Dadansoddi ar gyfer Polisi
YMCHWIL GYMDEITHASOL Y LLYWODRAETH
GSR
GOVERNMENT SOCIAL RESEARCH
Analysis for Policy

Llywodraeth Cymru
Welsh Government

Social Research Number:
26/2017
Publication date:
18/05/2017

Public knowledge and perspectives on superfast broadband services in Wales

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

 Digital ISBN 978-1-4734-8615-7

Title: Public knowledge and perspectives on superfast broadband services in Wales

Welsh Government, Internal Research Programme

Jo Coates and Nina Prosser

Coates, J., Prosser, N. (2017). *Public knowledge and perspectives on superfast broadband services in Wales*. Cardiff: Welsh Government, 26/2017
Available at: http://gov.wales/statistics-and-research/public-knowledge-perspectives-super-fast-broadband-services/?lang=en

For further information please contact:
Jo Coates
Social Research and Information Division
Welsh Government
Cathays Park
Cardiff
CF10 3NQ
Tel: 0300 025 5540
joanne.coates@wales.gsi.gov.uk

Table of contents

Glossary

Acronym/ Key word	Definition
ADSL	Asymmetric Digital Subscriber Line
BDUK	Broadband Delivery UK
BT	British Telecom
DAE	Digital Agenda for Europe
DCMS	Department for Culture, Media and Sport
EPRS	European Parliamentary Research Service
ESNR	(Department for) Economy Science and Natural Resources
EU	European Union
GDP	Gross Domestic Product
GVA	Gross Value Added
IRP	Internal Research Programme
MUT	Multi User Typology
OECD	Office for Economic and Cultural Development
OfCom	Office of Communications
SFBB	Superfast Broadband
UCAS	Universities and Colleges Admissions Service
USO	Universal Service Obligation

Executive Summary

The Internal Research Programme (Knowledge and Analytical Services, Welsh Government) was commissioned in January 2016 by the ICT Infrastructure Team to undertake research with the public around knowledge and views of superfast broadband, also known as 'next generation' or 'fibre broadband', services in Wales.

The Welsh Government, as part of its Digital Wales Strategy (2010), highlighted the importance of implementing affordable superfast broadband services as crucial to improving the health, education and equality of the people of Wales. The Welsh Government's 2011 Programme for Government set out the aspiration that all premises in Wales should have access to next generation broadband services by 2015. Commercial roll out of superfast broadband was implemented for 41 per cent of premises, the remaining premises being deemed not commercially viable. The Welsh Government therefore committed public funds to ensure that those areas in Wales not covered by the commercial roll-out would have access to a superfast service. British Telecom (BT) won the tender to deliver the subsidised infrastructure, and have committed to provide 690,000 premises with superfast broadband access by the end of June 2017.

In order to promote the existence of the service and provide information about the benefits of superfast broadband, the ICT Infrastructure team decided to engage in a communications campaign across Wales. The campaign will deliver citizen focused public information to encourage take-up in areas that have recently been enabled with superfast broadband, and will consist of a series of roadshow events across Wales and an online presence at www.gov.wales/broadband.

In order to inform the framing of the key messages of the communications campaign, the IRP conducted a series of focus groups with the public at four locations across Wales; Cardiff, Carmarthen, Colwyn Bay and Pontypridd. The focus groups comprised of men and women aged 46-65, who are defined by Ofcom's Consumer Segmentation Report (2013) as being most closely associated with the characteristics of the 'functionalist' group of internet users. These users are primarily female, over 45 and with a higher than average household income. However, for the purposes of this research, men aged 46-65 were also included in this sample to provide a more balanced set of views. The research was also interested in gaining the views of the 'socialisers' (Ofcom, 2013), who are primarily female, under 45, and with an average income, but who are also characterised as using the internet primarily to socialise and are less led by technology. Due to the difficulty in attracting the socialisers to attend focus group sessions, a set of 10 telephone interviews were conducted with individuals in the same areas in which the focus groups were conducted.

The aims of the qualitative research were to;

- Understand what are the everyday motivations of people within the populations identified;
- understand how people within these populations currently use the internet and to carry out what activities;
- capture the current level of understanding among target populations about how the internet can be used to help them meet their everyday needs;
- identify barriers inhibiting the target populations' greater use of the internet, and;
- capture the target populations' current level of understanding of technical terms associated with broadband.

Key Findings

Communication with others was key for both 'functionalists' and 'socialisers' – almost all participants highlighted that communicating with family and friends were the most important aspects of their lives, whether this was conducted online or offline. Respondents felt that good quality communication, particularly in order to support children and grandchildren, was a high priority. Other priorities included, more broadly, ensuring children were happy and healthy, that they themselves were healthy and happy, that they had opportunities to support children and grandchildren's education, and had educational opportunities for themselves when needed.

In terms of internet use, activities carried out online largely reflected these personal goals and priorities – respondents cited using all forms of communication tools (e.g. email, social media, video calling) to keep in touch with friends and family; to support children's and their own learning through online educational tools; to access and purchase goods and services (e.g. online grocery shopping); for entertainment purposes (e.g. streaming music, films and on-demand TV); and for general internet browsing. All these activities allowed them to communicate and support loved ones and to make the demands of everyday, busy lives, more manageable.

