

Superfast Cornwall Evaluation

Final Evaluation Report

June 2015



Buckman|Associates|Ltd

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Superfast Cornwall Evaluation Final Report

Executive Summary

1. Introduction

The 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 homes and businesses in Cornwall – this was subsequently extended to 95% of premises by the end of March 2015. 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 evaluation of the Superfast Cornwall project was led by CDC's Research and Evaluation Manager. A team led by SERIO and including experts from across Plymouth University, in collaboration with Buckman Associates, was commissioned to provide objective external expertise to ensure that the evaluation is objective and transparent, and reflects best evaluation practice. The evaluation was undertaken using a range of different methods including:

Tool	Description
Omnibus Business Survey	A random telephone survey with 460 businesses that had connected to superfast broadband for 12 months or longer.
Longitudinal Business Survey	A follow-up survey with 50 businesses, identified through the omnibus, to enable tracking in changes of business use and benefits over time.
Counterfactual Business Survey	A telephone survey with a random sample of 411 businesses that had not connected to superfast broadband in Cornwall.
Business Take-up Survey	A random telephone survey of businesses taking place at the end of the roll out period to establish take up.
Consumer Survey	A quarterly telephone survey with a random sample of 887 consumers (468 that had been connected for 6 months or more, and 419 that had not upgraded to superfast) to establish the social and economic impacts of superfast broadband.
Stakeholder Interviews	A total of 64 interviews held with Cornish stakeholders to explore perceptions of the project and its impact.
Counterfactual Stakeholder Interviews	Interviews with seven stakeholders in three comparator areas (Devon, North Yorkshire, and Lincolnshire) to inform the assessment of the counterfactual.

One of the factors that differentiates this research from some other comparable studies is the assessment of the counterfactual. This allowed the researchers to assess what would have happened in similar economies with similar baseline levels of coverage but without the level of investment that Cornwall and the Isles of Scilly has received. In other words, the assessment of the counterfactual enabled the study to attribute change in the Cornish economy to the Superfast Cornwall programme.

This report, delivered by the external evaluation team, provides a robust assessment of impact based upon an extensive body of primary research that yielded high response rates from participants. As such, the reader should have confidence that the data presented represents a true reflection of actual impact.

2. Strategic Context

The economic, social and environmental benefits of NGB have been cited previously in a number of research studies. It is therefore not surprising that developing NGB infrastructure has become a key priority for policy-makers both in the UK and elsewhere. The focus of the EU's 'Digital Agenda for Europe' on developing a "single digital market" may enable Cornish businesses to further utilise the high-speed of their connections and develop new export opportunities. Similarly, the new focus on public sector innovation, eHealth and cloud computing may provide opportunities for further investment in Cornwall.

Conversely the focus of the EU on higher internet speeds and mobile infrastructure underlines both the need for Cornwall and the Isles of Scilly to continue to develop its digital infrastructure, and for it to maximise its competitive advantage before other areas obtain the same level of connectivity.

3. Infrastructure Roll-out and Take-up

The original project target, for superfast broadband to be available to 80% of the 253,000 premises in Cornwall by the end of 2014, was extended to 95% of premises due to efficiency gains and high take-up¹. Data from BT shows that by March 2015 this extended target had been exceeded with a total of 241,000 premises having been passed². This gives the county the second best coverage, after Japan, of the 13 comparator areas assessed by Analysys Mason in their 2015 Benchmarking report³.

As the roll-out has progressed, take-up has steadily increased and reached 66,537 connected premises in June 2015. While precise figures for the number of businesses connected is not available, estimates derived from the March 2015 take-up rate for premises overall, alongside ONS data, suggests that a total of 12,104 businesses were connected as of March 2015.

4. Business Benefits

Findings from the business omnibus and counterfactual surveys suggest that connected businesses have exploited superfast to enhance their usage of the internet. Usage amongst connected businesses was higher than for non-connected businesses for a range of pre-specified internet functions (such as cloud computing, and video conferencing). Furthermore a majority of connected businesses reported an increase in usage of each function since upgrading to superfast.

¹ NB: 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 start of the programme in 2010 (approximately 2,200 per annum).

² NB: The final coverage figure is expected to be 258,000 in June 2015.

³ 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.

Approximately four in every five connected businesses (79.1%) perceived superfast to be beneficial overall. Key findings indicated that:

Superfast broadband had:	Percentage of Respondents
Saved the business time and/or money	79%
Allowed employees to work remotely and/or more efficiently from home	71%
Enabled the business to work in new and different ways	56%
Allowed the business to grow	56%
Helped the business to develop new goods and services	47%

In addition, 49% of businesses indicated that superfast had helped them to generate new sales or access new markets and, of these, nearly two thirds (62.3%) indicated that these markets were national or international. Several stakeholders were also able to point to cases where superfast had been used by Cornish businesses to access international markets.



Photo: Superfast Cornwall 'sign-post'

5. Economic Benefits

Superfast appears to have brought considerable economic advantages to connected businesses. **Average turnover rose by an estimated £90,848 per connected business compared to just £20,922 amongst non-connected businesses** over the last two financial years. Similarly average gross job creation amongst the connected businesses was 0.63 FTE compared to just 0.45 amongst non-connected businesses.

Table i displays estimates for overall economic impact derived from the business omnibus and consumer surveys. This includes calculations of:

- **Gross Increase:** The overall increase in Gross Value Added (GVA) and jobs amongst connected businesses;
- **Attributable Increase/Safeguarded:** The increase in (or safeguarding of) GVA and jobs amongst connected businesses or business start-ups which is attributed to the Superfast Cornwall project (i.e. it would not have happened without the project); and,
- **Net Increase:** The increase in (or safeguarding of) GVA and jobs amongst connected businesses or business start-ups which is attributed to superfast after both negative (displacement) and positive (the multiplier) impacts on other businesses in Cornwall are taken into account⁴.

NB: GVA is calculated through converting each job created or safeguarded into GVA using the average GVA per FTE figure for businesses in Cornwall within the sector the job is based in. This means that it excludes any GVA as a result of productivity gains where businesses do not increase their FTE headcount. Conversely where a business does increase its employment the assumption is that there is no change in productivity per FTE.

Within this framework, estimates were calculated for the following groups of businesses and associated timelines⁵: All established businesses connected to superfast for 12 months or more; all established businesses connected; all business start-ups connected to superfast for 12 months or more; and all business start-ups connected.

Based on the assumption that the sectoral take-up of superfast broadband in the omnibus survey reflects that of the 5,905 businesses connected for 12 months or more⁶, **an estimated 1,079 new net FTE positions were attributable to superfast. This equates to £61.3m in net GVA.**

Superfast also played an important role in encouraging business start-ups. Of the 468 consumer survey respondents, 9.6% (45) had set-up a business, of whom 12 indicated that superfast had influenced them to do this (including seven start-ups). In addition 7.1% (33) indicated that another household member had set-up a business. Based on the assumption that these findings on start-ups reflect the trends amongst wider population of 43,301 households connected for over 12 months, **an estimated 946 net FTE can be attributed to superfast, equating to £30.5m of net GVA.** All key estimates for economic impact are included in Tables i and ii.

⁴ See Section 5.3.7 of the main report for more information on how this is calculated. The net figures do not include an adjustment for leakage as this is already factored into the gross figures, while substitution is not considered applicable.

⁵ Given that it takes time for superfast to make an impact on business performance the figures for businesses connected for 12 months or more provide the best indication of impact at the time of reporting. However as it is likely that newly connected businesses will report similar levels of impact in the future, the figures for all businesses connected provide a useful indication of what the overall impact of superfast is likely to be 12 months from the time of the report.

⁶ This figure is based on the estimated number of business premises connected (assumed to be 12% of the 49,206 connections) at June 2014. In contrast, the estimate for total businesses connected accounts for the number of Cornish businesses (including businesses based at home), that are unregistered. The figures for FTE and GVA created through business start-ups are grossed up to the number of households connected for over 12 months to reflect the fact that these are not yet established businesses.

Combining the net figures from established businesses with those from business start-ups, **an estimated 2,025 net FTE in total can be attributed to superfast, equating to £91.8m in net GVA.**

Table i: Economic Impact of Superfast in Terms of Jobs and GVA (June 2015)

Objective	Connected for 12 Months or More as at June 2015	
	Jobs (FTE)	GVA
Connected Established Businesses		
Gross Increase amongst Connected Businesses	3,727	£131,168,605
Attributable Increase amongst Connected Businesses	1,072	£60,906,165
Net Increase amongst Connected Businesses	1,079	£61,286,829
Attributable Safeguarded amongst Connected Businesses ⁷	2,452	£93,707,526
Net Safeguarded amongst Connected Businesses	2,468	£94,293,198
Business Start-ups		
Attributable Increase through Business Start-Ups	940	£30,339,485
Net Increase through Business Start-Ups	946	£30,529,107
Combined Total		
Gross Total Increase ⁸	4,666	£161,508,090
Net Increase	2,025	£91,815,935

Table ii: Projected Economic Impact of Superfast in Terms of Jobs and GVA (by June 2016)

Objective	All Connections for 12 Months or More projected at June 2016 ⁹	
	Jobs (FTE)	GVA
Connected Established Businesses		
Gross Increase amongst Connected Businesses	5,039	£177,367,912
Attributable Increase amongst Connected Businesses	1,450	£82,358,117
Net Increase amongst Connected Businesses	1,459	£82,872,856
Attributable Safeguarded amongst Connected Businesses ⁷	3,316	£126,712,548
Net Safeguarded amongst Connected Businesses	3,337	£127,504,502
Business Start-ups		
Attributable Increase through Business Start-Ups	1,271	£41,025,450
Net Increase through Business Start-Ups	1,279	£41,281,859
Combined Total		
Gross Total Increase ⁸	6,310	£218,393,362
Net Increase	2,738	£124,154,715

Data collected from other sources revealed that superfast has also made an economic impact in other ways besides jobs and turnover growth. The longitudinal business survey found that productivity (as measured by GVA per FTE) increased by 30% amongst the 22 businesses providing data, since they upgraded to superfast. In addition, both the longitudinal business, and the stakeholder surveys point to the role of superfast in helping to encourage some businesses to relocate to Cornwall. This is exemplified by the experience of KEO Digital.

⁷ Jobs and GVA figures for start-ups were only recorded where a respondent was influenced by superfast to set-up a business as opposed to whether they already had superfast at the point of setting-up the business. Consequently gross figures are not recorded for business start-ups. Similarly no safeguarded figures are recorded as safeguarding is not applicable in the case of businesses set-up under the influence of the project.

⁸ As there is no gross figure for business start-ups (see footnote 7) figures for gross jobs and GVA creation are based on combining the pure gross figures from the business omnibus survey with the attributable figures for the business start-ups.

⁹ NB: This is based on the total number of connections at June 2015. This assumes that none of these businesses will disconnect from superfast within the next twelve months.

KEO Digital – ‘Key factor in relocating’



KEO digital is the multi award-winning team behind River Cottage, Fish Fight, Chicken Out!, Landshare, energysure, and crowdfunder.co.uk. Across the KEO family, there are over 2 million registered users, whilst over 50 million people watched a KEO films programme last year.

In November 2012 KEO digital moved the digital production arm of its business from London and Bridport to Newquay to create a new innovation hub. Superfast broadband was one of the factors that facilitated the move to Cornwall. Communications Manager Jess Ratty says: "As a digital business, superfast connectivity is vital to us. The fact that superfast broadband was in Newquay was an important factor in the decision to relocate to Cornwall. We simply could not run our digital business effectively without superfast connectivity. Because superfast broadband is available to us in Cornwall, we can now run a world class digital business here and all enjoy the benefits of living and working in such a beautiful and inspirational county" (Case study: November 2013).

6. Cross-cutting Themes

As with the businesses, levels of internet usage amongst the fibre connected households were higher than for non-fibre connected households across a range of internet functions, encompassing e-government, education, retail, health and entertainment. However a majority of connected respondents had used each internet function under investigation before upgrading to superfast, suggesting that the project has not had quite as much of an impact on consumer behaviour as it has had on businesses.

Research by BT found that the carbon abatement potential of the project far outweighs the carbon impact, suggesting that it has the potential to bring considerable environmental benefits. In addition, the longitudinal business survey found a reduction in business travel amongst some businesses after upgrading, whilst the consumer survey found that superfast was an important factor in the decision of some participants to work from home more.

7. Strategic Added Value

Feedback from the stakeholder survey suggests that the project has performed a key leadership role in such areas as influencing the roll-out of superfast broadband nationally, and informing the policy of the Cornwall and Isles of Scilly Local Enterprise Partnership. The project has also helped lever additional investments in digital inclusion work (the Get IT Together and Inspiring Work project), and research development (the Superfast Cornwall labs). However, whilst Superfast Cornwall was able to develop links with other business support projects, the absence of broader coordination of business support in Cornwall prevented deeper synergies.

The successful roll out of superfast broadband enabled the development of the 'Superfast Business Cornwall' Business Support programme (SFBC). This ERDF funded programme provided a small cohort of 30 high growth businesses with intensive support to maximise the opportunities presented by Superfast Broadband and its technologies. Participating businesses were provided with intensive support and grant funding to develop and implement a transformational ICT project.

8. Conclusions and Recommendations

This report, which marks the culmination of the evaluation of the largest single European investment in superfast broadband, shows how Cornwall has taken a lead in the roll-out of superfast broadband in a predominantly rural area. This section of the Executive Summary summarises the performance of the project against its targets and makes recommendations for consideration by CDC and relevant stakeholders. **NB:** These are expanded upon in the main body of the report.

Performance Against Targets

Table iii outlines the achievements of the project against its targets. As shown, the project has overachieved against its targets in terms of businesses connected, gross increases in jobs and GVA, and GVA safeguarded. This demonstrates that as well as exceeding its target for coverage, the project has also made a positive contribution to business growth and job creation. These impacts are especially noteworthy given that the roll-out of the project occurred in an economic context where survival, as opposed to growth, was still the primary focus for many businesses.

Table iii: Project Targets and Achievements (June 2015)

Objective	Target	Achieved	% Achieved
Businesses benefitting from upgraded ICT infrastructure	10,000	12,104	121%
Businesses with improved performance (GVA) ¹	6,000	4,686	78%
Gross increase of jobs ¹	4,000	4,666	117%
Net additional increase in jobs ¹	2,835	2,025	71%
Net jobs safeguarded ¹	2,000	2,468	123%
Gross increase in GVA ¹	£140.0m	£161.5m	115%
Net additional GVA ¹	£99.2m	£91.8m	93%
Net additional safeguarded GVA ¹	£70.0m	£94.3m	135%

¹These estimates are based on the number of premises connected for 12 months or more at June 2015.

Whilst the project has not yet reached its targets in terms of net jobs and GVA created, and businesses with improved performance¹⁰, estimates based on the number of businesses connected at June 2015 suggests that it will more than surpass these targets within the next 12 months (see Table iv). The one exception to this is net additional jobs, which is projected to reach 97% of target by June 2016¹¹.

¹⁰ The figure for businesses with improved performance was estimated from the proportion (%) of businesses indicating that superfast had saved them time and or money (see page ii). This assumes that a business saving time/money will be demonstrating improved performance which will in turn result in improved GVA. The methodology used for calculating GVA was based on increases in employment/safeguarded jobs and was not sufficiently granular as to be able to pick up marginal GVA improvements likely to be seen from businesses saving time or money. Therefore it has not been possible to confirm that businesses saving time/money have also achieved GVA improvements.

¹¹ These estimates assume that there are no overall differences between the businesses which connected to superfast in the last 12 months and those that had upgraded to superfast prior to that point.

Table iv: Project Targets and Projected Achievements (by June 2016)

Objective	Target	Achieved	% Achieved
Businesses benefitting from upgraded ICT infrastructure ¹	10,000	-	-
Businesses with improved performance (GVA) ²	6,000	6,337	106%
Gross increase of jobs ²	4,000	6,310	158%
Net additional increase in jobs ²	2,835	2,738	97%
Net Jobs safeguarded ²	2,000	3,337	167%
Gross increase in GVA ²	£140.0m	£218.4m	156%
Net additional GVA ²	£99.2m	£124.2m	125%
Net additional safeguarded GVA ²	£70.0m	£127.5m	182%

¹Estimates for this objective are based on ONS Business Demography which is updated annually. Consequently no projected figure is available.

²These estimates are based on all premises connected at June 2015.

Recommendations

Infrastructure Improvements

Whilst much of the focus of future policy needs to be on capitalising on the existing infrastructure, we recommend that policy-makers also **consider potential improvements, where needed, both to enhance the equitability of provision, and to ensure that the county continues to have cutting edge technology.**

Accomplishing Full Coverage

It will be important to ensure that coverage is rolled-out to the remaining 5% of premises that are not able to connect to fibre broadband (and the estimated 11% who are not connected to 24+ Mbps superfast). This process is likely to be particularly challenging logistically and it will therefore be important to consider the feedback of some stakeholders regarding the management of expectations. Consequently it is recommended that continued efforts are made to **ensure that residents, businesses and stakeholders are kept fully informed regarding the movement toward additional coverage and provided with realistic timescales.**

Improving Take-Up

It is recommended that work, in collaboration with the internet service providers, continues to **ensure that consumers and businesses are increasingly aware that they can connect to superfast** or, if there are localised coverage issues, why they cannot. In addition it is recommended that the LEP and business support organisations **consider approaches to highlight the potential benefits that superfast can provide to businesses outside the digital sector.**

Business Support

Whilst the findings present a promising picture of business use, future efforts to encourage businesses to capitalise on their superfast connections could be useful. Given the challenges of developing synergies between the project and other business support providers, it is recommended that the LEP and CDC **consider how existing and future business support services can best utilise superfast as a tool for business improvement.** This should be part of a broader effort to strengthen the coordination of business support in the county.

Inward Investment

Inward investment provides an important means of capitalising on the superfast infrastructure. **It is therefore recommended that the work already undertaken by Invest in Cornwall to utilise superfast to help encourage inward investment is continued.** However, as some stakeholders have pointed out, superfast can only form part of a package of potential inducements for businesses to relocate.

Digital Inclusion

In light of the value placed on it by stakeholders, and in the context of the increased digitisation of government services it will important to continue the digital inclusion work undertaken through superfast. **We understand that partners have highlighted this as part of the next EU Programme and we recommend that funding is provided for such a project.**



Photo: BT Openreach engineer in Zelah, Cornwall

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1. Introduction

1.1 Background to the Research

In 2010, BIS and DCMS set out an ambition for the UK to have the best superfast broadband network and connected society in Europe by 2015. To achieve this, the UK Government, through Broadband Delivery UK (BDUK), allocated £530 million to the roll out of high-speed broadband in rural communities and £150 million for an Urban Broadband Fund to create 'super-connected cities'.

In total, Government, Local Authority, and European Union funding combined has now invested over £1.7billion to extend superfast coverage to 95% of premises in the UK by the end of 2017. Recent figures, published by DCMS in February 2015, indicate that the project had extended superfast broadband to more than 2 million homes and businesses and was on course to meet the 2017 target.

In Cornwall and the Isles of Scilly, funding for the ICT infrastructure has not come from BDUK, but the Convergence Project and its private sector investment partner. The Next Generation Broadband Infrastructure project, known as Superfast Cornwall, is funded by a £78.5m investment by BT as well as a £53.5m European Regional Development Fund (ERDF) contribution (total project value £132m), making it the largest single Convergence investment.

The project ran just four years after a previous long-term ERDF investment in broadband between 2001 and 2007¹². 'Actnow', the UK's first public-private broadband partnership, brought broadband coverage from almost 0% to 99% as well as bringing an estimated £80 million to the economy of Cornwall and the Isles of Scilly.

Despite significant EU and UK investment in Actnow, the Cornish economy was identified as requiring 'catalytic and transformational interventions' if it were to move towards being a knowledge based economy (Convergence Operational Project for Cornwall, 2007). At this time, investment in digital infrastructure in particular was identified as an important mechanism through which the negative effect of the peripheral economy on productivity could be addressed. The roll out of superfast broadband on this scale was therefore considered to support the economic priorities for the county.

Compared with BDUK investments in other parts of the country, the Convergence funded Superfast Cornwall project is unique for three reasons:

- **Investment:** The largest single European investment in superfast broadband;
- **Scale:** The world's largest rural area covered by superfast broadband (although the Highlands and Islands may yet catch up); and
- **Penetration:** The largest number of Fibre to the Premises (FTTP) covered in the UK.

¹² Actnow was a non-profit partnership that aimed to promote economic development in Cornwall and the Isles of Scilly through the use of broadband and ICT. It was led by Cornwall Enterprise and funded by the EU through Objective One and spearheaded the development of broadband in Cornwall. ERDF funding investment for Actnow totalled £8.2m.

1.2 Project Aims

Superfast Cornwall aims to leave a real economic transformation and long term legacy for Cornwall and the Isles of Scilly making it one of the best connected locations in the world. It had an initial target to make fast, fibre based broadband available to at least 80% of homes and businesses in Cornwall - this was subsequently extended to 95% of premises by the end of March 2015. More specifically, Superfast Cornwall was contracted to deliver the following outputs and results:

Table 1: Superfast Cornwall's Target Outputs

Target	
Businesses benefitting from upgraded ICT infrastructure	10,000
Businesses with improved performance (GVA)	6,000
Gross increase of jobs	4,000
Net additional increase in jobs	2,835
Jobs safeguarded	2,000
Gross increase in GVA	£140.0m
Net additional GVA	£99.2m
Net additional safeguarded GVA	£70.0m

Source: Cornwall Development Company

Running parallel to Superfast Cornwall, the Delivery Management Team project was led by Cornwall Development Company (CDC) and funded through the ERDF (£3.3m) and Cornwall Council (£1m). As outlined in Appendix A, the Delivery project encompassed fourteen different workstreams including driving the uptake of superfast broadband by businesses, contract management of BT, and the EU cross-cutting themes: Environmental Sustainability, and Equality and Diversity. The project also made allowance for ongoing evaluation and research activity, which forms the focus of this report.

1.3 The Evaluation Approach

The evaluation of the Superfast Cornwall project was led by CDC's Research and Evaluation Manager and aimed to ensure that the project's performance and impact underpin its work. A team led by SERIO and including experts from across Plymouth University, in collaboration with Buckman Associates, was commissioned to provide objective external expertise to ensure that the evaluation is objective and transparent, and reflects best evaluation practice.

As described in detail in the baseline report, a Monitoring and Evaluation plan was prepared in the early stages of the project and specified the indicators to be used and the methods for their data collection. The logic chain underpinning this plan is reproduced here as Figure One for information.

The baseline report also provided a detailed description of each of the data collection methods, which is presented in Appendix B alongside an overview of activity. The key methodological stages are summarised in Table 2.

Table 2: Summary of Key Methodological Stages

Tool	Description
Omnibus Business Survey	A telephone survey with a random sample of 460 businesses that had connected to superfast broadband for 12 months or longer. The survey captured data relevant to a wide range of indicators, including economic impacts, usage and satisfaction. In addition, the survey also captured the views of 285 businesses located in connected areas, which were not connected to superfast. NB: See Appendix C.
Longitudinal Business Survey	A survey with 50 businesses, identified through the omnibus survey, that were willing to take part in a follow up interview to enable tracking in changes of business use and benefits over time.
Counterfactual Business Survey	A telephone survey with a random sample of 411 businesses that had not connected to superfast broadband in Cornwall. This collected comparable data to the omnibus survey, enabling an assessment of the additionality of any benefits. NB: See Appendix C.
Business Take-up Survey	A random telephone survey of businesses taking place at the end of the roll out period to establish take up.
Consumer Survey	A quarterly telephone survey with a random sample of 887 consumers (468 that had been connected for 6 months or more, and 419 that had not upgraded to superfast) to establish the social and economic impacts of superfast broadband. NB: See Appendix C.
Stakeholder Interviews	A total of 64 interviews were held with Cornish stakeholders across the baseline, midterm and final evaluation stages to explore perceptions of the project and its impact.
Counterfactual Stakeholder Interviews	Interviews with seven stakeholders in three comparator areas (Devon, North Yorkshire, and Lincolnshire) at the midterm and final evaluation stages to inform the assessment of the counterfactual.

Assessment of the Counterfactual

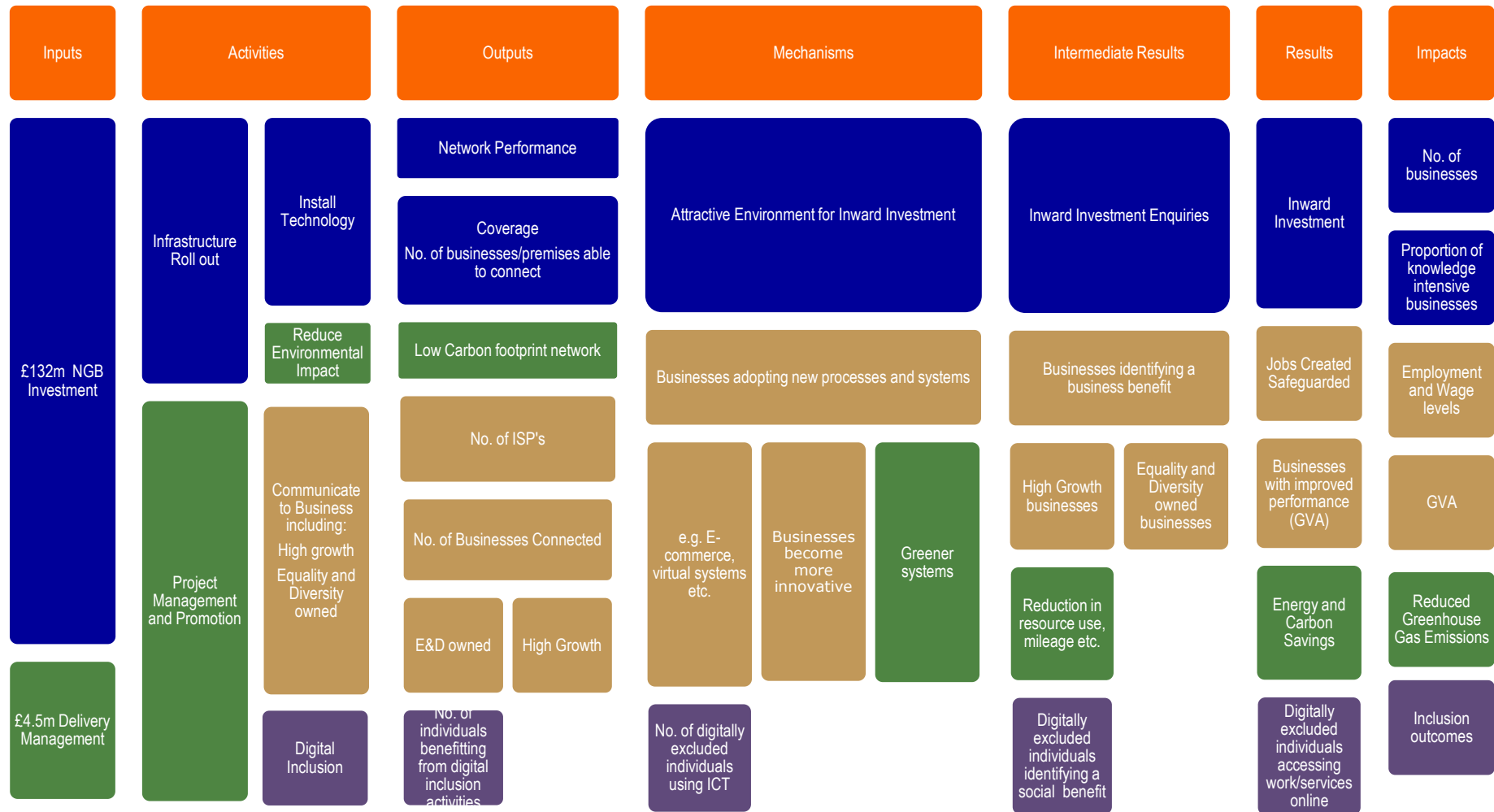
An important component of the evaluation was the assessment of the counterfactual – what would have happened in similar economies with similar baseline levels of coverage but without the level of investment that Cornwall and the Isles of Scilly has received. A key task at the baseline stage was therefore to identify three appropriate comparator areas. As BDUK investment would have been made in Cornwall in the absence of Convergence funding, the most accurate reflection of a “policy off” scenario was identified as those areas that receive BDUK investment at a level which Cornwall would have benefited from without Convergence. The following criteria were also considered in the selection of the counterfactual areas:

- A ‘good’ socio-economic match (i.e. towards the top of the list of nearest statistical neighbours); and,
- A similar Ofcom broadband scoring profile to Cornwall, reflecting a similar broadband baseline.

On the basis of these criteria, Devon, North Yorkshire and Lincolnshire were identified as the three areas that could provide a robust comparison and enable an insight to the counterfactual. The counterfactual was assessed through all phases of the logic chain (Figure 1).

The BDUK framework, recommends that the counterfactual should be measured through both a top down and bottom up approach, where the top down compares the inputs and outcomes achieved in the target area with similar or control areas and the bottom up approach asks users to identify what proportion of changes they have experienced could be attributed to acquiring faster broadband. This is expanded upon in Appendix D.

Figure 1: Evaluation of Superfast Cornwall Logic Chain



1.4 Report Structure

This final report represents the last output from the evaluation activity and is designed to provide a robust understanding of the impact of the Superfast Cornwall project. It is structured as follows:

- **Section Two** outlines the **strategic context** in which the Superfast Cornwall project operates;
- **Section Three**, examines the **infrastructure roll-out and take-up**, exploring both the coverage achieved through the investment and network performance;
- **Section Four** focusses on the **business benefits** of Superfast Cornwall, and includes an analysis of how connected businesses are utilising superfast, and a review of the associated benefits;
- **Section Five** discusses the **economic benefits** of Superfast Cornwall through a review of the economic impact on both businesses surveyed, and the wider Cornish economy;
- **Section Six** presents the **cross-cutting themes** from the evaluation of Superfast Cornwall in relation to social benefits and equality and diversity; and the associated environmental benefits;
- **Section Seven** explores stakeholder views regarding the **strategic added value** of the project, supported by an analysis of additional documentary evidence to draw out levels of achievement; and,
- **Section Eight** brings together the analysis from the preceding sections into a set of key **conclusions and recommendations** to be considered by CDC.



Photo: Superfast Cornwall 'sign-post'

2. Strategic Context

Summary of Key Points:

- The policy drivers cited in this section have the potential to create both opportunities and challenges for the further development and utilisation of Superfast Cornwall. The focus on developing a “single digital market” may enable those Cornish businesses which have an advantage due to the high-speed of their connection to develop new export opportunities. Similarly, the new focus on public sector innovation, eHealth, cloud computers, and potentially also mobile networks, may provide opportunities for further investment in Cornwall’s ICT infrastructure.
- Conversely, the UK government investment in ultra-fast broadband and the focus of the EU on higher internet speeds in addition to mobile infrastructure underline both the need for Cornwall and the Isles of Scilly to continue to develop its digital infrastructure beyond superfast, and for it to maximise its competitive advantage before other European regions obtain the same level of connectivity.
- The UK performs well, relative to the other ‘EU5’ countries (France, Germany, Italy and Spain) in relation to both the availability of NGA broadband services, and take-up. However, it has been reported that UK SME’s consider just 35% of their employees to be digitally savvy, whilst 24% report that their employees do not have basic IT user skills. This reinforces the case for Cornwall to assess the skills requirements required to fully utilise superfast technology and to provide the sufficient investment.

2.1 Introduction

This section outlines the context in which the Superfast Cornwall project operates. It embeds the final evaluation within both the policy context and recent research findings on the impact of new broadband infrastructure economically, socially and environmentally. This serves as an update to the more detailed review presented within the baseline report.

2.2 Underpinning Research

NB: The Superfast Cornwall project has supported and part-funded a wide range of collaborative projects that add value to the main superfast evaluation. These are outlined in Box 3 in Section 7.4 on Leverage, as it relates to direct support from Superfast Cornwall for partner activity. In contrast, this sub-section provides a high-level summary of key existing research outputs that have been delivered outside of the project.

A considerable amount of research has been produced on the socio-economic and environmental impact of broadband, although research focusing specifically on the impact of high-speed broadband is more limited.

The Department for Culture, Media and Sport commissioned SQW to undertake a literature review focussed on the impact of broadband, as part of the UK Broadband Impact Study (2013). More recently, the What Works Centre for Local Economic Growth published a Broadband Evidence Review in March 2015, based on a systematic review of evaluations of the local economic impact of broadband. Both studies have been used to underpin this review of existing research.

2.2.1 Employment

The research reviewed by SQW suggests that broadband can have a mixed impact on employment in local areas. Kolko (2011, cited in SQW, 2013) suggests that broadband does create employment growth. However, as this encourages highly skilled people to move to areas where there is a good broadband connection, Kolko argues that this does not necessarily benefit the existing local workforce. This could be an issue in Cornwall where the local supply of IT skills is believed to be limited.

Kolko also found that the positive impacts of broadband vary widely between sectors, with IT services getting much of the benefit. Shideler, Badasyan and Taylor (2007, cited in SQW, 2013) found positive impacts on employment in such sectors as construction and administration, but negative impacts on employment in accommodation and food services, two sectors which are particularly important in Cornwall. The authors suggested that this decline in employment may be due to a rise in worker productivity and/or an increase in customers using the internet to make travel arrangements.

The 2015 Broadband Evidence Review, whilst echoing the positive effects of broadband on local employment, also cited that these are not necessarily large and may be offset by population increases (leaving unemployment unchanged). Further, employment effects can vary across different types of areas, industries and workers with urban areas, service industries and skilled workers possibly benefiting more than rural areas, manufacturing industries and unskilled workers.

2.2.2 The Importance of Skills

The literature suggests that, at least when it comes to the impact of broadband, economic benefits will take time to be realised, depending on managerial culture and skills. Bloom, Sadun and Van Reenan (2012, cited in SQW, 2013) found that US owned firms had greater success in utilising the benefits of broadband because of the higher levels of people management than non-US firms. In addition, O'Mahony, Robinson and Vecchi (2008 cited in SQW, 2013) suggest that after a certain point more general skills are required than IT skills in order for firms to undertake the necessary organisational change to reap the full productivity benefits of broadband.

Perhaps most importantly, the Economist Intelligence Unit (2012 cited in SQW, 2013), referring to superfast broadband, asserts that in many areas a shortage of skills is at least as big a hindrance to utilising the technology as constraints on the bandwidth.

This assertion was echoed by Booz & Co and Go ON UK (2012, cited in Broadband Stakeholder Group 2014) who reported that SMEs consider just 35% of their employees to be digitally savvy, whilst 24% of SMEs report that their employees do not have basic IT user skills. This skills issue is replicated at senior manager level, with 43% of SME owners and managers described as 'not comfortable' using technology. This reinforces the case for Cornwall to assess the skills requirements required to fully utilise superfast technology and to provide the sufficient investment.

2.2.3 Early Adoption and Level of Penetration

Whilst none of the literature specifically addresses the impact of early adopters of superfast, Gillett et al (2006 cited in SQW, 2013) suggest that early adoption of broadband brings higher economic returns for users over those joining later, while Koutroumpis (2009 cited in SQW, 2013) found that countries with a higher level of penetration reaped higher benefits in terms of annual GDP growth. Other studies suggest that there are increasing returns from broadband at higher levels of penetration and take up, which may also apply to superfast.

2.2.4 Economic Growth and Competitiveness

Although there have been very few empirical studies on the impact of faster broadband, the research which has been completed points to a positive incremental impact (SQW, 2013). Rohman and Bohlin (2012, cited in SQW, 2013) estimated that doubling connection speeds would contribute an additional 0.3% to annual GDP growth. Similarly, Dini, Milne and Milne (2012, cited in SQW, 2013) assert that universal availability and widespread use of superfast broadband services will be fundamental to the future international competitiveness of the UK. Further benefits are likely to come from the increased use of cloud computing with Etro (2009, cited in SQW, 2013) estimating that this would create 83,000 to 431,000 new SMEs across the EU in the medium term and 7000 to 35,000 new SMEs in the UK.

In addition to the literature reviewed by SQW, there is some positive evidence of economic impact from reviews undertaken in regions with their own superfast initiatives. A report by Diffraction Analysis into Stockholm's municipally owned Stokab model (Felton, 2012) attributed an increase in the city's attractiveness to business and a rise in the number of new hi-tech companies to the deployment of fibre infrastructure throughout the city, which enabled superfast internet connections. A Regeneris report for BT (2013), which considered the potential economic impact of fibre broadband, estimated that it could bring £750 million in additional revenue by 2018. This figure included an estimated £82.2 million in additional sales and £6.4 million in cost savings in the agri-food sector

However some researchers were more cautious about the economic impact of superfast. In particular, the Economist Intelligence Unit (2012 cited in SQW, 2013) warned that, while superfast will deliver added growth, the impact is unlikely to match that resulting from the earlier roll out of broadband internet.

2.2.5 Social Impacts

On the social side, the SQW (2013) report suggests that improvements in broadband speeds could help mitigate the adverse impacts on the usability of the web for users experiencing poor current levels (of below 2Mbps) of connectivity of the trends towards large file sizes. There is also some limited evidence that it could make areas which previously had relatively poor broadband more attractive to newcomers.

The most significant social impacts are likely to include an increase in the time spent consuming video entertainment and an increase in the use of video communications.

A report by i2 Media Research (2010) for Ofcom discussed the potential impact of next generation broadband (NGB) on older and disabled people. The report concluded that NGB could bring “manifold benefits”, including: improved health and wellbeing; improved accessibility to products and services; increased participation and; richer entertainment. In the area of health and well-being, these benefits include prolonged independent living and improved security, through remote interaction with health professionals and health and well- being monitoring.

However, i2 Media Research (2010) did warn that significant challenges will need to be addressed if such benefits are to be realised, including the cost of NGB as well as reluctance amongst many of the potential beneficiaries to use the internet. This concern is also expressed by Kenny and Kenny (2011 cited in SQW, 2013) who note that the elderly is one of the demographic groups least likely to be online. In addition both Kenny and Kenny and the Economist Intelligence Unit (2012 cited in SQW, 2013) warn that major reforms will need to take place to the healthcare system itself, even where the technology is available, if the potential benefits of e-health are to be realised.

2.2.6 Environmental Impacts

NB: CDC has put in place a number of studies and monitoring systems designed to establish environmental impact. The primary reference in this regard is the ‘Environmental Monitoring Report’ prepared by BT and independently reviewed and endorsed by the Carbon Trust (see Section 6.3).

The positive impact on the environment is more uncertain. Baliga et al (2011, cited in SQW, 2013) found that fibre to the cabinet and fibre to the premises both consume substantially more power per user relative to traditional Asymmetric Digital Subscriber Line (ADSL) technology. However the authors also project that per user power consumption for most high-speed access technologies should fall by around 70% from 2010 to 2020 due to technological advances.

Whilst the SQW report suggested that faster broadband should enable a shift to teleworking it also cited research by Banister, Newson and Ledbury (2007) that found that for an average journey about 80% of the travel cost savings from teleworking were lost through heating and lighting the home, based on just one room being used. More substantial reduction in carbon emissions could arise from the increased use of cloud computing, with Accenture and WSP (2010, cited in SQW, 2013) estimating that, for three Microsoft applications, carbon emissions per user for cloud-based implementations would be more than 90% lower than those for small on-premises implementations.

2.3 Policy Drivers

The following key points emerged from the baseline review:

- In January 2009, NESTA claimed that the UK was lagging behind in the developed world's drive for more digitised economies and societies due mainly to the high cost of FTTC and FTTP provision (Meadway and Mateos-Garcia, 2009). The report recommended that the UK upgrade its 'copper backbone with fibre-optic' to take advantage of the potential possibilities;
- BT is investing c£2.5 billion into rolling out superfast broadband across the UK, while the UK government is investing a further £530 million to support remote local areas, excluding Cornwall, through Broadband Delivery UK (BDUK); and,
- The evaluation of the Actnow project found that the internet is critical for 87% of businesses within Cornwall (Actnow, 2008). However, research by Marketing Means (2010) found that while the vast majority of businesses use the internet for email, research and buying goods and services, the proportion using it for more advanced functions is much lower. Only 39% of businesses used it for receiving payments and only 32% used it for social networking.

2.3.1 National Policy Developments

Since the publication of the baseline report the government has released new details about its Rural Community Broadband Fund. This fund is designed to complement BDUK and includes a £10m BDUK investment and a further £10m from the Rural Development Programme for England. The fund will be available to projects to support those 10% of areas which will not receive superfast broadband under BDUK. The fund is open to applicants from charities, community groups and social enterprises throughout England, except Cornwall and the Isles of Scilly.

In 2011, the government set aside £100 million for an "Urban Broadband Fund" to create ten 'super connected' cities, across the UK. A further £50 million of funding was announced in 2012 for an additional 12 cities. The money will fund "ultrafast" broadband of 80 to 100 Mbps in addition to increased public wireless internet access. In addition, £150 million is being provided through the Mobile Infrastructure Project to improve mobile coverage in areas with poor or no coverage.

More recently, the government announced a £250 million investment as part of the Spending Review 2013 to ensure that 95% of homes and businesses have access to superfast broadband by 2017. This figure is expected to be match funded locally and will be targeted at those areas that are hardest to reach. At the time of writing, funding from 2015-17 had not yet been allocated from central Government. However, the license fee settlement (agreed in 2010) will provide a further £150 million in each of 2015-16 and 2016-17 for BDUK funding if required.

