioned to be the external evaluation partner. SERIO delivered a baseline report (November 2011), a mid-term report (November 2013) and a final evaluation report (June 2015). The full suite of reports is available online⁸.

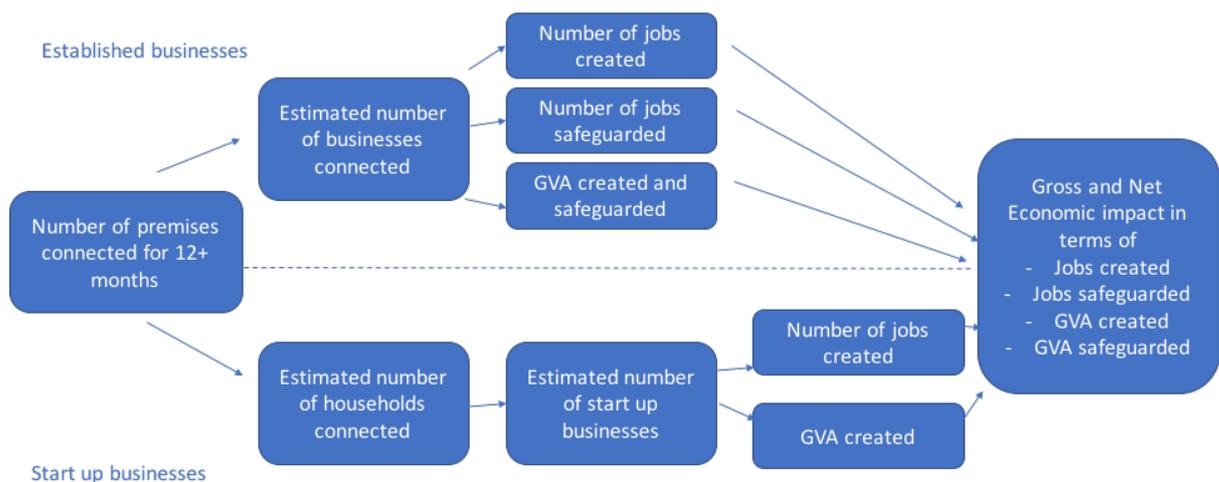
The Evaluation of Superfast (2011-2015) was cutting edge as it was the first time the economic impact of a publicly funded investment in superfast broadband in a rural area had been thoroughly and systematically assessed. The evaluation was methodologically robust and statistically reliable and provides a really strong base on which to assess further impacts of the technology.

The evaluation methodology used for the evaluation 2017-2021 will be similar to that employed for the 2011-2015 evaluation. Where a different approach is taken, it is clearly detailed.

9.1.1 Model for assessing economic impact

Figure 9-1 describes the main components of the economic model that was designed and developed for the Superfast Evaluation 2011- 2015.

Figure 9-1 - Economic Model Components



⁸ <http://www.superfastcornwall.org/programme/evaluation>

9.1.2 Coverage and take up figures

The model is driven by the number of premises connected to superfast. The coverage figures (i.e. the number of premises which can choose to connect to superfast) is a core programme outcome. At the end of the Superfast Cornwall programme in 2015, approximately 238,000 properties were able to connect to Superfast 24+ Mbps. This represented 85% of all properties in Cornwall (280,000). The number of premises connected to superfast (take up figures) is known to BT although, due to commercial sensitivity, these numbers are not provided to the same degree of accuracy and are available only at certain points in time. When take up figures are quoted, they are estimates provided by the CDC Superfast Cornwall team.

9.1.3 Lag on economic impact

2011-2015 Superfast Cornwall Programme Evaluation model assumes that for businesses, it takes one year from connection for an economic impact (such as jobs or GVA growth) to emerge. For households, the lag is assumed to be six months between connection and economic impact. Therefore, to ascertain the economic impact at June 2015, the model considers only those businesses who have been connected for 12 months or more (i.e. the number connected in June 2014). For this report, the economic impact is driven by the number of businesses connected for 12 months or more at March 2019 and households connected for six months.

9.1.4 Two approaches – established businesses and start-ups

Figure 3-1 shows two different approaches are used to estimate economic impact from established and start-up businesses. The impact on established businesses is determined by estimating the number of businesses connected and combining this with the average economic impact per businesses. The amount of economic activity from new start-ups, established in part (or wholly) because of the connection to superfast, is estimated by combining the number of households connected with the propensity of households to set up a new business once they connect to superfast.

9.1.5 Economic impacts - Gross to net

No economic development project takes place in a vacuum and it is essential to take into account what would have happened in the absence of the intervention and isolate the impact of the intervention. In line with government guidance, the following factors are included in the economic impact model:

Gross impact. Gross jobs or GVA created is the total change in the jobs/GVA during the previous two years in those businesses connected to superfast.

Attributable impact. The attributable figure is the amount of the change that can be attributed to connections to superfast broadband.

