

Superfast Cornwall  
Cornwall Development Company

Superfast Cornwall  
Baseline Summary Report

April 2017

# Use of Data

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# 1 Executive summary

## 1.1 Introduction

PFA Research has been commissioned by Cornwall Development Company 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.

This baseline summary report represents the first deliverable of the overall 2017-2021 evaluation and presents the results of the following work:

- Using 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.
- While no new raw data has been collected at this stage, where appropriate the underlying model has been adjusted to reflect available new data.
- A review of the evaluation plan has been undertaken to ensure it is fit to deliver the required milestones, with ideas suggested to enhance the approach (produced as a separate report).

## 1.2 Economic impact model

This baseline approach adopts the economic impact model developed by SERIO in the Superfast Cornwall Evaluation (2011-2015). The main input into the model is the number of premises connected to superfast (take-up figure). From this, the proportion of estimated businesses and households is estimated. There are three possible methods for estimating the number of businesses. Although all three models were explored, it was only possible to update two. It is assumed that business premises need to be connected for at least a year and households for at least six months for economic impact to develop.

The extensive primary surveys programme with households and businesses undertaken during the Superfast Evaluation (2011-2015) provided estimated parameters for the model. These include the average number of jobs (gross and net) created per business connected and the average number of jobs (gross and net) created per household connected as a result of new start-up businesses. The GVA associated with the increase in jobs is also calculated.

### 1.3 Current take-up of superfast broadband in Cornwall

In July 2015, it was estimated that there were 66,537 connected premises in Cornwall (Source SERIO, 2015). By March 2017 the take up is estimated to be approximately 90,000. To calculate the economic impact to March 2017, the take up figures for March 2016 are required. Assuming a linear growth in take up between July 2016 and March 2017, the take up in March 2016 is an estimated 76,592.

### 1.4 Economic impact to March 2017

**Businesses connected in March 2017.** 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 2017 there are 16,150<sup>1</sup> businesses connected. The other estimates, which include only registered businesses, suggest that there is approximately 9,650.

**New business startups.** By March 2017 the roll out of superfast broadband had led to or contributed to around 3,300 new start-up 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 2017 the Superfast programme delivered an estimated 3,120 new FTE jobs and a GVA uplift of £138,600,000. It also safeguarded 3,430 FTE jobs and £136,200,000 of GVA.

Table 1 – Economic Impact<sup>1</sup>

		Employment FTE	GVA
Established businesses	Gross increase	5180	£189,500,000
	Attributable increase	1490	£88,000,000
	Net increase	1500	£88,600,000
	Attributable safeguarded	3410	£135,400,000
	Net safeguarded	3430	£136,200,000
Startups	Attributed businesses startups	1620	£ 49,800,000
	Net increase	1620	£50,000,000
Combined	Overall uplift (net)	3120	£138,600,000
	Safeguarded (net)	3430	£136,200,000

<sup>1</sup> Number of household and business connections are displayed to the closest 50, number of start-up businesses to the closest 50, job numbers to the closest 10 and GVA to the closest £100,000

## 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 Convergence 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-up<sup>2</sup>. 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+Mbps<sup>3</sup>. The county has the second best coverage, after Japan, of the 13 comparator areas assessed by Analysys Mason in its 2015 Benchmarking report<sup>4</sup>.

As the roll-out progressed, take-up steadily increased and reached 66,537 connected premises in June 2015 and an estimated 90,000 by March 2017.

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

2018-2020 Superfast 2, which will be a part-EU and Cornwall Council funded programme, will roll out superfast broadband between 2017 and 2020 to a further estimated 7,500 premises (subject to a £12.5m procurement currently being undertaken to appoint a private sector delivery partner to deliver the rollout).