2.3.2 'A Digital Agenda for Europe'

The European Commission launched the 'Digital Agenda for Europe' in 2010, one of seven flagship initiatives that form part of the Europe 2020 Strategy. The main objective of the Digital Agenda is to "chart a course to maximise the social and economic potential of ICT".

Of central concern to the Commission is a recognition (echoing that of NESTA mentioned above, but for the whole EU) that while 20% of the EU's productivity growth comes directly from ICT and 30% from ICT investments, the EU is not positioning itself well enough to benefit from digital developments. In particular, European investment in high speed internet is lagging behind competitors like South Korea and Japan.

While much of the Commission's efforts have and will continue to focus on increasing superfast internet coverage with speeds of 30Mbps and above, the Commission intends to develop over time 'ultra-fast' internet connections of above 100Mbps. Ultimately, the Commission's aim is for all Europeans to have access to internet speeds of above 30 Mbps and for 50% or more of European households to subscribe to internet connections above 100 Mbps.

The key components of the agenda include measures to address:

- A perceived lack of digital literacy and skills;
- Insufficient research and innovation efforts;
- Lack of investment in ICT networks; and,
- Lack of interoperability due to poor coordination and fragmented standard setting.

Perhaps most importantly the Commission is attempting to develop a "single digital market" to address the fragmentation of digital economic activity (particularly eInvoicing and electronic payments) along national boundaries.

In 2012, the Commission produced a review of the Digital Agenda that set out some additional areas of activity for the EU to focus its efforts. These included:

- Speeding up public sector innovation through the deployment of interoperable¹³ ICT and improved information exchange. The Connecting Europe Facility will finance efforts to bridge national infrastructures;
- The implementation of an eHealth Action Plan which aims to develop integrated care solutions across regions reaching 4 million EU citizens by 2015 (see below);
- Regaining world leadership of network services by addressing market uncertainties and incentivising private investment in high speed fixed and mobile broadband networks;
- A European Cloud Computing Strategy which will develop pan-European cloud platforms to connect national public cloud initiatives and use public sector buying power to incentivise cloud computing further; and,

¹³ Interoperable ICT exists where two or more computer systems allow for information exchange. Traditionally the use by different organisations of different forms of software and hardware, such as CRM systems, has made it difficult for public organisations to exchange data. 'A Digital Agenda for Europe' identifies weaknesses in standard-setting, public procurement and coordination between public authorities as preventing digital services and devices used by Europeans working together as they should.

- The launch of a grand coalition on digital skills and jobs. A new action plan (launched in 2013) to support web entrepreneurs.

2.3.3 European E-Health Action Plan 2012-2020

Launched as part of the digital agenda, the action plan aims to address some of the most pressing health challenges of the 21st century. The key objectives of the plan are to:

- Increase the coordination and integration of European health services by fostering EU wide standards, interoperability, testing and certification;
- Support research, development, and innovation and competitiveness. Research priorities include better quality of care, increased citizens' autonomy, mobility and synergies between healthcare related technologies. In addition, the commission will support mechanisms such as SME networking, eHealth week and business modelling studies to facilitate closer cooperation between research bodies and industry to enable faster and wider take up of research in the market and improved competitiveness;
- Facilitate uptake and ensure wider deployment. The 'Elements for a Common Strategic Framework 2014 to 2020' identifies the deployment of innovative ICT applications to meet societal challenges such as eHealth, and the reduction of health inequalities as key priorities. Other action plan priorities include promoting skills and digital health literacy and measuring added value; and,
- Promote policy dialogue and international cooperation on eHealth at a global level. This includes addressing interoperability at an international level. In 2010, the EU signed a Memorandum of Understanding with the United States on interoperable eHealth systems and skills.

2.3.4 Developments in Other Regions

As part of the Digital Agenda for Europe, all European member states are developing national broadband plans, while other countries, like South Korea and Australia are adopting similar approaches (BAS and Kalba, 2012).

Ofcom has developed a scorecard for measuring the development of the UK's broadband network relative to those in other EU countries. Ofcom's 2014 European Broadband Scorecard indicates that at 70-75%, the UK has the highest level of coverage amongst the EU5 (France, Germany, Italy and Spain), overtaking Germany (65-70% of households covered) and Spain (60-65%). In terms of take-up, the report states that in January 2013 there were 9 superfast connections (30+Mbit/s) per 100 people in the UK – the highest superfast penetration rate among the EU5.

In the UK, Northern Ireland is currently ahead in terms of the availability of Next Generation Access (NGA) broadband services, reflecting its position as the first to begin significant roll-out in 2011 following early public sector intervention. As reported by Ofcom (2014), Northern Ireland had 94% availability in 2014, compared to 80% in England, 63% in Scotland, and 58% in Wales. **NB:** It should be noted, however, that availability in Cornwall has now exceeded its extended target of 95% coverage (See Section 3).

With specific regard to Cornwall and Isles of Scilly, the Strategic Economic Plan and European Structural and Investment Fund Strategy (ESIF) shows that 'digital' is now considered an opportunity for growth, rather than a constraint or simply enabling infrastructure.

Section 7.3.1 of this report contains a high level review of the LEP's Strategic Economic Plan and ESIF which underlines the importance of the digital agenda in driving the 'Future Economy' of Cornwall as well as presenting an important component to 'Conditions for Growth'. This is a significant re-positioning from the 2007-2014 Cornwall and Isles of Scilly Operational Programme, where digital infrastructure was positioned as a means of addressing Cornwall's peripherality constraint.



Photo: Graham Smith from Instructus Markets - a training and advisory firm which provides training in how capital markets function. Superfast broadband has enabled Graham to run the business from his home at Carbis Bay, near St Ives in Cornwall (November 2013).

3. Infrastructure Roll-out and Take-up

Summary of Key Points:

- Superfast Cornwall has exceeded not only its original target for coverage of fibre based broadband of 80% but also its extended target of 95% fibre broadband coverage. This gives the county the second best coverage of the 13 comparator areas assessed by Analysys Mason, as well as the best coverage in terms of rural premises passed. Several stakeholders suggested that finding ways to reach the remaining 5% should be a priority for future infrastructure funding.
- Ninety-five per cent (95%) fibre broadband coverage refers to properties that are able to connect at 2+ Mbps. The report by Analysys Mason estimates that 87% of premises will have access to 30+Mbps.
- Of the 241,000 premises passed in Cornwall at March 2015, 30% were FTTP covered (Analysys Mason) – the final coverage figure is anticipated to be 258,000 in June 2015. Cornwall's FTTP coverage is about 85,000 (approximately 40% of the national Openreach coverage).
- Overall take-up of superfast in Cornwall is expected to reach 66,537 premises by June 2015. Whilst no precise figure on the number of businesses connected is available, it is estimated that a total of 12,104 businesses have been connected to superfast, well above the project target of 10,000 businesses.
- The primary reason both businesses (31.9%) and consumers (24.7%) in connected areas gave for not connecting was that superfast was not available to them, suggesting that either misinformation (as postcodes do not map precisely onto network areas) or highly localised technical issues may be limiting take-up. A perception that superfast was too expensive was more common amongst consumer respondents (19.9%) than amongst businesses (12.3%).
- In general stakeholders felt the project had achieved what they expected of it. However, as one stakeholder pointed out there was confusion over what the actual targets were in terms of coverage and the extent to which this was a priority. Whilst Superfast Cornwall has clearly made efforts to communicate the programme to stakeholders and the general public, another stakeholder felt that more could have been done to inform people about timeframe of the roll-out. The need to ensure that project targets and roll-out plans are communicated fully will be continue to be important as efforts are made to reach the remaining 5%.

3.1 Introduction

This section examines the roll-out of the superfast infrastructure exploring both the coverage achieved through the investment and the network performance.

3.2 Overview of Coverage and Take-up

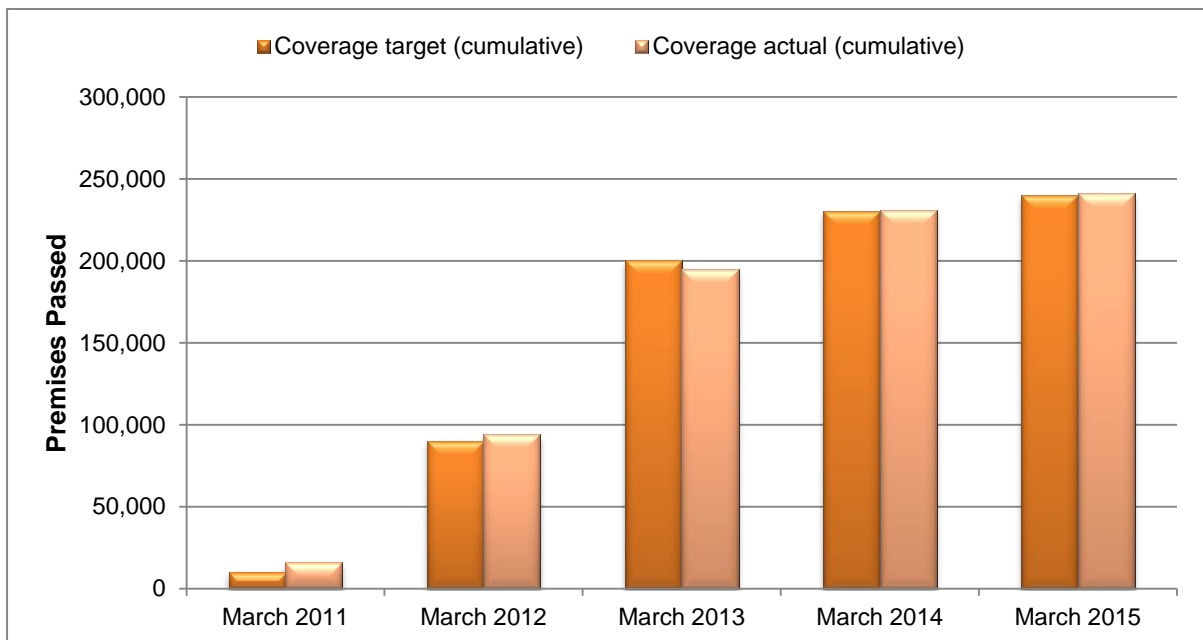
3.2.1 Coverage

The original project target was for fast, fibre based broadband to be available to 80% of the 253,000 premises in Cornwall by the end of 2014. As a result of efficiency savings made through innovative technology used in the roll out, the target coverage was extended in March 2013 to 95% with alternative technologies used to boost broadband speed in the remaining 5%.

The progress of the infrastructure roll-out is outlined in Chart 1 which displays the number of premises passed (i.e. premises which are linked to the superfast broadband infrastructure and so can connect to superfast) at different time-points throughout the project.

As shown, considerable progress was made in the second and third years of the project, with premises passed rising from 16,000 in March 2011 to 195,000 in March 2013. At the last point for which there is data (March 2015) 241,000 premises were passed, slightly ahead of the (revised) target of 240,000.

Chart 1: Target and Actual Premises Passed



Source: BT

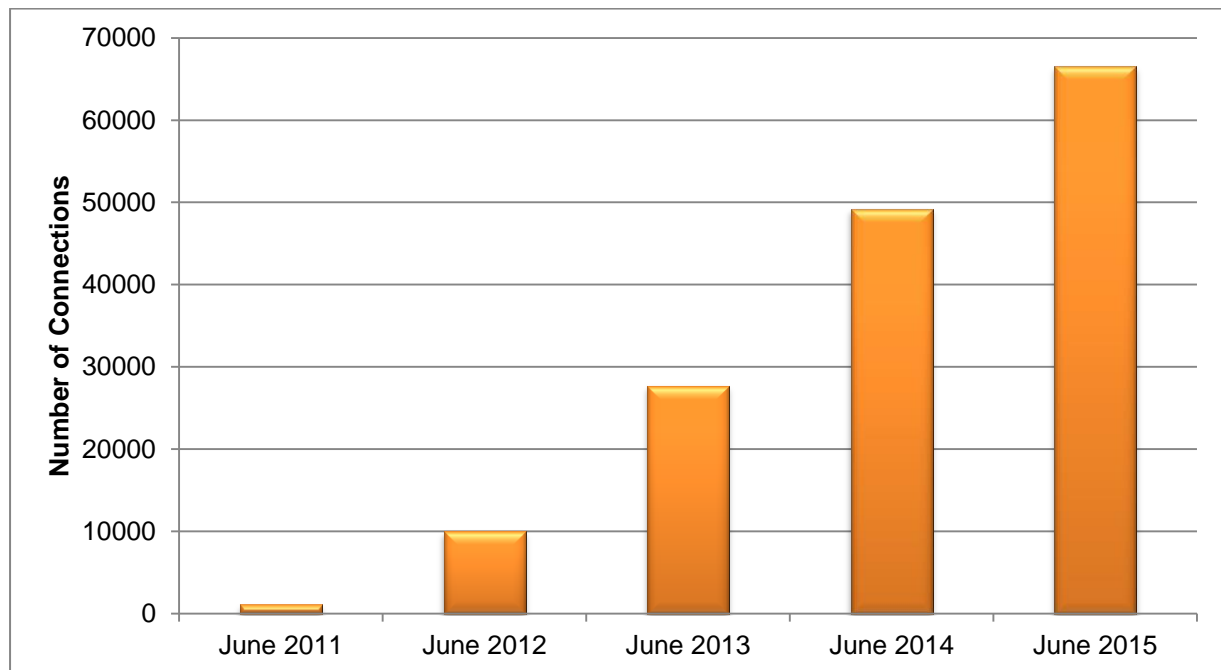
Of the 241,000 premises on the fibre footprint, 30% were FTTP covered, currently with a maximum downlink speed of 330Mbit/s¹⁴. A small proportion (2.8%) were passed by the cable network in Saltash, while the remaining connection premises were connected by FTTC¹⁵.

3.2.2 Take-up

Chart 2 shows how the number of connected premises (i.e. those subscribing to a superfast broadband service) has increased during the project lifetime. By June 2014 take-up had increased to 49,206, and it is estimated to have increased by 35% to 66,537 by June 2015, the point at which the project comes to an end. If take-up continues to grow at this rate then it will reach 89,972 connections by June 2016.

Whilst the absence of premises passed figures for June 2015 means that a take-up rate cannot be calculated for this time-point, data on both premises passed and take-up is available for March 2015. Based on the number of premises connected in March 2015 (61,471) as a proportion of the total number of premises passed in March 2015 (241,000), the take-up rate is estimated at 26%.

Chart 2: Actual Connections



Source: BT

3.3 Calculating Business Take-up

A key contracted output of the project is that 10,000 businesses will benefit from upgraded ICT infrastructure. It is therefore an important part of the evaluation to estimate the proportion of the total connections made by business premises.

Estimating business take-up presents more of a challenge than overall take-up due to limitations in the data both on the number of businesses in Cornwall and the proportion of premises which are business premises.

¹⁴ Analysys Mason, Benchmarking the Superfast Cornwall Landing Point.

¹⁵ Saltash was outside of the project scope due to the presence of a second infrastructure in Virgin Media.

Another issue concerns estimating the presence of businesses based in residential homes, which could now be more commonplace as a result of superfast. Taking these issues into account, this analysis provides three different estimates for business take-up:

3.3.1 Method 1

Based on proxy indicators developed at the start of the project, it is assumed by CDC that 12% of the total premises in Cornwall and the Isles of Scilly are business premises. BT data indicates there are a total of 66,537 connected premises at June 2015. Using the 12% proxy figure the take-up rate can be calculated as follows:

$$\text{Connected businesses} = \text{total number of phone lines receiving superfast service} \\ (66,537) \times \text{proportion of businesses (12\%)}$$

This method produces a figure of **7984 businesses connected**. The method assumes that businesses are taking-up connections at the same rate as domestic users.

The 12% figure was based on the number of businesses premises in Cornwall identified through the MINT database (29,000). The MINT database is updated on an ongoing basis and includes some non-registered businesses. However, it is likely that many less established businesses, including new start-ups, are not included in the database. The figures are, therefore, likely to underestimate the total number of businesses connected.

3.3.2 Method 2

In order to develop an alternative calculation, CDC commissioned a telemarketing study to test take-up rates amongst businesses within their database. It found that 44% of businesses surveyed had a superfast package. ONS Business Demography data indicates that there were 19,980 active enterprises in Cornwall and the Isles of Scilly in 2013, the most recent date for which the data is available. However, only 95% of premises were able to connect. Based on the assumption that coverage for business premises is the same as that for premises overall, the take-up rate can be calculated as follows:

$$\text{Connected businesses} = (\text{total number of businesses from business demography} \\ (19,980) \times 95\% \text{ coverage rate}) \times 44\% \text{ take up rate}$$

This method produces a figure of **8,352 connected businesses**.

The method has a couple of notable limitations. Firstly, the estimate of businesses it uses from ONS Business Demography does not take into account unregistered businesses which are not VAT or PAYE registered¹⁶. According to ONS, only 40% of businesses in the South West of England are VAT or PAYE registered.

While no figures are available at the county level it is highly likely that the proportion is even lower within Cornwall due to the large number of self-employed people in the county (55,600 according to the Labour Force Survey).

¹⁶ While a proxy estimate for unregistered businesses could be applied in the same way as that used for Method 3, the way in which the sampling frame is selected means that the take-up figure is less likely to be representative of this population.

Secondly, the sampling frame used for the survey included businesses identified through a MINT database as well as recipients of the Superfast Cornwall newsletter, and businesses on the Act Now database. Businesses derived from the last two sources are more likely to have connected than the average. Therefore, this is likely to bias the results and overstate the level of take-up.

As a result of these limitations this method is likely to overstate the take-up rate amongst more established businesses, but conversely, to underestimate the overall number of businesses which have connected, due to the exclusion of unregistered businesses.

3.3.3 Method 3

An alternative estimate for business take-up, which includes unregistered businesses, can be calculated directly from the data on connected premises using the following formula:

$$\text{Connected businesses} = (\text{total number of businesses from business demography (19,980), adjusted to reflect unregistered businesses (49,950) x 95\% coverage}) \times 26\% \text{ project take-up rate}^{17}$$

The method produces a figure of **12,104 businesses connected**.

This figure relies on a number of assumptions. Firstly, that the proportion of the total business population in Cornwall which is unregistered for VAT and PAYE is the same as in the South West. As mentioned above the proportion is if anything likely to be higher.

Secondly this approach, like Method One, assumes that 95% of businesses have been passed, and thirdly that the businesses are taking-up the service at the same rate as premises more generally (at 26%). The third assumption is likely to be conservative, given that much of CDC's marketing has been aimed at businesses, and the take-up survey, while somewhat skewed, suggests take-up may have been much higher at 44%.

3.3.4 Summary of Approach

A summary of connection figures based on each of the three methods is presented in Table 3.

Table 3: Business Take-Up Estimates

Calculation Method	Estimates
Method 1	7,984
Method 2	8,352
Method 3	12,104

Whilst Method 3 produces a higher estimate than either Method 1 or 2 this may be explained given that it is the only approach that takes into account unregistered businesses. As such, it is considered the most appropriate figure for estimating overall business take-up.

¹⁷ This is based on the take-up rate as at March 2015 (See 3.2.1).

It should be noted, however, that the Method 3 estimate cannot be used for the purposes of grossing-up jobs and GVA collected through the evaluation's business surveys. This is because the sampling frame is also based on established businesses (see Appendix C). Consequently, where survey business figures have been grossed-up to the estimated number of businesses connected, the Method 1 estimate has been used.

Method 1 is also used to produce an estimate for the number of businesses connected at June 2014 (5,905). This is done in order to gross-up figures from the business survey to the number businesses connected for 12 months or more at the end of the project¹⁸. Given that the business omnibus survey is based on businesses that have been connected for 12 months the survey findings are more likely to be reflective of these businesses than they are of the total number of connected businesses.

Estimates for both the number of households connected to Superfast (58,553), and the number connected for 12 months or more (43,301) at June 2015 were calculated by deducting the figures for the corresponding numbers of established businesses connected from the overall connection data.

3.4 Reasons for Not Upgrading

The research considered why some businesses and residents that could upgrade to superfast had not done so. This was established through data from businesses and residents interviewed in the business omnibus and consumer surveys that had not yet upgraded. A total of 285 businesses that were interviewed through the business omnibus survey (see Appendix C) used the internet but had not upgraded to superfast broadband.

3.4.1 Business Reasons for Not Upgrading

As shown in Table 4, the main reasons why businesses had not connected were either because superfast was not available in their area (31.9%) or they did not feel the business needed it (31.2%). A notable proportion of respondents (12.3%) also felt that superfast was too expensive for their business. Interestingly just one respondent (0.4%) indicated that they did not want to upgrade because they were unaware of the benefits of superfast.

¹⁸ This assumes that none of the businesses that upgraded in June 2014 have since lost their superfast connection.

Table 4: Reasons why Businesses had not Upgraded to Superfast Broadband

Reason	No.	%
Not available in their area	91	31.9%
Don't need it	89	31.2%
Too expensive	35	12.3%
Not got round to it	16	5.6%
Not aware	9	3.2%
Haven't checked if it's available	6	2.1%
Not available from provider	5	1.8%
Tied into existing contract	4	1.4%
Don't want to disrupt existing connection	4	1.4%
Superfast won't be much faster	6	2.1%
Ordered but waiting	3	1.1%
Didn't know had to order	2	0.7%
Unsure of benefits	1	0.4%
Other	15	5.3%
Don't know	22	7.7%

Base: All businesses which had broadband but had not upgraded to superfast (n=285)

Source: Business Omnibus Survey

Please note: Figures may not sum to base due to multiple responses

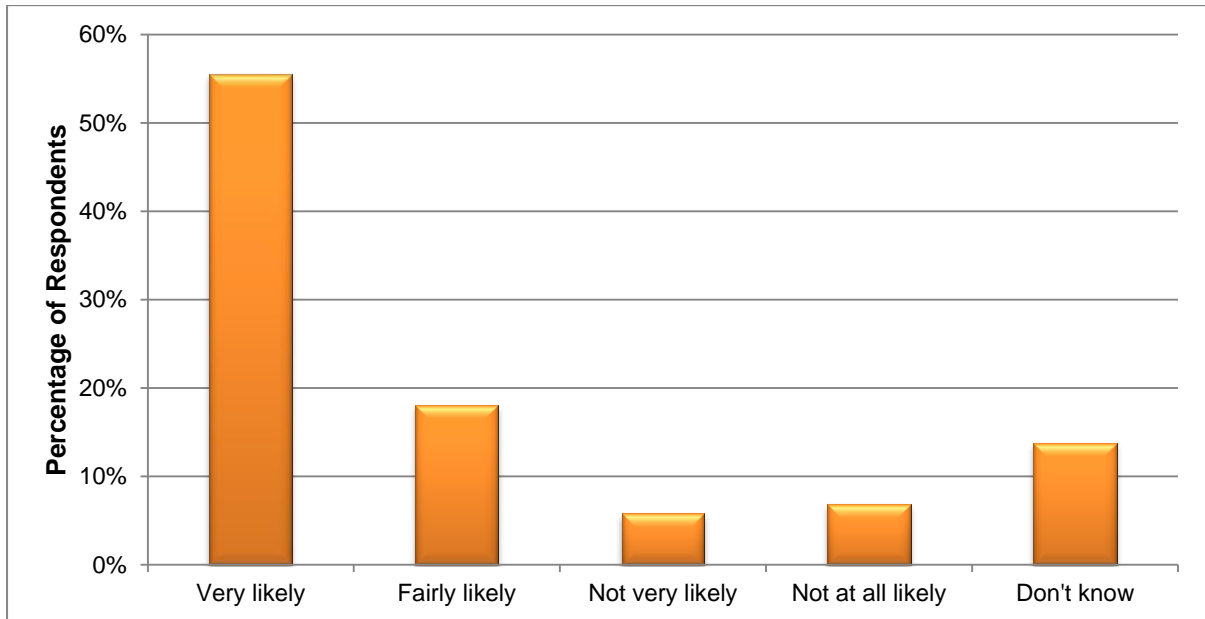
The 89 respondents who stated that they didn't need superfast were asked why they felt this way. Of the 34 businesses that provided a response, 19 felt it was because their current broadband provision was sufficient, whilst eight responded that their business's use of the internet was limited. Other responses included: scepticism of the benefits of superfast (3 respondents); the perceived high cost of superfast (3); not needing a faster connection (1); moving to a new area shortly (1); and use an iPad instead of a computer (1).

Businesses that had not upgraded were also asked two additional questions relating to the likelihood of upgrading their connection in the future¹⁹. Firstly, these businesses were asked how likely they would be to upgrade their connection if the price of superfast was similar or slightly more expensive than standard broadband.

As shown in Chart 3, a large majority of respondents (73.5%, 139) would be either 'very likely' or 'fairly likely' to upgrade to superfast if this was the case. This is an important finding given that, as reported in Section 5.3.2, only 11.6% (46) of the connected businesses indicated their costs had increased due to superfast (see Chart 17). Furthermore, findings from the separate study on customer satisfaction suggest that satisfaction with costs is broadly similar across connected and non-connected businesses. Consequently, while some businesses may perceive superfast to be more expensive than standard broadband packages this is not necessarily the case.

¹⁹ NB: The researchers did not ask businesses that: had ordered superfast already, stated that they did not need superfast, or did not want to disrupt their existing connection. This resulted in a new sample of 189 businesses.

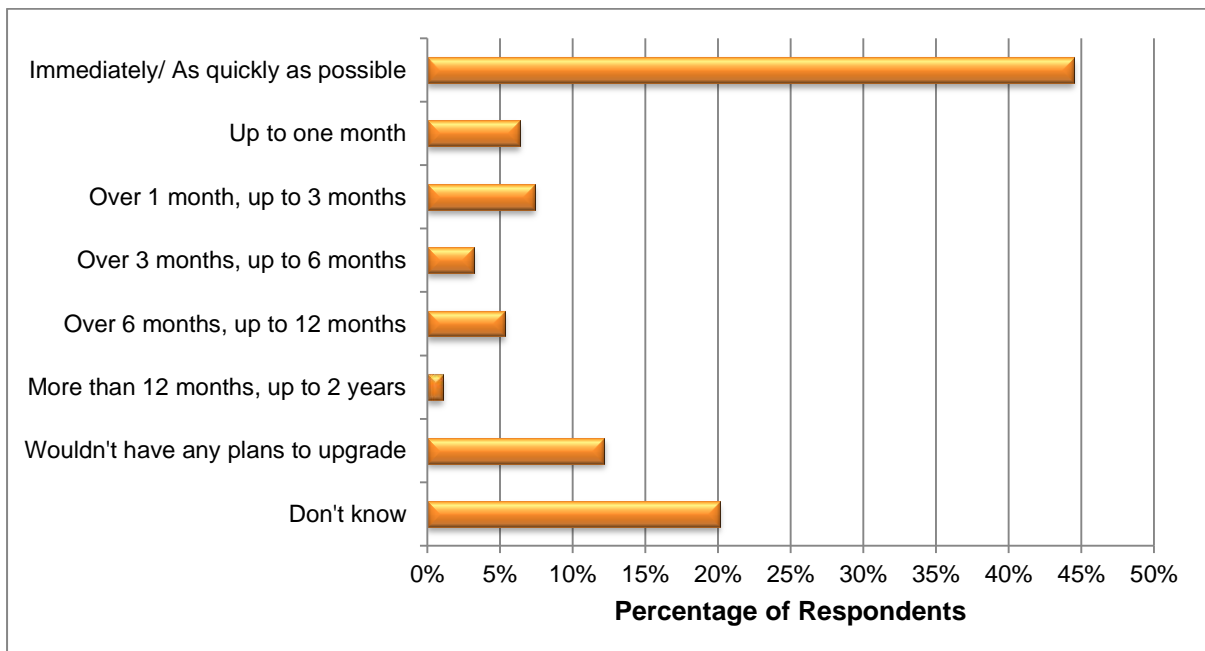
Chart 3: Likelihood of Upgrading if Price was Similar/ Slightly More Expensive than Standard Broadband



Base: All businesses that had broadband but had not upgraded to superfast, excluding those which: ordered it; indicated they did not need it; and/or did not want to disrupt their existing connection (n=189).
 Source: Business Omnibus Survey

The 189 businesses were also asked how long they would take to get round to upgrading to superfast once they knew it was available on their line. As shown in Chart 4, 44.4% (84) of respondents intended to upgrade as soon as possible, whilst two thirds (66.7%, 126) would upgrade within a year. Just 12.2% (23) had no plans to upgrade.

Chart 4: How Long Businesses Would Take to Upgrade



Base: All businesses that had broadband but had not upgraded to superfast, excluding those which: ordered it; indicated they did not need it; and/or did not want to disrupt their existing connection (n=189).
 Source: Business Omnibus Survey

3.4.2 Consumer Reasons for Not Upgrading

Similarly to the business omnibus survey, respondents from the consumer survey that used the internet but had not upgraded to superfast were asked why they had not done so yet.

The main reasons outlined by the 417 respondents identified through this categorisation are outlined in Table 5. As with the reasons provided by businesses, the two most commonly cited reasons were that superfast was not available in their area (27.7%), and that they didn't need it (23.3%). Notably, the perception that superfast was too expensive was cited by a higher proportion of consumers (19.9%) than businesses (12.3%).

Table 5: Reasons why Consumers had not Upgraded to Superfast Broadband

Reason	No.	%
Not available in their area	103	24.7%
Don't need it	97	23.3%
Too expensive	83	19.9%
Not aware	29	7.0%
Not got round to it	29	7.0%
Unsure of benefits of superfast	18	4.3%
Happy with current service	13	3.1%
Haven't checked if it's available	12	2.9%
Superfast won't be much faster	8	1.9%
Not available from my provider	7	1.7%
Tied into existing contract	6	1.4%
Don't want to disrupt my connection	5	1.2%
Ordered but waiting	5	1.2%
Only just became/ about to become available	4	1.0%
Not thought about it	4	1.0%
Other reason	20	4.8%
Don't know	28	6.7%

Base: All respondents that had broadband but had not upgraded to superfast (n=417)

Source: Consumer Survey

Please note: Figures may not sum to base due to multiple responses

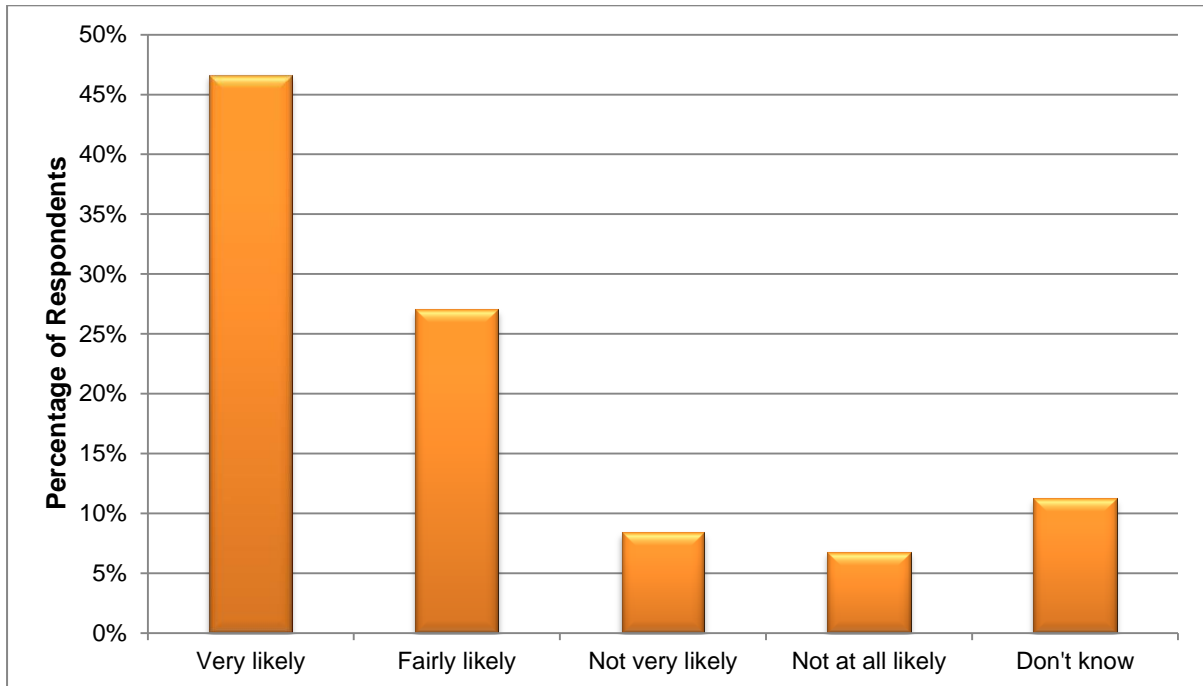
Eighty three of the 97 respondents indicating that they did not need superfast provided reasons for why they felt this way. As with the response from businesses, the most commonly cited reasons given by consumers (who could cite more than one response) was that their current connection was sufficient (50 out of 83 respondents) and that they did not use the internet often enough (26). In addition nine respondents did not connect because they felt the cost outweighed the benefits. Less common responses included: scepticism over the benefits of superfast (1 respondent); the ability to use faster internet at work (1); and not knowing enough about superfast (1).

Similarly to the business survey, consumers that had not upgraded were also asked two additional questions relating to the likelihood or upgrading their connection in the future²⁰.

²⁰ NB: The researchers did not ask consumers that: had ordered superfast already, stated that they did not need superfast, or did not want to disrupt their existing connection. This resulted in a new sample of 311 consumers.

Again, consumers were asked how likely they would be to upgrade their connection if the price of superfast was similar or slightly more expensive than standard broadband. As shown in Chart 5, a majority of respondents (73.6%, 229) were either 'very' or 'fairly' likely to upgrade to superfast if this was the case. As previously cited, whilst superfast may be perceived as being more expensive than standard broadband, this is not necessarily supported by the available evidence.

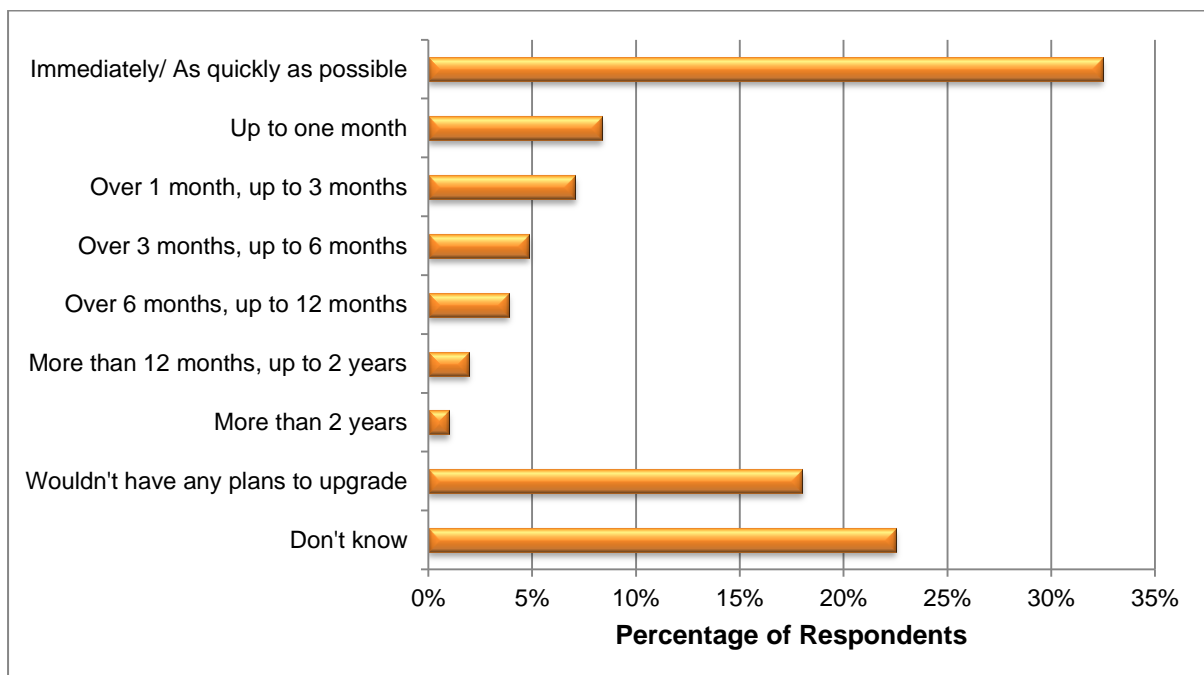
Chart 5: Likelihood of Upgrading if Price was Similar/ Slightly More Expensive than Standard Broadband



Base: All respondents that had broadband but had not upgraded to superfast, excluding those who: had ordered it; indicated they did not need it; and/or did not want to disrupt their existing connection (n=311).

Source: Consumer Survey

The 311 respondents were also asked how long it would take them to upgrade to superfast once they found that it was available on their line. Just under a third (32.5%, 101) indicated that they would upgrade immediately, the majority (56.6%, 176) felt they would upgrade within a year. In contrast, just under a fifth (18.0%, 56) had no plans to upgrade, whilst 22.5% (70) did not know.

Chart 6: How Long Consumers Would Take to Upgrade

Base: All respondents that had broadband but had not upgraded to superfast, excluding those who: had ordered it; indicated they did not need it; and/or did not want to disrupt their existing connection (n=311).

Source: Consumer Survey

3.5 Network Performance

Researchers from the Centre for Security, Communications and Network Research at Plymouth University were commissioned by Superfast Cornwall to help assess the end to end user experience delivered by service providers operating on the Superfast Cornwall Network. The study deployed a total of 159 'probes' in the superfast connected homes and businesses of volunteers across Cornwall and the Isles of Scilly. Each probe ran a series of predefined tests randomly scheduled over 18 months covering data downloads and multimedia streaming.

The primary findings of the project are that the Superfast Cornwall network performed very well for the monitored period, and that no significant problems were identified within the network during the trial. Furthermore, the increased usage of the Superfast Cornwall network did not have any noticeable impact on overall performance.

However the report did find that a small number of lines were unable to achieve >4Mbps upstream speeds due to their premises' distance from the cabinet or exchange. This could be a potential issue for users hoping to engage in such activities as video conferencing or peer-to-peer content sharing, although the report noted that it is likely that future technologies will reduce the impact of distant properties.

3.6 Benchmarking the Superfast Cornwall Network

Analysys Mason were commissioned by CDC to conduct a benchmarking analysis of the anticipated Superfast Cornwall network in March 2015 against 12 comparator areas: the UK as a whole, three regions within the UK (Wales, Lincolnshire and North Yorkshire, including the City of York) and eight other countries (Australia, France, Germany, Ireland, Japan, Lithuania, Norway and Spain)²¹.

The areas were chosen on the basis of their comparability with Cornwall (Wales, Lincolnshire and North Yorkshire), and on account of representing major economies and countries that are perceived as high performing in terms of next-generation broadband.

Table 6 presents the key metrics used in the benchmarking exercise, and Cornwall's ranking against the 12 other comparator areas. As shown, Cornwall is ranked in the top three for seven of the nine metrics listed.

Table 6: Analysys Mason Benchmarking of Cornwall's Superfast Provision against Comparator Areas

Metric	Ranking
Ranking out of 13 comparator areas	
Proportion of rural premises passed by Next Generation Access (NGA)	1 st
Proportion of total premises passed	2 nd
Metric combining coverage with maximum downlink speeds	2 nd
Metric combining coverage with maximum uplink speeds	3 rd
Proportion of premises passed by FTTP	5 th
Penetration rate (the proportion of premises with active connections out of all premises)	6 th
The conversation rate (the proportion of premises with active connections out of all premises passed)	12 th
Ranking out of 7 comparator areas	
Wholesale pricing	3 rd
Ranking out of 4 UK Regions	
Choice of retail service providers	1 st

The report concludes that if Cornwall were a country, it would count (as of Q1 2015) as one of the best served Next Generation Access Infrastructure's (NGA) in the world. In Europe, only Luxembourg and some micro-states such as Andorra and Monaco have better coverage than Cornwall. At 95%, the coverage figure for Cornwall is forty percentage points higher than for Europe as a whole.

It should be noted, however, that the coverage figure for premises capable of receiving 30 Mbit/s or more downstream is lower at 87% due to the long loops between cabinets and premises in Cornwall. This may account for some businesses upgrading to superfast but not necessarily perceiving to be in receipt of a greatly improved speed (See Section 4.4).

Analysys Mason also found that Cornwall has a higher NGA coverage as a proportion of rural premises than any country or region benchmarked. Unlike in most countries where it is concentrated in urban areas, FTTP in Cornwall is distributed relatively evenly among rural and urban premises, with 40% of FTTP covered premises in the county having a rural address.

²¹ Analysys Mason (2015) Benchmarking the Superfast Cornwall Landing Point.

Although Cornwall was ranked 5th out of 13 for the FTTP coverage, it is by far the leader in this area in the UK. While only an estimated 1.3% of UK premises are covered by FTTP, the coverage in Cornwall is 30%. Furthermore, of the 80,000 rural premises passed by FTTP in the UK >40% are in Cornwall.

3.7 Stakeholder Perspectives

The progress of the infrastructure roll-out was also discussed in the stakeholder survey, in addition to suggestions for future priorities.

3.7.1 Extent to which Superfast has met Expectations

Nineteen of the 21 stakeholders were asked whether the Superfast Cornwall project had met initial expectations. Whilst these expectations could cover a broad range of areas, stakeholders tended to respond with reference to the roll-out of the infrastructure.