Net impact. The net impact considers the wider economic effects to Cornwall – both positive and negative. It takes account of:

- Displacement. The degree to which the benefits of the project are offset by reductions of employment or output elsewhere in Cornwall. An estimate of 19.5% is used⁹.
- Leakage. The project benefits which are outside the target area. However, since the survey asks only about jobs and growth this is assumed to be zero.
- Substitution. When a firm substitutes one activity for a similar one to take advantage of public sector assistance. However, the previous research assumed substitution to be zero since the programme was being rolled out across Cornwall.
- Multiplier. This is the further economic effect caused in Cornwall by new jobs or growth in profits or wages in Cornwall through the local supply chain or through wage spending in the local economy. This is estimated to be 1.25¹⁰.

9.1.6 Method for estimated the number of businesses connected

It is not possible to know exactly how many businesses are connected to superfast. BT holds some commercial records of the number of business phone lines, however these will not adequately capture those businesses connecting through domestic agreements. The number of businesses connected must be estimated. There is no ‘silver bullet’ method for estimating this number, therefore in in the 2011-2015 Superfast Cornwall Evaluation, the results from three different methods were compared. One of the methods (Method 2) has not been updated for this evaluation of Superfast 2 as the market research on which it was based is now out of date. Method 1 and Method 3 are set out and updated below.

⁹This figure was used in the previous impact evaluation and came from BIS Occasional Paper No.1 “Research to Improve the Assessment of Additionality”.

¹⁰Multiplier estimate from the same BIS Occasional paper.

Method 1

Use the number of business premises as a proportion of all premises and applying this to the total Superfast take up figures.

*Connected businesses = total number of phone lines receiving superfast service x
(number of businesses/number of premises)*

2015 report. At the start of the Superfast programme (in 2011), there were 29,000 businesses premises on the MINT database. It was estimated that 12% of the total number of connections to superfast are business connections – giving a figure for business connections of 7,984 in June 2015. This was slightly higher than the pro-rotta figure because the Superfast Cornwall marketing was very business focused.

Approach from 2018. The 2018/19 approach uses MINT data from May 2016 when there were 30,023 businesses on the MINT database based in Cornwall. Since no longitudinal data is available, we assume this number is static between March 2016 and March 2017. The best available data (provided by CDC) is that in 2015 there were approximately 280,000 premises in Cornwall. We have assumed this to remain constant as no good data is available to suggest a reasonable growth rate. The proportion of business premises using this method is around 10.5%. We will not be inflating this to 12% because the business focused marketing campaign finished in 2015.

Assumptions

- Assumes that the take up rate amongst businesses is the same as for households. There is some evidence to suggest take-up might be higher for businesses than for households and for this reason the figure is likely to be an underestimation of total number of businesses connected.

Limitations

- Limited to the accuracy of the MINT database. It includes registered and unregistered businesses but is unlikely to include very new or very small home based businesses which do not make a regulatory footprint.

Method 2

Not updated as the Market research data used is now out of date.

Method 3

Use the number of registered businesses from national statistics, adjusted to include non-registered businesses. Combined with the programme coverage and overall take up data.

Connected businesses = (total number of businesses from business demography, adjusted to reflect unregistered businesses) x (take up/total number of premises)

2015 report. The number of registered businesses from the ONS business demography was 19,980 in 2013. National statistics indicated that only 40% of businesses in the South West are registered. Applying this to Cornwall suggests there were 49,950 businesses in 2013. This combined with a 95% coverage and a 26% project take up rate estimates there were 12,104 businesses connected to superfast in June 2015. Note that the 95% figure refers to coverage of 'fibre broadband' and pre-dates the definition of 24+Mbps superfast broadband, so include premises able to connect at sub-24Mbps speeds.

2018/19 reports. In 2018, the South West had 222,175 registered businesses from a total 546,255 businesses; registered businesses make up 41% of total (Source, ONS Business population estimates 2018). The latest data on registered businesses in Cornwall is for 2017. Using the same method as used in Method 1 above, the number of active registered businesses in Cornwall is estimated to be 21,730 in 2017 and 21,730 in 2018. Adjusting this to include unregistered businesses gives an estimated 53,050 registered and unregistered businesses in Cornwall in 2017 and 53,425 in 2018.

The number of connections (take up) was estimated to be 103,400 in March 2018 and 128,400 in March 2019, of an estimated total 280,000 premises.

Assumptions

- Same proportion of businesses are unregistered in Cornwall as in the wider South West
- Take up rate amongst businesses is equal to that of the programme as a whole. This is likely to be an underestimation of the take-up rate given the results of previous market research.
- The rate of business growth in Cornwall is estimated at 0.7% for 2017 to 2019.

Limitations

- The method in the 2015 report assumes that there has been no change in the number of businesses between 2013 (when latest figures are available) and 2015.