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

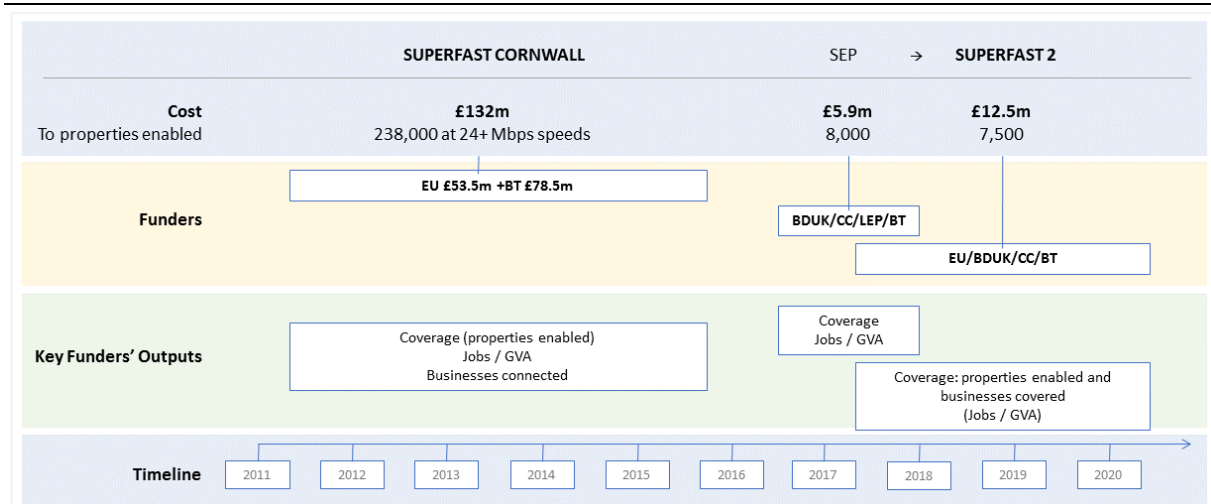
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<sup>2</sup> The 253,000 premises was a baseline contract figure that excluded the area of Saltash (which was out of scope due to the presence of a second infrastructure in Virgin Media) and any new builds that came on-line since the procurement to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

<sup>3</sup> Since the start of the programme in 2010 superfast broadband has been defined as 24Mbps by UK Government and 30+Mbps by the EU.

<sup>4</sup> Analysys 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.

Figure 1 – Programme Phases



### 3 Role of the Baseline Summary Report

PFA Research has been commissioned by Cornwall Development Company 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 programmes

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- While no new raw data has been collected at this stage, where appropriate the underlying model has been adjusted to reflect available new data.
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## 4 2011-2015 Superfast Cornwall Programme Evaluation

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 online<sup>5</sup>.

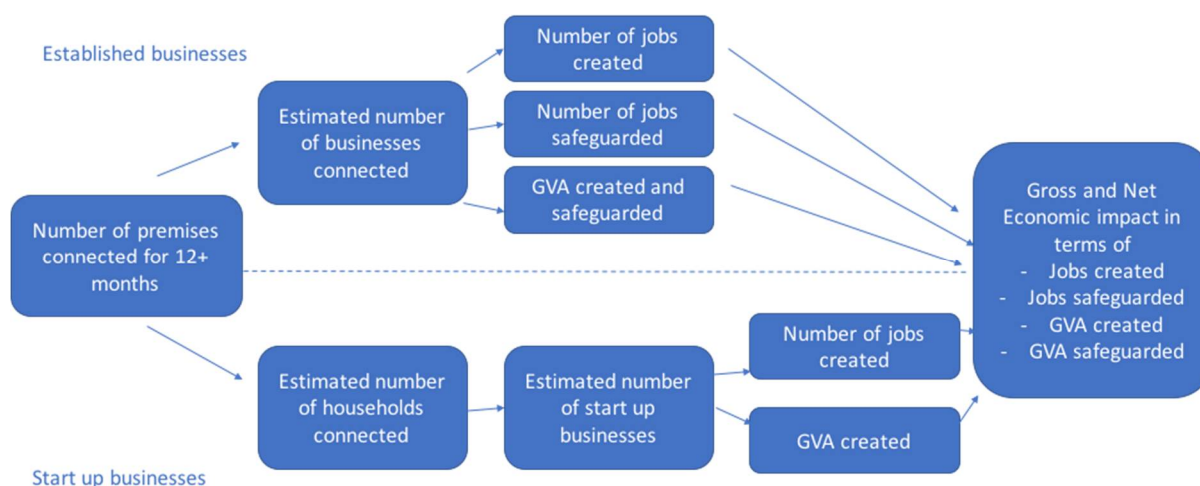
The Evaluation of Superfast (2011-2015) was cutting edge as it was the first time the economic impact of a publicly funded investment in superfast broadband in a rural area had been thoroughly and systematically assessed. The evaluation was methodologically robust and statistically reliable and provides 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. This will ensure the data collection is comparable and can effectively track the impact of superfast over time.