Of these 19 stakeholders, nine felt that the project had achieved what they expected of it; five (including two internal stakeholders) felt that it achieved more than they expected; whilst four felt that it had achieved less. The remaining respondent was not sure how well it had met their expectations.

Of the five stakeholders who felt that superfast had achieved more than they had expected, three pointed to the project roll-out having reached more premises than had originally been planned.

'I know it's reached more premises than they said it would do. Originally they talked of doing 80% now it's over 90%. Similarly, I know they've rolled out more fibre to the premises than they said they would have.'

Another stakeholder contrasted the level of take-up achieved by Superfast Cornwall with the much lower levels of take-up they associated with previous superfast programmes (such as an early next generation broadband project in South Yorkshire). The fifth stakeholder did not specifically mention their early expectations but did say that they felt the project had given Cornish businesses a head-start.

Of the four stakeholders who felt that superfast was achieving less than they expected, three pointed to rural, and predominantly farming businesses that they knew were unable to connect to superfast at the point of the interview. One felt concerned that these businesses would be disadvantaged as other businesses were able to access it, set in a context of increasing levels of online delivery by DEFRA. Another of three stakeholders felt there was also an issue of expectation management:

'There is always going to be a huge lag time [between an exchange being enabled and businesses having access] but it's not like most people can understand this. They need to manage expectations much earlier on.'

The third stakeholder's response also suggested that they had believed 100% coverage was the initial target:

'There was some talk about 100% coverage but you don't really expect that. I think they are hitting around 90%. The remaining 10 or 5% will be the farmers who most need it. If you're in the back and beyond you're stuck.'

Interestingly another (external) stakeholder was keen to refute the view that the main aim was 100% coverage:

'Generally the outputs of the programme are widely misunderstood. Many think there is one aim – 100% coverage, but it was never part of the original plan. The main target was about economic impact.'

The fourth respondent who felt that superfast had not yet met their expectations stressed that this was primarily a result of take-up and business utilisation taking longer than they had initially anticipated. They attributed this, in part, to what they perceived as the limited vision of some small business owners.

3.7.2 Future Priorities

Stakeholders discussed the infrastructure in the context of future priorities. Two key themes emerged:

- **Providing full coverage:** Eight stakeholders cited the need to prioritise provision to the remaining areas that cannot yet receive superfast coverage²². Four stakeholders suggested linking this to improvements to the mobile network (improving 3G access or bringing 4G into Cornwall);
- One stakeholder suggested that the infrastructure should have been planned in a way which allowed the roll-out of local community-based solutions and pointed to the use of this kind of practice in the roll-out of superfast in Northumberland. However, another (internal) stakeholder underlined the limited sustainability of local solutions given that infrastructure may require repair; and,
- **Further improvements:** Six stakeholders felt there was a need to keep improving and enhancing the infrastructure even in connected areas in order to maintain the county's competitive advantage. One stakeholder mentioned the possibility of a fibre park, which had also been raised in the mid-term evaluation, whilst other stakeholders referred to improvements to the capacity of the existing network.

²² It should be noted that while stakeholders generally understood that coverage was around 95% now, one individual felt it was still at 90%, whilst another considered it to be only 85%.

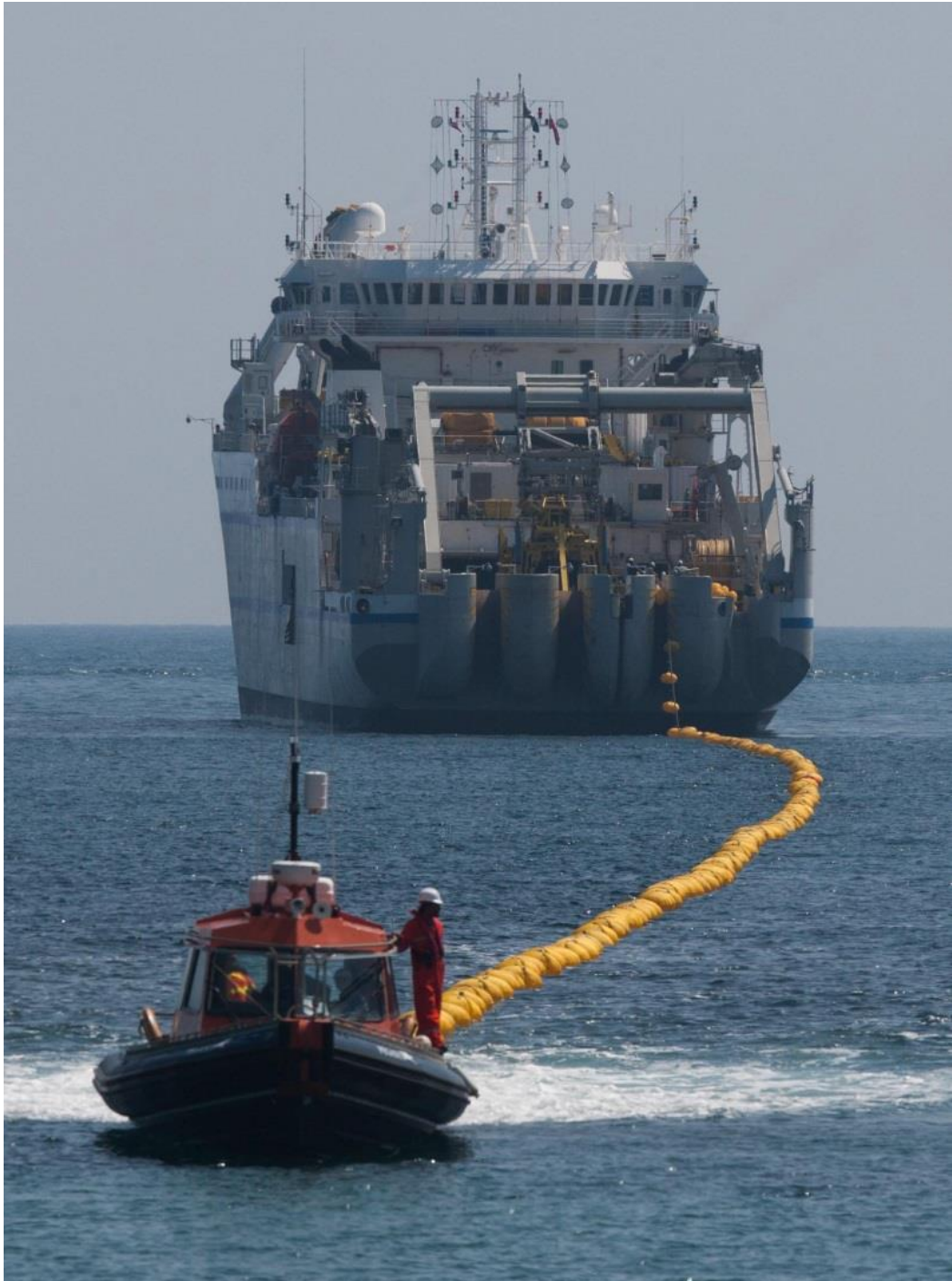


Photo: *Laying the cable from the mainland to the Isles of Scilly, a distance which exceeds that between the UK and France.*

4. Business Benefits

Summary of Key Points:

- Businesses have used superfast to enhance their usage of the internet. Usage amongst connected businesses was higher than that of non-connected businesses for each of the pre-specified internet functions. Furthermore a majority of connected businesses reported an increase in usage of each function since upgrading to superfast.
- Four-fifths of connected businesses used online marketing, sales, logistics and supply chain processes before they upgraded to superfast. However, more than 40% reported an increase in their usage of these processes since upgrading.
- A large majority of connected businesses (79.1%) perceived superfast to be beneficial overall, with increased efficiency the most notable overall impact. Nearly four-fifths of connected businesses (79.4%) indicated that superfast had saved them time and/or money. Improved efficiency was also seen as a key benefit of superfast by non-connected businesses and stakeholders.
- Just under half of businesses (46.7%) felt that superfast had helped them to develop new goods or services. Some stakeholders felt that more needed to be done in order to inform businesses on how they could better use superfast.
- Superfast appears to have played a role in helping businesses to access new markets. Nearly half the connected businesses (49%) felt that superfast had helped them generate new sales or access new markets. Of these businesses, 62.3% indicated that these markets were national or international. Furthermore, several stakeholders were able to point to cases where superfast had been used by Cornish businesses to facilitate access to international markets.

4.1 Introduction

This section focuses on the extent to which businesses have benefited from Superfast Cornwall. As such it includes an analysis of how connected businesses, interviewed through the business omnibus survey, are utilising superfast and the impact that this has had. In addition, findings from businesses in non-connected areas that have also been surveyed (as part of the counterfactual survey) are also included as this 'control' group informs understanding of what would have happened anyway without the investment in superfast broadband.

Business benefits are exemplified through the inclusion of three business case studies, summarised from the Superfast Cornwall project website. Four additional case studies may be found in Appendix H.

The data presented in this section is drawn from two primary sources:

- **Business Omnibus Survey:** based on 460 interviews with businesses that have connected to superfast broadband for 12 months or longer; and,
- **Counterfactual Business Survey:** based on interviews with 411 businesses that have not connected to superfast broadband in Cornwall.

These surveys are summarised in Section 1.3, and expanded upon in Appendix B.

4.2 Use of Superfast Broadband

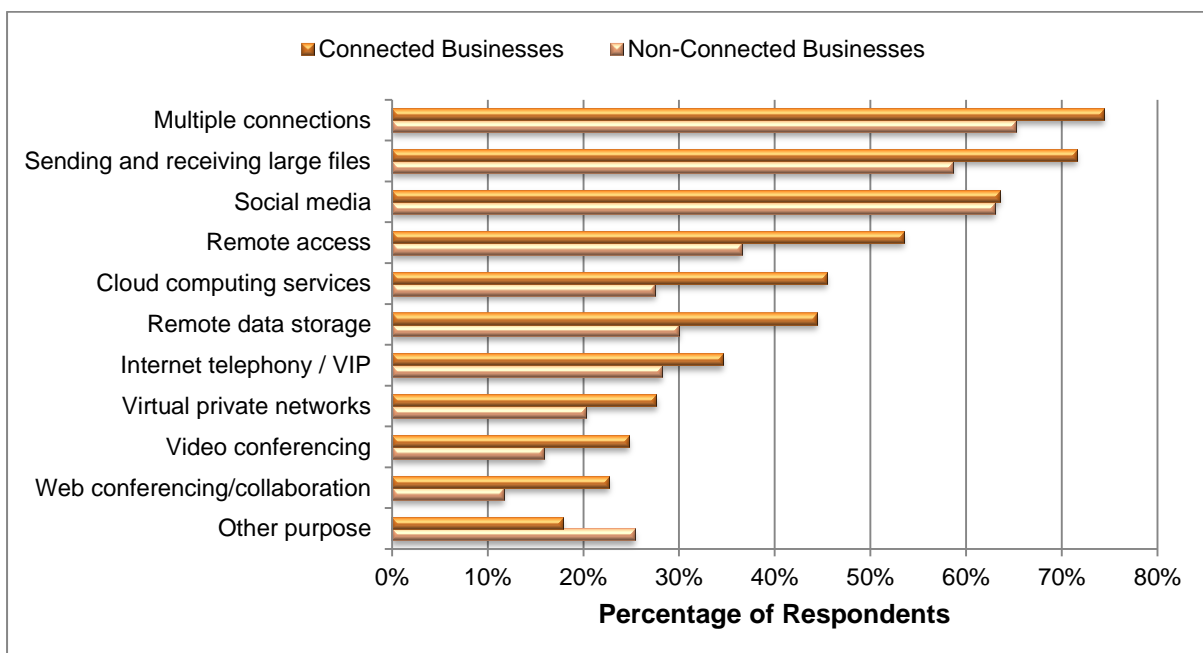
This sub-section explores how connected businesses were using superfast broadband, and how this compares to their usage of the internet before they were connected (pre-SFB). The section also includes findings on how non-connected businesses are using the internet.

4.2.1 Use of Internet Functions

Businesses in both the omnibus and counterfactual surveys were presented with a list of internet functions and asked which they used at the time of the interview. Chart 7 compares the proportion of connected businesses and non-connected businesses using each function.

As shown, the pattern of usage was similar amongst both the connected and non-connected businesses, in terms of which functions were more commonly used. However usage was proportionally higher amongst the connected businesses than the non-connected businesses for each of the internet functions, with the exception of 'other purposes'.

Chart 7: Comparison of Internet Use by Connected Status



Base: All businesses connected for 12 months or more (n=460); All non-connected businesses (n=411)

Other key points to note from the chart are:

- Business usage appeared to be highest with regards to what might be considered more 'everyday' functions. Multiple connections (more than one device being connected at the same time) (74.3%), sending and receiving large files (71.5%) and social media (63.5%) were the most commonly used functions amongst connected businesses. This was also the case for the non-connected businesses;
- In contrast, usage was lowest in relation to some of the more sophisticated communication functions. Less than a quarter of connected businesses reported using video conferencing (24.8%) and web conferencing/collaboration (22.6%). These were also the functions with the lowest reported use amongst non-connected businesses;
- The gap in usage between connected and non-connected businesses was highest in relation to cloud computing (connected businesses = 45.4%; non-connected businesses = 27.5%) and remote access (connected businesses = 53.5%; non-connected businesses = 36.5%); and,
- The gap in usage between connected and non-connected businesses was lowest in relation to social media (connected business = 63.5%; non-connected businesses = 63.0%).

While non-connected businesses appeared to use 'other purposes' more frequently than connected businesses caution should be taken with this particular data, as it relied on businesses volunteering information. The majority of both connected and non-connected businesses that indicated 'other purposes' cited functions that all internet using businesses would be expected to use, including sending emails and searching the web for information (connected businesses = 46; non-connected = 80).

Of the more specific functions mentioned, the most common were e-commerce (connected businesses = 6; non-connected = 10) and banking/accounting (connected businesses = 7; non-connected = 6). Other functions included highly specific activities such as crop analysis as well as personal, as opposed to business uses, such as gaming.

Viking Systems – ‘Pivotal to new product’



Harbour Assist is a new harbour management system conceived, designed and built by **Viking Systems**, which is based in Lostwithiel. The system was launched last year and is already used in three of the biggest harbours in the South West, Fowey, Dartmouth and Padstow.

Founding Director Nick Gill says: “Superfast broadband has been pivotal to our launch of Harbour Assist. Most harbours operate with a central PC based system meaning that boat-owners need to walk into the office to request services, and there is no easy way

for remote team members to look at a customer’s record. Superfast broadband has allowed us to create a revolutionary product that brings significant improvements. Now harbour staff can remain fully mobile on the water, interacting with and taking payment from customers in real time through a fully-automated online-self-service system, based in the cloud.”

“From internal communications to deployment and refinement of the system, Superfast broadband cuts down on one of the most costly elements of any business - time. Change happens faster, so we can change things more often, at less expense - all to the benefit of our customers and our business” (Case study: May 2015).

Further information: www.superfastcornwall.org/business-user/business-stories/

4.2.2 First Use of Internet Functions and Frequency

Connected businesses were also asked when they first started to use each of the internet functions. Table 7 provides a breakdown of internet usage according to the number of businesses that first used the function after connecting (post-SFB) and those that were already using it before connecting (pre-SFB).

As shown, the majority of the users for each internet function had used that function before connecting to SFB (pre-SFB). Of note, however, is that over two-fifths (41.1%) of cloud computing users had first used this function following their connection to superfast. This is particularly notable given that cloud computing was also the function registering the highest usage amongst connected businesses relative to their non-connected counterparts (see Chart 7 above).

Table 7: Use of Internet Before and After Connection to Superfast Broadband

Internet Function	Currently Used ¹		First Used Post SFB ²		Used Pre SFB ²	
	Frequency	%	Frequency	% (Users)	Frequency	% (Users)
Multiple connections	342	74.3%	60	17.5%	282	82.5%
Sending and receiving large files	329	71.5%	52	15.8%	277	84.2%
Social media	292	63.5%	46	15.8%	246	84.2%
Remote access	246	53.5%	54	22.0%	192	78.0%
Cloud computing services	209	45.4%	86	41.1%	123	58.9%

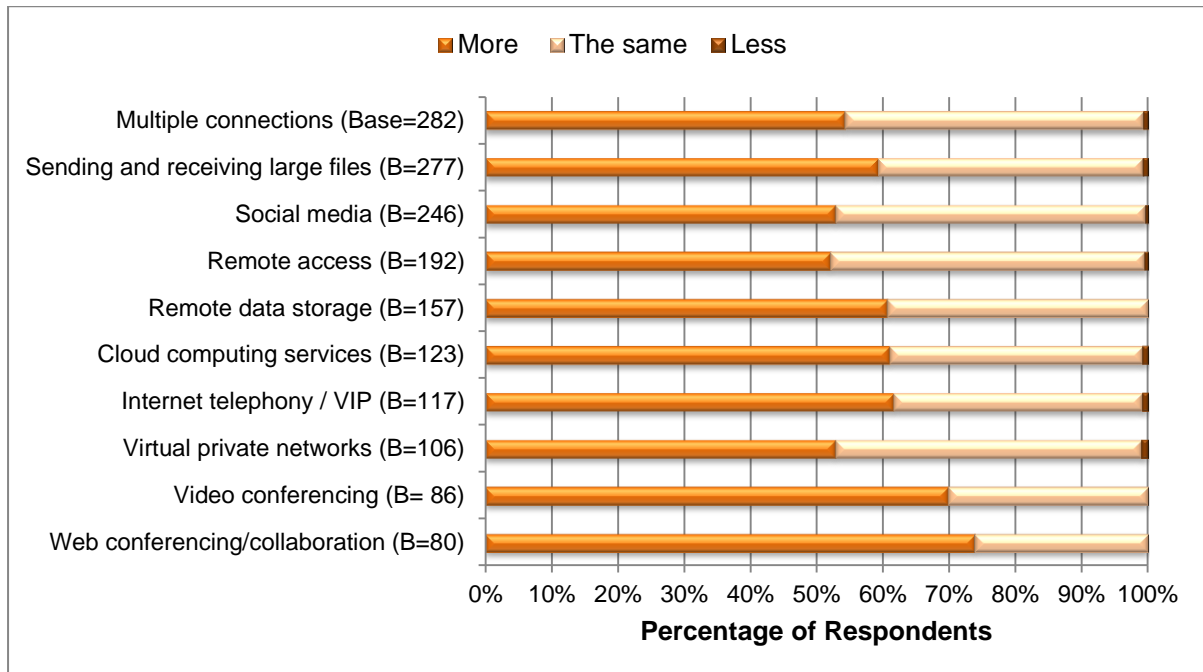
Internet Function	Currently Used ¹		First Used Post SFB ²		Used Pre SFB ²	
	Frequency	%	Frequency	% (Users)	Frequency	% (Users)
Remote data storage	204	44.3%	47	23.0%	157	77.0%
Internet telephony / Voice over internet Protocols	159	34.6%	42	26.4%	117	73.6%
Virtual private networks	127	27.6%	21	16.5%	106	83.5%
Video conferencing	114	24.8%	28	24.6%	86	75.4%
Web conferencing/collaboration	104	22.6%	24	23.1%	80	76.9%

¹All businesses connected for 12 months or more (n=460); ²All connected businesses reporting to use each function (n=various)

Key = Baseline figures: current usage forms the baseline for both the percentage of businesses which first used a function post SFB and those who used it before connecting to SFB.

Those businesses that had used each function before superfast (pre-SFB) were asked whether the frequency with which they used these functions had changed since connecting. As shown in Chart 8, over half the users of each internet function reported increasing their usage since they had connected to superfast broadband. Whilst a majority of businesses had been using each of the pre-specified internet functions before connecting to superfast, for most, the frequency of use increased post-connection.

Chart 8: Change in Usage of Internet Functions since Connecting



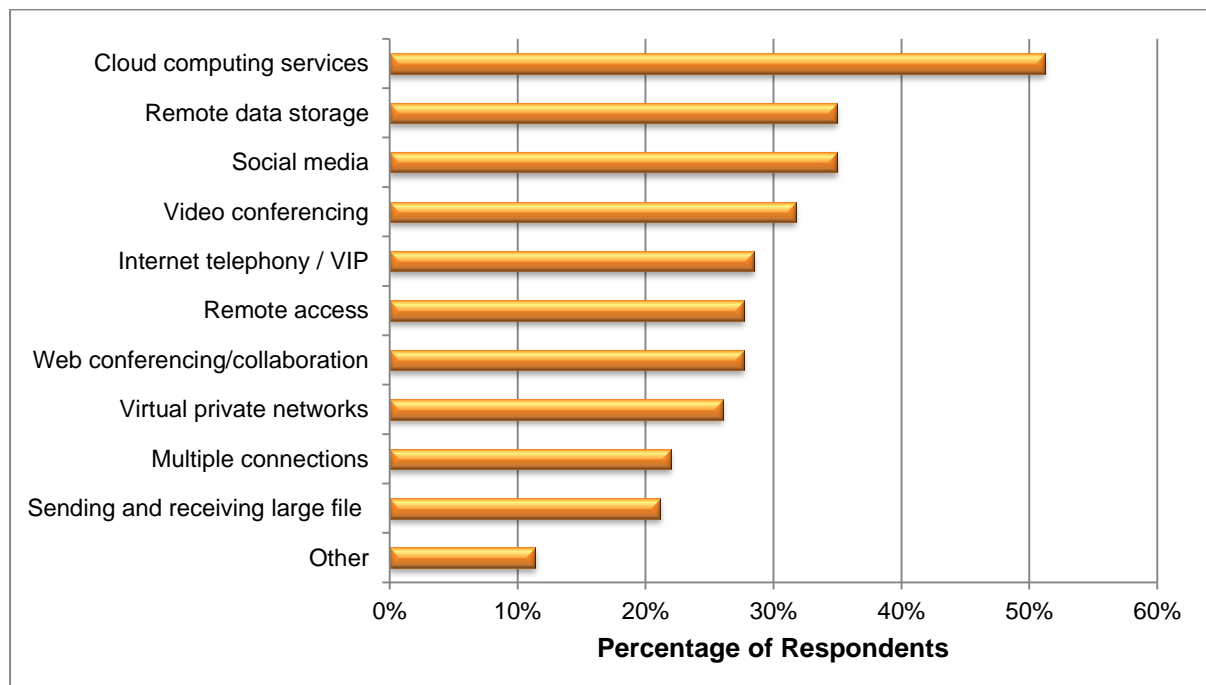
Other key points to note from the chart are:

- The frequency of usage appears to have increased most notably in relation to communication functions. Users of web conferencing (73.8%) and video conferencing (69.8%) reported the highest increases in frequency of usage. This was followed by internet telephony (61.5%), cloud computing (61.0%) and remote data storage (59.9%);
- The increase in usage was lower amongst the most commonly used functions, with 59.2% of those sending and receiving large files and 54.3% of users of multiple connections reporting an increase in the frequency of their use; and,
- Just over half the users of social media (52.8%), virtual private networks (52.8%) and remote access (52.1%) functions reported an increase in their use. In contrast, no users reported a fall in usage for web conferencing, video conferencing or remote data storage, whilst less than 1% of users reported a fall in usage for each of the other seven functions.

4.2.3 Requirement for ICT Training

The 460 connected businesses were asked which, if any, internet functions they or their staff would benefit from ICT training in. Of these 460 connected businesses, 337 (73%) did not indicate having any training requirements. The training needs of the remaining 123 (27%) businesses are outlined in Chart 9.

Chart 9: ICT Training Needs Amongst Connected Businesses



Base: All businesses connected for 12 months or more with training requirements (n=123).

Please note: Percentages will not total base due to multiple responses.

The key points to note from the chart are:

- A majority of businesses (51.2%) indicated that they required training in the area of cloud computing. This is likely to reflect the large proportion of respondents that have only recently adopted cloud computing since connecting to superfast (see Table 7);
- Remote data storage (35.0%), social media (35.0%) and video conferencing (31.7%) were the next most commonly identified training requirements; and,
- While multiple connections and sending and receiving large files were the most commonly used internet functions (see Chart 7) they were also the functions with the lowest demand for training. Nevertheless slightly over a fifth of respondents (22.0% for multiple connections and 21.1% for sending and receiving large files) reported training needs in these areas.

The 337 connected businesses that did not report any training requirements were asked why they did not feel either themselves or their staff would benefit from training to improve their ICT skills. The key findings from the 248 businesses providing a response were as follows:

- Approximately two thirds of the businesses (66.1%, 164) felt that they had **sufficient resources to meet their ICT skills needs**. Of these a large majority 131, felt that their staff already had the necessary ICT skills. Of the remaining businesses, 26 met their ICT skills through in-house training or technical support whilst 7 outsourced ICT support to external providers; and,
- Over a quarter of the businesses (28.6%, 71) indicated that they **did not require any additional ICT skills**. Of these, 40 felt that the skills were not relevant to their business; 27 felt that their business was too small to require skills; whilst four indicated that they were planning to move or retire shortly.

Of the remaining 13 businesses six reported that they had no time and/or money to attend training, while two felt that the training available would not benefit them. A further two businesses indicated that while training would not be useful to them they would like some information on what more they could do with the internet, while the same number of businesses suggested that they could source this training themselves. The remaining business indicated that their employee was based offshore and so would not benefit from training in Cornwall.

4.3 Use of Processes and Systems

This sub-section examines the use of electronic processes and systems amongst connected businesses.

The 442 businesses which participated in the business omnibus survey between waves two to seven²³ were asked about their usage of a series of pre-specified electronic processes and systems since connecting to superfast broadband.

²³ The business omnibus survey was undertaken in a series of seven waves which altogether covered a two and a half year period. During this period some additions were made to the survey topic guide, which accounts for some of the data being available only for later waves. See Appendix C for more information, including a breakdown of the survey sample by each wave.

Table 8 presents these figures and provides a further breakdown by those businesses that first used the processes since connecting (post-SFB) and those that had used them before connecting (pre-SFB).

Table 8: Use of Electronic Processes and Systems

Business Processes	Currently Used ¹		First Used Post-SFB		Used Pre-SFB ¹	
	Frequency	%	Frequency	% (users)	Frequency	% (users)
Online marketing	286	64.7%	39	13.6%	247	86.4%
Online sales	189	42.8%	24	12.7%	165	87.3%
Logistics or supply chain	171	38.7%	23	13.5%	148	86.5%
Other	66	14.9%	13	19.7%	53	80.3%

¹All connected businesses (n=442, missing=18); ²All connected businesses reporting to use each function (n=various)

Key = Baseline figures: current usage forms the baseline for both the percentage of businesses which first used a process post SFB and those who used it before connecting to SFB.

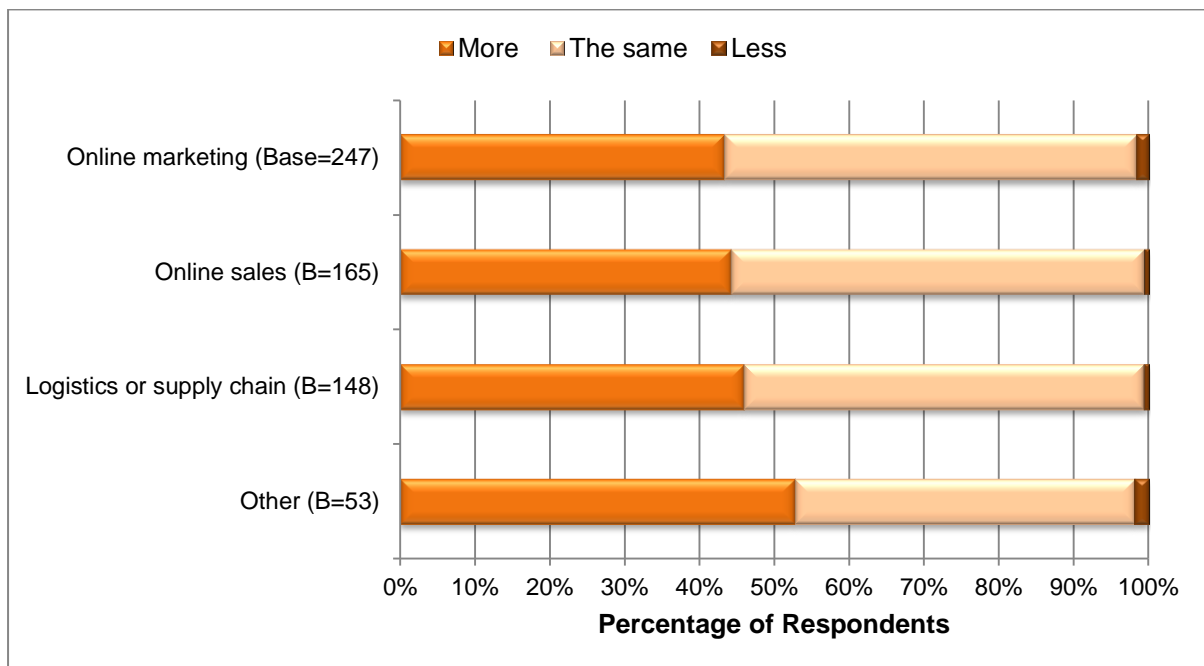
The key points to note from the table are as follows:

- Online marketing was by far the most commonly used function, identified by nearly two-thirds (64.7%);
- Over four-fifths of businesses using each process and system were already users before they connected to superfast. However nearly a fifth of users (19.7%) could also identify an 'other' process or system which they first started using since connecting to superfast.

A variety of different processes and systems were included under 'other'. The most common were: basic functions (including emails and website) (17 respondents); banking and accountancy (15); and ordering or purchasing systems (12).

Those businesses that already used the electronic processes and systems before they upgraded to superfast were asked whether the frequency of their use had changed since they connected.

As shown in Chart 10, over half of all respondents indicated that their use of three of the four identified processes or systems had not changed since they connected: logistics or supply chain (53.4%), online sales (55.2%), and online marketing (55.1%). Amongst the pre-specified systems and processes usage increased for over 40% of respondents, with the largest increase being amongst the users of online logistics or supply chains (45.9%).

Chart 10: Change in Usage of Electronic Processes and Systems since Connecting

Those respondents from Waves two to six indicating that they had used some of the processes and systems before they upgraded to superfast (312) were asked which aspect of their business superfast had changed the most and why.

Of the 309 businesses that responded, 252 businesses reported positive changes as a result of superfast, with the most commonly cited change being that superfast made access to and use of the internet much faster (116 respondents).

Other frequently reported impacts included improved efficiency and productivity (24); increased and improved access to communication channels such as emails, internet telephony and web conferencing (23); the ease of transferring and/or downloading large files (21); the provision of a superfast connection to customers (e.g. tenants at business parks or guests at holiday homes) leading to a better customer experience (19); increased use of online sales and ordering systems (15); and a general improvement in the way the business works (11).

Of the 57 businesses which did not cite positive changes resulting from superfast, 49 indicated that there had been no impact on their businesses whilst five cited a negative impact (due to poorer performance than their previous broadband package), and three were unsure about the impact.

St Agnes Boating – ‘Breathing fresh energy into business’



St Agnes Boating is a family run business providing year round ferry services for the community of St Agnes on the Isles of Scilly, with its two boats, the Spirit of St Agnes and the Enterprise.

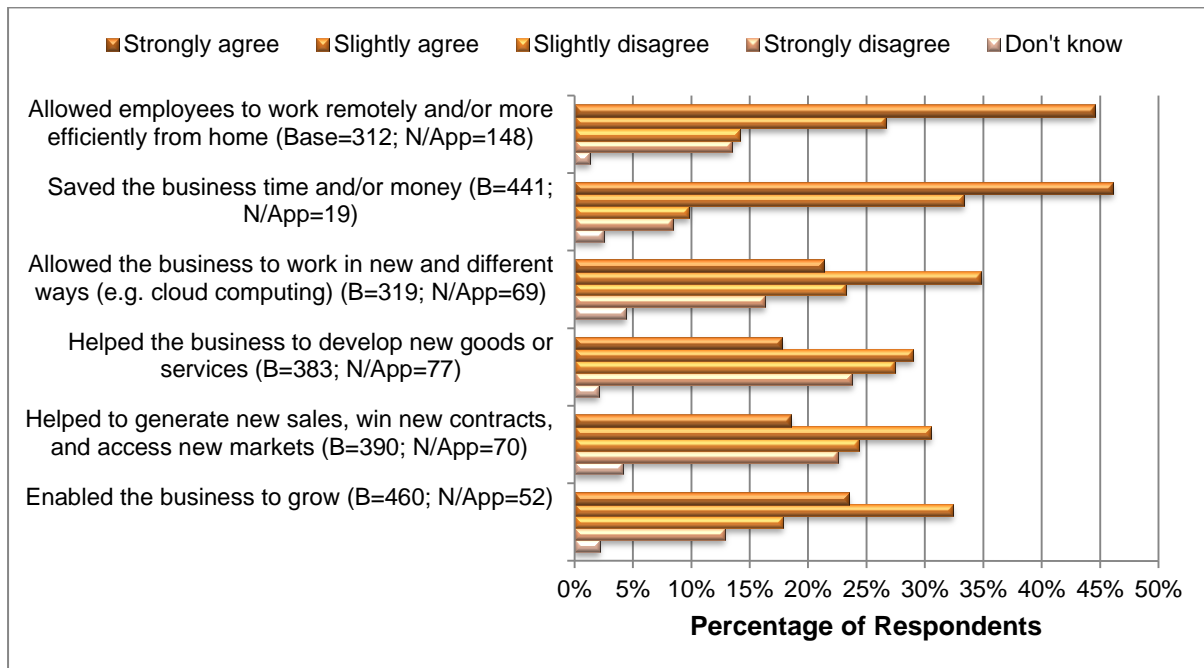
Owner John Peacock says: “Superfast broadband has allowed us to completely revolutionise the way we run the business. It has not only speeded up all our processes, but more importantly, it has breathed fresh energy into the business, by allowing us to develop a new app which we believe is the first of its kind in Europe.”

A large proportion of the St Agnes Boating customers are business people, council staff, residents and other regular visitors. John has identified a way of streamlining the business by helping aggregate demand for his boat services. Now, if for example, somebody wants to charter a ferry service at a particular time, this will be publicised online, so that others know they have the opportunity of joining this trip. The bespoke system automatically recalculates the price for each passenger on the basis of the latest number of passengers, with the price for each individual decreasing as more passengers sign up to travel (Case study: February 2015).

Further information: www.superfastcornwall.org/business-user/business-stories/

4.4 Impact of Superfast Broadband

All 460 connected businesses that had been connected for longer than 12 months were presented with a list of statements about the impact of superfast on their business and asked to what extent they agreed with each. The results are displayed in Chart 11.

Chart 11: Impact of Superfast Broadband on Businesses

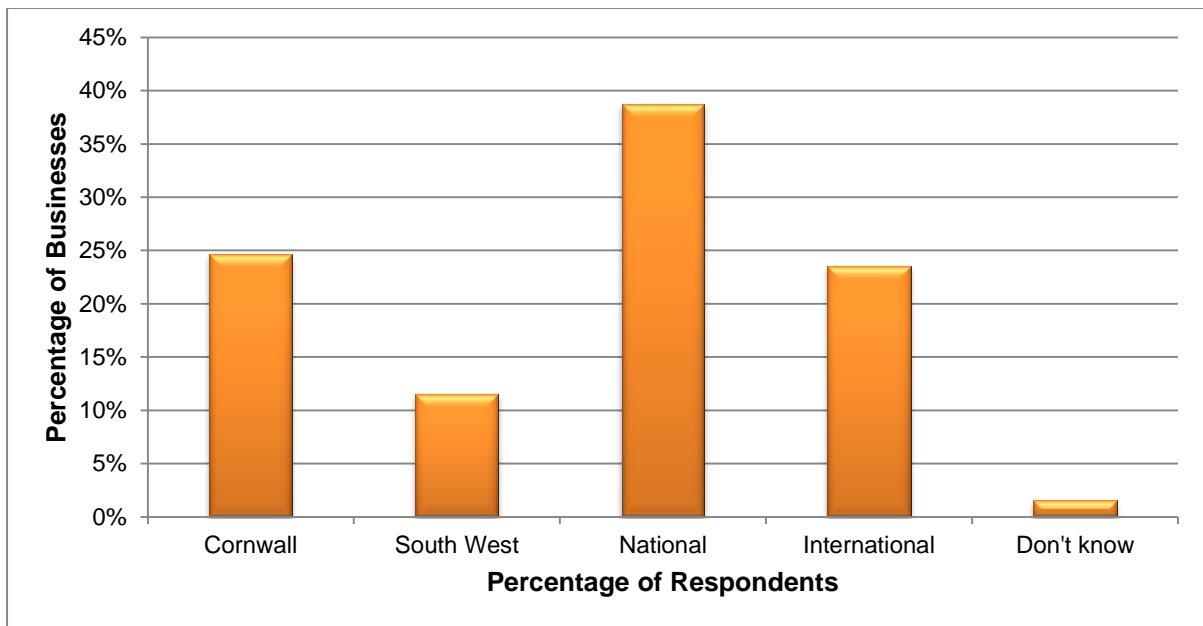
NB: N/App = Not Applicable

The key points to note from the chart are as follows:

- Superfast appears to have made the greatest impact with regards to saving businesses time and money, and enabling remote working. Nearly four-fifths of respondents (79.4%) 'slightly' or 'strongly agreed' that superfast had enabled their business to do the former, and 71.2% that it had allowed them to do the latter;
- A smaller majority of respondents 'slightly' or 'strongly agreed' that superfast had allowed their business to work in new and different ways (56.1%) and enabled their business to grow (55.9%);
- Views on the extent to which superfast had supported the generation of new sales or contracts, or enabled access to new markets were mixed. Nearly half the respondents (49.0%) 'slightly' or 'strongly agreed', whilst 46.9% 'slightly' or 'strongly disagreed' with this statement; and,
- A large minority of businesses (46.7%) 'slightly' or 'strongly agreed' that superfast had helped them develop new goods and services. This compares with just over half (51.2%) that 'slightly' or 'strongly disagreed' with this statement.

The 191 (49%) businesses which 'slightly' or 'strongly' agreed that superfast had enabled them to generate new sales or access new markets were asked in which geographical location these sales were mainly based. As Chart 12 shows less than a quarter of respondents (24.6%) identified these sales as being in Cornwall while a majority (62.3%) indicated that they were either national or international.

Chart 12: Location of New Sales Acquired Using Superfast



Base: All connected businesses indicating superfast helped generate new sales (n=191)

MacMate – 'From local niche markets to global exporter'



MacMate was launched in June 2012 by MacAce, an established internet services company in Bodmin. It is an elegant collection of cloud services for Apple Mac, including web hosting, cloud disk storage, back up, iCal calendarsharing, email and galleries.

Following an exhibition at the world's biggest Apple event, MacWorld Expo in San Francisco, MacMate has stormed ahead in the US marketplace and sales in the USA now account for 75% of total MacMate sales. Chief Executive Officer Gary Hall

says: "We targeted the USA specifically as the Mac market is ten times larger there than in the UK.

"MacMate has turned us from a niche UK-only ISP into an exporter of cloud-based services in only a few months. It's a market that's highly profitable and highly skilled and we are perfectly placed to exploit it. Our real strength has been our customer service and our ability to adapt and change our product more rapidly than our competition, which are corporations such as Google and DropBox. We offer something with our cloud services that customers could not get anywhere else – a human being on the end of the phone."

Gary says: "Being able to access superfast broadband in Cornwall has brought a real advantage to our business in a number of ways, improving our product delivery, reducing costs and boosting competitiveness. In the last year, the business has grown from 4 staff to 12. We are recruiting additional staff now too. Superfast broadband has been a fantastic boost to our business and helped accelerate our rapid expansion" (Case study: November 2013).

Further information: www.superfastcornwall.org/business-user/business-stories/

Perceived Market Advantage

All 460 businesses that had been connected for more than 12 months were asked if they felt that upgrading to superfast had given them a market advantage over their competitors. Over a quarter (27.6%, 127) indicated that they had been provided with such an advantage, whilst the majority (62.6%) indicated that they had not. The remaining 9.8% did not know.

The 127 businesses that felt superfast had given them a market advantage were asked how long they expected this market advantage to last. Of the 68 businesses that provided a response, 55 respondents provided a specific timeframe (Table 9²⁴). As shown, the majority expected this advantage to last up to two years. Of note is that seven respondents felt that the advantage would be permanent as they would look to stay ahead of their competitors technologically.