9.1.7 Key drivers of the economic model for 2018/19 Reports

Ref		Description	Factor from 2015 report	Factor used in baseline report	Factor in 2018 report	Factor in this report	2018 report source and discussion
Established businesses							
i	Gross jobs created	Total change (in last two years) in the number of FTEs employed by company connected to superfast	0.63 FTE jobs per established business	0.63	0.71	1.027	Survey of connected businesses found that a total number of 264 FTE jobs were created by (257) connected businesses. Question 23 in Business Survey.
ii	Attributable jobs created	Amount of the change in jobs which can be attributed to superfast connection	0.18 FTE jobs per established business	0.18	0.18	0.18	In the 2015 and baseline report, this was calculated through using a counterfactual survey. However, for the 2018/19 reports, no counterfactual survey is available. Businesses were asked to estimate the change as a result of being connected to superfast (Q25). This gives an estimate of 0.28 jobs per business connected – which is still higher than previous [counterfactual] research suggests. Hence, decision to continue to use the original 0.18.
iii	Net jobs created	Attributable jobs created adjusted to reflect the gross to net calculation above	0.18 FTE jobs per established business	0.18	0.18	0.18	See above with displacement and multiplier effects
iv	Gross GVA created	Total uplift in gross value added by companies connected to superfast (as a result of additional employment)	£22,214 a year per established business	£23,072	£28,267 Based on a GVA per FTE of £39,984 – based on regional productivity data	£41,073	We have used a different methodology from the baseline report as a) sub-regional productivity figures are now available from ONS and b) previous estimates relied on the methodology of South West regional accounts which is no longer updated and it is not available. According to sub-regional productivity estimates,

							Average GVA per job filled in Cornwall is £37,601, average GVA per hour worked in Cornwall £23.80 per hour which works out at £39,984 per FTE (35 hours a week 48 weeks a year) Source: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/datasets/subregionalproductivitylabourproductivitygvaperhourworkedandgvaperfilledjobindicesbyuknuts2andnuts3subregions (2017 data)
v	Attributable GVA created –	Uplift in GVA as a result of connection to superfast broadband	£10,315 a year per established businesses	£10,713	£7,166	£7,197	As no counterfactual survey, this is the results of Q25. Estimated number of FTE increase attributable to SFBB. Question Q25 of Business Survey.
vi	Net GVA	Attributable jobs created adjusted to reflect the gross to net calculation above	£10,379 a year per established business	£10,780	£7,210 per established business	£7,242	Accounting for substitution and multiplier
vii	Attributable safeguarded jobs	Number of jobs businesses that would have been at risk without a superfast connection	0.42 FTE per established business	0.42	0.43	0.62	Businesses from sample indicated safeguarding 160 jobs (n=257). Question Q28 of Business Survey.
viii	Net safeguarded jobs	Attributable safeguarded jobs, adjusted to account for gross to net calculation	0.42	0.42	0.43	0.62	Same as above.
ix	Attributable safeguarded GVA	GVA safeguarded (as a result of safeguarded jobs)	£15,870	£16,483	£17,119*	£24,893	Product of viii * average GVA per FTE for Cornwall
x	Net safeguarded GVA	Attributable safeguarded GVA adjusted to reflect gross to net calculation	£15,969	£16,586	£17,226*	£25,048	Product of viii * average GVA per FTE for Cornwall

Startups							
xi	Number and % households starting up a business as a result of superfast		No figures explicitly set out. Data suggests 4.4% of households connected started up a business which is attributable to superfast.	4.444% of 77,059 households (connected at September 2016) which give 3,425 start-ups	Due to small samples – used the figure from the previous survey.	9% of 103,482 households (connected by Sept 2018), which gives 9,313 start-ups.	Out of 200 households interviewed, 40 said the respondent of someone else in the household had set up a business. Of those, 45% indicated superfast had been very influential in their decision, or 9% of households connected. See page Section 4.3.1, page 19.
xii	Attributable jobs created	Number of jobs created as a result of (or influenced by) a connection to superfast	0.02 FTE per household	0.02	Due to small samples – used the figure from the previous survey. However, it should be noted that the survey data in this period gives the same FTE per household for attributable jobs per household.	0.10125 FTE per household	2019 data 32 businesses identify they just employ that one family member at time of interview. 6 businesses identified the business employs other family or external members (a stated total of 13 jobs). Therefore a total of 45 jobs across the sample of households, or 0.225 FTE per household (gross). 45% say SFBB was very important to set up: $0.225 * 45\%$ (attributable) = 0.10125
xiii	Net jobs created	Attributable jobs adjusted to account for gross to net calculation	0.02 FTE per household	0.02	Due to small samples – used the figure from	0.10125 FTE per household	As above.

					the previous survey. Same as above.		
xiv	Attributable GVA created	GVA created by uplift in employment by new starts ups	£701	£728	£796	£800	FTE X GVA per FTE
xv	Net GVA created	Attributable GVA adjusted to reflect gross to net calculation	£705	£732	£801	£805	Incorporating substitution and multiplier effects

* Figures revised from previous report (previously £18,576)

9.2 Survey Tabulations

Data tabulations for the business and household surveys are provided as appendices and in a separate volume.