## 5 Model for assessing economic impact

Figure 2 describes the main components of the economic model that was designed and developed for the Superfast Evaluation 2011- 2015.

Figure 2 – Economic Model Components



<sup>5</sup> <http://www.superfastcornwall.org/programme/evaluation>



## 5.1 Coverage and take up figures

The model is driven by the number of premises connected to superfast [see figure 2]. 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 team.

## 5.2 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 baseline report, the economic impact is driven by the number of businesses connected for 12 months or more at March 2017.

## 5.3 Two approaches – established businesses and startups

Figure 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.

## 5.4 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 used<sup>6</sup>.
- 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 1.25<sup>7</sup>.

## 5.5 Estimated 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 broadband packages, 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 below.

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

<sup>7</sup> Multiplier 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 8,000 in June 2015. This was slightly higher than the pro-rotta figure because the Superfast Cornwall marketing was very business focused.

*Approach in 2017.* The 2017 approach uses MINT data from May 2016 when there were 30,000 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 21,000 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.

**2017 report.** In 2016, the South West had 216,950 registered businesses from a total 516,350 business (42%). The latest data on registered businesses in Cornwall is for 2015 when there were 20,800. Using the same method as used in Method 1 above, the number of active registered businesses in Cornwall is estimated to be 20,950 in 2016 and 21,150 in 2017. Adjusting this to include unregistered businesses gives an estimated 49,890 registered and unregistered businesses in Cornwall in 2016 and 50,300 in 2017.

The number of connections (take up) was estimated to be 76,600 in March 2016 and 90,000 in March 2017. The total number of premises are estimated to be approximately 280,000.

#### 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 remained at 0.8% for 2015 and 2016 (for 2017 approach only).

#### 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.

Table 2 - Key model parameters from primary research

	Description	Factor from 2015 report	Factor used in baseline report <sup>8</sup>	Source and discussion
<b>Established businesses</b>				
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	Survey of connected businesses found that a total number of 268.2 FTE jobs were created by (425) connected businesses. This is equivalent to 0.63 per businesses. Page 53, Superfast Cornwall Evaluation Final Report.
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	The counterfactual survey indicates that those businesses which were not connected to superfast grew by on average 0.45 FTE jobs during the same period (n=399). Page 53, Superfast Cornwall Evaluation Final Report.
Net jobs created	Attributable jobs created adjusted to reflect the gross to net calculation above	0.18 FTE jobs per established business	0.18	Page 55 Superfast Cornwall Evaluation Final Report.
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	For each job created, the sector specific GVA per FTE was aggregated to give a total estimate of GVA uplift in connected businesses. This estimated a total gross GVA uplift of £9.4 million in connected businesses - an average of £22,214 a year. This method excludes any productivity gains outside of employment. It also assumes that where a business increased employment, the average productivity per worker does not change.
Attributable GVA created	Uplift in GVA as a result of connection to superfast broadband	£10,315 a year per established businesses	£10,713	Gross average change in GVA of connected businesses minus average change in GVA of not connected businesses.

<sup>8</sup> Specific calculation factor reported with no rounding. The 2015 report was based on GVA per FTE figures for 2012 from the ONS Regional Accounts (which was the latest release at the time). Now the 2015 Cornwall figures are available and show an average nominal growth of GVA per FTE of 3.86% during this period. All GVA per FTE measures have been adjusted to reflect this change.