Table 9: Timescale of Market Advantage Resulting from Superfast

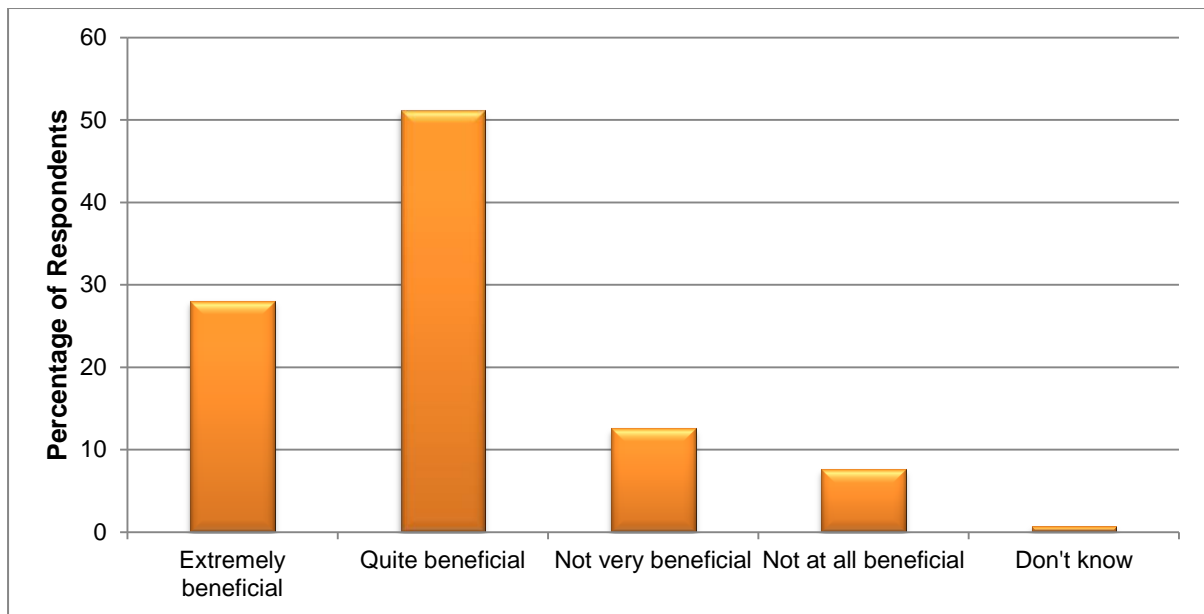
Timescale	No.
Less than One Year	11
One Year	18
One - Two Years	14
Over 2 Years	5
Permanent/ongoing Advantage	7

Base: All connected businesses indicating a market advantage who provided a timeframe (n=55).

Of the remaining 13 businesses, nine reported that the advantage would last until their competitors upgraded to superfast, whilst three felt the advantage would 'not last long', and one felt it would be down to the progress of the technology.

All 460 connected businesses were asked how beneficial they felt superfast had been to their business overall. As shown in Chart 13, 79.1% of businesses felt that it was either 'quite' or 'extremely' beneficial. In contrast, just over a fifth of respondents (20.2% amounting to 93 businesses) rated it as either 'not very' or 'not at all beneficial'.

²⁴Where respondents specified a range a midpoint was used e.g. 6 months to 12 months = 9 months was assigned as being 'less than one year'.

Chart 13: Overall Benefit of Superfast

Base: All connected businesses (n=460)

Eighty-eight of the 93 respondents indicating that superfast had not been beneficial provided details on why they felt this was the case. The most common reasons provided were as follows (businesses could make multiple responses):

- The perceived poor quality of the superfast connection, which fell below the business's expectation (31 out of 88 respondents);
- The limited importance of the internet to the business (26) - 18 of these businesses further indicated that they did not use the internet enough to benefit, whilst 10 felt that the nature of their business meant the benefits were limited;
- A perception that superfast had not made any difference to their business (18);
- A perception that the benefits of superfast were limited to a faster or more reliable service (12); and,
- The previous broadband connection had been sufficient for the business's purpose (7).

The remaining business responded that they had gained no market advantage as their competitors had upgraded as well.

Enabling Different Approaches in Business

The 411 businesses which were not connected to superfast were asked whether using superfast broadband, as opposed to regular broadband, would allow them to do things differently in their business. Of these businesses, the majority (243, 59.1%) felt that superfast would allow them to do things differently, 144 (35.0%) felt that it would not, whilst 24 (5.8%) did not know.

Of the 243 businesses identifying that superfast would allow them to do things differently, 199 provided some details on what they felt the impact would be. The key themes mentioned were as follows (businesses could make multiple responses):

- An increase in the speed of the business's workload due to having a faster connection (96 out of 199 respondents);
- Improved ability to transfer and download more files, including larger files than currently (34);
- An increase in efficiency (27), again due to the faster speeds expected of superfast;
- Improvements to the customer experience e.g. in hospitality and catering businesses where customers will want to connect (26);
- Improved communication through the use of such functions as video conferencing and internet telephony (16);
- Enabling access from remote locations (11); and,
- The ability to use other internet functions, such as live streaming, multiple connections and security systems (10).

4.5 Stakeholder Views on Business Impacts

In addition to collecting data directly from businesses through the business omnibus and counterfactual surveys, the evaluation also gathered information about business impacts indirectly via the stakeholder survey.

Nineteen of the 21 stakeholders interviewed at the final stage were asked whether they were aware of how businesses are using superfast. Among the 15 stakeholders that had some awareness, eight cited the use by businesses of new functions including transferring, downloading and uploading new files (3 respondents); working from home (3); video conferencing (3); cloud computing (2); and voice over internet protocol (1).

Some stakeholders referred to specific examples of how businesses were using new functions. These included:

- Customer management: One stakeholder pointed to the use of diagnostic systems by hotels to manage arrivals and departures, while another suggested that tourism companies have improved their booking systems due to using superfast;
- Ecommerce: One stakeholder referred to the work of the Supercrafted project which is using superfast to develop e-commerce amongst the craft industry. Another stakeholder mentioned a more specific case of a fishing company which was using superfast to auction fish online;

- International links: One stakeholder referred to a business which used Skype to communicate with customers globally and to overcome language barriers when taking orders for products. Another mentioned a web design company which was able to base its three Directors in France, the US and Cornwall as a result of being able to communicate through superfast; and,
- Marketing and promotion: One stakeholder mentioned an example of a pub which uses Skype to send recipes to potential customers.

Sectoral Advantage

Some stakeholders also discussed the particular sectors which they felt had taken advantage of the opportunities provided by superfast. While one stakeholder felt that only digital businesses had really utilised superfast, others pointed to different sectors including: the creative sector (4 respondents); tourism (2); manufacturing (1); environmental technology (1); and mining (1).

Creation of New Services or Products

Stakeholders were generally less aware of businesses that had used superfast to create new services or products. Three stakeholders did feel that more needed to be done to inform and/or encourage businesses to use superfast to promote innovation.

Of these, one stakeholder suggested that more needed to be done in terms of providing lectures and workshops for non-digital industries regarding how they can use superfast.

Another stakeholder stressed that the information currently provided needed to be re-focused towards how businesses can use superfast better as opposed to whether they should use it at all. The third stakeholder felt that more case studies of businesses using superfast for innovation would be useful.

Fourteen of the 21 stakeholders also discussed the impact of some of these changes that have been taking place in businesses. The key themes that emerged included:

- Increased efficiency and reduced costs (4 respondents). This was attributed to the time savings resulting from faster superfast, as well as the ability to use teleconferencing in place of travel, and the increased feasibility of cloud computing;
- Improved international reach (4). These stakeholders felt that superfast had enabled some businesses to expand internationally when they had previously not been able to do so. One stakeholder pointed to a business they knew using superfast to work in the Middle East and East Asia, whilst another felt that businesses were using superfast to set-up collaborative ventures internationally;
- Enhanced social enterprise sector (3). Two stakeholders pointed to the use of superfast by social enterprises to enhance community engagement, particularly with what were traditionally more isolated communities. Another stakeholder felt that social enterprises had used superfast to lower their costs;

- Growth of new sectors (3). One stakeholder felt there were more creative businesses emerging in Cornwall due to superfast, while another suggested that digital was now a key growth sector in the county. More specifically, one stakeholder, pointed to the establishment of a digital games sector, based around the new digital games courses at Falmouth University, facilitated in part by the roll-out of superfast; and,
- Growth of new businesses (2). One stakeholder perceived there to have been more start-ups than otherwise as a result of superfast. More specifically, and in relation to the previous bullet point, another stakeholder felt that superfast provided an opportunity for graduate businesses at Falmouth University to move on outside the campus, knowing that they would still be able to benefit from a fast and reliable connection.

In addition to these responses one stakeholder pointed to an increased requirement for digital literacy amongst smaller businesses outside the digital sector, whilst another felt that the key impact would be in the development of remote working, but that this would require a cultural shift that would take time to realise.



Photo: BT Openreach engineer in Zelah, Cornwall

5. Economic Benefits

Summary of Key Points:

Turnover, Costs and Profit

- Just under a half of connected businesses (47.7%) reported an increase in their turnover during the two financial years preceding the interview. Average turnover amongst the connected businesses was estimated to have increased by £90,848 per business compared to just £20,922 amongst non-connected businesses.
- Just over a quarter (26.0%) of connected businesses felt that superfast had played a role in increasing their profits, whilst over two-fifths (44.6%) felt that it had helped reduce their costs.

Employment amongst Established Businesses

- Analysis revealed that a higher proportion of connected businesses (27.4%) increased their employee numbers over the period than non-connected businesses (19.4%). Average gross job creation amongst the 425 connected businesses (0.63 FTE) was also higher than among non-connected businesses (0.45 FTE).
- Total attributable job creation amongst the 5,905 businesses in Cornwall that have been connected to superfast for 12 months or more is estimated at 1072 FTE (£60.9m in GVA). After adjusting for displacement and the multiplier this amounts to a 1079 FTE (61.3m in net GVA).
- Superfast appears to have made an even greater impact in terms of jobs safeguarded. Total jobs safeguarded amongst the 5,905 businesses connected for 12 months or more is estimated at 2,452 FTE or £93.7m. After adjusting for displacement and the multiplier this amounts to a net increase in FTE of 2,468 (£94.3m in net GVA).

Business Start-Ups

- Of the 468 consumers that completed the household survey, 9.6% had used the internet to set-up a business, while 7.1% reported that another household member had done so. A total of 12 consumers who set-up new businesses were influenced by superfast to do so, of whom seven were running start-ups (defined as businesses that were less than two years old).
- An estimated increase of 940 FTE (£30.3m in GVA) is associated with new businesses attributable to superfast amongst the 43,301 residents it is assumed have been connected for at least 12 months. This amounts to a net increase of 946 FTE (equating to £30.5m in GVA).

5.1 Introduction

This section discusses the economic impact of the Superfast Cornwall project on both the businesses surveyed as well as on the wider Cornish economy. The section begins with an outline of the economic context before considering the economic impact of the project drawing on the results of the business omnibus and counterfactual business surveys. The section then concludes with a discussion of economic benefits including business start-ups, productivity gains and inward investment.

Throughout the section reference is made to gross, attributable and net estimates. These are defined as follows:

- **Gross Increase:** The overall increase in Gross Value Added (GVA) and jobs amongst connected businesses;
- **Attributable Increase/Safeguarded:** The increase in (or safeguarding of) GVA and jobs amongst connected businesses or business start-ups which is attributed to the Superfast Cornwall project (i.e. it would not have happened without the project); and,
- **Net Increase:** The increase in (or safeguarding of) GVA and jobs amongst connected businesses or business start-ups which is attributed to superfast after both negative (displacement) and positive (the multiplier) impacts on other businesses in Cornwall are taken into account²⁵.

In addition to the presentation of data, economic benefits are exemplified through the inclusion of four business case studies, summarised from the Superfast Cornwall project website. Four additional case studies may be found in Appendix H.

5.2 Economic Backdrop

Before discussing the economic impact of the Superfast Cornwall project it is important to emphasise the wider economic context within which the project has been operating. The project targets were based on an assessment of the county's previous economic performance, as outlined in the Convergence Operational Programme, which was produced before the 2008-09 recession. However the Superfast Cornwall project did not commence until July 2010 shortly after the recession had come to an end.

The subsequent five years saw a gradual recovery within both Cornwall and the country as a whole, with UK GDP estimates not returning to their pre-recession level until the third quarter of 2013²⁶. Consequently the roll-out of Superfast Cornwall occurred in a context where survival, as opposed to growth, was still the primary focus for many businesses. This is likely to impact the performance of both connected and non-connected businesses.

²⁵ See Section 5.3.7 for more information on how this is calculated. The net figures do not include an adjustment for leakage as this is already factored into the gross figures, while substitution is not considered applicable.

²⁶ Office for Budget Responsibility, Economic and Fiscal Outlook, December 2014.

Appendix G provides additional detail on the economic backdrop, by outlining the performance of both Cornwall's economy and three comparator areas against six key economic indicators. It should be noted however that for four of the six indicators the most recent figures are for 2013, while for one (GDP per head) data is only available up to 2012, when connectivity and take-up were much lower than at the end of the project. Consequently this data, whilst providing useful context, is of limited value in terms of discerning the impact of the Superfast Cornwall project on the county's economy.

5.3 Business Performance (Established Businesses)

This sub-section provides an overview of the economic benefits, amongst connected established businesses, of Superfast Cornwall in terms of turnover, jobs and GVA (NB: The impact of superfast on business start-ups is discussed in Section 5.4).

5.3.1 Turnover (Established Businesses)

Turnover by Connected and Non-connected Businesses

Businesses in both the business omnibus and counterfactual surveys were asked to report turnover for the following financial years:

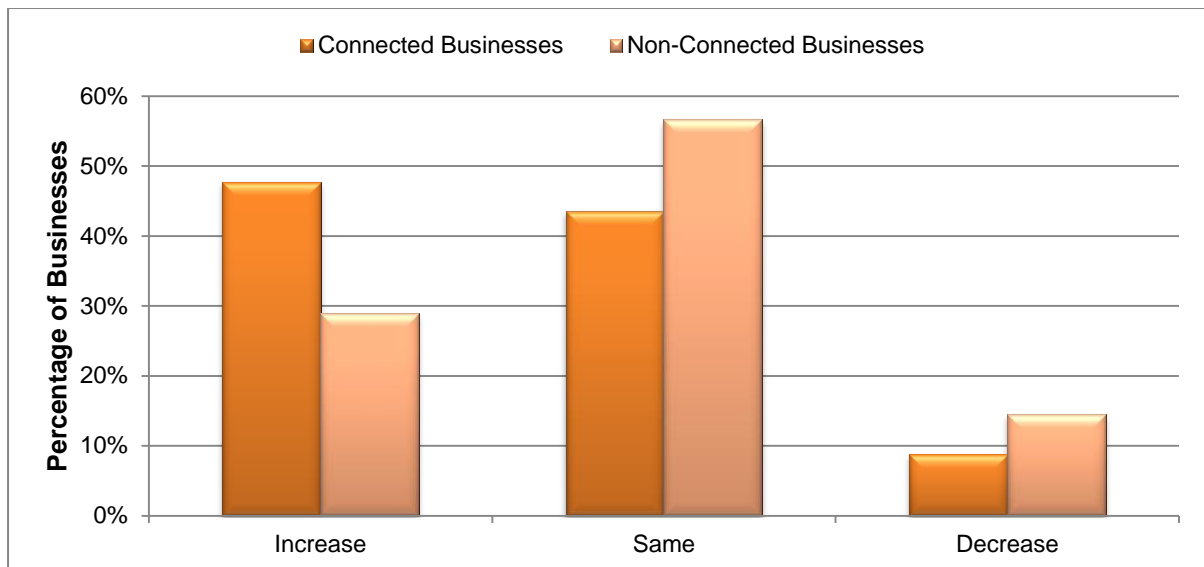
- **Year 1:** The last full financial year but one (e.g. if the business was interviewed in Autumn 2013 then this would be the April 2011 – March 2012 financial year); and,
- **Year 2:** The last full financial year (e.g. if the business was interviewed in Autumn 2013 then this would be the April 2012 – March 2013 financial year).

Of the 460 respondents to the business omnibus survey, 216 were able to provide turnover figures for both financial years, while 180 of the 411 counterfactual respondents were able to provide such data²⁷.

As shown in Chart 14, the key points to note are:

- Of the 216 connected businesses providing turnover data, 47.7% (103) reported an increase in their turnover across the two year period, whilst 43.5% (94) reported no change and 8.8% (19) reported a decrease;
- In contrast amongst the 180 counterfactual businesses providing data the majority (56.7%, 102) reported no change to their turnover whilst only 28.9% (52) reported an increase. The remaining 14.4% (26) reported a decrease.

²⁷ Amongst the 216 omnibus survey respondents providing turnover figures an absolute value (as opposed to a range, such as £150,001 - £200,000) was available for only 147 businesses. Similarly just 110 of the 180 counterfactual survey respondents could provide an absolute value. Consequently the data should be treated with some caution (for example, a reported turnover of £30,001 to £50,000 in both financial years will not identify any change that falls within the parameters of this range).

Chart 14: Change in Turnover by Connected and Non-Connected Businesses

Base: All businesses providing turnover data for both years (Connected Businesses=216 Non-connected Businesses=180)

Turnover by Connection Status

Table 10 outlines the actual increase in turnover reported by both the connected and non-connected businesses. Of note is that the average turnover in Year 1 for connected businesses (£525k) was similar to non-connected businesses (£517k) - a difference of only £9k; whilst the median turnover amongst non-connected businesses (£155k) exceeded that of connected businesses (£150k).

Whilst both groups saw their turnover increase between Year 1 and Year 2, the average increase was considerably higher amongst connected businesses (£91k/ +17.3%) than non-connected (£21k/ +4.1%) - a difference of £69.9k. During this period the median turnover amongst the connected businesses rose to £175,001 (an increase of 16.7%) while it remained unchanged amongst non-connected businesses.

Table 10: Turnover by Connection Status

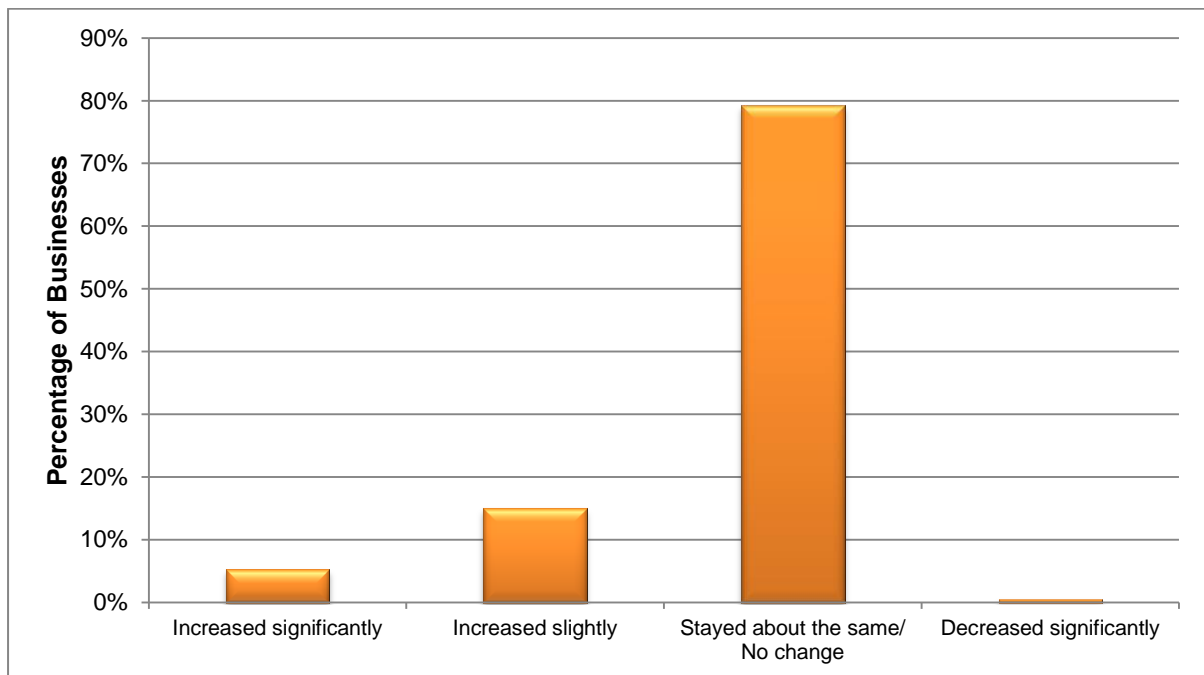
Turnover	Connected Businesses			Non-Connected Businesses		
	Total	Average	Median	Total	Average	Median
Year 1	£113,505,228	£525,487	£150,000	£92,982,532	£516,570	£155,000
Year 2	£133,128,428	£616,335	£175,001	£96,748,532	£537,492	£155,000
Turnover Change	£19,623,200	£90,848	£0	£3,766,000	£20,922	£0

Base: All businesses providing turnover data for both years (Connected Businesses=216; Non-connected Businesses=180)

Attribution of Turnover

All connected businesses were asked how much of their turnover change (if any) they attributed to superfast. As shown in Chart 15, of the 381 businesses that were able to provide a response, 79.3% (302) felt that superfast had made no impact on their turnover, whilst approximately one fifth (20.2%, 77) felt that it had either 'slightly' or 'significantly' increased their turnover. The remaining 0.5% of businesses (2) indicated that superfast had decreased their turnover 'significantly'.

Chart 15: Change in Turnover as a Result of Connecting to Superfast Broadband



Base: All connected businesses providing a response (n=381)

Of the 381 businesses that provided a response to the question on attribution, 331 were able to provide a figure for the impact of superfast on their turnover. The total attributed turnover increase from this source amounted to £1.4m, or an average of £4,238 across the 331 businesses.

Given that the average increase in gross turnover amongst the connected businesses was £69.9k higher than it was for the non-connected businesses, it is perhaps surprising that the turnover directly attributed to superfast by the connected businesses was so much lower at just £4.2k. This might reflect the difficulties businesses had in estimating attribution, given that this involves imagining what would have happened to the business in the absence of superfast.

The large gap in turnover increases between the connected and non-connected businesses (Table 10) partly reflects discrepancy in the performance of larger businesses with a turnover of at least £1million at Year 1:

- Of the 28 'larger' connected businesses in Year 1, 17 increased their turnover from Year 1 to Year 2, whilst turnover for the 28 businesses overall rose by an average of £384k. However, just six of these businesses attributed a proportion of their turnover increase to superfast, of which only one attributed an increase of over 50%. As such, so the average attributed turnover increase amongst the 28 businesses was just £21k;

- In contrast, of the 17 'larger' counterfactual businesses at Year 1, just five reported an increase with turnover rising by an average of just £24k.

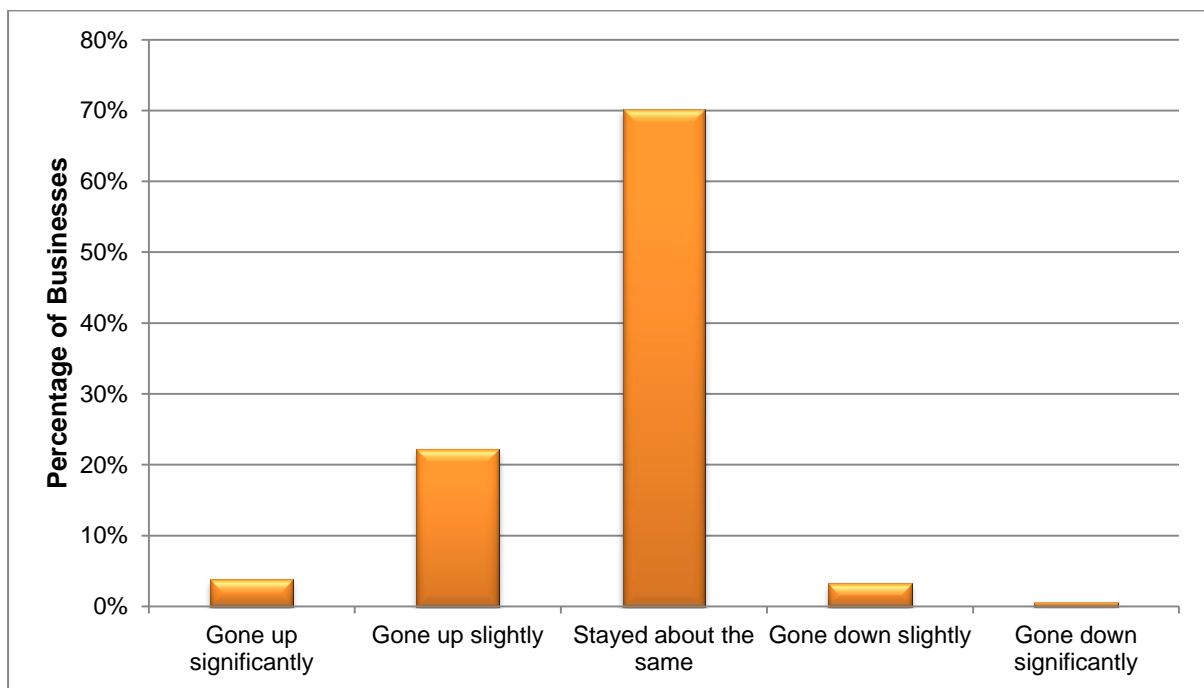
5.3.2 Profit and Costs (Established Businesses)

Change to Profit

All connected businesses were asked whether their profits had changed as a result of connecting to superfast. Of the 460 businesses, 369 were able to provide a response while the remaining 91 businesses did not know.

As shown in Chart 16, over two-thirds of businesses (70.2%, 259) felt that their profits had not changed as a result of superfast. However just over a quarter of businesses (26.0%, 96) reported that their profits had gone up either 'slightly' or 'significantly' as a result of superfast broadband. The remaining 3.8% of businesses (14) felt that their profits had declined either 'slightly' or 'significantly' as a consequence of superfast.

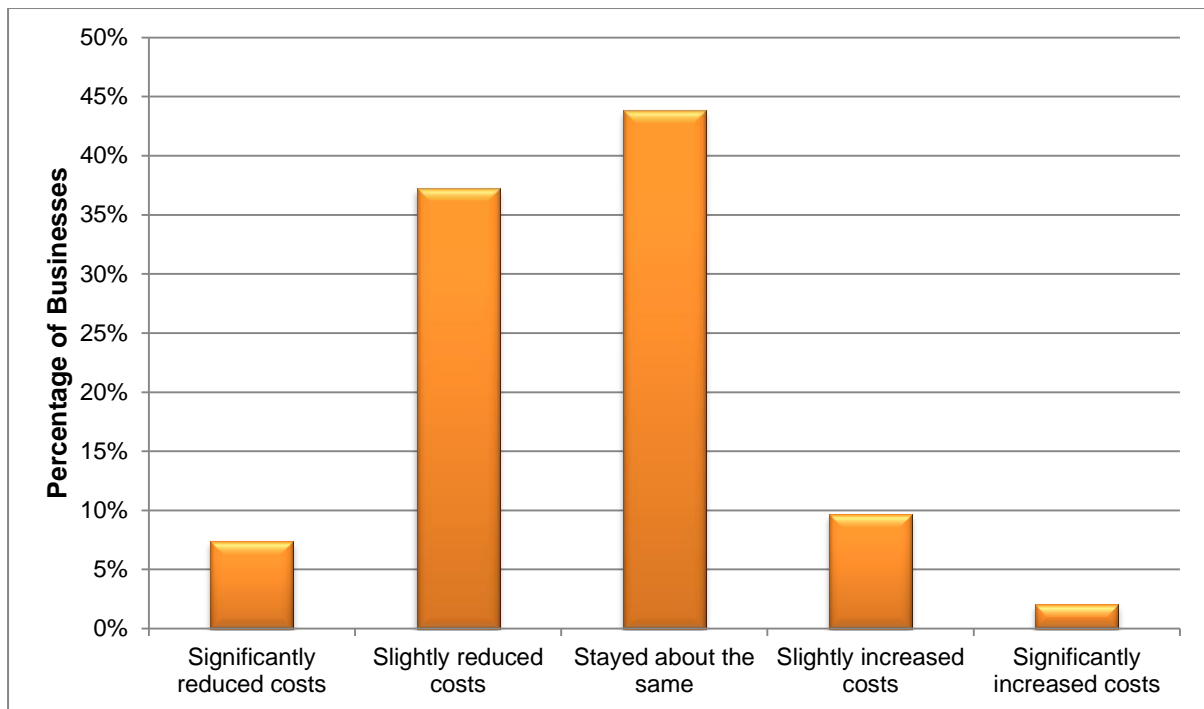
Chart 16: Change in Profit by Business as a Result of Connecting to Superfast



Base: All Connected Businesses able to provide a response (n=369)

Change to Costs

Similarly, the connected businesses were also asked whether superfast had resulted in any changes to their costs. Of the 395 businesses that were able to provide a response, over two-fifths (44.6%, 176) indicated that superfast had either 'slightly' or 'significantly' reduced their costs, while a similar proportion (43.8%, 173) felt that superfast had not had any overall impact. The remaining 11.6% (46) felt that superfast had either 'slightly' or 'significantly' increased their costs. These figures are displayed in Chart 17.

Chart 17: Change in Business Costs as a Result of Connecting to Superfast

Base: All Connected Businesses able to provide a response (n=395)

5.3.3 Gross Jobs and GVA Created (Established Businesses)

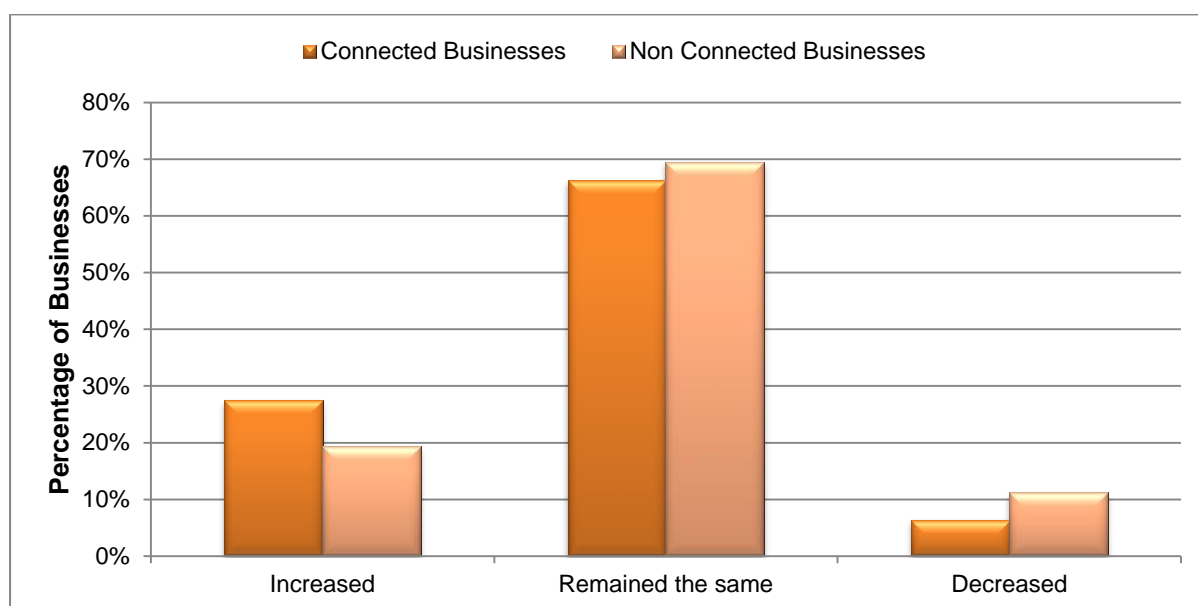
The following sub-section outlines change to employment and GVA. GVA is calculated through converting each job created or safeguarded into a GVA/FTE figure for businesses in Cornwall that is specific to the sector the job is based in²⁸ (See Annex F). This means that it excludes any GVA as a result of productivity gains where businesses do not increase their FTE headcount. Conversely where a business does increase its employment the assumption is that there is no change in productivity per FTE.

Both the business omnibus (connected) and counterfactual (non-connected) survey respondents were asked whether they had increased the number of their employees based within Cornwall in the last two years. A total of 438 of the 460 connected businesses and 403 of the 411 non-connected businesses were able to answer this question.

As shown in Chart 18, a larger proportion of connected businesses reported an increase in employment (27.4%, 120) than non-connected (19.4%, 78). Other key points to note are:

- A majority of both connected (66.2%, 290) and non-connected businesses (69.5%, 280) did not report any change in employment over the last two years;
- Just over a tenth of non-connected businesses (11.2%, 45) reported a decrease in employee numbers compared to 6.4% (28) of connected businesses.

²⁸ The GVA per FTE sector averages used were calculated by the Red Group at Plymouth University (Annex F).

Chart 18: Change in FTE Amongst Connected and Non-Connected Businesses

Base: All businesses providing a response (Connected Businesses= 438; Non-connected Businesses= 403)

Of the 438 connected businesses that indicated whether or not their employee numbers had changed, 425 were able to provide figures for the change in full-time equivalent (FTE) posts²⁹. Of the 403 non-connected businesses, 399 were able to provide such figures.

Table 11 displays the gross FTE and calculated GVA increases over the two years prior to interview for both the connected and non-connected businesses. The key points to note are as follows:

- A total of 268.2 FTE jobs were created during the two year period amongst the 425 connected businesses that could provide data, equivalent to an estimated GVA increase of £9.4m;
- Average FTE employment growth amongst connected businesses (0.63 FTE) exceeded that of the non-connected businesses (0.45 FTE). When this is equated to GVA, average GVA among connected businesses is £22k, compared to £12k amongst non-connected businesses.

Table 11: Gross FTE and GVA Increases amongst Connected and Non Connected Businesses

	Connected Businesses	Non Connected Businesses
Total Gross FTE	268.2	179.4
Average Gross FTE	0.63	0.45
Total Gross GVA	£9,441,033	£4,747,848
Average Gross GVA	£22,214	£11,899

Base: All businesses providing jobs data (Connected Businesses= 425; Non-connected Businesses= 399)

²⁹ These businesses include those indicating that their employee numbers had not changed. Of the remaining 13 businesses, 12 had indicated an increase in employees, while 1 had indicated a decrease, but none of the businesses could specify by how much.

As shown in Table 11, average FTE amongst non-connected businesses (0.45) was 71% of average FTE amongst connected businesses (0.63). However, the average GVA of non-connected businesses (£11.9k), was just 54% of that reported by connected businesses (£22.2k). This reflects higher GVA/FTE ratios amongst the connected businesses that increased in size relative to their non-connected counterparts, due to them being located in more productive sectors.

The average FTE and GVA created amongst connected businesses can be grossed up to the estimated number of established businesses in Cornwall connected to superfast for 12 months or longer (5,905), as well as to the estimated number of connected businesses in Cornwall overall (7,984).

Based on the assumption that sectoral take-up of superfast broadband in the omnibus survey reflects that of the 5,905 businesses estimated to have been connected for 12 months or longer to date, **it is estimated that 3,727 new FTE were created in the last two years amongst connected businesses, amounting to £131m in GVA** to date.

If businesses that have been connected to superfast for less than 12 months are included then this figure rises to 5,039 new FTE for gross job creation, based on 7,984 connected businesses. This amounts to £177m of GVA created. These estimates are outlined in Table 12.

Table 12: Estimated Gross Jobs and GVA Created

	Average (per responding business)	Survey Sample (425)	Estimated Connected businesses June 2015 (7,984)	Connected for 12 months or more (5,905)
Gross FTE Jobs Created	0.63	268.2	5,039	3,727
Gross GVA derived from job creation	£22,214	£9,441,033	£177,367,912	£131,168,605

5.3.4 Attributable Jobs and GVA Created (Established Businesses)

Approach

Attributed figures refer to the increase in jobs created or GVA that can be attributed to the superfast project. It therefore adjusts for 'deadweight' (the extent to which benefits would have happened in the absence of the project). Attributed figures have been calculated through two methods:

- **Method A:** This method uses the counterfactual business survey to understand what would have happened in the absence of the project, by comparing the gross jobs/GVA reported from connected businesses with the jobs/GVA reported by non-connected businesses. See equation below:

$$\text{Average gross increase in FTE (connected businesses)} - \text{Average gross increase in FTE (non-connected businesses)}$$

The method assumes that there are no other factors besides connectivity status which would explain the differences between growth amongst the connected and non-connected businesses. Some supporting evidence for this assumption was found by comparing the two groups in terms of business size (two years before the interview) and sector. This analysis found that there was no statistically significant difference between the two groups in relation to either business size or sector.

- **Method B:** This method uses the business's own estimate of the extent to which their increase in jobs has been as a result of superfast broadband. It therefore only uses the results from the business omnibus survey. This method relies on the assumption that respondents would be able to make an informed judgement as to how many jobs to attribute to superfast.

While both methods have their strengths and weaknesses, Method A should be considered the more robust as it is based on observed job creation within a representative sample, while Method B is dependent upon subjective estimates. Notwithstanding this, Method B may be used as a useful means of checking the validity of Method A.

Jobs and GVA Creation

The total job creation figure for established businesses, estimated according to Method A, is 77.2 FTE, or an average of 0.18 FTE. This equates to a total £4.4m in GVA or an average £10k.

In order to estimate the increase in FTE and GVA attributed to Superfast using Method B, the 438 connected businesses that provided some information on employee change (Chart 18) were asked whether they attributed any of this change to superfast:

- Of the 120 businesses that reported an **overall increase** in their employee numbers, 64.2% (77) did not attribute any new jobs to superfast, while 5.0% (6) did not know whether they could attribute any job creation to superfast or not. Just under a third of businesses (30.8%, 37) did attribute at least some job creation to superfast;
- Of the 28 businesses that reported an **overall decrease** in their FTE employee numbers, 19 did not attribute any of this decrease to superfast, whilst five did, and four did not know;
- The remaining businesses (290) had already indicated that their **employee numbers had not changed** over the two year period.

Of the 37 businesses attributing some increase in their employee numbers to superfast, 34 were able to provide figures. This amounted to a total of 101.85 FTE attributed to superfast.

Of the five businesses that attributed a decrease in employee numbers to superfast all were able to specify the level of decrease, which amounted to -5 FTE. **The total increase in FTE attributed by these businesses to superfast was therefore 96.9 FTE, an average of 0.23 per business** (based on the 425 businesses that could provide figures).

The total estimated FTE and GVA created according to Method B are displayed in Table 13 alongside the Method A estimates. As shown, the average FTE attributed to superfast according to Method B is actually higher (by 0.05 FTE) than Method A. In contrast, average GVA is lower under Method B (by £1,488).

Table 13: FTE and GVA Attributable to Superfast

	FTE	GVA
Method A: Average Increase ¹	0.18	£10,315
Method A: Total Increase ¹	77.2	£4,383,801
Method B: Average Increase ²	0.23	£8,827
Method B: Total Increase ²	96.9	£3,751,330

Base: ¹ All businesses providing data on overall FTE change (n=425); ² All businesses providing data on FTE attributed to superfast (n=425).

The difference in FTE and GVA figures between Method A and B in part reflects differences in the sectoral distribution and estimated productivity levels between the businesses. While the FTE increase arising from Method A is lower than for Method B, the GVA increase is higher. This is partly attributable to the higher productivity levels associated with the connected businesses relative to the non-connected businesses (discussed in relation to Table 13 above).

This issue can also be highlighted by looking at the figures provided by the most productive businesses (those in sectors with an average GVA/FTE of over £80,000). In relation to Method B, just three of the 46 connected businesses within this group attributed any FTE increases to superfast.

However, while the average gross FTE increase amongst the 43 connected businesses that could provide data was 0.35 FTE, the average FTE amongst the 26 non-connected businesses in this category actually fell over the same period by 0.25 FTE. Consequently superfast may have had more of an impact on these businesses than they themselves perceived.

As with the gross FTE and GVA figures, the average FTE and GVA attributed (as calculated according to Method A) can be grossed up to the estimated number of established businesses in Cornwall.

Again, based on the assumption that the sectoral take up of superfast broadband in the omnibus survey reflects that of the 5,905 businesses connected for 12 months or more, **it is estimated that 1,072 new FTE can be attributed to superfast, amounting to £60.9m in GVA** to date. If businesses that have been connected to superfast for less than 12 months are included then this figure rises to 1,450 new FTE for attributable job creation, based on 7,984 connected businesses. This amounts to £82.4m of GVA created. These estimates are outlined in Table 14.

Table 14: Estimated Attributable Jobs and GVA Created

	Average (per responding business)	Survey Sample (425)	Estimated Connected businesses June 2015 (7,984)	Connected for 12 months or more (5,905)
Attributable FTE Jobs Created	0.18	77.2	1450	1072
Attributable GVA derived from job creation	£10,315	£4,383,801	£82,358,117	£60,906,165

5.3.5 Reasons for Attribution (Established Businesses)

The 37 businesses attributing jobs to superfast were asked how superfast had supported their creation. Twenty-nine respondents provided an explanation, which is summarised below:

- The *increased speed and efficiency* of business operations due to the use of superfast (12 out of 29 respondents). Examples of this included the ability to deal with a larger workload or to respond to opportunities for tendering more quickly than before;
- An *increase in sales*, including increased business due to more online activity (7);
- The *development of new services*, including online services, requiring new staff (4);
- The ability to use superfast to *access new markets or increase market share* (3).

Other less common reasons included: the ability to work remotely (2); the ability to set-up the business in the first place (1); and a belief that the firm's competitors are not doing 'such a good job' (1).

Natural Generation – ‘Monitoring a nationwide network’



Natural Generation is a renewable energy company, based at Perranporth. The company installs and maintains wind turbines and solar panel developments, as well as other renewable energy projects. The business has undergone rapid growth since being set up eight years ago with just two people and rising from 5 to 25 full time employees in the past four years.

Managing Director Ivor Thomson says: “We are completely dependent on the internet so superfast broadband has made a huge difference to us and will help us to expand

the business further in future.” Natural Generation was one of the first to order superfast broadband as soon as it became available in Perranporth.

Ivor explains: “We are an internet-hungry business. We maintain over a hundred wind turbines, both in Cornwall and as far afield as Scotland. All are connected to the internet and we can monitor their performance online. If one breaks down, we can see it on the large screen in our office or online and we can usually sort out the problem remotely. In other words, high speed internet is vital to our core business operations and superfast broadband has been tremendous for us” (Case study: February 2014).

Further information: www.superfastcornwall.org/business-user/business-stories/

5.3.6 Safeguarded Jobs (Established Businesses)

Superfast Cornwall has a target of 2,000 safeguarded jobs³⁰ and a net additional safeguarded GVA of £70m (see Section 1.2). Overall, 14.3% of the 460 connected businesses (66) attributed safeguarded jobs to connecting to superfast. Of these 66 businesses, 54 were able to provide figures amounting to a total of 154.5 FTE at an average of 0.42³¹, and £5.9m in GVA safeguarded at an average of £16k per business.

Again, based on the same assumptions used to gross-up jobs and GVA created figures to the 5,905 businesses connected for 12 months or more, **an estimated 2,452 safeguarded FTEs and £93.7m in safeguarded GVA can be attributed to superfast** to date. If the businesses that have been connected for less than 12 months are included then these figures rise to 3,316 safeguarded FTEs, based on 7,984 connected businesses, equating to £126.7 million safeguarded GVA. These estimates are summarised in Table 15.

³⁰ Jobs that were at risk but are now no longer at risk of being lost.

³¹ Based on 372 businesses able to provide figures, including those who specified a figure of 0 FTE (NB: 76 businesses did not know whether superfast had supported them to safeguard jobs or not).

Table 15: Estimated Attributable Jobs and GVA Safeguarded

	Average (per responding business)	Survey Sample (372)	Estimated Connected Businesses June 2015 (7,984)	Connected for 12 months or more (5,905)
FTE Jobs Safeguarded	0.42	154.5	3,316	2,452
GVA safeguarded	£15,870	£5,903,616	£126,712,548	£93,707,526

5.3.7 Net Impacts (Established Businesses)

'Net' FTE and GVA refer to the increase in FTE or GVA within Cornwall following adjustment to account for wider economic effects, both positive and negative (such as leakage, substitution, displacement and multiplier effects).

In order to calculate Net FTE and GVA adjustments were made to the attributable FTE and GVA figures for displacement and the multiplier (see Box 1).

Box 1: Calculation of Net GVA and FTE

Net FTE and GVA is typically calculated by adjusting attributable FTE and GVA to the following:

- **Displacement:** measures the extent to which the benefits of a project are offset by reductions of output or employment elsewhere in Cornwall. For example, whilst one business may have increased its profits as a result of upgrading to superfast, this could have been at the expense of another business in Cornwall. An estimate of 19.5% was used¹.
- **Multiplier:** measures the further economic activity within Cornwall, (whether output or jobs), resulting from the creation of additional local economic activity. For example, a business which has grown as a result of superfast may use its increased spending power to purchase goods or services from other Cornish businesses, thus passing on benefits to them. Similarly employees will also spend wages within the local economy. An estimate of 1.25 was used.
- **Leakage:** refers to the proportion of an intervention's impact, in terms of jobs or GVA, which is likely to have "leaked" from Cornwall (the target area for this project). For example a business may use increased profits resulting from superfast to employ new staff outside of Cornwall. However, as attributable FTE and GVA figures were based solely on jobs created within Cornwall, leakage had already been taken into account.
- **Substitution:** refers to cases which substitute an activity in order to benefit from the intervention. As superfast is being delivered across the whole of Cornwall this is not considered applicable.

The calculations are therefore as follows:

$$\text{Net FTE} = ((\text{Attributed FTE} - \text{Displacement (19.5\%)}) \times \text{Multiplier (1.25)})$$

$$\text{Net GVA} = ((\text{Attributed GVA} - \text{Displacement (19.5\%)}) \times \text{Multiplier (1.25)})$$

¹ Both the displacement and multiplier estimates are based on the mean figures at a sub-regional level for business development and competitiveness interventions according to BIS Occasional Paper No.1 "Research to Improve the Assessment of Additionality" Oct 2009.

FTE and GVA Created

Table 16 presents the estimates for average, total, and economy-wide net FTE and GVA created after adjustments for displacement and the multiplier. The net job creation amongst the 425 businesses is estimated at 77.7 FTE, equating to £4.4m of GVA.

Applying the adjustments for displacement and the multiplier to the figures in Table 14, **total net job creation across Cornwall as of June 2015 is estimated at 1,079 FTE equating to £61.3m, based on the 5,905 businesses that have been connected for longer than 12 months.** If these adjustments are applied to all 7,984 connected businesses then the figure rises to 1,459 net FTE equating to £82.9m of net GVA (see Table 16).

Table 16: Estimated Net Jobs and GVA Created

	Average (per responding business)	Survey Sample (372)	Estimated Connected Businesses June 2015 (7,984)	Connected for 12 months or more (5,905)
Net FTE Jobs Created	0.18	77.7	1,459	1,079
Net GVA derived from job creation	£10,379	£4,411,200	£82,872,856	£61,286,829

FTE and GVA Safeguarded

Table 17 displays the estimates for average, total, and economy-wide net FTE and GVA safeguarded after adjustments for displacement and the multiplier. The total net FTE safeguarded that can be attributed to superfast amounts to 155.5 FTE, equating to £5.9m of GVA.

Again, applying the displacement and multiplier adjustments to the 5,905 businesses that have been connected or 12 months or more, **a total of 2,468 net FTE, equating to £94.3m in GVA is estimated to have been safeguarded through superfast.** If these adjustments are applied to all 7,984 connected businesses these figures rise to 3,337 net FTE, equating £127.5m. These figures are displayed in Table 17.

Table 17: Estimated Net Jobs and GVA Safeguarded

	Average (per responding business)	Survey Sample (372)	Estimated Connected Businesses June 2015 (7,984)	Connected for 12 months or more (5,905)
FTE Jobs Safeguarded	0.42	155.5	3,337	2,468
GVA safeguarded	£15,969	£5,940,514	£127,504,502	£94,293,198

5.4 Business Start-ups

The evaluation considered the potential role of superfast in encouraging and supporting the establishment of new businesses. In order to gauge the impact of superfast in this area data from the household survey was used.

The 468 consumers that completed the household survey were asked if either they or another household member had used the internet to set up their own business. A total of 45 respondents (9.6%) indicated that they had set up a business using the internet, whilst 33 (7.1%) respondents indicated that another household member had done so³².

Of the 45 consumers that had set-up a business themselves, 33 provided details on the extent to which superfast had influenced them to do this. Of these, the majority (21) responded that it was 'not at all influential'; six indicated that superfast was 'influential to a great extent'; whilst the same number stated that it was 'influential to some extent'.

³² It should be emphasised that the question encompassed any business created using the internet regardless of whether it was set-up before or after the consumer connected to superfast.

5.4.1 Impact of Superfast on Business Start-ups

In order to further explore the impact of superfast on business start-up decisions, the 12 consumers indicating that superfast had at least some influence on their decision to set-up a business were asked to identify how this had taken place, from a list of statements.

Of these businesses the majority (9) indicated that they already had plans to set-up their own business before superfast, although four of these businesses indicated that superfast enabled them to establish the business sooner. Of the remaining three businesses, one had not considered setting up a business before superfast, a second felt that superfast had helped their business to progress, whilst the third did not provide a response.

Although the sample size is very small, there was also some evidence for the influence of superfast on business start-ups from the longitudinal business survey. Of the 63 businesses interviewed at Wave 1 of the survey, two had been set-up since superfast broadband became available in the area. Of these two businesses, one indicated that superfast had been “very influential” in their decision to start-up, whilst the other reported that it was ‘not at all influential’.

5.4.2 FTE and GVA Created through Business Start-Ups

Of the 12 consumers that considered superfast to be influential in their decision to set-up a business, seven indicated that they owned start-ups (defined as businesses which were established less than two years before the interview).

In order to provide an additional estimate for attributable FTE and GVA from start-up businesses (which are unlikely to be captured in business databases and therefore also not picked up in the business omnibus survey estimates) these seven respondents were asked whether the business was their main occupation and whether they had any employees. Of the seven consumers providing a response, all but two indicated that the business was their main occupation, and only one of the businesses reported having an employee.

This data was used to calculate a figure for total employment (employees and working proprietors³³) of 4.5 FTE (an average 0.6 per business based on the seven start-ups) attributed to superfast³⁴. After applying the relevant GVA/FTE sector ratios this equated to £145k in GVA.

The analysis also considered businesses that were established by other household members. It was assumed that the proportion of these businesses that were both identified as being start-ups, and whose set-up was reportedly influenced by superfast, was the same as for the respondent-owned businesses (21.2%).

³³ Total FTE was available for the one business that reported having employees (although this amounted to only 1FTE including the respondent). In order to estimate the total FTE associated with the other businesses it was assumed that each of the four consumers whose business was their main occupation amounted to 1 FTE (representing each working proprietor). Conversely, for the two businesses that were not the respondent’s main occupation, no FTE associated with working proprietors was recorded.

³⁴ A total of 5 FTE was estimated to be associated with the five start-up businesses which had employees and/or were the respondent’s main occupation. However the FTE was only attributed to superfast in its entirety for the four respondents indicating that superfast had influenced them “to a great extent”. For the one respondent who indicated it had influenced them “to some extent” only half the FTE (0.5) was assumed to be attributed.

Using this assumption, an estimated 4 businesses owned by other household members could be partially attributable to superfast. The average increase in FTE amongst the respondent-owned business start-ups (0.6 FTE) was then applied to estimate the total increase in FTE amongst the four businesses (2.7 FTE).

The estimated FTE for respondent and other household member owned businesses were then combined to produce a total of 7.2 FTE or an average of 0.02 FTE amongst the 333 consumers³⁵. This amounts to a combined GVA figure of £233k or an average of £701 per consumer.

This figure can be grossed up to the estimated number of residents that have been connected to superfast for 12 months or more (43,301). **Using this approach it is estimated that a total of 940 FTE positions have been created through business start-ups which can be attributed to superfast, equating to £30.3m of GVA.** Alternatively if the figure for all connected residents in Cornwall (58,553) – including those connected for less than 12 months - is used these figures rise to 1271 FTE, or £41.0m of GVA.

Table 18: Attributable FTE and GVA Created through Business Start-Ups

	Average (per responding household)	Survey Sample (333)	Estimated Connected Residents June 2015 (58,553)	Connected for Longer than 12 Months (43,301)
FTE Jobs Created	0.02	7.23	1271	940
GVA Created	£701	£233,320	£41,025,450	£30,339,485

Similarly to the figures from the business survey, the estimated FTE and GVA created through the business start-ups can be converted to net FTE and GVA by adjusting for displacement and the multiplier (see Box 1).

As shown in Table 19, this results in a slightly higher figure for jobs and GVA created among the survey sample (7.3 FTE and £235k respectively). **The net jobs created through business start-ups in Cornwall, based on the 43,301 residents connected for 12 months or longer, is estimated at 946 FTE, equating to £30.5m.** Again, if the figure for all connected residents is used then this rises to 1279 FTE, and £41.3m in net GVA³⁶.

³⁵ This is based on the combined sample of Waves 3 to 6 (333 respondents) as questions regarding the influence of superfast on business start-ups, and jobs and GVA created were not included in the survey at the time of Wave 1 and Wave 2.

³⁶ It should be noted that whereas the FTE and GVA figures from the business omnibus survey are based on businesses that are connected for 12 months or more, the figures for the start-ups are based on residents connected for at least 6 months. Consequently jobs and GVA creation at June 2015 is likely to be somewhere between the two estimates for connected residents in Table 19.

Table 19: Net FTE and GVA Created through Business Start-Ups

	Average (per responding household)	Survey Sample (333)	Estimated Connected Residents June 2015 (58,553)	Connected for Longer than 12 Months (43,301)
FTE Jobs Created	0.02	7.3	1279	946
GVA Created	£705	£234,778	£41,281,859	£30,529,107

The 12 consumers indicating that superfast had influenced them to set-up a business were asked to provide turnover figures for their businesses. Of these, just five were able to provide turnover figures which came to a total of £58k or an average of £176 per resident³⁷. If only figures for start-ups (established less than two years before the interview) are considered then just two businesses were able to provide figures amounting to £25k or £77 per resident.

5.5 Job Creation from Established Business Growth and Start-Ups

The FTE and GVA figures from the business omnibus survey were grossed-up to the estimated number of established businesses only. As such, they take no account of businesses such as new start-ups or those that are unregistered which are unlikely to appear on business databases.

However, the estimated jobs and GVA creation figures from the business start-ups may be added to the figures from the business omnibus survey to help account for this omission. Table 20 includes estimates for gross and net job creation alongside gross and net GVA creation based on a combination of the business omnibus and business start-up figures³⁸. As shown, **the combined net job creation figure based on the 49,206 connected for 12 months or more is 2,025 FTE amounting to £91.8m in GVA**. This rises to 2,738 FTE (or £124.2m) if all anticipated connections at June 2015 are included.

Table 20: Total Gross and Net Job and GVA Creation

	Total Estimated Connections June 2015 (66,537)	Total Connections for 12 months or more (49,206)
Gross FTE Jobs Created	6,310	4,666
Gross GVA Created	£218,393,362	£161,508,090
Net FTE Jobs Created	2738	2025
Net GVA Created	£124,154,715	£91,815,935

5.6 Impact on Productivity

Economic impact is typically assessed through job creation, although it may also be measured through labour productivity (the value produced per employee).

³⁷ This is based on 425 residents. The seven residents whose decision to set-up a businesses was influenced by superfast, but who could not provide turnover figures, were excluded from this calculation.

³⁸ Figures for gross jobs and GVA creation are based on combining the pure gross figures from the business omnibus survey (see Table 12) with the gross attributable figures (see Table 18) for the business start-ups. This is because attribution was based on whether the respondent was influenced by superfast to set-up a business as opposed to whether they already had superfast when they set-up the business.

The GVA figures from the business omnibus survey are based on job creation and assume a fixed level of productivity. However, as identified in Section 4, improved efficiency was commonly identified as a key business benefit. Consequently, it is likely that superfast has led to an increase in productivity.

The longitudinal business survey collected direct estimates of GVA³⁹ from a total of 22 businesses at three different points of time: before they connected to superfast (pre-SFB); at the point of the Wave 1 interview; and at the point of the Wave 2 interview. This was used to work out estimates for productivity changes, as measured by GVA per FTE employee over time.

Overall this revealed an increase in average productivity amongst the 22 businesses from £26,116 per FTE at pre-SFB to £33,876 per FTE (an increase of 30%). However, some caution should be exercised when considering these figures given that, unlike the business omnibus survey, the longitudinal business survey was not based on a random sample and that no comparison was made with productivity increases amongst non-connected businesses.

5.7 Inward Investment

5.7.1 Perceptions of Inward Investment

The stakeholder interviews explored the extent to which superfast was perceived to have encouraged an increase in inward investment in Cornwall. Seventeen⁴⁰ of the 21 stakeholders interviewed as part of the final evaluation stage were asked state their agreement on a scale from 1 ('strongly disagree') to 7 ('strongly agree').

Analysis revealed that the average score assigned to the statement across the 17 stakeholders was 4.9 suggesting that respondents tended to agree rather than disagree with the statement. Seven respondents gave a score of 6 or 7, suggesting a high level of agreement, while just two gave a score of less than 4 suggesting disagreement.

All 21 stakeholders were asked whether they were aware of businesses that had re-located to Cornwall due, in part, to the availability of superfast. Six stakeholders indicated that they were aware of such businesses. This viewpoint is exemplified by the following quotes:

'I know of businesses that have moved. It's mainly businesses from the service and knowledge sectors, for example there was a financial management company which moved from London to here and they wouldn't have done this without superfast.'

'I think it [superfast] has attracted interest from some of those sectors like computer gaming and crowdfunding that wouldn't have contemplated Cornwall previously'.

³⁹ This was based on company accounts data including operating profit, payroll costs, and depreciation figures for nine businesses, where information was available. The absence of depreciation figures for 13 of the 22 businesses means the overall productivity levels at both pre-SFB and at Wave 2 are likely to be an underestimate.

⁴⁰ Some stakeholders were part of the Superfast Cornwall project team, and therefore it was not appropriate to ask them this question.

One of six respondents suggested that the inward investment impact was more a case of attracting entrepreneurs as opposed to existing businesses:

'I am aware of people coming down to Cornwall and setting up businesses here because there is the infrastructure to do it, including superfast broadband. Of the three types of inward investment [businesses relocating, investors investing in existing Cornish businesses, and entrepreneurs coming to Cornwall to set-up new businesses] the last one is the more likely'.

Although stakeholders was generally positive about the role of superfast in encouraging inward investment, some cautioned that other factors were equally if not more important. For example, one stakeholder felt that whilst superfast was an important motivation for companies re-locating from other parts of the UK, it was seen as more of a bonus than a deciding factor by international investors.

Of the two stakeholders who gave a score of less than 4 to the statement about inward investment (indicating a level of disagreement), one felt that superfast had not yet had this impact, whilst the other felt that the impact of superfast had been limited to existing businesses finding new markets.

MuTu System – 'The perfect balance'



MuTu is a complete system to help mums get back into shape and full physical health after having a baby. The company was set up by Wendy Powell and now has more than 15,000 customers around the world. This online global business is run by Wendy from her office in a converted shed in her garden in Probus and is enabled by her superfast broadband connection.

When working as a personal trainer in London, Wendy soon saw the potential of focusing on post-partum exercise and providing a digital package, so that the business was not restricted geographically. The online business was set up in 2010, by which time Wendy had relocated to Cornwall.

Customers receive a log in and access to a membership site, where they have access to videos, workout demos, week-by-week guidelines and coaching as well as an online members community on Facebook. 65% of current customers are from the USA, with the rest in the UK, Canada, Australia, New Zealand and all over the world. Wendy says: "We are now a truly global business, which has grown organically. As an online business, it is clearly vital we have superfast connections, so the arrival of superfast broadband in Cornwall has been invaluable (Case study: May 2015).

Further information: www.superfastcornwall.org/business-user/business-stories/

5.7.2 Suggestions to Attract Inward Investment

A number of stakeholders provided suggestions for the future use of superfast to attract inward investment.

Two felt that the connectivity of Cornwall needed to be marketed as a key advantage of the county, although a third stakeholder stressed that this needed to be done in concert with the marketing of other improvements such as Newquay Airport. A fourth respondent went further, suggesting that more needed to be done to improve the infrastructure, for example by investing in a fibre park and through ensuring there is sufficient high quality business space in the county. In contrast, another stakeholder felt that more investment could be made in services that support the exploitation of superfast, through for example Falmouth University.

'I would suggest that it is now about how we market Cornwall as a place to do business not just a holiday destination. It needs to be done in collaboration with other improvements like Newquay Airport and improvements to A30 and the rail stock.'

Two respondents expressed contrasting opinions as regards the value of promoting Cornwall as an attractive destination in terms of lifestyle. One respondent felt that too much had been made of this in previous attempts to attract inward investment, whilst the other felt that superfast provided the opportunity to attract entrepreneurs and investors who would previously have had holiday homes in the area to actually live in Cornwall.

Chloe Thomas – 'No compromise for business ambitions'



Chloe Thomas has relocated to the Roseland in Cornwall, having identified that the arrival of superfast broadband would enable her to run her two businesses just as effectively from Cornwall as anywhere in the world.

Chloe says: "Having grown up in Cornwall, it is fantastic to be able to come back and run my businesses from here."

Chloe launched a marketing agency in Oxford in 2007. By 2012, the agency had grown to a point where Chloe knew she no

longer needed to be in the office every day. She says: "It was clear that I could run the business from anywhere, even overseas, so long as I had excellent broadband connections but what I really wanted to do was come home to Cornwall. Superfast broadband has enabled that to happen."

As well as her marketing agency in Oxford, which is now called Digital Gearbox, Chloe runs a second business, eCommerce Masterplan, which is based in Cornwall. Chloe says: "Because of superfast broadband, I am now able to take the first steps towards turning eCommerce Masterplan into a truly global business. I expect that soon I will be achieving higher levels of sales through export than through sales in the UK" (Case study: May 2015).

Further information: www.superfastcornwall.org/business-user/business-stories/

The longitudinal business survey found some evidence to support the perception that superfast has encouraged some businesses to relocate to Cornwall. One of the 63 respondents indicated that the availability of superfast broadband was a 'very important' factor in their decision to relocate their business to Cornwall. In addition two businesses indicated that they would not have been based in Cornwall at the time of the longitudinal survey had it not been for superfast.

KEO Digital – 'Key factor in relocating'



KEO digital is the multi award-winning team behind River Cottage, Fish Fight, Chicken Out!, Landshare, energysshare, and crowdfunder.co.uk. KEO digital often works with its sister company KEO films to create multi-platform productions that affect and reach large audiences and change the way people think.

Across the KEO family, they have over 2 million registered users. Over 50 million people watched a KEO films programme last year. Most recently, Fruitshare, their initiative to get more fruit into schools, in

partnership with River Cottage and Crowdfunder. co.uk, motivated over 600 schools to sign up to get fruit trees in schools.

In November 2012 KEO digital moved the digital production arm of its business from London and Bridport to Newquay to create a new innovation hub. Superfast broadband was one of the factors that facilitated the move to Cornwall. Communications Manager Jess Ratty says: "As a digital business, superfast connectivity is vital to us. The fact that superfast broadband was in Newquay was an important factor in the decision to relocate to Cornwall. We simply could not run our digital business effectively without superfast connectivity. Because superfast broadband is available to us in Cornwall, we can now run a world class digital business here and all enjoy the benefits of living and working in such a beautiful and inspirational county" (Case study: November 2013).

Further information: www.superfastcornwall.org/business-user/business-stories/

5.8 Overall Economic Impact

Stakeholder survey respondents were asked some questions on the extent to which they perceived superfast to have made an impact on the Cornish economy. As with the discussion of inward investment, 17 of the 21 stakeholders were asked to what extent they agreed the following statements on a scale from 1 ('strongly disagree') to 7 ('strongly agree'):

- '*Superfast broadband has transformed the Cornish economy*' - Sixteen respondents were able to provide a score, while one respondent did not know. The average score amongst the 16 respondents was 4.8 out of 7;
- '*Superfast broadband will leave a lasting legacy for Cornwall*' – All 17 respondents were able to provide a score, with the average score being 5.8 out of 7.

As demonstrated, stakeholders were in more agreement that superfast would leave a lasting legacy for Cornwall, as opposed to superfast having already transformed the Cornish economy.

Transforming the Cornish Economy

Sixteen of the 21 stakeholders provided some additional comments regarding the extent to which they believed superfast had transformed the Cornish economy:

- Seven stakeholders felt that a transformation in the Cornish economy resulting from superfast was yet to take place, although the project provided an opportunity for such a transformation in the future;

'It has brought a new set of opportunities for the economy but I wouldn't say it's transformed it yet. Businesses still need to understand how they can take advantage of it.'

- Two stakeholders considered the impact of superfast to be variable, as 100% coverage had not yet been achieved. One of these stakeholders also pointed out that there are still inequalities in terms of broadband speeds amongst those businesses that do have superfast, depending on where they are located;
- Two stakeholders thought that the impact of superfast would be limited as Cornwall's economy had other issues besides digital connectivity. A third respondent felt that superfast hadn't succeeded in attracting new investment, whilst a fourth believed that the impacts to date had been social as opposed to economic;
- Three respondents pointed to specific ways in which the economy had been transformed which included: a more IT literate workforce; improved access to international markets; and a stronger creative and digital sector.

Leaving a Lasting Legacy

Eight of the 21 stakeholders provided some additional comments on the extent to which they felt that superfast would leave a lasting legacy. Of these, five considered that the legacy would be time-limited due to the onslaught of other technological changes:

'The technology is so fast moving that it [superfast] will be overtaken in 5 years. Cornwall needs to think about the future in 5G - superfast is not a fix for the next 20 years.'

Two stakeholders felt that the main legacy would be the early investment Cornwall has made relative to other areas. However, it was recognised that this represented an advantage which would also decline as other areas catch-up. In contrast, another respondent stressed that the infrastructure could continue to be built-on to maintain such an advantage, through for example more fibre-to-the-premises.

6. Cross Cutting Themes

Summary of Key Points:

Social Benefits and Equality and Diversity

- The level of usage amongst connected households was higher than non-connected households for each of the internet functions listed, across e-government, education, retail, health and entertainment. In addition a higher proportion of connected households (47.6%) had used the internet to search for a job than non-connected households (39.4%).
- A majority of the connected consumers had used each of the internet functions before they upgraded to Superfast Cornwall. However, 39.6% used the internet to stream films and TV and 35.8% used it to access webinars and online seminars for the first time after upgrading to superfast.
- Over half of the connected consumers that had used e-government, education and retail internet functions before upgrading did not increase their usage once connected. However a majority of consumers who reported streamlining films and TV and downloading films, music or e-books indicated that they had increased the frequency with which they did this since upgrading.
- No major age differences were found between the respondents from connected and non-connected businesses. However, a slightly higher proportion of connected respondents were disabled and from a minority ethnic community than non-connected respondents. Conversely, just 24.5% of connected respondents were female compared to 30% of non-connected respondents.

Environmental Benefits

- Research by BT shows that the Carbon abatement potential of Superfast Cornwall far outweighs the carbon impacts of both the Plan, Build and Install phase and the In-Life phase combined. The net positive impact of Superfast Cornwall is estimated as 581,146tCO₂e over the 9 year study period and equivalent to 25 times the carbon emissions of the network.
- Evidence from the longitudinal survey of businesses indicates that some SMEs are able to reduce their business travel as a result of superfast broadband.
- Evidence from the household survey shows that Superfast broadband has been an *“important or very important”* factor in the decision of some participants to work from home more.

6.1 Introduction

In addition to benefiting businesses, Superfast Cornwall sought to bring about social and environmental change. To inform an analysis of the project's success in this regard, this section presents findings from the consumer survey, interviews with key stakeholders, and assessments of the environmental impact conducted by BT and research undertaken by projects part-funded by Superfast Cornwall at the University of Falmouth and the University of Exeter.

The section begins with an appraisal of the available evidence on digital inclusion and particularly how consumers access and use e-health resources, e-government, and online employment and enterprise opportunities. The section then reviews the achievement of environmental and sustainability outcomes including: the carbon footprint of the roll-out and ongoing operation; and carbon abatement through reduced travel and energy use.

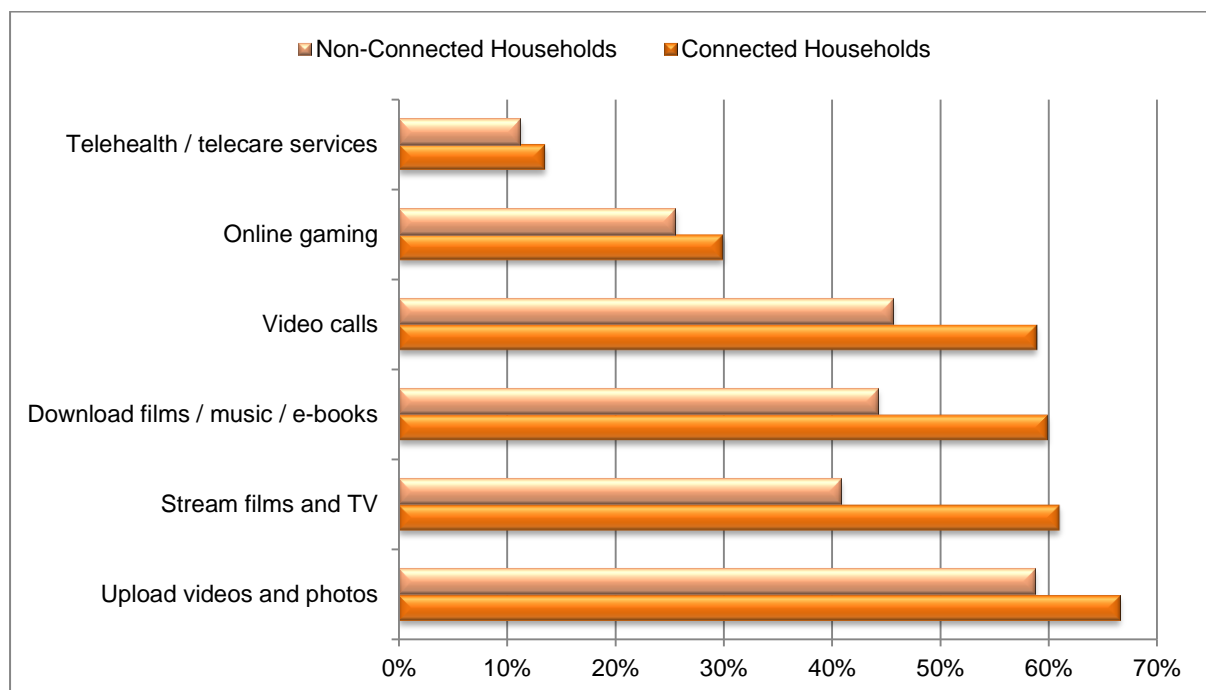
6.2 Social Benefits and Equality and Diversity

6.2.2 Internet Use

The consumer survey explored household use of a range of different internet functions. All respondents were asked whether they or anyone else in their household had used one or more internet functions from a pre-defined list.

As shown in Chart 19, the most commonly reported use amongst connected consumers was uploading videos and photos (66.5%, 311), streaming films and TV (60.9%, 285) and downloading films, music or e-books (59.8%, 280). Although the analysis revealed a similar pattern amongst non-connected households, the overall proportion of use against each variable was lower than that of connected households.

Chart 19: Household Internet Use by Connected Status



Base: All respondents (Connected Households = 468; Non-Connected Households = 419)

To provide an understanding of how superfast broadband had shaped their use of the internet, connected consumers reporting that they personally used each internet function were asked if they had done so prior to their upgrade⁴¹. Their responses are summarised in Table 21 below.

As shown, a fifth or more of these consumers had not used the reported internet functions prior to having superfast broadband. For example, 26.0% (64) of connected consumers completing the survey were now using the internet to make video calls and had not used this function before superfast. The greatest increase in use was observed for streaming films and TV (39.6%, 101 had not used it before upgrading), although this may be partly explained by the roll out of superfast broadband coinciding with the increased availability of online streaming websites.

Table 21: Current and First Use of Internet Functions

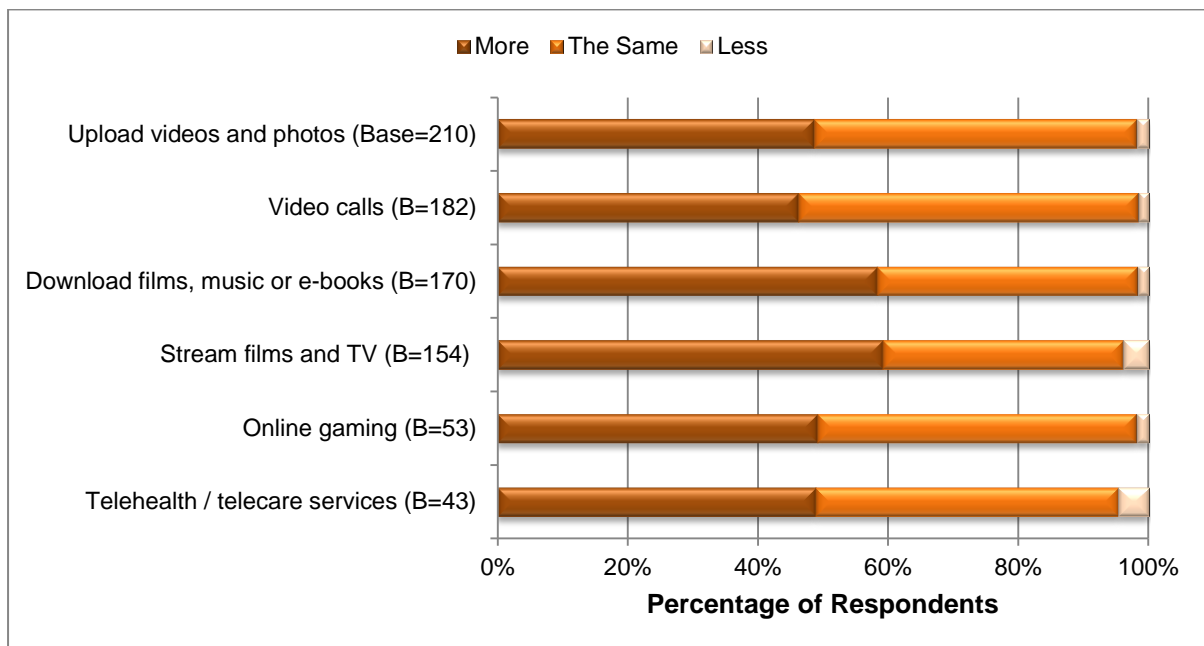
Internet Function	Currently Used		First Used Post SFB	
	Frequency	% (Users)	Frequency	% (Users)
Upload videos and photos	270	57.7%	60	22.2%
Stream films and TV	255	54.5%	101	39.6%
Video calls	246	52.6%	64	26.0%
Download films, music or e-books	228	48.7%	58	25.4%
Online gaming	68	14.5%	15	22.1%
Telehealth / telecare services	58	12.4%	15	25.9%

Base: ¹All respondents connected for 6 months or more (n=468); ²All connected respondents reporting to use each function (n=various)

Key = Baseline figures: current usage forms the baseline for the percentage of respondents who first used a function post SFB.

Furthermore, although the majority of connected consumers that reported using each of the explored functions before upgrading to superfast broadband, around a half of these were now using them more frequently. As shown in Chart 20, between 46.2% (84) (video calls) and 59.1% (91) (streaming films and TV) reported using each of the functions more frequently.

⁴¹ The household use presented in Chart 19 is based on the reported use by the survey respondent *and* other household members. However, previous use was only explored for survey respondents and therefore the base for first time use will differ to those presented in Chart 20.

Chart 20: Change in Use of Internet Functions since Upgrading

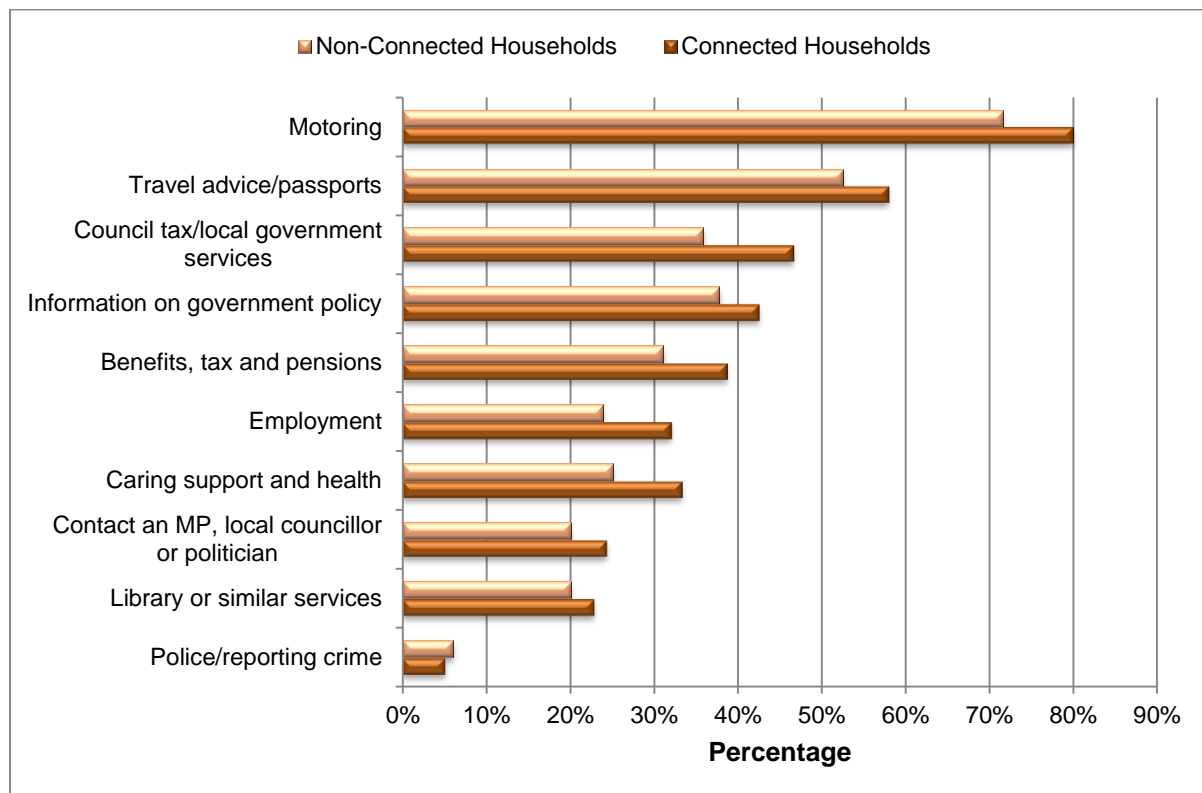
6.2.3 E-Government

Reflecting the clearly defined EU targets for e-government services, the consumer survey captured additional data on their use. The European Commission's Digital Agenda for Europe sets out a target of 50% of the population aged 16-74 using E-Government by 2015.

Use of the internet to access e-government services amongst connected households ranged from 5.1% (24) for police/ reported crime to 79.9% (374) for motoring, which is likely to reflect levels of need for each service, as opposed to propensity to use the internet to access them.

Whilst motoring was also the most commonly used function amongst non-connected households, usage was lower at 71.6% (300). A higher proportion of connected than non-connected households reported using each of the other e-government services, with the exception of police/reporting crime which was used by 6.0% (25) of non-connected households.

Chart 21: Household Use of E-Government Services by Connected Status



Base: All respondents (Connected consumers =468; Non-connected consumers =419)

As shown in Table 22, between 16.3% and 21.4% of connected consumers reporting use of an e-government service at the time of the survey had not used that service before upgrading their connection.⁴²

Table 22: Current and First use of E-Government Services

E-Government Service	Currently Used		First Used Post SFB	
	Frequency	% (Users)	Frequency	% (Users)
Motoring	356	76%	63	17.7%
Travel advice/passports	257	55%	42	16.3%
Council tax/local government services	205	44%	39	19.0%
Information on government policy	194	41%	36	18.6%
Benefits, tax and pensions	160	34%	27	16.9%
Employment	105	22%	18	17.1%
Caring support and health	140	30%	30	21.4%
Contact an MP, local councillor or politician	108	23%	21	19.4%
Library or similar services	93	20%	18	19.3%
Police/reporting crime	23	5%	4	17.4%

Base: ¹All respondents connected for 6 months or more (n=468); ²All connected respondents reporting to use each function (n=various)

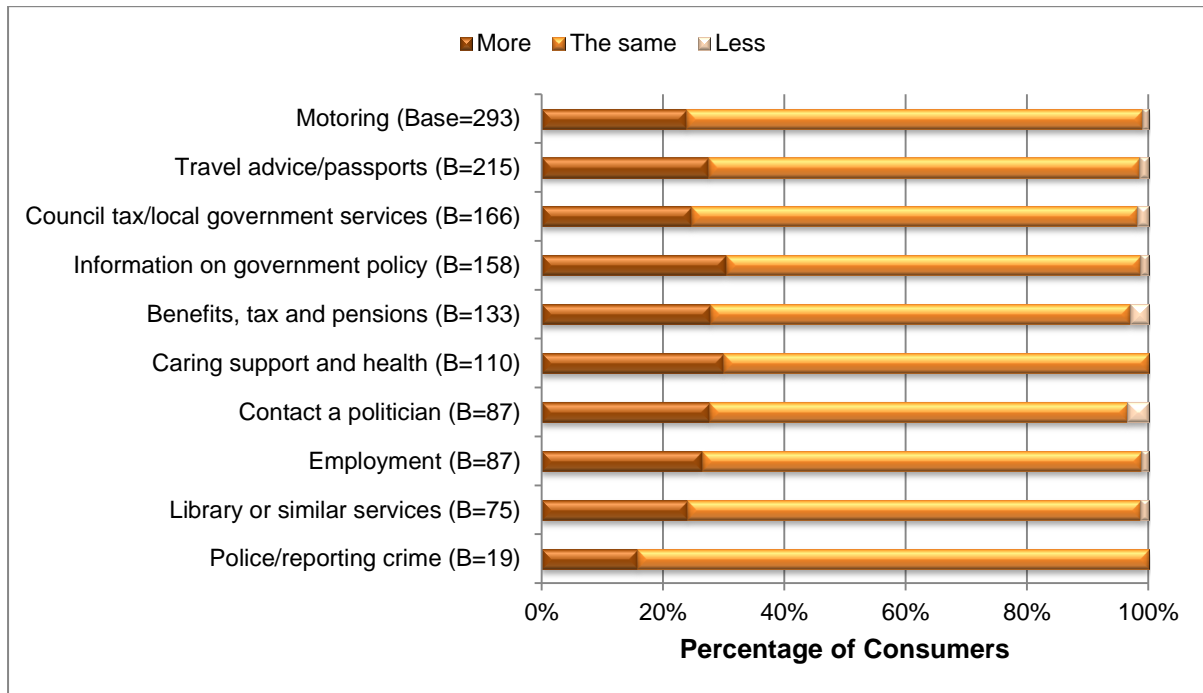
Key = Baseline figures: current usage forms the baseline for the percentage of respondents who first used a function post SFB

⁴² The household use presented in Chart 21 is based on the reported use by the survey respondent and other household members. However, previous use was only explored for survey respondents and therefore the base for first time use will differ to those presented in Chart 22.