Net GVA	Attributable jobs created adjusted to reflect the gross to net calculation above	£10,379 a year per established business	£10,780	
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	Page 58 Superfast Cornwall Evaluation Final Report.
Net safeguarded jobs	Attributable safeguarded jobs, adjusted to account for gross to net calculation	0.42	0.42	Page 58 Superfast Cornwall Evaluation Final Report.
Attributable safeguarded GVA	GVA safeguarded (as a result of safeguarded jobs)	£15,870	£16,483	GVA calculated by aggregating GVA per FTE for sector in which the jobs was safeguarded. Page 59 Superfast Cornwall Evaluation Final Report.
Net safeguarded GVA	Attributable safeguarded GVA adjusted to reflect gross to net calculation	£15,969	£16,586	Page 61 Superfast Cornwall Evaluation Final Report (report displayed rounded figure to £15,970)
<b>Startups</b>				
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	Out of 468 consumers surveyed, 45 said they had set up a business and 33 indicated that someone else in their household had. Out of the 45, 12 (26.7%) indicated that superfast had been influential in their decision to a great or to some extent. Applying the 26.7% figure to the 33 businesses set up by other members of the household indicates a total of 21 businesses set up attributably to superfast, out of 468 or 4.4% of households connected. See page 61 of Superfast Cornwall Evaluation Final Report.
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	Page 62 Superfast Cornwall Evaluation Final Report.
Net jobs created	Attributable jobs adjusted to account for gross to net calculation	0.02 FTE per household	0.02	Page 62 Superfast Cornwall Evaluation Final Report.

Attributable GVA created	GVA created by uplift in employment by new starts ups	£701	£728	Page 63 Superfast Cornwall Evaluation Final Report.
Net GVA created	Attributable GVA adjusted to reflect gross to net calculation	£705	£732	Page 64 Superfast Cornwall Evaluation Final Report.