Those respondents indicating that they used the internet to access e-government services before upgrading to superfast were asked whether their use of these services had changed since upgrading.

As shown in Chart 22, the majority respondents indicated that their use of each function had not changed since upgrading. Where the use of functions had increased, this was most notable with regard to information on government policy (30.4%, 48) and caring support and health (30.0%, 33).

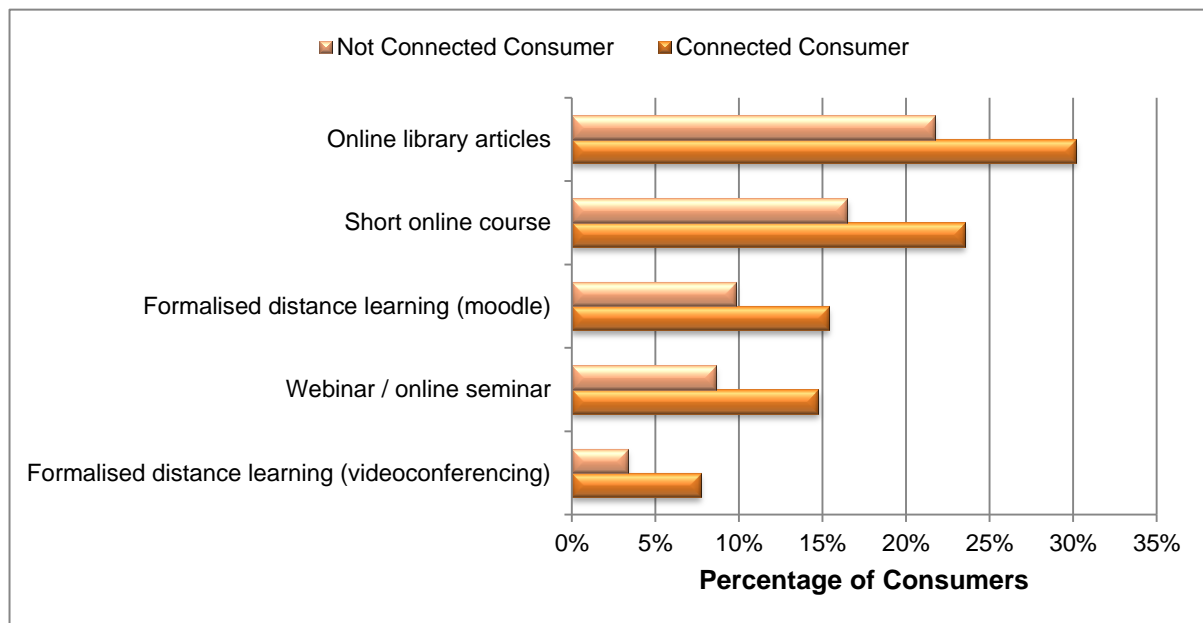
Chart 22: Change in Usage of E-Government Services since Upgrading



6.2.4 Education

Consumer survey respondents were asked about their use of the internet for accessing education and training services. As shown in Chart 23, a higher proportion of connected consumers reported using each of the education functions than non-connected consumers. Usage was highest amongst both groups of users for online library articles (connected= 30%, 141; non-connected= 22%, 91), followed by short online courses (connected= 24%, 110; non-connected= 16%, 69).

Chart 23: Household Usage of Education Functions by Connected Status



Base: Household usage, all those connected to Superfast Broadband for over 6 months, n=468. Not connected, n=419.

Similarly to previous functions, users of the education functions that were connected to superfast were asked whether they had used these before they upgraded. As shown in Table 23, between 27% and 36% of users of each function had only started to use that function since connecting.

Table 23: Current and First Use of Education Functions

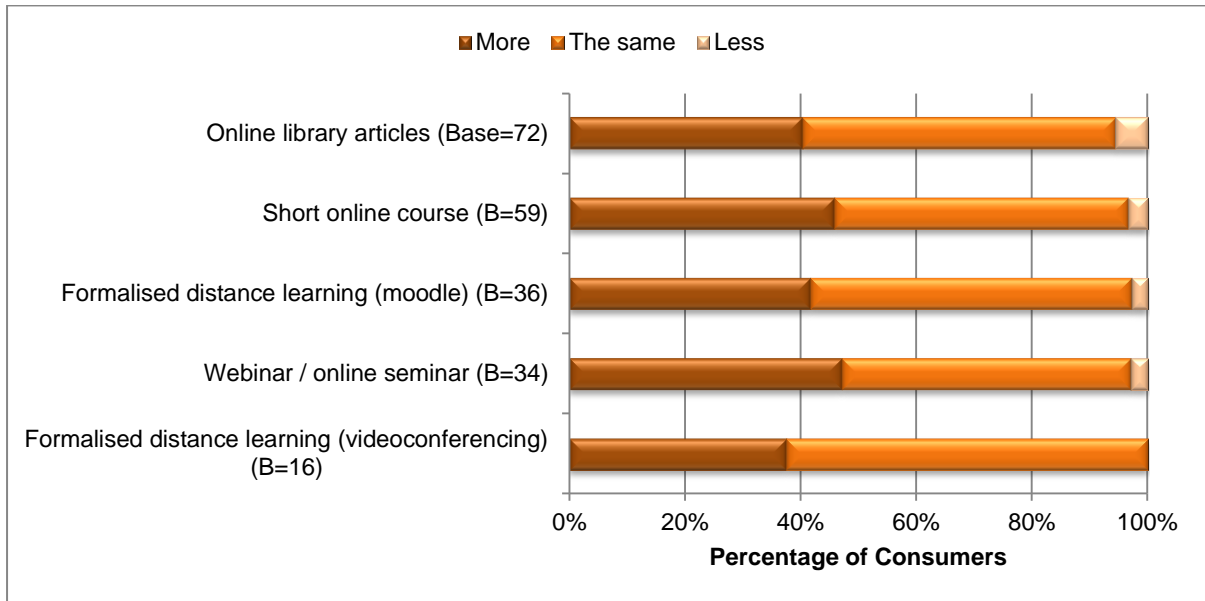
Education Function	Currently Used		First Used Post SFB	
	Frequency	% (Users)	Frequency	% (Users)
Online library articles	107	22.9%	35	32.7%
Short online course	81	17.3%	22	27.2%
Webinar / online seminar	53	11.3%	19	35.8%
Formalised learning (moodle)	52	11.1%	16	30.8%
Formalised learning (videoconferencing)	24	5.1%	8	33.3%

Base: ¹All respondents connected for 6 months or more (n=468); ²All connected respondents reporting to use each function (n=various)

Key = Baseline figures: current usage forms the baseline for the percentage of respondents who first used a function post SFB

Again, as with the previous functions, those connected respondents that had used the internet function before upgrading to superfast were asked whether the frequency with which they used it had changed since upgrading. As shown in Chart 24, whilst the majority of respondents reported no change, over 40% increased their use of all functions except formalised distance learning through videoconferencing.

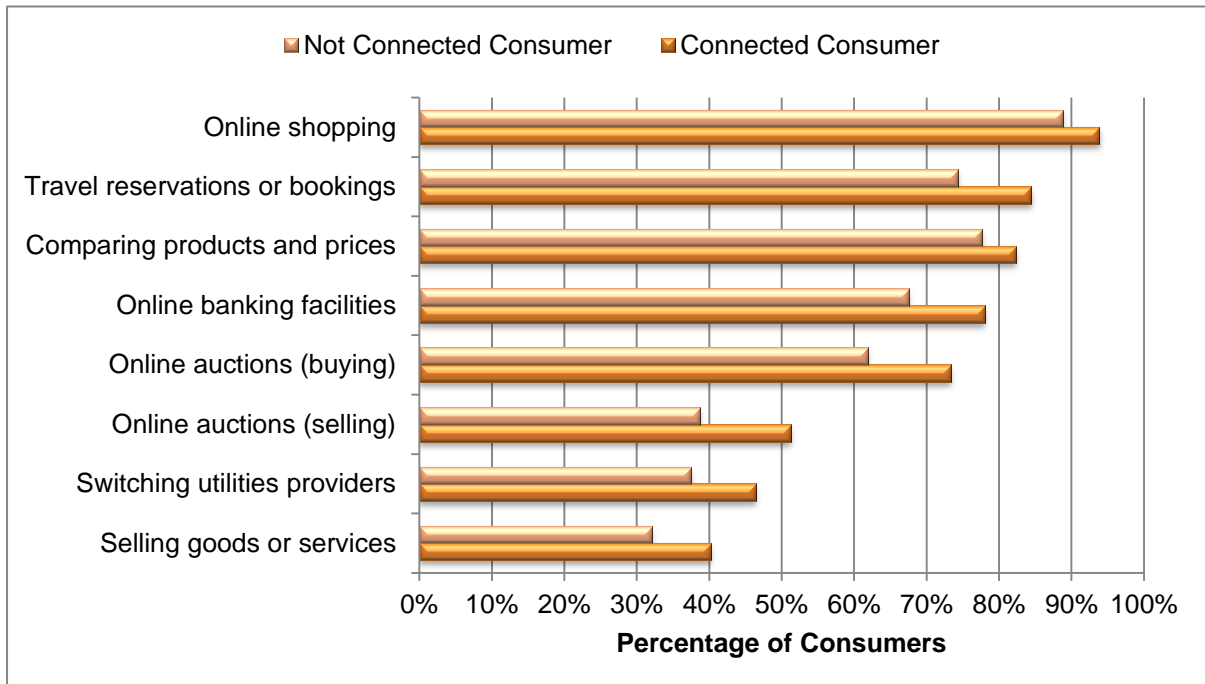
Chart 24: Change in Usage of Education Functions Since Upgrading



6.2.5 Retail

The consumer survey also looked at whether superfast had changed the online retail habits of households. Chart 25 presents a similar pattern of usage to the other functions, with connected consumers reporting a higher proportional usage of each retail function than non-connected consumers. The difference was highest in relation to online auctions (selling) which 51% (240) of connected households reported using, compared to 39% (162) of non-connected households.

Chart 25: Household Usage of Retail Functions by Connected Status



Base: Household usage, all those connected to Superfast Broadband for over 6 months, (n=468). Not connected (n=419).

As shown in Table 24, just a small minority of respondents (less than 10% for all but one function) reported using each function for the first time since upgrading. The function which reported the largest increase in users since they upgraded to superfast was 'switching utilities providers' (10.5%).

Table 24: Current and First Use of Retail Functions

Internet Function	Currently Used		First Used Post SFB	
	Frequency	%	Frequency	% (Users)
Online shopping	420	89.7%	34	8.1%
Travel reservations or bookings	377	80.6%	29	7.7%
Comparing products and prices	372	79.5%	34	9.1%
Online banking facilities	344	73.5%	27	7.8%
Online auctions (buying)	311	66.5%	28	9.0%
Switching utilities providers	210	44.9%	22	10.5%
Online auctions (selling)	208	44.4%	10	4.8%
Selling goods or services	169	36.1%	8	4.7%

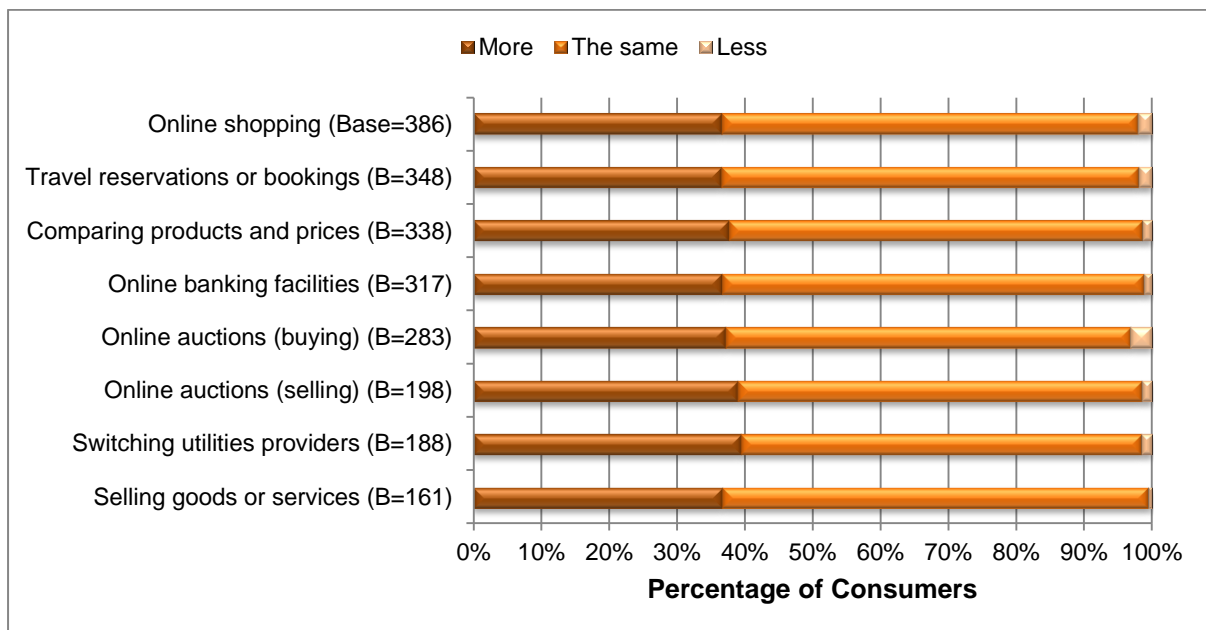
Base: ¹All respondents connected for 6 months or more (n=468); ²All connected respondents reporting to use each function (n=various)

Key = Baseline figures: current usage forms the baseline for the percentage of respondents who first used a function post SFB

Whilst a large majority of connected respondents had used each retail function before upgrading to superfast there was some evidence that usage amongst these businesses had increased since upgrading.

As shown in Chart 26, whilst more than half these users did not report any change in their usage since connecting, between 36% and 40% indicated an increase in usage. Again, the highest increase in usage was reported amongst those who used the internet to switch utilities providers (39.4%, 74).

Chart 26: Change in Usage of Retail Functions Since Upgrading



6.2.6 Employment and Business

The use of the internet for the purposes of finding a job or starting-up a business was explored through the consumer survey.

Consumers were asked whether they had used the internet to look for a job or and/or whether someone else in their household had done so. Analysis revealed that 47.6% of households (223) connected to Superfast Broadband used it to search for a job. This compared to 39.4% of households (165) which were not connected to superfast.

Approximately a fifth (22%, 34) of those connected reported that Superfast Broadband had changed the way they searched for a job. Of these, 21 further clarified that the Superfast Broadband service allowed them to search for jobs quicker or faster. In addition, all households were asked whether they had used superfast to start-up a business. Again, a higher proportion of connected households (13.9%, 65) than non-connected households (10.0%, 42) had used the internet to start-up a business. More information on the connected households which used the internet to start-up a business is included in Section 5.4.

6.2.7 Stakeholder Perspectives

Similarly to the business and economic benefits discussed in Sections 4 and 5, stakeholders also provided feedback on the social impact of superfast. The key raised included the following:

Telehealth and Telecare

Although telehealth and telecare services did not emerge as commonly used internet functions, six of the stakeholders interviewed identified the potential to use e-health as an important benefit of superfast broadband. For example, one stakeholder reported that one-to-one psychiatric nursing care was being provided online in isolated areas where face-to-face access was difficult.

Education and Training

A small number of stakeholder interviewed during the final stages of the evaluation (4) raised improvements in educational experiences since the introduction of Superfast Broadband. This had resulted from Superfast Broadband allowing increased availability and access to global and local news and documentaries via, for example, iPlayer, which stakeholders' (3) children had used to inform school homework.

At a macro level, another of the four stakeholders highlighted that: *'[Superfast Broadband] might enable Cornwall to keep its talent, stop the brain drain, stop the leaving of higher level qualifications, largely as a result of people being able to do business while being based in Cornwall.'*

Retail

Retail, as a social activity, was raised by a small number of stakeholders (3) interviewed in in the final stages of the evaluation. One of these highlighted that the Superfast Broadband project attracted people into the region, who then, in turn spend in local shopping centres or procure services from local businesses.

In contrast, the remaining two stakeholders had a less positive view on the impact of Superfast Broadband and consumer shopping behaviour. Both felt that online shopping, resulting from improved internet connections, will act to the detriment of physical shopping spaces/areas. As one stakeholder reported: *'online shopping is making a big difference, [we are] seeing less people on the High Street. People are using the High Street as a shop window, but eventually that will change as people would see products online so won't bother going to the shops'*.

6.2.8 Digital Inclusion

In recognising Superfast Cornwall's potential contribution towards achieving digital inclusion, CDC established a dedicated 'Equality and Diversity – Digital Inclusion' workstream. The Get IT Together programme, in conjunction with BT and Citizens Online, was able to get more than 3,000 people online for the first time. Following on from this, a network of volunteer digital champions was established to enable more people to get online in Cornwall alongside wider work to promote and raise awareness of digital inclusion.

It is perhaps unsurprising then that nine key stakeholders stated that digital inclusion was a social benefit generated by superfast broadband, as one commented: *'those who were previously isolated can now become well engaged'*.

Two other stakeholders who had been involved the delivery of online skills training carried out as part of this workstream felt that it had facilitated increased internet use.

For example: *'the Inspire Digital programme helped people understand the basics of being online, how to use the web, how to search online, how to book a train ticket... it's that sort of thing that is needed in the community.'*

For four stakeholders, increased digital inclusion was most apparent amongst older and younger people. Older people were now able to engage with family members via social media and enjoy savings through the online management of energy bills. For young people, superfast broadband was thought by stakeholders to support their education by enhancing their access to internet based information. For example, some schools were reported to have provided iPads to pupils.

Although the effectiveness of CDC's workstream activities are not being directly evaluated here, data from the consumer survey enables further investigation of the assertion that those with a superfast connection were using the internet more.

Data collected from all six waves of the consumer survey shows that a large majority of those connected to superfast broadband reported using the internet at home on a daily basis (95.9%, 400⁴³). In comparison, 88.1% (305) of consumers that had not upgraded their connection used the internet daily.⁴⁴

Although this data suggests that internet use is higher amongst consumers connected to superfast broadband, it is important to note that it is not known if these consumers have upgraded their connection *because* of high levels of internet use (rather than having high levels of internet use because of superfast broadband). The consumer survey explored the different ways in which the internet was being used by connected and non-connected consumers. This data provides further insight into the impact of an upgraded connection on internet use.

⁴³ Base: all those providing a valid response = 417

⁴⁴ Base: all those providing a valid response =346

6.2.9 Equality and Diversity

In order to assess whether the roll-out of superfast has had a different impact on different groups and communities the business omnibus survey recorded data on the age, disability, ethnicity and gender of each respondent, where they consented to provide this information. This sub-section compares data for omnibus survey respondents that had been connected for 12 months or more, with respondents that had not connected to superfast (non-connected businesses)⁴⁵.

Table 25 outlines the distribution of connected and non-connected business respondents by age. As shown, the age distribution was fairly similar with less than 6% of both groups of business respondents being aged under 34. A slightly higher proportion of connected than non-connected business respondents were aged 55-64, whilst a slightly higher percentage of non-connected respondents were aged 65 or over.

Table 25: Age Group of Connected and Non-Connected Business Respondents

Age group	Not Connected		Connected	
	No.	%	No.	%
26 to 34	8	5.2%	12	4.6%
35 to 44	37	24.2%	44	16.9%
45 to 54	45	29.4%	93	35.6%
55 to 64	37	24.2%	74	28.4%
65 or older	26	17.0%	38	14.6%

Base: All businesses which have been connected to superfast for 12 months or more (n=261, missing=199); all non-connected businesses (from the business omnibus survey) (n=153, missing=132).

Some small differences were found between the connected and non-connected businesses in relation to the other characteristics (disability, ethnicity and gender):

- Of the 253 connected businesses providing a response, 7.1% (18) had a disability, a slightly higher proportion than among the 138 non-connected businesses responding (5.1%, 7);
- A marginally higher proportion of the connected businesses providing a response were from a minority ethnic community (9.7%, 27) than the 160 non-connected businesses providing a response (6.9%, 11); and,
- In terms of gender 75.5% (210) of the 278 connected businesses responding were male whilst only 24.5% (68) were female. The gender distribution of non-connected businesses was similarly un-balanced with 70.0% (112) of the 160 respondents being male and 30.0% (48) being female.

The gender imbalance in the figures for both groups of businesses is likely to reflect wider inequality in the ownership of established Cornish businesses. However, it is of concern that a smaller proportion of the connected businesses were owned by women than the non-connected businesses.

⁴⁵ Businesses which were interviewed as part of the omnibus survey but which weren't connected are used here to represent non-connected businesses as opposed to businesses used in the counterfactual survey. This is because the latter group of businesses are sourced from different geographical areas to the connected businesses which may influence any differences.

One potential area where superfast could have an impact in terms of promoting equality and diversity concerns the use of home-working as a means of making the workforce more inclusive. The impact of home-working opportunities for disabled employees, those with caring responsibilities and employees living in remote locations was explored as part of the longitudinal business survey.

Of those respondents whose businesses used superfast for home working, around two-thirds (67%, 18) felt that superfast broadband made it easier to attract, retain or professionally develop disabled employees, those with caring responsibilities and employees in remote locations. A small proportion of businesses (9) indicated that superfast broadband had already enabled their business to benefit employees from at least one of these groups.

6.3 Environmental Benefits

6.3.1 Introduction

It has long been recognised that Information and Communication Technologies (ICTs) have an important role to play in combatting climate change. Numerous studies have sought to understand and quantify this relationship⁴⁶, reflecting on issues such as:

- Carbon emissions associated with the networks themselves;
- Opportunities to reduce emissions through a number of mechanisms such as teleworking, reduced business travel and cloud computing; and,
- Understanding potential re-bound effects (e.g. heating and lighting the home whilst working at home).

The majority of studies concluded that ICT has the potential to have a net positive effect overall. Therefore, it was always anticipated that the roll-out of Superfast Broadband in Cornwall would achieve a net positive environmental good, thus contributing to the ERDF programme's Environment and Sustainability cross-cutting theme.

The Superfast Cornwall Monitoring for Evaluation plan anticipated that environmental sustainability outcomes would be achieved through reduced travel, both in work and commuting; reduced energy use in businesses; and smarter use of buildings. The Plan also set out an expectation that the construction phase would see a reduction in greenhouse gas emissions, compared with a Business as Usual Scenario.

6.3.2 Measuring the Environmental Impact

CDC put in place a number of studies and monitoring systems to provide evidence relating to this objective. The most comprehensive of which was a proposed study from BT to quantify the carbon impact of the project. The primary objective of the study was to estimate the carbon emissions resulting from the roll-out and on-going operation of the Superfast Cornwall Network. A secondary objective was to try and quantify the positive environmental impacts, principally through changes to end-user's behaviour such as travel patterns. By bringing together the carbon footprint and carbon abatement, the study hoped to ascertain the net carbon impact.

⁴⁶ This is exemplified by the Smart 2020 report published in 2008, the subsequent Smart 2020 report published in 2012, as well as the UK Broadband Impact Study, Literature Review (2013).

In addition, CDC also sought evidence through:

- The longitudinal study of fifty Cornish SMEs which, as well as tracking economic impacts over time, explored environmental and social outcomes; and,
- The rolling consumer survey, which sought evidence of changing consumer travel patterns.

Further, CDC supported a number of projects which demonstrated how fibre broadband is an *enabler* to better understand and reduce energy usage including:

- The eServices Upon Demand project at the University of Falmouth which uses environmental monitoring devices in a care home (see University of Falmouth project report);
- The Smart Energy project which installed energy monitoring devices on appliances in 55 residential and business premises. Through the use of an online portal, the Superfast connection made it possible for residents and businesses to monitor their energy usage and take steps to reduce it (see Anient Ltd project);
- An environmental network study into how the fibre network will enable businesses and universities to collate environmental data across the region (ESI, Exeter University, report forthcoming);
- A One Planet MBA dissertation into how Superfast enables flexible working (University of Exeter); and,
- A One Planet MBA dissertation into how businesses can be encouraged to shift to the cloud (University of Exeter).

The primary reference therefore is the 'Environmental Monitoring Report' prepared by BT and independently reviewed and endorsed by the Carbon Trust. BT worked closely with CDC to develop a plan to capture real energy consumption and carbon emissions from end-users – both consumers and business users, along with data which would allow them to estimate the carbon abatement that the network was delivering.

Due to difficulties in sustaining user participation in studies, the approach adopted to measure carbon abatement draws heavily on BT's Net Good methodology⁴⁷ and is based, where possible, on results and conclusions from other studies.

This sub-section of the final Superfast Cornwall evaluation report therefore brings together:

- Quantitative results from the BT Environmental Monitoring Report⁴⁸;
- Qualitative results from the CDC Consumer Survey;
- Qualitative findings from the CDC commissioned Longitudinal Business Survey.

⁴⁷ Source: www.btplc.com/Betterfuture/NetGood/OurNetGoodMethodology/index.htm

⁴⁸ Source: Superfast Cornwall Environmental Monitoring, 3rd June 2015. Graham Seabrook, BT

It does not explore the findings from the studies exploring superfast broadband as an 'enabler' as this is outside the scope of this report.

6.3.3 Carbon Impact of the Roll-Out and Ongoing Operation

The BT study was the only study to estimate the carbon footprint of the Superfast Cornwall project. This was considered in terms of three components:

- Customer premises equipment (CPE);
- Network service platforms; and,
- Operational activities, service wrap and non-ICT infrastructure.

Boundaries for the system under study were defined as those operations over which BT had control. These are outlined in Table 26.

Table 26: Boundaries for Carbon Footprint

Emission Source	
1.	Superfast Cornwall network build – OR resources and fuel used
2.	Superfast Cornwall network – equipment and infrastructure including: <ul style="list-style-type: none"> • Equipment in BT Exchanges • Street Cabinets used to deliver Fibre to the Cabinet • Passive infrastructure (fibre, cabinets, etc).
3.	Customer Premise Equipment (BT provided) including: <ul style="list-style-type: none"> • The NTE (Network Termination Equipment) at the customers' premises
4.	BT / CDC personnel employed on deployment, delivery and maintenance of Superfast Cornwall

In each case, a materiality test was to be applied: specifically the study proposed to employ a materiality threshold of 5% of total carbon emissions. The intention was to estimate the carbon footprint of the network, based substantially on power consumption information collected from supplier's data sheets, supported where practical, through measured power consumption data collected from BT exchanges and street cabinets.

It was agreed that the geographic boundary under study be limited to mainland Cornwall – excluding the Isles of Scilly – as when the original project was proposed it was unclear which technologies would be used to deliver Superfast Cornwall to the Isles.

Impacts were measured over an assumed 9 years from 2011/12 to 2019/20, using predicted take-up to project impacts going forwards.

For completeness, the study calculates the carbon impact of the network on the basis of two scenarios:

- Scenario 1 (Actual): BT purchases 100% of its electricity used to power the network and its wider operations from renewable sources, which is the case;
- Scenario 2 (Alternative): Assumed that BT purchased its electricity from non-renewable sources (the grid average).

The total carbon emissions resulting from planning, installing and running the network over a nine year period was found to be equivalent to **23,887tCO₂e** based on Scenario 1 (Actual). However, if BT purchased standard electricity from the grid, the emissions would equate to 31,248tCO₂e.

6.3.4 Carbon Abatement

The BT report attempted to establish a likely carbon benefit resulting from the deployment of superfast Cornwall by exploring the impact per user across a range of applications enabled by superfast broadband, scaled up to reflect the fully populated Superfast Cornwall network.

The report's original intention was to utilise primary research, but given the difficulties of securing take-up, the methodology reverted back to secondary data sources and in particular BT's Net Good Model, which has been independently reviewed and endorsed by the Carbon Trust.

The report examines 5 principle sources of carbon abatement:

- De-materialisation and Consumer travel;
- Telecommuting;
- eCommerce;
- Business Travel; and
- Cloud Services.

For each of these five sources of carbon abatement, this report: summarises the approach adopted by BT; reflects on any qualitative evidence from the Longitudinal Business Survey or the Consumer Panel Survey; and, details the estimated carbon savings.

De-materialisation and Consumer Travel

The principle behind dematerialisation is that applications supported by superfast broadband replace or reduce the need to manufacture, print and ship newspapers, documents, books, CDs and DVDs for residential customers. Instead the services are available digitally on-line.

The study drawn upon by the Net Good model is the Yankee Group study⁴⁹ (2012) "*Measuring the Energy Reduction Impact of Selected Broadband Enabled Activities within Households*". The study provides a kgCO₂e per working-age person in five EU countries studied. The Net Good model uses this research as a foundation, but provides some adjustment for growth in abatement, based on BT research which suggests growth in abatement resulting from increased per-line traffic.

The forecast abatement per superfast broadband line in 2020 is 597 kgCO₂e per annum.

⁴⁹ Source: Measuring the Energy Reduction Impact of Selected Broadband-Enabled Activities within Households, Yankee Group and GeSI, 2012.

As reported in Section 6.2, the consumer survey explored the extent to which householders have changed their patterns of use relating to a number of key internet functions, as a result of connecting to superfast. Overall, this showed that a high proportion of relevant functions were being used more by respondents. For brevity, these findings have not been repeated here.

Telecommuters

This form of abatement relates to the impact of broadband on people's ability to telecommute instead of travel to work each day. The BT study explores a number of potential sources and estimates for the CO₂ abatement value of telecommuting. The authors decide to use the aforementioned 'Yankee' report which included telecommuting in the set of applications considered.

The figures from the Yankee report were averaged across the entire working age population of the five European countries; therefore the figures were adapted by BT to reflect the UK telecommuting population. The figure derived equated to 0.95tCO₂e per telecommuter and assumes:

- An average of 2.6 days/week working from home;
- Mean daily commute 24 miles;
- Energy reduction in corporate offices is considered;
- Rebound effects of increased energy use at home are taken into account; and,
- Rebound effects of additional personal errands are taken into account.

The BT study then explored the evidence for the number of employees from Cornish businesses that may be telecommuting. The study explored various local sources, but concluded that for the purpose of the analysis, the averages from the Yankee report were the most appropriate.

These figures indicate that an average of 16% of employees telecommute, resulting in a total 16,722 tCO₂e attributable to 17,455 telecommuters in 2020. **Over the 9 year period under study the total carbon abatement from telecommuting is estimated as 86,068tCO₂e.**

The CDC consumer survey, whilst not directly comparable, shows some evidence that **householders are working from home more**, because of superfast broadband. Over a third (36%) of respondents indicated that they used the internet for work or business. Of these, the majority (62%) used it occasionally, with most of their work conducted elsewhere, 23% used it on a part time basis and 14% full time.

The survey also asked respondents to describe the nature of their home working prior to connecting to superfast broadband. This revealed that 13% of home workers now worked from home more than they did prior to superfast broadband.

Of these, 64% indicated that superfast broadband was either important or very important in their decision to work from home more. Of those working from home more, 77% indicated that working from home reduced their commute to work.

eCommerce

eCommerce relates to the reduction in commercial, retail and wholesale space required by businesses as a result of superfast broadband, established from a study by the American Communications Institute in 2007. Working with the Carbon Trust, BT has demonstrated a logarithmic relationship between bandwidth and usage for residential use of broadband: i.e. higher bandwidth = higher usage.

This same relationship can be applied to carbon abatement; i.e. that carbon abatement should grow logarithmically with bandwidth. The team then applied an abatement factor on the basis of a number of different bandwidth ranges. ***This results in a forecast 38,415 tCO₂e in 2019-20 and a total of 197,321 tCO₂e over the study period (2011 – 2020).***

Business Travel

This relates to the reduction in carbon emissions resulting from reduced business travel. The report recognises that whilst carbon abatement studies have traditionally looked at the role of high-end videoconferencing systems, such systems tend to be used by large global multinationals, rather than SMEs which dominate the business landscape in Cornwall.

The report cites the 'UK Broadband Impact Study'⁵⁰ which estimated that 5.3bn kms in annual business travel could be saved by 2014 through increased use of video and online collaboration tools by broadband using firms. This is the equivalent to 9% of the current total annual UK business travel distance. The BT study utilises an alternative study conducted by O2, in which employees kept diaries of their travel and recorded an average reduction in business related travel by 650miles per annum. They have then considered the average number of employees in different sized businesses in Cornwall and applied reductions on a proportionate basis. This results in an estimated saving of 10,186 tCO₂e by 2019-20 and a total of 51,705tCO₂e over the study period.

The final report of the SERIO Longitudinal Study⁵¹ showed that travel usage had stayed the same over the period from pre-SFB to Wave 2 for 60% of businesses. However, it had reduced for 29% over the same period, whilst 10% felt that it had increased. The key reasons for a reduction in travel use since connecting to superfast were linked to using more sophisticated internet functions. The most common reason given was access to remote conferencing facilities which reduced the need to travel to see clients, while other factors included home or remote working, online ordering and the reduced need for site visits due to the ability to send large files.

SME Cloud Services

The final area, for which carbon abatement has been identified, specific to Cornish businesses, is the use of cloud services to replace traditional on-site hosted services. The methodology employed was originally proposed by Anthesis with endorsement from the Carbon Trust, as input into BT's Net Good methodology.

⁵⁰ UK Broadband Impact Study, 2013, by SQW for DCMS.

⁵¹ SERIO (2015) Superfast Cornwall Longitudinal business Survey: Final Report

The principle is straightforward: the infrastructure used to deliver cloud-based services is shared amongst multiple users and thereby deliver energy and carbon efficiencies over separate instances of privately owned infrastructure. The methodology results in an estimate of the net carbon impact for businesses in the three size categories used by ONS, given as set of assumptions about the current adoption of cloud based services in each category. When applied to the breakdown of Cornish businesses (micro, small and medium), this results in a 2019-2020 estimate of 5,394 tCO₂e per annum **and a total of 24,110 tCO₂e across the 9 year study period.**

6.3.5 Total Carbon Abatement

The study combines the above totals to produce a forecast total carbon abatement which Superfast Cornwall could be delivering by 2020. This is over 11,625 tCO₂e per month or 136,357tCO₂e per annum (April 19-Mar 2020), from an average of 128,051 subscribers across the same period: equivalent to 1.487 tCO₂e per subscriber. **The total carbon abatement delivered across the 9 years of the study period is estimated to be 614,174 tCO₂e.**

6.3.6 Net Carbon Abatement

The study concludes that the Carbon abatement potential of Superfast Cornwall far outweighs the carbon impacts of both the Plan, Build and Install phase and the In-Life phase combined. Over the full study period Superfast Cornwall thus has the potential to deliver a total net positive carbon impact of 581,146 tCO₂e, equivalent to 25 times the carbon impact of the network.

7. Strategic Added Value

Summary of Key Points:

Strategic Added Value (SAV) has been assessed through a qualitative process based on the results of stakeholder interviews and documentary evidence. This process has found:

- The project has performed a **leadership** role, on both the national and local stage, encompassing a number of areas.
- The Superfast Cornwall project has played a significant role in **influencing strategy and policy, investment decisions and activities** of others.
- The project has **directly levered investment** through:
 - The BT investment in digital infrastructure;
 - Get IT Together and Inspiring Works, where the programme worked in partnership to deliver digital inclusion; and,
 - Superfast Cornwall Labs, where the project levered resources from Higher Education partners to explore innovative uses of superfast.
- The project has had some **synergies** with other economic development functions, but that the absence of broader co-ordination of business support prevented deeper synergies. The concept of 'Growth Hubs', planned for LEP areas, is intended to simplify the business support landscape and improve co-ordination of business support activity.
- The project has **engaged well** with stakeholders and the public, through significant investment in the partnership office and use of a Business Advisory Group. However, some stakeholders felt that more could have been done to manage expectations at the beginning of the project.

7.1 Introduction

Strategic Added Value (SAV) refers to the contribution that a project can make to an agenda through their influence on partner and stakeholder's behaviour and performance. SAV is normally explored qualitatively through the assessment of functions such as leadership, influencing, leverage, synergy and engagement.

This section explores stakeholder perception of achievement against each of these topics, in addition to documentary evidence to draw out how the Superfast Cornwall project has achieved these SAV functions. The definition, analysis and review of SAV functions is led by the analytical framework for assessing SAV, as cited in the 2006 Impact Evaluation Framework (IEF)⁵².

⁵² DTI (2006) Evaluating the impact of England's Regional Development Agencies: Developing a Methodology and Evaluation Framework.

7.2 Strategic Leadership and Catalyst

The IEF defines this function as: *'Articulating and Communicating Regional Development needs, opportunities and solutions to partners and stakeholders in the region and elsewhere'*.

Stakeholder interviews suggest that the Superfast Cornwall project has played an important strategic leadership role, both nationally and within Cornwall, over the project period.

7.2.1 National Level

On the *national stage*, the Superfast Cornwall project **pioneered the public/private partnership approach to superfast roll-out**, which was subsequently adopted by BDUK in its national programme of activity. Stakeholders believe that the early successes demonstrated in Cornwall have contributed towards the subsequent decision made by BDUK and Central Government to further invest in the national programme.

The programme team report that in their pioneering role, they have received delegations from nearly 50 different local authorities, the Scottish Government and the Welsh Government, 4 Government ministers and the CEO of BT – all keen to learn from the Cornish project. This is corroborated by the counter-factual stakeholder interviewees who appreciated the willingness to share learning from the Cornish team.

7.2.2 County Level

Within Cornwall, stakeholders report that the project had played a leadership role in a number of areas namely:

- **Digital Infrastructure:** The project team have championed the need for digital infrastructure internally and externally during the project period. For example, through effective partnership working and efficiencies, the project team were able to connect 15% more premises than originally planned, connect the Isles of Scilly, and explore alternative technologies for the most hard to reach areas;
- **Business and Consumer Take-up:** The project has proactively encouraged businesses and consumers to take-up superfast broadband. Stakeholders have indicated that through this take-up, businesses are showing increased confidence, and are investing in ICT and technology. Similarly, the digital inclusion programme has successfully encouraged a high number of people to engage with the internet for the first time;
- **Exploitation of Superfast:** The programme has led on a number of projects to explore how the superfast roll-out can achieve wider Economic, Environmental and Social Objectives through the Superfast Cornwall Labs. Stakeholders have highlighted the open-minded and flexible approach adopted by the project in this area, being open to new-ideas and approaches from partners;

- **Championing Future Needs:** Stakeholders have also highlighted the strategic role played by the project team in terms of championing future digital investment needs as illustrated in the quotes below from the stakeholder interviews:

'The programme's leaders have been very upfront in driving the agenda forward. They have got all the relevant people listening (e.g. MPs, Government etc.). They are all supportive of the programme.'

'It has kick-started people's imaginations in terms of looking at the investment in digital as being as important as the investment in transport and buildings. I think before superfast, people saw it as being a bit peripheral. This has helped people to think that we should carry on investing in digital. So I think it has put it on the map as probably one of the main drivers to the economy, it's how you connect to the rest of the world.'

Strategic leadership and catalyst can also be evidenced through recent work by the project to develop a '**Vision 2025**⁵³', which sets out a series of keynote articles, highlighting what the future will look like in 2025 in relation to Superfast.

It was written with partners at BT, Plymouth University and Falmouth University as well as subject experts from within CDC and other business leaders. It covers a wide range of topics, from Smart Homes to Public Sector Transformation, from the Future of Work to the Future of Health and Education.



Photo: Minnack Theatre Manager, Phil Jackson. The Minnack Theatre, located on the cliffs at Porthcurno has been able to revolutionise their internet experience thanks to its fibre to the premises superfast connection (February 2015).

⁵³ Source: www.superfastcornwall.org/about-sfc/vision2025

7.2.3 Strategic Leadership and Catalyst Conclusions

The above evidence suggests that the Superfast Cornwall project has successfully performed a strategic leadership role.

7.3 Influencing

The IEF defines this function as: *'Carrying out or stimulating activity that defines the distinctive roles of partners, gets them to commit to shared strategic objectives and to behave and allocate their funds accordingly.'*

In this sub-section we have therefore explored the extent to which the Superfast project has influenced: strategy and policy decision of other organisations; investment decisions made by other organisations; and, activity delivered by other organisations. This sub-section does not include investments supported with funding from the Superfast Project, which are covered in Section 7.4, Leverage.

Stakeholder interviews indicated broad agreement that the project and the resulting infrastructure had been highly influential. Some described the infrastructure as an *'enabling technology'* or a *'digital platform'*, which provided a *'springboard'* for other investments.

7.3.1 Influence and Strategy and Policy Decisions of Other Organisations

Many stakeholders thought that the Superfast project had influenced strategy and policy of the Cornwall and Isles of Scilly Local Enterprise Partnership. As the quotes below from the stakeholder interviews highlight:

'There has been an impact on the way that Cornwall presents itself to the market. It had a reputation of being poor, a consistent message, but all changes to a new fresher approach, where Cornwall can now look at new markets outside the region, and that's fed into their regional economic plans. Senior politicians are calling it an 'enabled place.'

'It's about how we get investment in Cornwall and getting the persona of it raised, and superfast has raised it. It's been used in the promotion of Cornwall and it's about the whole ethos of Cornwall – it's helped the LEP talk about Cornwall in a 21st Century way as opposed to being a nice place to come here.'

'It's had a big impact; the whole sort of where Cornwall is going in the 21st Century is driven by this. I think at that level, the Superfast Cornwall team coped quite well with the council and the LEP. Within the confines of the decision making fraternity, it did have that influence and leaders did communicate quite well.'