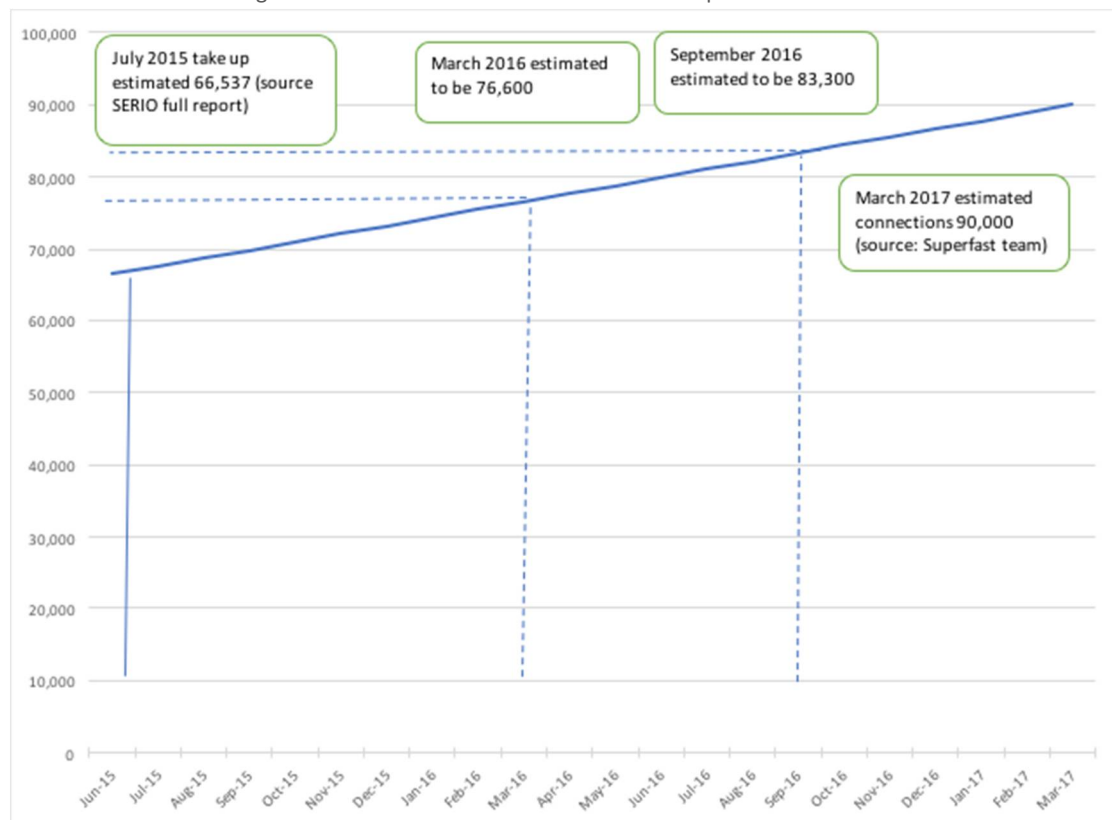
## 6 Economic impact to March 2017

### 6.1 Take up figures

To calculate the economic impact to March 2017, the take up figures March 2016 are needed, because the business survey was based on businesses connected for 12 months. Since an exact figure for this month is not available, it was calculated from estimated figures for March 2017 and figures from July 2015. It was assumed that take up rate was linear during the intervening months. This gives the estimated take up figure at the end of March 2016 as 76,600.

The number of households to September 2016, based on households connected for 6+ months, is used to calculate the economic impact of startups.

Figure 3 – Number of Premises Connected to Superfast Broadband



### 6.2 Number of businesses connected

#### Business take up estimates

Based on the methodologies set out above, the following table displays estimates of the number of businesses connected to superfast in March 2016 and March 2017.



Table 3 – Business Take Up Estimates

<b>Calculation method</b>	<b>March 2016</b>	<b>March 2017</b>
Method 1	8,200	9,650
Method 2	Not used	Not used
Method 3	13,650	16,150

### **Number of startups**

The number of start-ups is estimated from the number of households connecting. Data from the 2011-2015 Superfast Cornwall Programme Evaluation indicates that 4.4% of households that connect create a business which is attributable to superfast to some extent. We know that a new businesses is not started immediately on installation of Superfast – we assume a six month lag. Therefore in March 2017 there are calculated to be 3,300 startups (based on an estimated household take up figure of 74,350 in September 2016).

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

## **6.3 Economic impacts to March 2017**

In March 2017, there were between 8,200 and 13,650 businesses who had been connected to superfast for 12 months or more. The higher estimate is likely to be most accurate as it includes non-registered businesses. However, the structure of the economic model and the original sample frame of the evaluation of Superfast (2011-2015), dictate that Method 1 is used for the business connection figures for the economic impact mode.

There were an estimated 8,200 businesses connected to superfast in March 2016 – this is the key input to the economic impact model.

Table 4 – Economic Impact<sup>1</sup>

		<b>Employment FTE</b>	<b>GVA</b>
Established businesses	Gross increase	5180	£189,500,000
	Attributable increase	1490	£88,000,000
	Net increase	1500	£88,600,000
	Attributable safeguarded	3410	£135,400,000
	Net safeguarded	3430	£136,200,000
Startups	Attributed businesses startups	1620	£ 49,800,000
	Net increase	1620	£50,000,000
Combined	Overall uplift (net)	3120	£138,600,000
	Safeguarded (net)	3430	£136,200,000

A comparison with previous evaluation findings (Table 5 below) indicates how the economic impact of superfast in Cornwall has increased since the end of the Superfast programme (2011-2015).

Table 5 – Economic Impact Changes

<b>Economic impact</b>	<b>Jun-15<sup>9</sup></b>	<b>Mar-17</b>
Number of businesses connected	12,104 <sup>10</sup>	16,150
Number of businesses connected for over 12 months		13,650
Number of businesses connected for over 12 months (registered only)	5,905	8,200
Number of start-up businesses by March 2017	Not explicitly reported	3,300
Net uplift in jobs (FTE)	2,025	3,120
Net uplift in GVA	£91,815,935	£138,600,000
Safeguarded jobs (FTE)	2468	3430
Safeguarded GVA	£94,293,198	£136,200,000

<sup>9</sup> Data source SERIO Superfast Cornwall Evaluation Final Report. Displayed exactly as displayed in report with no rounding.

<sup>10</sup> March 2015