A review of the Cornwall and Isles of Scilly's Strategic Economic Plan and European Structural and Investment Fund Strategy (ESIF) shows that 'digital' is now considered an opportunity for growth, rather than a constraint or simply enabling infrastructure. A high level review of the LEP's Strategic Economic Plan and ESIF⁵⁴ shows that:

⁵⁴ Available from: www.cornwallandislesofscillylep.com

- The Superfast Cornwall investment is highlighted as important legacy from the 2007-2014 programme;
- SWOT analysis highlights digital connectivity as a **strength** and an **opportunity**;
- Digital infrastructure is highlighted as an important **physical asset** underpinning two of the five 'future economy' sectors, namely: **Digital economy and e-health**. Activities under the future economy priority focus on driving innovation and enterprise in future economy sectors, through research, collaboration, developing higher level skills and building on previous investment;
- ESIF funding will also be used to invest in '**Digital Infrastructure and Digital Skills for growth**' with potential activities including: demand stimulation; advice and support for businesses; digital infrastructure; skills programme; and digital inclusion.

This analysis shows that the digital agenda is now seen as an important opportunity to drive the 'Future Economy' of Cornwall as well as an important component to 'Conditions for Growth'. This is a significant re-positioning from the 2007-2014 Cornwall and Isles of Scilly Operational Programme, where digital infrastructure was positioned as a means of addressing Cornwall's peripherality constraint.

Stakeholders also highlighted that the Superfast Broadband roll-out has significantly influenced **Falmouth University's** strategy, indicating that it had re-designed its portfolio of courses to better align with creative industries (in particular gaming) and opportunities in Cornwall. As a result the university recruited a Professor of Games Design (a significant figure in the Games industry), established a **successful degree programme in Games** and been successful in applying for **European Framework 7 funding** to secure the European Research area chair in Digital Games technology. On the back of this, the university created a Graduate Entrepreneur Programme called **Alacrity Falmouth**, part funded by ERDF, which uses a boot camp experience to develop new businesses in response to market need.

This evidence suggests that the Superfast Cornwall project has successfully influenced Strategy and Policy of the LEP as well as Falmouth University. However, one stakeholder highlighted that they felt that the absence of a '**digital strategy**' for the county was a concern, as there remain key issues that need to be addressed going forwards, particularly in relation to ensuring that digital by default does not result in further digital and social exclusion.

7.3.2 Influenced Investment Decisions Made by Other Organisations

Public Sector

Stakeholders highlighted that the Superfast Cornwall project had influenced the investment decisions made by a range of organisations across Cornwall. In the public sector, stakeholders pointed to the investments being made by Cornwall Council and the NHS in developing **e-health** and the wider '**public service transformation**', and digital by default strategies, as being influenced by the Superfast Cornwall roll-out.

This in turn is influencing **voluntary and community sector** organisations to get involved in **'e-delivery'**, especially in fields such as health and social care where they have traditionally had a strong presence. It was also highlighted that the successful roll out of superfast broadband has enabled further ERDF investment in digital business support as illustrated in Box 2.

Box 2: Superfast Business Cornwall

The successful roll out of superfast broadband enabled the development of the 'Superfast Business Cornwall' Business Support programme (SFBC). This ERDF funded programme provided a small cohort of 30 high growth businesses with intensive support to maximise the opportunities presented by Superfast Broadband and its technologies. Participating businesses were provided with intensive support and grant funding to develop and implement a transformational ICT project. As of June 2015, the project has⁵⁵:

- Provided intensive support to 30 business;
- Funded 23 transformational projects, with a total investment value of £1,193,200 ERDF, plus private sector match;
- Created 89 jobs; and,
- Created £3.7m GVA.

It should be noted that these businesses were not included in the Superfast Cornwall business survey, so the economic impact arising from SFBC is *additional* to the economic impact reported in Section 5 of this report.

Higher Education

In Higher Education, stakeholders mentioned the investments made by Falmouth University (detailed above) as well as efforts to secure Innovate UK 'Digital Connectivity' Catalyst Funding. Whilst unsuccessful, it demonstrates the influence that the superfast project has had on partners. In **Further Education**, Cornwall College has started to explore opportunities for e-learning, with the appointment of an e-learning lead. However, some stakeholders felt that this had not been soon enough.

Private Sector Investment

In terms of private sector investment, stakeholders pointed to a number of mechanisms:

- A perception that Internet Service Providers were coming to Cornwall and investing in products to serve the Cornish market;
- Some evidence of **inward investment**, with superfast helping Cornwall to compete more effectively with other rural destinations (e.g. Wales, Scotland);
- The growth of the **digital/creative sector**, resulting from the Superfast Cornwall opportunity and the decisions taken by Falmouth University in driving forward this agenda; and,

⁵⁵ This is the forecast at the time of reporting collection of GVA actuals has only just commenced as the project is running until Sept 2015.

- Small amounts of investment by **many SMEs** to upgrade technology to better exploit the superfast infrastructure.

However, some stakeholders also highlighted that further public sector investment is needed to support the private sector to maximise the impact of superfast Cornwall. For example, the need for further grant funding was highlighted to support for SMEs to help them invest in equipment, software and technology to introduce new business practices.

7.3.3 Influenced Activity Delivered by Other Organisations

Stakeholders also pointed to a number of examples where Superfast Cornwall has influenced **activity** delivered by other organisations. For example:

- Cornwall Council was able to secure funding from the Tinder Foundation and Cornwall Farmers to conduct digital work with farmers. Whilst Superfast Cornwall did not provide any funding directly, the support of their outreach officer was perceived to be invaluable in setting up the project;
- Cornwall College are trialling a new superfast enabled model for the delivery of learning to people suffering from mental health problems. The approach has involved the investment in 20 laptops, which can be taken into mental health units in the county and used to access learning systems using superfast. This means that people recovering from mental health problems can engage in learning in an environment they are comfortable in.

One stakeholder suggested that Business Support products are starting to mainstream the digital agenda.

7.3.4 Influencing Conclusions

The above evidence suggests that the Superfast Cornwall project has played a significant role in influencing strategy and policy, investment decisions and activities of others.

7.4 Leverage

The IEF defines this function as: *‘Providing financial and other incentives to mobilise partner and stakeholder resources – equipment, people as well as funding.’*

In the context of this definition, the research focused on understanding how the Superfast Cornwall project has directly supported partner activity. Stakeholders highlighted 3 examples of the project creating leverage. These are:

- The infrastructure roll-out, leveraging £78.5m private sector input from BT;
- The Inspiring Works programme, where Superfast Cornwall worked with partners to address digital inclusion; and,
- Superfast Cornwall Labs, where the project supported research on a number of research projects to explore how superfast technology can be exploited for economic, environmental and social benefits.

Table 27, and Box 3 provide details of these examples of leverage.

Table 27: Examples of Leverage

Element	Description	Funding Partners	Superfast Contribution	Investment Levered
Superfast roll-out	Roll out of superfast broadband infrastructure to 95% of premises in Cornwall	BT	£53.5m	£78.5m
Get IT Together	A pioneering digital inclusion programme that will help 3000 people use the internet for the first time	Get IT Together (a joint initiative between BT and Citizens Online)	£50k	£150k
Inspiring Works	A collaborative programme funded by the Department for Work and Pensions (DWP) flexible support fund to develop basic online skills	DWP	£15k	£28k
Superfast Cornwall Labs	Part-funding four PhD/Research Assistants at Plymouth University and Falmouth University (See Box 3)	Falmouth University; Plymouth University	£140k	£140k



Photo: Annabel Slater who enrolled on a five week course for computer beginners, run by Citizens Online as part of BT's "Get IT Together" project.

Box 3: Superfast Business Cornwall – Supporting Collaborative Projects

The Superfast Cornwall project has supported and part-funded a wide range of collaborative projects that add value to the main Superfast project evaluation. These projects cover a range of business sectors and communities.

Longitudinal Qualitative Research

The longitudinal qualitative research study completed by Hazel Lacohee (BT TSO) is a key piece of research that supports the findings of the SERIO evaluation. It was undertaken over a period of four years through a series of focus groups with SMEs. The three reports (base-line in 2011, midterm in 2013 and final in 2015) investigated the business attitudes and expectations for superfast broadband, the perceived 'virtuous circle of connectivity' and the enduring SME benefits and business opportunities after 18 months use.

Funding for PhD/ Research Assistants

Under the brand of Superfast Research Labs, Superfast Cornwall has part-funded four PhD and Research Assistants at Plymouth University and Falmouth University. These projects are continuing beyond the end of the Superfast Cornwall and have reported mid-term results. The Digital Neighbourhoods PhD is studying how the introduction of fibre broadband has changed community and how people interact with each other. As part of this, the PhD student embedded herself in the rural isolated village of St Breward and investigated the importance of places where social and digital inclusion come together, such as community halls.

The EHealth PhD is assessing the impact on e-health uptake of three interventions (i) superfast broadband, (ii) a tailored leaflet to help participants improve personal internet skills and support, (iii) GP interventions to improve health service provision of e-health. The Supercrafted Research Assistant project is investigating how fibre broadband can be used by micro-craft businesses to add value by sharing practice. The Eservices on Demand Research Assistant project is studying how Superfast broadband can be used to improve care in residential homes through the use of sensors to improve the environment and enabling residents and carers to connect to the environment around them.

Other Large Projects

Superfast Cornwall has also supported the University of the Village educational project at Falmouth University, which investigated the ways universities can better connect with rural villages and the VConect project, which demonstrated how the fibre broadband bandwidth is vital for connecting performance spaces for teaching, rehearsals and performances. Superfast Cornwall has also supported the Cornccb project at the University of Aberdeen, which worked closely with craft practioners to help them use social media.

Findings

This body of research is an invaluable resource for providing insight into the potential uses of Superfast and how the economic, social and environmental impact of the roll-out can be maximised to create a lasting legacy. Three Superfast Research conferences have been held to share findings and a film has been produced that celebrates the work undertaken.

7.5 Synergy

The IEF defines this function as: *‘Using organisational capacity, knowledge and expertise to improve information exchange and knowledge transfer and co-ordination and or integration of the design and delivery of interventions between partners.’*

In this context the consultation with stakeholders explored the extent to which the project:

- Interacted and collaborated with other economic development projects and initiatives; and,
- Complemented other business support initiatives.

Stakeholders had mixed views about the extent to which the project was successful in doing this. Most acknowledged that the Superfast Cornwall project team made efforts to **engage** with other economic development projects and initiatives, with a view to promoting the benefits of superfast broadband and encouraging take up. As exemplified in the text box below, some highlighted joint events such as Forward with Fibre as an example.

‘Superfast Cornwall, Unlocking Potential and Superfast Business Cornwall held a joint event at the Eden Project in October 2014. Forward with Fibre was about helping the business community in Cornwall, by showing what opportunities were available to them with new fibre based broadband.’

Stakeholders also felt that the project had engaged particularly well with: Oxford Innovation, who run a number of business support initiatives in Cornwall; Unlocking Cornish Potential, a graduate placement programme run by Cornwall College; Invest in Cornwall (see text box); Superfast Business Support Project, run by Peninsula Enterprise; and other CDC products and services.

*‘Superfast Cornwall has demonstrated good levels of synergy with **Invest in Cornwall**, where the relationship appears to be strongly symbiotic. The Superfast Cornwall roll-out and in particular the associated PR and Marketing has raised the profile of Superfast in Cornwall, helping to open up conversations with potential inward investors.’*

Several stakeholders highlighted that business support provision in general lacked co-ordination and required further joining up, although most acknowledged that this was beyond the scope of the Superfast Cornwall project.

One stakeholder felt that had the project had a partnership manager, they may have been able to interact and collaborate more deeply with other products and services. Another stakeholder was concerned that digital business support products were not keeping pace with the speed of change exhibited by the fastest moving digital businesses.

7.5.1 Synergy Conclusions

In conclusion, there is evidence that the Superfast Cornwall project had some synergies with other economic development functions, but that the absence of broader co-ordination of business support prevented deeper synergies. The concept of 'Growth Hubs', planned for LEP areas, is intended to simplify the business support landscape and improve co-ordination of business support activity.

7.6 Engagement

The IEF defines this function as: '*Setting up the mechanisms and incentives for more effective and deliberative engagement of stakeholders in the design and delivery of programmes.*'

Stakeholders generally felt that the Superfast team attempted to engage with a wide variety of stakeholders, networks and organisations. Some felt that this engagement was difficult at times, because not everyone understood the complexities of the roll-out and how this is achieved in a partnership arrangement. Inevitably, many people did not understand why their area had not been prioritised.

Some stakeholders suggested that expectation management in the early days of the project could have been better. However, one stakeholder felt that the team should be commended for their efforts '*putting themselves out there and taking the awkward questions*'.

Several stakeholders highlighted examples of how the superfast team had brought their expertise to projects outside the scope of the Superfast Cornwall project, for example:

- Advising the Aerohub team on how they can get connected to fibre (as it's a new build, it is not part of the project).

Representatives from the business community appeared to be quite satisfied with communication efforts, suggesting that they had received consistent messages and feedback. Another highlighted that they had been part of the 'Business Advisory Group' which had been 'very inclusive'. This suggests that this was a successful mechanism for engagement.

One stakeholder expressed a cynical view that the project did not want true engagement, instead only wanting the organisation's endorsement, but this view was not shared more widely.

7.6.1 Engagement Conclusions

The project has engaged well with stakeholders, although better expectation management at the beginning of the project may have reduced negativity associated with areas not yet connected. The Business Advisory Group appears to have been a successful mechanism for engagement.

8. Conclusions and Recommendations

8.1 Introduction

This section presents the key conclusions from the evaluation of the Superfast Cornwall project, and makes recommendations for consideration by CDC and relevant stakeholders. For clarity, the conclusions have been structured around the seven stages of the evaluation logic chain (Section 1.3) which outlines how the £132m infrastructure and £4.5m delivery management investment was anticipated to lead to the achievement of the project's targets, and expected impacts.

8.2 Overview

In an increasingly digitised world the importance of ensuring residents and businesses have access to fast and reliable internet connections can be critical to achieving social, environmental and economic progress. This is particularly true of regions such as Cornwall, which may be disadvantaged by peripherality and by the legacy of past economic performance.

This report, which marks the culmination of the evaluation of the largest single European investment in superfast broadband, shows how Cornwall has taken a lead in the roll-out of superfast broadband in a predominantly rural area. Not only has the project over-achieved against its objectives in terms of coverage, but the evidence outlined in this report also demonstrates that it has made a positive contribution to business growth and job creation. Furthermore it has contributed, alongside other European funding initiatives, to the development of the digital sector in Cornwall.

Table 28 outlines the achievements of the project against its targets. As shown, the project has exceeded its targets in terms of businesses connected, gross increases in jobs and GVA, and GVA safeguarded.

Table 28: Project Targets and Achievements

Objective	Target	Achieved	% Achieved
Businesses benefitting from upgraded ICT infrastructure	10,000	12,104	121%
Businesses with improved performance (GVA) ¹	6,000	4,686	78%
Gross increase of jobs ¹	4,000	4,666	117%
Net additional increase in jobs ¹	2,835	2,025	71%
Net jobs safeguarded ¹	2,000	2,468	123%
Gross increase in GVA ¹	£140.0m	£161.5m	115%
Net additional GVA ¹	£99.2m	£91.8m	93%
Net additional safeguarded GVA ¹	£70.0m	£94.3m	135%

¹These estimates are based on the number of premises connected for 12 months or more at June 2015.

Whilst the project has not yet reached its targets in terms of net jobs and GVA created, and businesses with improved GVA performance⁵⁶, data on the number of businesses connected at June 2015 suggests that it will more than surpass these targets within the next 12 months.

⁵⁶ The figure for businesses with improved performance was estimated from the proportion (%) of businesses indicating that superfast had saved them time and or money (see Page 103). This assumes that a business saving time/money will be demonstrating improved performance which will in turn result in improved GVA. The methodology used for calculating GVA was based on increases in employment/safeguarded jobs and was not sufficiently granular as to be able to pick up marginal GVA improvements likely to be seen from businesses saving time or money. Therefore it has not been possible to confirm that businesses saving time/money have also achieved GVA improvements.

As policy-makers look ahead to the new round of European funding, it will be important to capitalise on and, where necessary, develop the new superfast infrastructure, alongside other key economic development initiatives.




Photo: Jane Cowans, Marketing and Office Manager at the St Ives School of Painting. Through the use of superfast broadband, staff are now able to work remotely, whilst customers can benefit from live streaming of lectures, exhibitions, and collaborative sessions with other venues (March 2014).

8.3 Conclusions

Activities


The project not only exceeded its original target for coverage of fibre based broadband of 80% but also its extended target of 95% coverage. As of March 2015, 241,000 out of 253,000 baseline contracted premises had been passed, compared to the extended target of 240,000. Of these premises, 30% are FTTP covered premises, making Cornwall by far the leader in the UK for this technology, according to research by Analysys Mason.

The project has been successful in terms of covering more hard-to-reach areas. Not only is the county first out of 13 comparator regions and countries in terms of the proportion of rural premises passed, according to Analysys Mason, but the project has also successfully overcome the logistical issues of providing fibre coverage to the Isles of Scilly.



In parallel to the roll-out of the superfast infrastructure, the CDC team have pursued a number of activities, with partners, to maximise the impact of the project including demand stimulation, digital inclusion, stimulation of research and technical development and influencing policy and strategy. Evidence from the stakeholder survey also highlights the effectiveness of the project in providing residents with basic internet skills. In general it was felt the project had engaged well with stakeholders although expectation management at the beginning of the project may have reduced negativity associated with areas not yet connected.


Outputs



Take-up has continued to increase steadily as the project has progressed. Superfast Cornwall data indicates that there will be an estimated total of 66,537 connections as of June 2015, the point at which the project comes to an end. The overall take-up rate was calculated at 26% as of March 2015. Based on the assumption that this take-up rate does not differ between residents and businesses, an estimated total of 12,104 businesses were connected to superfast in March 2015, above the project target of 10,000.

Evidence from the stakeholder survey suggests that the project has proactively encouraged businesses and consumers to take-up superfast broadband. However both the business and consumer surveys found that a notable proportion of residents and businesses in connected areas were not connected because they didn't believe they could access superfast or that they didn't feel they needed it. This suggests that more may need to be done in the future not only to address coverage in the areas not yet covered, but also to ensure that businesses and residents are well informed about whether they can access superfast and what the potential benefits are.

Mechanisms



The evaluation revealed that superfast has played a key role in facilitating and encouraging internet use amongst businesses. For example, the business omnibus and counterfactual surveys indicated that internet usage was higher amongst connected than non-connected businesses. Furthermore, a majority of connected businesses reported either using an internet function for the first time, or increasing their existing use since upgrading to superfast.

These findings are reinforced through the longitudinal survey which also found evidence of businesses continuing to enhance their usage of the internet beyond the immediate period after upgrading.

Whilst overall use of the internet was also higher amongst connected than non-connected consumers, superfast does not appear to have had quite as much of an impact on consumer behaviour as it has had on businesses. A majority of respondents had used each internet function under investigation before superfast and, of these, the majority did not increase usage after upgrading for all but two of the functions.

Intermediate Results

Businesses responding to the omnibus survey revealed that the project had benefited them in a variety of ways. Key findings indicated that:

Superfast broadband had:	Percentage of Respondents
Saved the business time and/or money	79%
Allowed employees to work remotely and/or more efficiently from home	71%
Enabled the business to work in new and different ways	56%
Allowed the business to grow	56%
Helped the business to develop new goods and services	47%

In addition 49% of businesses indicated that superfast had helped them to access new markets. Of these businesses, nearly two-thirds stated that these markets were national or international, suggesting that project displacement is low and that superfast is improving the reach of Cornish businesses. Furthermore, several stakeholders were able to point to cases where superfast had been used by Cornish businesses to facilitate access to international markets.

In terms of environmental benefits, research by BT shows that the Carbon abatement potential of Superfast Cornwall far outweighs the carbon impacts of both the Plan, Build and Install phase and the In-Life phase combined. The net positive impact of Superfast Cornwall is estimated as 581,146tCO₂e over the 9 year study period and equivalent to 25 times the carbon emissions of the network. The carbon abatement impact is supported by evidence from the longitudinal business survey, which pointed to a decline in travel amongst SMEs after connecting, and the consumer survey, which found that superfast played an important role in encouraging some respondents to work from home.

Results

The findings from the business omnibus and counterfactual surveys clearly show that connected businesses have performed better than their non-connected counterparts. Whilst both groups of businesses initially had a comparable level of average turnover around two years ago, average turnover was found to increase amongst the connected businesses by £90,848 per business compared to just £20,922 amongst non-connected businesses.

Furthermore average gross job creation amongst the connected businesses was 0.63 FTE compared to just 0.45 amongst non-connected businesses. These figures, together with feedback directly from the connected businesses themselves, suggest that much of the growth amongst the connected businesses can be attributed to superfast. Gross job creation among the 425 connected businesses is 268.2 FTE, equating to £9.4m in GVA.

Overall total attributable job creation amongst the 425 connected businesses was estimated at 77.2 FTE (£4.4m in GVA). Notably, the figure for safeguarded jobs attributed to superfast was even higher at 154.5 FTE, equating to £5.9m in GVA. The evaluation also found evidence that Superfast Cornwall has helped stimulate the establishment of new Cornish businesses. The consumer survey revealed that 12 of the 637 consumers (1.9%) had been influenced by superfast to start-up a new business.

Impacts

Due to delays on the release of key socio-economic data (see Appendix G), and the role of other key economic factors such as the gradual recovery from recession, it is difficult, at this stage, to evidence the wider impact of the project on the Cornish economy. However results from the evaluation surveys, grossed-up to the estimated number of established businesses and consumers, indicate that the project has made a considerable economic impact.

Overall net job creation from business growth and business start-ups, based on the number of premises connected for 12 months or more, is estimated at 2,025 FTE equating to £91.8m in net GVA. Superfast appears to have had an even greater impact in terms of safeguarding positions. A total 2,468 FTE jobs are estimated to have been safeguarded due to superfast broadband, equating to £94.3m in GVA. While some caution should be exercised with safeguarded figures given they are based, in part, on respondents' own interpretations, these figures are likely reflect the difficult economic environment during which the roll-out of the project occurred.

If the survey findings are grossed-up to the number of connected businesses in June 2015, then net job creation rises to 2,738 FTE (£124.2m in net GVA) and net jobs safeguarded rises to 3,337 FTE (£127.5m in net GVA). Whilst these figures should be treated with some caution (as they assume the performance of newly connected businesses will match those of businesses that connected over 12 months ago), this suggests that superfast will continue to accrue economic benefits for some time after the project ends.

These findings are partly supported by the stakeholder respondents who in general felt that the project was delivering economic change within Cornwall. However several stakeholders were more cautious in their view, identifying that a transformation of the Cornish economy was yet to take place.

8.2 Recommendations

Infrastructure Improvements

The Superfast Cornwall project has put Cornwall in a leading position in terms of broadband coverage amongst predominantly rural regions. Whilst much of the focus of future policy development needs to be on capitalising on the existing infrastructure, we recommend that policy-makers also **consider potential improvements where needed, both to enhance the equitability of provision, and to ensure that the county continues to have cutting edge technology.**

Accomplishing Full Coverage

Coverage is 95% for 2+ Mbps fibre broadband, and an estimated 87% for 30+ Mbps superfast speeds. As the stakeholder survey responses found, there is a clear appetite for ensuring that coverage is rolled-out to the remaining 5% of premises that are not covered by fibre broadband, and the estimated 13% that do not have access to 30+ Mbps superfast speeds. Given the increasing use of online services by such organisations as DEFRA, and the need to address the digital divide this should be a key priority for future digital funding in the county.

The roll-out of infrastructure to these remaining premises is likely to be particularly challenging logistically. As part of this process, it will also be important to consider the feedback of some stakeholders regarding the management of expectations. Consequently it is recommended that continued efforts are made to **ensure that residents, businesses and stakeholders are kept fully informed regarding the movement toward additional coverage and provided with realistic timescales.**

Improving Take-Up

Whilst take-up has increased steadily during the lifetime of the project, at 25% there is still room for further improvement. Consequently, it is recommended that work, in collaboration with the internet service providers, continues to **ensure that consumers and businesses are increasingly aware that they can connect to superfast** or, if they are beyond the footprint, why they cannot. In addition it is recommended that the LEP and business support organisations **consider approaches to highlight the potential benefits that superfast can provide to businesses outside the digital sector.**

Business Support

The mid-term evaluation highlighted a need to encourage more businesses to better utilise superfast broadband by adopting different systems and processes for developing new products and services. Whilst the findings from the business survey at this final stage present an encouraging picture of businesses use, future efforts to encourage businesses to capitalise on their superfast connections could be useful, both in encouraging innovation and also to demonstrate the potential benefits to non-connected businesses.

As several stakeholders pointed out, whilst the Superfast Cornwall team made considerable efforts to engage with other businesses, and to support providers (with some notable successes), the absence of broader business support coordination prevented deeper synergies. With this in mind, it is recommended that the LEP and CDC consider how existing and future business support services can best **utilise superfast as a tool for business improvement as part of a broader effort to strengthen the coordination of business support in the county.**

Inward Investment

As outlined in the mid-term evaluation report, inward investment provides one of the mechanisms through which the project may achieve a transformative impact to the economy, and it is encouraging to see that **superfast has been utilised by Invest in Cornwall to help encourage inward investment. It is recommended that this work continue**, although, as some stakeholders have pointed out, superfast can only form part of a package of potential inducements for businesses to relocate.

Digital Inclusion

In a context of continued public sector funding cuts it is likely that more and more central and local government services will be placed online. Stakeholder feedback suggests that the digital inclusion work undertaken through the Superfast Cornwall project is highly valued and it will important to ensure this is continued once the project has come to an end. **We understand that partners have highlighted this as part of the next EU Programme and we recommend that funding is provided for such a project.**

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Appendix A: Delivery Management Team Project Activity

A1. Introduction

As cited in Section 1, the Delivery Management Team project ran alongside Superfast Cornwall and was led by the Cornwall Development Company (CDC). Table 29 provides an overview of the activity covered by this project.

Table 29: Summary of Delivery Management Team Project Activity

Workstream	Summary
Contract Management	Management of CDC and BT project including programme board, BT Executive Board and liaison with DCLG.
Openreach Deployment	Planning and delivery of Fibre to the Cabinet (FTTC) and Fibre to the Premises (FTTP) solutions.
Infill Deployment	Mapping and development of plans to address premises not covered by fibre solutions.
Isles of Scilly Cable	Planning and deployment of fibre cable to Isles of Scilly (St Mary's and four off islands) and superfast infrastructure within.
Marketing and PR	<p>Demand stimulation activity to encourage business take up. This included marketing campaigns, direct mail, telemarketing, online marketing, stakeholder engagement, PR and case studies. A total of £820,000 was allocated to CDC to drive the uptake of superfast broadband. The marketing approach has involved a mixture of traditional and innovative methods.</p> <p>Furthermore, the business omnibus survey asked connected businesses where they had seen or heard information about the project. As outlined in Appendix G, an email newsletter or update was the most frequently reported source of awareness followed by a poster or leaflet. For the sake of brevity, further findings from Appendix G have not been repeated here.</p>
Communication Providers	Engagement with communication providers.
Grant Claim and Audit	Preparation of ERDF claims.
Research and Innovation	<p>Reflecting the project's status as a 'test bed' for the future, a series of activities aimed at stimulating research and technical developments were brought together under the label 'Superfast Cornwall Labs'. These activities included:</p> <ul style="list-style-type: none"> • The world's first multi-operator 4G Long Term Evolution (LTE) technology trial which was conducted with BT Wholesale and EE; • A proof of concept trial of 10 Gbps XG-PON (Passive Optical Network) technology was delivered. This represented the first time that XG-PON was run in parallel on the same fibre as the existing G-PON service and was the fastest live connection demonstrated in Europe; • 4 PhD/post-doctoral projects funded by Superfast Cornwall including: readiness for e-health, sustainable digital neighbourhoods, e-services on demand and superfast broadband applications in the craft/related sectors;

Workstream	Summary
	<ul style="list-style-type: none"> A series of superfast broadband innovation studies were conducted. The Academy for Innovation and Research (AIR) has sponsored five studies with businesses in Cornwall to stimulate innovative applications of the superfast technology; and Vconnect, an EU-funded collaborative research project exploring new applications of video communication. <p>NB: Also refer to 'Supporting Additional Relevant Research' in this table.</p>
Equality and Diversity – Digital Inclusion	Working in partnership with Get IT together, a joint initiative between BT and the national charity Citizens Online and Questions and Answer CIC, Superfast Cornwall has run a pioneering digital inclusion programme that aimed to help 3,000 people across Cornwall and the Isles of Scilly to enjoy the benefits of using the internet for the first time. The Superfast Cornwall digital inclusion programme included workshops and taster sessions in local venues such as village halls, libraries and even local pubs. It has also helped community groups and churches to set up their own digital centres and developing partnerships with organisations such as housing associations to extend digital skill training to key groups.
Environmental Sustainability	The main output from this workstream was the 'Environmental Monitoring Report' prepared by BT and independently reviewed and endorsed by the Carbon Trust (see Section 6.3.2). Additional promotion and research into the environmental benefits of superfast broadband included: <ul style="list-style-type: none"> Research into the environmental benefits in Wadebridge; Research into video-conferencing; MBA/MSC dissertation projects; and Promotion of flexible working through case studies.
Evaluation	On-going evaluation and research activity, including production of: <ul style="list-style-type: none"> Evaluation baseline report (Nov 2011); Mid-term evaluation report (Oct 2013); Superfast Cornwall Economic Review (March 2014); and, This report.
Business Support	CDC has worked closely with other projects to promote opportunities for connected businesses including: <ul style="list-style-type: none"> Superfast Cornwall Fund – a Regional Growth Fund (RGF) funded project providing business grants to assist with ICT investments using superfast broadband (managed by CDC); Peninsular Enterprise – An ERDF funded project to provide intensive assistance to 50 businesses seeking major transformation/innovation as a result of superfast broadband; and Business Investment for Growth – An ERDF funded project to provide investment opportunities for high growth businesses, managed by CDC. <p>This workstream also involved engagement with the business community through the Business Advisory Group and the Cornwall Digital Meet-up Group.</p>
Skills	Activities in this workstream included: <ul style="list-style-type: none"> Working with skills providers and stakeholders to identify opportunities to introduce higher level digital skills provision and

Workstream	Summary
	<p>promotion of business skills;</p> <ul style="list-style-type: none"> • Providing skills information on the Superfast website and signposting to provision; and • Investigation of the development of an apprenticeship framework.
<p>Supporting Additional Relevant Research</p>	<p>In addition to the research activity conducted by SERIO, the Delivery Management Team and BT has supported some additional research outputs that compliment this body of work. This is exemplified by the work of Dr Hazel Lacohee who works for BT as a principal researcher undertaking qualitative social research for the Insights Research Centre in the United Kingdom.</p> <p>Recent research outputs of particular relevance to the Superfast Cornwall project include:</p> <ul style="list-style-type: none"> • <i>The Role of Village Halls in Digital Inclusion</i> (2015); • <i>SME Benefits and Business Opportunities with Superfast broadband: the Virtuous Circle of Connectivity</i> (2013); and, • <i>Current Business Attitudes and Expectations for Superfast Broadband</i> (2011).

Appendix B: Summary of Evaluation Approach

B1. Introduction

Table 30 provides a description of the research tools that have been used to inform the evaluation, and an overview of related activity. This builds upon the summary of key methodological stages as outlined in Section 1. **NB:** Annex C provides additional methodological detail for three components: the Business Omnibus Survey, the Counterfactual Survey, and the Consumer Survey.

Table 30: Summary of the Evaluation Approach and Overview of Activity

Tool	Description	Timing (as specified at baseline)	Overview of Activity
CRM System	A database containing a large proportion of businesses in Cornwall, capturing information on enabled areas and connected businesses. Project officers record business connections by visiting businesses and encouraging them to connect as well as obtaining information via conversations with connected businesses. It is also further populated with BT connection data (where available) and upgrades from Mint.	Continuous	As of June 2015, the CRM had captured 2,939 connected business records.
Business Omnibus Survey	A random sample of businesses that have connected to superfast broadband for 12 months or longer are drawn from those businesses in enabled areas and invited to complete a telephone survey. The survey captures data relevant to a wide range of indicators, including economic impacts, usage and satisfaction. Businesses that have been connected for less than 12 months are asked if they are happy to be contacted again in the future. Those that are not yet connected are asked questions about why they have not connected. NB: See Appendix C.	Quarterly	Marketing Means were commissioned by the CDC project team to conduct the omnibus survey fieldwork. The survey was designed in partnership by CDC and the SERIO/Buckman Associates team. A total of seven survey waves were completed between September 2012 and March 2015. This captured the views of 460 businesses that were connected for 12 months or longer.
Longitudinal Business Survey	Businesses willing to take part in a follow up survey are identified via the omnibus survey to enable tracking in changes of business use and benefits over time.	Annually	A total of 50 businesses participated in the longitudinal business survey. Businesses were first interviewed in February/March 2014, and followed

Tool	Description	Timing (as specified at baseline)	Overview of Activity
			up 12 months later.
Counterfactual Business Survey	A random sample of businesses that have not connected to superfast broadband in Cornwall are invited to complete a telephone survey. This is designed to collect comparable data to that in the omnibus survey, enabling an assessment of the additionality of any benefits identified through the omnibus. NB: See Appendix C.	Annually	Marketing Means were commissioned by the CDC project team to conduct the counterfactual survey. The survey was designed in partnership by CDC and the SERIO/Buckman Associates team. Three survey waves were completed, the first in June 2013, the second in February 2014 and the final wave in January 2015. A total of 411 businesses that use the internet but were not connected to superfast broadband completed the survey.
Broad and Shallow Carbon Footprint	A web based carbon calculator was developed to determine the carbon footprint of businesses and individuals not connected to superfast broadband.	January – March 2012	Due to poor uptake of the web based Carbon Calculator and the Carbon Diaries (despite significant attempts to encourage uptake), the approach was dropped and BT's 'Net Good' methodology was used instead (see Section 6.3.4). The resulting report was endorsed by the Carbon Trust.
Baseline Carbon Diaries	Consumers deciding to connect to superfast broadband are invited to complete a 1-week 'carbon diary' to provide detailed insight into their weekly travel prior to their connection.	January – March 2012	BT made use of the Net Good mode as an approach to measuring environmental impact.
Carbon Follow-up	Those businesses participating in the carbon baseline work are invited to participate in 12 monthly follow-ups after connecting to superfast broadband to reassess their carbon footprints.	Annually	BT made use of the Net Good mode as an approach to measuring environmental impact.
Business Take-up Survey	A random telephone survey of businesses taking place at the end of the roll out period to establish take up.	2015	2,490 Cornish businesses were contacted, with 44% of these stating that they had a fibre broadband package.
Consumer Survey	A random sample of consumers is invited to participate in a quarterly telephone survey to establish the social and economic impacts on consumers. NB: See Appendix C.	Quarterly	Marketing Means were commissioned by the CDC project team to conduct the consumer survey fieldwork. The survey was designed in partnership

Tool	Description	Timing (as specified at baseline)	Overview of Activity
			<p>by CDC and the SERIO/Buckman Associates team.</p> <p>Six waves were completed between September 2012 and March 2015. A total of 468 surveys were conducted with consumers connected to superfast broadband for six months or longer. A further 433 surveys were completed with consumers who use the internet but were not connected to superfast.</p>
Stakeholder Interviews	Stakeholders in Cornwall are invited to participate in an interview at the baseline, midterm and final evaluation stages. The interviews are designed to explore perceptions of the project and its impact.	Baseline, midterm and final evaluation stages	A total of 64 stakeholder interviews were completed: 13 at the baseline stage, 30 at the midterm, and 21 at the final stage.
Counterfactual Stakeholder Interviews	Stakeholders in the three comparator areas are invited to participate in an interview at the midterm and final evaluation stages. The interviews are designed to collect information that is comparable to that within the Cornwall Stakeholder interviews to inform the assessment of the counterfactual.	Midterm and final evaluation stages	A total of seven counterfactual stakeholder interviews were completed at the midterm and final evaluation stages.
Stakeholder Focus Group	Cornwall stakeholders are invited to participate within a focus group to further explore perceptions of Superfast Cornwall's impact and how the infrastructure can be built upon in the future.	Midterm evaluation stage	A total of 14 stakeholders participated in a focus group in June 2013.
Business Case Studies	To capture additional and detailed information on the impact of superfast broadband on businesses, telephone case study interviews with connected businesses will take place.	Midterm evaluation stage	By June 2015, over 90 case study interviews had been conducted.

Appendix C: Overview of Survey Approach and Samples

C1. Introduction

This section provides a brief overview of the methodological approach, and resulting samples from three surveys used in the evaluation of superfast: the Business Omnibus Survey; the Counterfactual Business Survey; and the Consumer Survey.

C2. Business Omnibus Survey

As shown in Table 31, the omnibus survey was undertaken in a series of seven waves which altogether covered a two and a half year period (from September 2012 to March 2015). The sample for each survey wave was drawn from those postcode areas where superfast broadband was available to at least 50% of the premises.

A total of 14,822 businesses were contacted over this period, and 460 completed surveys obtained. Based on the estimated number of established businesses which have been connected for over 12 months (5905), this represents 7.8% of total connected businesses (confidence interval +/- 4.39% at 95% confidence level).

When recruiting for the Business Omnibus Survey, the researchers made contact with a number of businesses in connected areas that were not connected to superfast. These businesses were then asked a set of questions to elicit why they had not connected. In total, 285 businesses were surveyed in this regard.

Table 31: Summary of Business Omnibus Survey Data Collection

	Date of Data Collection	Businesses Connected for 12 months+	Non-Connected Businesses
Wave 1	September 2012	18	30
Wave 2	April – June 2013	70	51
Wave 3	November 2013	81	81
Wave 4	February 2014	55	26
Wave 5	May 2014	84	26
Wave 6	October 2014	75	34
Wave 7	March 2015	77	37
Total (all waves)		460	285

C3. Counterfactual Business Survey

The Counterfactual survey engaged with a random sample of businesses that use the internet but that are not connected to superfast broadband in Cornwall. This was conducted annually throughout the duration of the project. A total of three waves were completed during the evaluation period and 411 completed surveys obtained.

A total of 3,618 businesses were contacted as part of the recruitment for this survey, representing a response rate of 11.4%. The data from this survey is presented wherever relevant and available in this section of the report. A breakdown of the counterfactual survey sample is displayed in Table 32.

Table 32: Summary of Counterfactual Survey Data Collection

	Date of Data Collection	Businesses Connected for 12 months+
Wave 1	June 2013	140
Wave 2	February 2014	136
Wave 3	January 2015	135
Total (all waves)		411

C4. Consumer Survey

Two groups of consumers were surveyed throughout the lifespan of the evaluation: those that have been connected to superfast broadband for six months and longer; and those that have internet access but have not upgraded their connection. As indicated in Table 33, a total of six survey waves of survey were conducted with a random sample of 887 consumers.

As detailed, a total of 468 surveys were completed across the six waves by consumers that had been connected to superfast broadband for six months or longer. The largest proportion of these consumers had been connected for between 6 and 12 months (46.2%, 216), 32.3% (151) for between 12 and 18 months, and 21.6% (101) for longer than 18 months. Based on CDC's estimated number of premises connected at June 2015 (58,553), this represents 0.8% of connected households (+/- 4.5% at 95% confidence level)⁵⁷.

Consumers that had internet access in their homes, but had not yet upgraded to superfast broadband, completed a different version of the survey to enable the identification of differences in internet use. A total of 419 surveys with consumers that had not upgraded their connection were completed.

Table 33: Consumer Survey Waves

	Date of Data Collection	Consumers connected for 6 months or more	Consumers who have not upgraded to superfast ⁵⁸
Wave 1	September 2012	50	72
Wave 2	March 2013	85	74
Wave 3	November 2013	85	67
Wave 4	May 2014	85	74
Wave 5	November 2014	86	65
Wave 6	March 2015	77	67
Total Respondents		468	419

⁵⁷ A sample size of 360 connected consumers was required for the results to be accurate within 5 percentage points.

⁵⁸ 1 additional consumer completed a survey but did not know whether or not they had connected to superfast broadband and was excluded from the analysis.

Appendix D: Assessment of the Counterfactual

D1. Introduction

As outlined in Section 1, an important component of the evaluation was the assessment of the counterfactual – what would have happened in similar economies with similar baseline levels of coverage but without the level of investment that Cornwall and the Isles of Scilly has received.

The BDUK framework, recommends that the counterfactual should be measured through both a top down and bottom up approach, where the top down compares the inputs and outcomes achieved in the target area with similar or control areas and the bottom up approach asks users to identify what proportion of changes they have experienced could be attributed to acquiring faster broadband. This is expanded upon in Table 34.

Table 34: Assessment of the Counterfactual

Logic Chain Phase	Assessment of Counterfactual	Approach
Inputs	What level of funding would Cornwall have been able to obtain in the absence of ERDF Convergence funding?	Discussion with BDUK representatives on funding formula.
Activities	What level of broadband roll out solutions would have been achieved without the investment?	Tracking broadband roll out activity in comparator (control) areas.
Outputs	How many businesses/premises would have been connected without the investment?	Tracking broadband roll out activity in comparator areas.
Mechanism	In the absence of superfast broadband, have businesses found alternative solutions to their problems?	A control survey of businesses.
Intermediate Results	Would businesses have been able to achieve business benefits without superfast?	A control survey of businesses.
Results	Would businesses have been able to grow and create jobs and GVA without superfast?	A control survey of businesses.
Impacts	Would the overall socio-economic position have changed anyway?	Tracking socio-economic performance in comparator areas.

Appendix E: Business Survey Respondent Profiles

E1. Introduction

A total of 460 businesses connected to superfast broadband for 12 months or longer, have completed an omnibus survey, a key evaluation tool in the assessment of the impact of the investment. To inform an assessment of what would have happened anyway, 411 businesses that are connected to the internet but not upgraded to superfast broadband have completed a control or counterfactual survey. This appendix provides a detailed description of the profile of businesses that have completed both surveys.

E2. Industry of Operation

Table 35 below summarises the main industry of operation of the businesses completing both surveys. As shown, the largest proportion of omnibus respondents (17.2%, 79) were from the accommodation and food services sector, followed by wholesale and retail trade (11.3%, 52). Similarly to the omnibus survey, the largest proportion of counterfactual respondents were from the Accommodation and food services sector, but also from wholesale and retail trade (both 17.5%, 72).

Table 35: Main Industry of Operation

	Omnibus Survey		Counterfactual Survey		Total
	Frequency	Percent	Frequency	Percent	
Accommodation and food services	79	17.2%	72	17.5%	151
Administration and support services	11	2.4%	6	1.5%	17
Agriculture, forestry and fishing	25	5.4%	58	14.1%	83
Arts, entertainment and recreation	26	5.7%	29	7.1%	55
Construction	22	4.8%	14	3.4%	36
Education	15	3.3%	6	1.5%	21
Electricity, gas and air-conditioning supply	9	2.0%	1	0.2%	10
Finance and insurance	18	3.9%	9	2.2%	27
Human health and social work	13	2.8%	8	1.9%	21
Information and communication	36	7.8%	4	1.0%	40
Manufacturing	27	5.9%	28	6.8%	55
Mining and quarrying	1	0.2%	1	0.2%	2
Other service activities	21	4.6%	26	6.3%	47
Professional, scientific and technical activities	44	9.6%	24	5.8%	68
Public administration and defence	1	0.2%	1	0.2%	2
Real estate	13	2.8%	14	3.4%	27
Refused	10	2.2%	4	1.0%	14
Transport and storage	8	1.7%	9	2.2%	17
Unclassified	23	5.0%	23	5.6%	46
Water supply, sewerage, waste management and remediation	6	1.3%	2	0.5%	8
Wholesale and retail trade	52	11.3%	72	17.5%	124
Total	460	100.0%	411	100.0%	871

Base: All Businesses Connected for 12 months+ (n=460); All Non-Connected Businesses (n=411)

E3. Business Age

A large majority of businesses completing both surveys had been established for over twenty years – 38.7% (178) of omnibus survey respondents, and 46.7% (192) of counterfactual survey respondents. The second highest proportion from both surveys had been established between 10 and 20 years – 28.5% (131) of omnibus survey respondents, and 23.4% (96) of counterfactual survey respondents. Conversely, 11.3% of respondents to the omnibus survey (52), and 9.0% of respondents to the counterfactual survey had been established for less than five years.

E4. Business Size

In terms of the size of businesses completing the omnibus survey, 73.9% (340) were micro businesses (fewer than 10 employees), whilst 14.1% (65) had between 10 and 49 employees. Medium-sized businesses (between 50 and 249 employees), accounted for 2.6% (12) of the sample, whilst large businesses (those with over 250 employees) accounted for just two respondents (0.4%).

A similar pattern was observed in the counterfactual survey, which highlighted a predominance of micro businesses (79.3%, 326), and small businesses 14.6% (60) employing between 10 and 49.

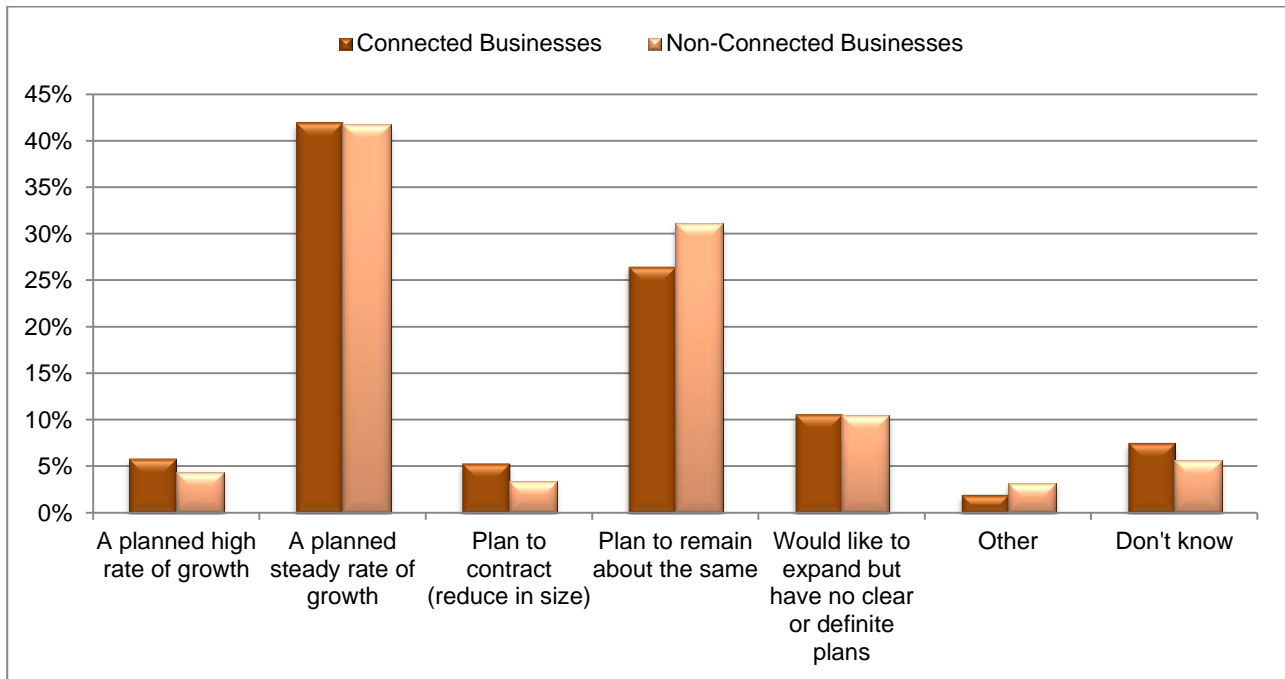
Table 36: Business Size

	Omnibus Survey		Counterfactual Survey		Total
	Frequency	Percent	Frequency	Percent	
Large Business (250+)	2	0.4%	1	0.2%	3
Medium-sized Business (50-249)	12	2.6%	9	2.2%	21
Micro-business (0-9)	340	73.9%	326	79.3%	666
No employees	7	1.5%	2	0.5%	9
Small Business (10-49)	65	14.1%	60	14.6%	125
Unknown	34	7.4%	13	3.2%	47
Total	460	100.0%	411	100.0%	871

E5. Growth Aspirations

Both the omnibus and counterfactual surveys asked businesses to describe their growth aspirations, the responses to this are summarised in Chart 27 below. The largest proportion of respondents in both surveys planned a steady rate of growth, although this was very slightly higher for connected (42.0%, 193) than non-connected businesses (41.8%, 172).

Chart 27: Growth Aspirations by Connection Status



Base: All Businesses Connected for 12 months+ (n=460); All Non-Connected Businesses (n=411)

Appendix F: Cornwall GVA/FTE 2010 by Broad Industrial Sector

F1. Introduction

Source: RED Group/AMORE, Plymouth University

Data on FTE follows broadly the same methodology as the South West Regional Accounts. The data are based on BRES employment, the Annual Population Survey for self-employment and working hours by 2-digit industry, some agricultural census data and the DASA data on regional deployments of military personnel.

GVA data are based around the South West Regional Accounts estimates for 2008, which in turn are based upon ABS data for 2008 and the UK supply and use tables. The estimates were constrained to the latest ONS Regional Accounts (Dec 2012, NUTS2 for Cornwall & IoS).

Sector (SIC 2-digit)	CORNWALL			GB		
	FTE	GVA (£M)	GVA/FTE	FTE	GVA (£M)	GVA/FTE
01 : Crop and animal production, hunting and related service activities	8,464	£160	£18,925	430,837	£6,909	£16,036
02 : Forestry and logging	152	£2	£14,846	16,164	£362	£22,383
03 : Fishing and aquaculture	482	£42	£86,298	14,496	£732	£50,511
05 : Mining of coal and lignite	0	£0	£0	7,669	£413	£53,850
06 : Extraction of crude petroleum and natural gas	0	£0	£0	13,778	£21,019	£1,525,601
07 : Mining of metal ores	0	£0	£0	0	£0	£0
08 : Other mining and quarrying	1,086	£54	£49,736	20,800	£687	£33,029
09 : Mining support service activities	10	£1	£96,001	27,878	£3,621	£129,888
10 : Manufacture of food products	6,647	£207	£31,082	358,553	£17,285	£48,207
11 : Manufacture of beverages	327	£15	£45,213	36,551	£1,227	£33,570
12 : Manufacture of tobacco products	0	£0	£0	1,723	£1,329	£771,669
13 : Manufacture of textiles	159	£6	£37,773	69,187	£1,858	£26,854
14 : Manufacture of wearing apparel	3	£0	£27,564	36,535	£867	£23,733
15 : Manufacture of leather and related products	10	£0	£34,506	9,145	£227	£24,823
16 : Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1,860	£35	£18,861	80,059	£2,322	£29,006
17 : Manufacture of paper and paper products	219	£9	£40,381	54,723	£3,176	£58,037
18 : Printing and reproduction of recorded media	1,873	£54	£29,077	139,281	£5,052	£36,274
19 : Manufacture of coke and refined petroleum products	0	£0	£0	10,323	£2,250	£217,916
20 : Manufacture of chemicals and chemical products	227	£11	£46,207	105,850	£9,997	£94,447

Sector (SIC 2-digit)	CORNWALL			GB		
	FTE	GVA (£M)	GVA/FTE	FTE	GVA (£M)	GVA/FTE
21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations	172	£4	£23,912	41,688	£9,175	£220,092
22 : Manufacture of rubber and plastic products	1,268	£40	£31,919	150,340	£6,585	£43,801
23 : Manufacture of other non-metallic mineral products	547	£25	£45,458	89,775	£3,721	£41,447
24 : Manufacture of basic metals	283	£8	£28,755	78,445	£4,208	£53,639
25 : Manufacture of fabricated metal products, except machinery and equipment	1,371	£44	£31,952	310,947	£12,228	£39,326
26 : Manufacture of computer, electronic and optical products	535	£20	£37,721	129,719	£8,976	£69,194
27 : Manufacture of electrical equipment	219	£8	£37,164	85,081	£4,397	£51,678
28 : Manufacture of machinery and equipment n.e.c.	958	£29	£30,606	183,382	£11,443	£62,400
29 : Manufacture of motor vehicles, trailers and semi-trailers	40	£1	£34,609	132,521	£9,606	£72,484
30 : Manufacture of other transport equipment	985	£20	£20,427	131,057	£7,771	£59,296
31 : Manufacture of furniture	623	£31	£49,726	81,713	£2,788	£34,124
32 : Other manufacturing	841	£29	£33,972	102,490	£3,607	£35,198
33 : Repair and installation of machinery and equipment	2,802	£98	£35,047	140,821	£7,146	£50,748
35 : Electricity, gas, steam and air conditioning supply	435	£70	£160,835	119,213	£19,141	£160,562
36 : Water collection, treatment and supply	141	£29	£205,209	28,333	£5,997	£211,663
37 : Sewerage	178	£21	£118,021	21,182	£3,406	£160,801
38 : Waste collection, treatment and disposal activities; materials recovery	552	£28	£50,733	124,828	£6,950	£55,677
39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the clean-up of contaminated buildings and sites, soil, surface or ground water.	80	£7	£87,904	3,500	£350	£100,011
41 : Construction of buildings	7,272	£292	£40,202	553,240	£32,675	£59,062
42 : Civil engineering	1,686	£85	£50,252	236,568	£15,673	£66,250
43 : Specialised construction activities	11,881	£215	£18,091	1,252,657	£32,928	£26,287
45 : Wholesale and retail trade and repair of motor vehicles and motorcycles	5,254	£155	£29,499	564,541	£22,069	£39,092
46 : Wholesale trade, except of motor vehicles and motorcycles	10,408	£326	£31,322	1,193,530	£51,953	£43,529
47 : Retail trade, except of motor vehicles and motorcycles	20,217	£578	£28,604	2,073,692	£68,240	£32,908

Sector (SIC 2-digit)	CORNWALL			GB		
	FTE	GVA (£M)	GVA/FTE	FTE	GVA (£M)	GVA/FTE
49 : Land transport and transport via pipelines	6,900	£196	£28,404	711,410	£23,994	£33,728
50 : Water transport	247	£10	£39,533	16,454	£5,229	£317,787
51 : Air transport	140	£19	£132,940	65,836	£5,700	£86,571
52 : Warehousing and support activities for transportation	1,397	£53	£38,075	367,906	£17,198	£46,745
53 : Postal and courier activities	1,608	£35	£21,762	311,061	£8,435	£27,118
55 : Accommodation	11,420	£311	£27,208	316,825	£11,292	£35,641
56 : Food and beverage service activities	9,860	£204	£20,719	1,009,742	£27,406	£27,142
58 : Publishing activities	387	£22	£56,899	150,554	£10,331	£68,617
59 : Motion picture, video and television programme production, sound recording and music publishing activities	197	£7	£35,446	124,196	£4,624	£37,234
60 : Programming and broadcasting activities	104	£18	£173,793	29,106	£6,001	£206,167
61 : Telecommunications	757	£50	£66,026	216,995	£21,607	£99,572
62 : Computer programming, consultancy and related activities	1,042	£44	£42,224	590,766	£27,807	£47,069
63 : Information service activities	164	£8	£48,780	62,667	£3,344	£53,357
64 : Financial service activities, except insurance and pension funding	1,306	£188	£143,911	503,679	£82,948	£164,683
65 : Insurance, reinsurance and pension funding, except compulsory social security	3	£1	£209,278	101,460	£22,530	£222,055
66 : Activities auxiliary to financial services and insurance activities	1,150	£40	£34,782	402,454	£16,262	£40,406
68 : Real estate activities	2,999	£765	£255,072	414,400	£102,259	£246,764
69 : Legal and accounting activities	3,821	£90	£23,555	590,328	£31,669	£53,646
70 : Activities of head offices; management consultancy activities	1,537	£35	£22,765	606,784	£18,490	£30,472
71 : Architectural and engineering activities; technical testing and analysis	2,142	£50	£23,345	475,205	£20,166	£42,436
72 : Scientific research and development	470	£14	£29,808	124,502	£3,853	£30,950
73 : Advertising and market research	324	£19	£58,639	155,106	£10,213	£65,848
74 : Other professional, scientific and technical activities	4,134	£100	£24,191	208,292	£6,868	£32,972
75 : Veterinary activities	809	£30	£37,101	40,209	£1,761	£43,789
77 : Rental and leasing activities	888	£76	£85,859	135,584	£12,199	£89,970
78 : Employment activities	2,785	£57	£20,390	794,367	£16,973	£21,366
79 : Travel agency, tour operator and other reservation	184	£5	£25,675	92,767	£2,496	£26,904

Sector (SIC 2-digit)	CORNWALL			GB		
	FTE	GVA (£M)	GVA/FTE	FTE	GVA (£M)	GVA/FTE
service and related activities						
80 : Security and investigation activities	608	£12	£19,684	200,097	£4,127	£20,626
81 : Services to buildings and landscape activities	2,075	£20	£9,686	652,992	£6,628	£10,150
82 : Office administrative, office support and other business support activities	1,517	£61	£40,327	351,530	£14,855	£42,258
84 : Public administration and defence; compulsory social security	10,999	£424	£38,548	1,509,352	£64,525	£42,750
85 : Education	13,331	£492	£36,906	1,838,776	£85,198	£46,334
86 : Human health activities	12,512	£461	£36,843	1,805,493	£71,121	£39,392
87 : Residential care activities	5,285	£123	£23,237	603,597	£14,996	£24,844
88 : Social work activities without accommodation	7,650	£122	£15,977	868,721	£14,840	£17,082
90 : Creative, arts and entertainment activities	1,288	£20	£15,854	139,987	£2,923	£20,881
91 : Libraries, archives, museums and other cultural activities	1,834	£62	£34,066	80,530	£3,613	£44,867
92 : Gambling and betting activities	445	£22	£50,015	77,991	£5,137	£65,872
93 : Sports activities and amusement and recreation activities	3,130	£67	£21,361	295,532	£8,314	£28,134
94 : Activities of membership organisations	1,457	£51	£34,663	191,226	£7,834	£40,967
95 : Repair of computers and personal and household goods	546	£14	£25,910	75,598	£2,315	£30,622
96 : Other personal service activities	3,871	£63	£16,367	382,563	£7,400	£19,344
97 : Activities of households as employers of domestic personnel	430	£90	£209,536	45,999	£5,882	£127,873
TOTAL	214,020	7,312	£34,162.91	27,001,453	1,271,728	£47,098.50

Appendix G: Socio-economic Indicators

G1. Introduction

As outlined in the 2011 Baseline Report⁵⁹, a series of economic indicators were identified against which economic performance in Cornwall could be assessed. These were then compared with performance in three identified comparator areas (Devon, Lincolnshire, and North Yorkshire). This is presented in Table 37, with each indicator discussed separately in the following subsections.

Table 37: Summary of Economic Indicators

Indicator	Year	Cornwall & the IoS	Devon	Lincolnshire	North Yorkshire
GVA per head ¹	2008	£14,750	£17,566	£15,610	£18,893
	2012	£15,040	£17,537	£16,422	£19,927
	Change (%)	2.0%	-0.2%	5.2%	5.5%
Business density	2009	62.3	69.0	56.8	71.3
	2013	61.8	67.6	57.7	72.8
	Change (%)	-0.9%	-2.1%	1.6%	2.1%
Births of new enterprises as % of business stock	2009	8.2	7.8	8.7	8.6
	2013	11.4	10.4	14.4	11
	Change (p.p)	3.2	2.6	5.7	2.4
Employment rate % ²	2010	68.8	72.8	73.1	74.1
	2013	70.3	76.0	73.0	76.7
	Change (p.p)	2.2	4.4	-0.1	3.5
Employment knowledge intensive sectors ³	2009	71,716	114,750	92,277	94,280
	2013	75,306	123,454	92,576	98,885
	Change (%)	5.0%	7.6%	0.3%	4.9%
Median full time weekly pay ^{4,5}	2010	417.7	431.3	460.0	471.5
	2014	453.5	460.7	475.0	479.7
	Change (%)	8.6%	6.8%	3.3%	1.7%

¹ 2012 figures are used as 2013 were provisional at time of reporting.

² Data for this indicator does not include the Isles of Scilly as no data for the islands is produced by NOMIS.

³ A discontinuity exists between the data for 2009 and 2013. This was due to changes made to the BRES questionnaire in 2011 that have made it clearer to respondents as to how they should be returning information on working owners. This change has had the effect of increasing the number of employees and decreasing the number in employment. Consequently comparisons for this indicator need to be treated with caution.

⁴ Data for this indicator does not include the Isles of Scilly as the estimates produced for the Islands are not statistically reliable.

⁵ Data for 2011 and subsequent years use a weighting scheme based on Standard Occupational Classifications (SOC) 2010, while earlier years use SOC 2000. Consequently comparisons between 2010 and 2014 figures need to be treated with caution.

G2. Findings by Indicators

Indicator 1: GVA per Head

Source: ONS

GVA per head increased by 2% in Cornwall and the Isles of Scilly between 2008 and 2012. This is set against an increase in GVA per head in Lincolnshire and North Yorkshire of 5.2% and 5.5% respectively, and a decrease of 0.2% in Devon over the same time period. The overall level of GVA per head in Cornwall and the Isles of Scilly remained below that of the other comparator areas, and was about 92% of that of Lincolnshire, the comparator area with the next lowest GVA per head.

⁵⁹ SERIO and Buckman Associates Ltd (2011) Superfast Cornwall Evaluation Baseline Report.

Indicator 2: Business Density**Source:** ONS (Business Demography and Mid-Year Population Estimates)

The number of businesses as a proportion of the population (business density) declined in Cornwall and the Isles of Scilly (-0.9%) between 2009 and 2013. However, this was less pronounced than the decline experienced in Devon (-2.1%). In comparison, Lincolnshire and North Yorkshire saw an increase in business density (1.6% and 2.1% respectively). Cornwall's weaker performance in this area is likely to be due to a low net business birth rate between 2009 and 2012⁶⁰.

Indicator 3: Business Start-Ups**Source:** ONS (Business Demography)

All areas saw an increase in new enterprises as a percentage of business stock between 2009 and 2013. With an increase of 3.2 percentage points (pp) Cornwall and the Isles of Scilly performed well against the comparator areas of Devon (2.6 pp) and North Yorkshire (2.4 pp), although was exceeded by Lincolnshire which increased by 5.7 pp.

Indicator 4: Employment Rate**Source:** ONS (Annual Population Survey)

Cornwall's employment rate rose by 2.2 pp from 2010 to 2013. However, this was lower than the increase experienced in both Devon (4.4 pp) and North Yorkshire (3.5 pp). In contrast, Lincolnshire experienced a decrease (-0.1 pp). In common with 2010, data from 2013 indicates that Cornwall's employment rate remained below that of all comparable areas.

Indicator 5: Employment in 'Knowledge Intensive' Businesses**Source:** ONS (Business Register and Employment Survey)

In order to ensure comparison with the 2011 baseline position, the analysis used the same definition of 'knowledge intensive' sectors from Eurostat⁶¹. Employment in Knowledge Intensive Sectors increased in Cornwall and the Isles of Scilly between 2009 and 2013 by 5%, which was similar to the increase within North Yorkshire (4.9%). In contrast, Devon experienced a more dramatic increase of 7.6%, whilst Lincolnshire experienced the smallest increase (just 0.3%). However comparisons across time should be treated with caution (see Table 37, Note 3).

Indicator 6: Median Weekly Wage**Source:** ONS (Annual Survey of Hours and Earnings)

Full-time weekly pay in Cornwall increased by 8.6% between 2010 and 2014 - the biggest increase across all comparators. However, at £453.50 it still falls below all other areas. Similarly to employment in knowledge intensive sectors, comparisons across time with this data should be treated with caution (see Table 37, Note 5).

⁶⁰ As highlighted in the SERIO, Unlocking Potential Research report: Business Demography in Cornwall.

⁶¹ Eurostat is the statistical office of the European Union. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.

Appendix H: Business Case Studies

Driftwood Spars

Louise Treseder is Proprietor of Driftwood Spars, which has an idyllic beachside location at St Agnes on the North Coast of Cornwall.

Having grown up in a Truro B&B and with experience in hotel management, Louise was quick to spot the potential of this attractive pub, complete with rooms and a micro-brewery.

Louise says: Since I took over the pub in 2007, we have been investigating and developing new markets such as weddings and conferences as well as expanding trade in our sea view dining room. The addition of superfast broadband is helping us accelerate our plans as well as enabling us to do things in new ways, improving our productivity and the service we offer to customers.



We have often had winemakers dinners at Driftwood Spars when winemakers have been visiting the UK. These involve a lovely dinner where we try a series of wines from the winemaker and they tell us a little about the wine as we go through. However, the downside has always been that we were only able to schedule these events when the winemakers were in the UK, not necessarily when it is most beneficial to our business. After we connected to Superfast, we participated in a University of the Village project run by Falmouth University, whereby people from St Agnes could 'attend' lectures via video conference from our venue. This inspired us to wonder what else we could do via video conference! We have now had video linked winemaker dinners linked to winemakers in S.Africa, New Zealand and France. We have even had a beer tasting event with a brewer from California!

Our first ever video winemaker dinner was with Gordon Russell of Esk Valley Wines in New Zealand. Gordon's image was projected onto a large screen and our guests were able to see, hear and speak to him in real time. This was an incredibly exciting and memorable evening and really shows what is possible through Superfast technology.

We normally attract about 30 people to these events and because we are not constrained by a wine maker's itinerary, we can host them in the shoulder months when we are quieter, often attracting new customers.

We are now expanding this concept to provide video conferencing facilities to businesses in the local area – we did our first Transatlantic team meeting last week – facilitating a video conference team meeting between St Agnes and Houston!

Another important benefit of Superfast is being able to offer a much improved WiFi service to our customers. People expect to be able to connect all the time and used to complain about the speed before we got Superfast. This has had a real benefit in attracting business customers who can stay in our fantastic (yet well connected) location and connect to their servers remotely, with some even commenting that the service is faster than in London! Many of our customers now also use the

WiFi service to connect to social media sites from their smartphones while they are at the pub, which has the added advantage of raising our profile through social media. And, of course, with Superfast broadband, everyone still gets the same great connection speeds, regardless of how many people are online at the same time – great for a busy summer's evening.

The Benefits

Sales and Turnover We are definitely seeing a benefit in terms of our overall turnover. We wouldn't have been able to do the winemakers dinners and we are seeing an increase in business customers.

Customer Service Good WiFi access is a significant benefit for all our customers. It is becoming increasingly important now as guests to both the pub and B&B expect it. This is especially important as our beautiful location comes with the downside of being in a mobile phone blackspot. However, technology now means that people can connect to their mobile networks through WiFi.

Day to Day Operations Superfast broadband is helping us to streamline the way we run the business every day – improving our productivity. We are getting Superfast broadband speeds of around 35 Mbps, which is fantastic and saves us a huge amount of time on routine tasks such as emails, online research and uploading photos to our website and our Facebook page. It also means that our online booking system is now instantaneous, whereas previously there was a delay of a few minutes.

"No longer do we have to sit staring at the computer shouting 'Come on!'"

"Now we have Superfast, we can use cloud computing to back up all our data remotely. This is now set up to happen automatically each day, which is a huge improvement on our previous systems and means that all our business critical data is now protected."

Innovation and Product Development Superfast broadband has allowed us to really develop the video conferenced winemaker dinner concept. We intend to continue and expand this concept to cover brewers in other parts of the UK as well as winemakers throughout the world. It really helps to extend the seasons. In the future, we are exploring how Superfast can support/enhance our marriage/wedding and conferences offer, enabling the bride and groom or conference organiser to connect to distant relatives or guest speakers respectively. We are also exploring how we can use Superfast to enhance the marketing of the micro-brewery which includes bottled beers for sale off site – perhaps we will be the guest speaker at a winemaker dinner somewhere else?

Overall Superfast broadband has created opportunities for us. In this industry you need something that sets you apart – we are lucky we have many of these, but it is important to utilise all the opportunities that are available to us to keep competitive.

Case study date: May 2013.

Orbiss Ltd

Orbiss, previously known as Western Talk, was established in July 2006 by Directors Karen Patterson and Karen McGowan, both of whom had been involved in the telecommunications industry for many years.

The company started by supplying, installing and maintaining phone systems for businesses across the UK, especially in the hotel sector, providing a full support service for all types of hotels, varying in size from small boutique hotels to major chains and large hotels with hundreds of extensions.



In 2009 they extended their offer to include 'Speedway', a video on demand and internet service, providing each hotel with a bespoke portal for their establishment. This meant that when a customer turned on the TV, they would see information about the hotel facilities and special offers as well as being able to view a broad range of TV channels. Through the speedway service, guests would be able to view movies on demand, charging to their hotel bill – providing an important revenue stream for the hotel. Speedway additionally led to the creation of Clarity, a superior IPTV solution.

Prior to connecting to Superfast, Orbiss used 3 ADSL lines to run their company to try and give them sufficient bandwidth to run their day to day operations. However, this was simply not enough – with every hotel requiring their content to be refreshed every month with the latest Hollywood blockbusters, refreshing movie content would typically take 5 days/month. Similarly, when a hotel required a more extensive update, an engineer would travel to the hotel with a new hard drive in order to do a manual swap, as it was simply not possible to complete the upgrade without causing major disruption.

With the arrival of Superfast broadband in Cornwall, Orbiss was first in the queue and the first ever customer to sign up - a fact they are very proud of. Movie upload now takes only 0.5days/month. This means that the staff had more time to spend on other aspects of the business such as product development. As a result, the Orbiss team have streamlined workload; added updates to the IPTV solution (Clarity) and they launched a new internet product (Strata) into the market:

- **Clarity the successor of Speedway** This provides our hospitality customers with cutting edge in-room guest technology, including HD video on demand, movies, IPTV and internet access at the touch of a button, which can then be fully integrated into any hospitality billing system. For hotels, the benefits include a much greater ability to provide targeted marketing (such as special offers) within the TV system.
- **Strata, internet access** Recognising that a higher demand for bandwidth over wireless internet access for guests was on the rise, hotels were increasingly finding that guests are using more wireless mobile devices and laptops to download movies/music. Often resulting in a slower overall performance for other guests. Orbiss therefore developed an internet product that allows hotels to offer a free wireless internet access to all for low bandwidth activities, but with charging for guests using greater bandwidths. Thus helping the hotel

manage its bandwidth and providing an important revenue stream and enabling the hotel to have a return on their investment.

The telephony side of the business is also growing as a result of Superfast broadband, with Orbiss now providing an ISP service, rather than simply brokering as they have done in the past. This means they are able to benefit from this growing market and retain a greater proportion of any margin available.

The Benefits

Costs and Overheads Superfast broadband has allowed us to streamline our operations. We would have needed more staff to achieve what we have done in the last three years. We have also achieved direct cash savings in terms of our own telecommunication costs, being able to reduce the number of lines to the property and using the internet for our telephone calls to mobiles, we are now making more calls for less, confident that the Superfast line will not let us down.

Sales and Turnover We have noticed that there has been much more interest in our products from Cornish businesses, especially people looking for Voice Over Internet Protocol (VOIP) products now that they have Superfast, as the Superfast roll out continues across the UK, we expect demand to increase significantly.

Product Delivery The most significant impact is in terms of movie-upload, where we have dramatically reduced the time required. Similarly, we are able to do many more upgrades to clients remotely now, without needing to go on site. Superfast has substantially improved our productivity.

Staff and Working Environment We spend a lot of time in front of PCs downloading/uploading files, therefore being able to do this faster is a significant benefit for staff. Likewise, now that some staff have Superfast at home, we have been able to set up a Virtual Private Network, allowing people to log in from home if necessary with no loss of speed. This was impossible prior to Superfast. If someone logged into the network remotely, it would have collapsed the whole office! As a result of the growth in the company achieved through Superfast technology, we have been able to employ three additional staff, including an apprentice.

Customer Service We can be much more flexible in the support we provide to our customers, as we are able to dial in and out from anywhere. We are also able to offer remote diagnosis and upgrades, which are much more convenient for us and the customer.

Innovation As well as freeing up staff time to work on new products, Superfast broadband has opened our eyes to the future direction of the business. We are at the forefront of our field, anticipating future trends in media use within the hospitality sector and positioning ourselves accordingly.

The technology and expertise we have available allows us to operate on a national scale here in Cornwall and compete successfully with very big companies. We are optimistic that as Superfast broadband is rolled out across the UK, our company will blossom as we take advantage of this opportunity!

Without Superfast broadband, our product development would have been significantly slowed/jeopardised and we would have become increasingly worried about our capacity to grow and effectively service new customers. Now with Superfast broadband, we do not worry about growth at all!

Case study date: May 2013.

Continental Underfloor

Continental Underfloor is the UK market leader in the supply of warm water underfloor heating to homes and businesses. Set up in 1998 by Chris Ingram after he got underfloor heating in his own home, he had to jump through considerable hoops to get it and decided that he could do it better! Continental Underfloor has gone from strength to strength based on its philosophy of doing a job well and getting things right first time with excellent customer care. The company now employs 25 staff at its base in Bude.



By the time Superfast arrived in Bude (Dec 2011), the company had reached a critical point in its development where it needed to have offices elsewhere in the UK to fully exploit the national market place. The challenge for the company was how to achieve this growth whilst maintaining the strong 'one company culture' they had worked so hard to develop.

They knew Superfast would be the solution, so were waiting in anticipation for its arrival in Bude, ordering it the day it arrived said I.C.T. Manager Simon Smith. They then set about testing a future expansion model, by opening a pilot office in Pool Innovation Centre. The pilot office was linked by two superfast lines to the office in Bude to create a permanent Virtual Private Network between the two offices, allowing staff in Pool to seamlessly access the database in Bude.

Using Superfast to achieve a 'one company culture'

As well as linking the two offices to the same database and email system, Continental Underfloor wanted to see if they could use Superfast to achieve an integrated office environment, so that the staff in Pool did not feel isolated from the headquarters in Bude. They came up with two innovative ways of doing this:

- **Live-web cam projection onto a wall in each office** - Web cams were used to stream between the offices in Bude and Pool and project the images on a live video wall. This was hooked up to microphones so that everyone could work together and communicate between the two offices easily, giving the impression that the respective offices are next door to each other.
- **Virtual water cooler** A virtual water cooler was placed in each office, allowing people to get together and chat, even though they were in different offices. This was created by placing a monitor with a webcam attached inside a real watercooler bottle!

These innovative ways of connecting our offices led to the company winning the inaugural "Best Use of Superfast Broadband" award at the 2012 Cornwall Business Awards!

The Benefits

Superfast broadband is changing the way they do business, as Simon Smith explains:

A new Business model Creating this live link between the two offices has established a new business model which will enable future business expansion to maximise sales throughout the UK. We can now have world class connections between these and our head office in Bude, with our centralised database/email system serving offices across the UK.

Costs and Overheads The Superfast connection between the two offices meant that managers/staff did not have to travel to the other office as much, saving time, petrol and expenses and also helping the carbon footprint due to less mileage.

Sales and Turnover As we proceed with the opening of offices in other parts of the UK, we expect to see an increase in sales from those regions as we raise our profile in those areas. This will also have a twofold effect of increasing the number of staff we employ in Bude to keep up with the back room functions.

Staff and Working Environment Superfast broadband has benefits to staff now and in the future. It is currently benefiting staff in Bude now, who, when they are out on the road or working remotely, can upload data much faster than they could before due to the extra bandwidth. This has revolutionised the way we can work as people can now push and pull data so much faster - significantly improving our productivity. It will also allow us to develop our plans for expansion without compromising on our company culture, maintaining the one company ethos we have worked hard to develop.

Product and Customer Service The increased speed from Superfast means that we can now exceed customer expectations for the time taken to turn round designs, as we can now upload/download information to/from our external design team much more quickly than before.

Innovation Now that we have Superfast we can use video to support our marketing campaigns which was out of the question before as it was too time-consuming to upload video files. We can now fully integrate the use of video into any email campaigns to promote new products.

Environment The benefits to the environment will be significant when we have put in place our plans for expansion. Superfast will allow us to manage regional offices with a lot less travelling.

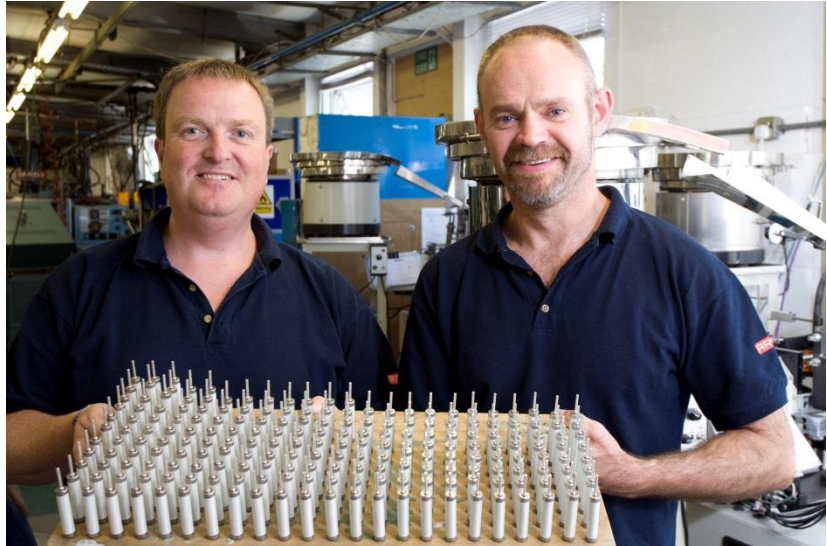
If Superfast were not available, we would probably not be able to pursue our plans for expansion into new offices elsewhere in the UK. It is most likely that we would have continued growing the operation purely in Bude.

“Superfast broadband is opening up amazing new opportunities for our business. It’s really great news for people and businesses alike in Cornwall.”

Case study date: May 2013.

ARCOL UK Ltd

For more than sixty years, ARCOL UK Ltd has manufactured fine quality resistors for the electronics industry, with emphasis on attention to detail and level of service. But far from looking back, ARCOL is now investing heavily into its future and was one of the first businesses at Threemilestone Industrial Estate to connect to 'fibre to the premises' Superfast broadband, obtaining download speeds of over 90 Mbps.



ARCOL is the only manufacturer of its type in the UK and produces between three and a half to four million resistors each year at its base at Threemilestone. Its reach extends into more than thirty countries around the world, with 80% of sales being exported, and their resistors having hundreds of different uses including wind turbines, infrastructure projects at the Olympics and as part of NASA's "Themis" project, which is examining auroras in the Earth's atmosphere. As well as their own production, they work closely with other manufacturers and distributors in a closely connected world-wide supply chain.

Superfast for Business Development

ARCOL places great emphasis on ensuring that its manufacturing, production, sales and purchasing functions operate in one place. This has produced a dynamic hub that meets the needs of every customer and every partner with ease, and it's this hub at Threemilestone that has been connected to "fibre to the premises" broadband technology, as Technical Director Alun Morgan and (Commercial Director), Mike Pritchard explains:

We had wanted to invest in a new company management system and IT infrastructure for a long time. Our old system was slow and we simply didn't have the bandwidth to allow staff to log in remotely whilst on business trips or working from home. Likewise, we would often need to run reports overnight to avoid crashing the system. We wanted a system which would allow us to make the best use of cloud technology to have a company-wide enterprise management system (ERP) that integrates all aspects of the business. A key feature for us was the need to be able to access the system remotely whilst we are away on business abroad, as well as providing key customers with portal facilities so that they can place and manage their orders on line. Our new bespoke ERP system allows us to do all this and more. None of this would have been possible without Superfast broadband.

The Benefits

"Our experience of Superfast broadband so far is really superb. Our existing ADSL line was giving us an average download speed of around 1.5 Mbps; our new fibre connection is regularly providing 92 Mbps, a colossal difference which is giving us the ability to do everything much more quickly."

Costs and Overheads Our ERP system allows us to have a much more accurate and up to date understanding of the different aspects of our businesses; which products are profitable and areas where we can make cost savings. The use of hand held devices to monitor stock ensures that the data is in real time and really helps us to understand manage stock and the supply chain. Our next step will be to integrate this with our customer access portals to allow customers to see stock levels before they order.

Superfast allows us to meet with customers through video conferencing and webinars, thus significantly reducing our need to travel. As well as reducing travel costs, it frees up staff time to invest in more creative opportunities. We expect this trend to continue in the future, as more and more customers get used to communicating this way.

Production As a company with over 148,000 product lines (which often have around 16 component parts), our data requirements are huge. Before we had Superfast and our new ERP system, we couldn't run a 'materials and resources report' without crashing the system; we usually left them to run overnight. Now we can get results in an instant, this convenience means that we are able to monitor performance much more effectively across a whole range of indicators, thus improving our productivity.

Product and Customer Service Our sales team can now interact with the ERP system remotely from anywhere in the world. This means that if they are at a trade show, they can place orders immediately for customers or resolve issues straight away. This means a faster turnaround and better customer service.

Staff and Working Environment Our workforce of 43 staff is predominantly based at Threemilestone but around 8 or 9 of our employees regularly work from home. Being able to log-in to our office network via our VPN (virtual private network) is crucial to ensuring that their goals remain achievable, wherever they or our global partners may happen to be, as well as maintaining the professional, quality service we take pride in. Superfast broadband also gave us the chance to relocate one of our salesmen to Buckinghamshire, in order to service the UK market more effectively. Our superfast fibre connectivity (and his own fibre connection) has increased the speed of his VPN by around fifteen times.

Innovation Superfast broadband has allowed us to participate in fast moving design projects in collaboration with engineers and designers from across the world. These projects involve group work to develop a new product or solve a particular problem for a client. They are very fast paced with designs moving forward daily. Superfast broadband allows us to upload large design files, participate fully in web conferences without interruption and see the latest design in high definition in real time. We couldn't have looked at supporting this sort of high added value project work before – we are now doing more than ever, with potential to double our turnover through this sort of work. We have even taken on a new engineer to support this work.

Turnover and Sales The world-wide recession means that the market for resistors has plateaued, therefore we have not seen a growth in sales since the introduction of Superfast broadband. We are convinced that, had the market maintained strength, our order book would have grown significantly. We also believe that the Superfast project enabled us to maintain our trading position without too great a drop in the order book. Some competing companies report a drop of more than 25% compared to the previous year. However, Superfast broadband has enabled us to diversify into project work (described above) and improve our efficiency dramatically.

Case study date: November 2013.



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