Use of social media platforms was widespread, but more marked for the 'socialisers' – Although social media was mentioned and used across both groups, the amount and diversity of social media use was much wider for the women aged 25-45. Both groups reported that, for younger children, use of social media was the norm. It was felt, particularly by both socialisers and functionalists that this could have positive consequences, but that this may expose young people to certain risks which should be managed by responsible adults.

Particular ways of using the internet were considered detrimental to forming constructive social relationships – functionalists felt that internet use was not inherently positive or negative, rather that when used inappropriately could prevent meaningful communication. For example, excessive screen-time in social situations was thought to erode conversation and lead to frustration. The functionalists noted that more attention should be paid to the ways we use the internet in order to be more aware of maximising the benefits whilst minimising behaviour that could damage social relationships.

There were notable gender differences in terms of perceived technological knowledge and 'deal seeking' – Women functionalists in particular considered themselves less knowledgeable, less confident and less competent in understanding technical terms and how to perform certain tasks online, and in relation to understanding what a SFBB service could offer them. Women also perceived themselves to be less confident in seeking out information relating to a superfast service and in seeking the best deal available if they were seeking to upgrade to a fibre service.

Access to good quality, efficient broadband was considered a basic right, on a par with essential utilities such as water and energy – Respondents consistently felt that, due to the internet being so ubiquitous in everyday life that good quality access should come as a standard for residential properties. This was particularly emphasised in the Carmarthen and Colwyn Bay focus groups, where due to the rural locations of the residents, broadband quality was variable. It was felt that for those who did not have a good quality service, they were significantly disadvantaged in that they were unable to communicate effectively in their professional and personal lives. Those who reported poor quality service felt that their service issues should be addressed before they would consider take-up of SFBB.

Basic knowledge of the differences between superfast broadband and conventional ADSL broadband was low within both age groups – respondents were largely unaware of the key benefits of SFBB over ADSL, whereabouts in Wales superfast broadband was available, how to access the service and key information relating to providers of the service. Both socialisers and functionalists expressed the need for impartial information to be available to enable them to make informed decisions about which service would be best for them.

Good satisfaction with current broadband services was reported – for the most part, respondents did not have any major issues with their service. This consequently meant that they had no reason to seek out an upgrade to their broadband at that time. Low knowledge on the benefits of SFBB was noted, indicating that in order to increase take-up, clearer information on benefits of a fibre service should be provided to the public.

The price of superfast broadband was a major barrier to take-up for respondents – due to the satisfaction with their current service (barring some individuals in rural locations) the knowledge that SFBB was more expensive than their current connection meant that many were reluctant to take-up the service solely because of the higher price point. Many noted it would need to be more affordable for them to consider upgrading.

Recommendations

The recommendations are based on the research findings and are as follows;

1. **Communications activity should consider the expansion of impartial advice on take-up of a SFBB service and addressing the ease at which the public can access this information.**
   Respondents often expressed confusion or were misinformed as to what SFBB was, what it could provide them with, how they could access it and how they could establish which provider would give them good value for money on a fibre service. The communications campaign would benefit from disseminating impartial information which pulls all of this together and provides consumers with one place to go to receive this information. The findings suggest that reducing confusion on these issues is the first step to increasing take-up.

2. **The communications campaign should focus on highlighting tangible benefits of a fibre service for consumers.**
   The focus groups and interviews have shown a significant gap in knowledge of SFBB and how it could be beneficial for individuals in relation to achieving their life goals. Any communications should seek to establish benefits, and think about how those benefits can be clearly expressed to the public, for example with concrete examples of benefits given, in order to encourage a faster rate of take-up. The communications messages should also address the key barriers to take-up identified in this research. This may include debunking myths which provide a barrier to more consumers taking up the service, or providing more information on the benefits of SFBB, or the alternatives to it, such as a cheaper fibre service.

3. **Communications messages should be differentiated, taking account of differences found across age, gender and location of respondents.**
   The research highlighted many commonalities in views, but also some differences depending on demographic characteristics of respondents. Due to the differences identified in both access to and ways of using the internet, the communications campaign should take note of any differences, particularly in terms of the urban/rural divide, between older and younger consumers, and between men and women, when constructing public messages.

1. Introduction

1.1 The purpose of this research is predominantly to develop our understanding of the everyday motivations and goals of individuals' identified from the key target populations and provide indicative qualitative data on how the target populations understood and viewed their current internet provider and the services of superfast broadband in relation to their personal priorities. The data provide some insight into the target populations' knowledge, perception and use of both conventional and superfast broadband services. It is important to note that, for the purposes of this report, when we refer to 'internet use', we are discussing it in terms of how it is used to incorporate the internet into individuals' everyday lives, and how it benefits the user more generally. When we refer to 'broadband' or 'superfast broadband', we are referring specifically to the access and take-up of these services and the choices consumers are making about the service they receive.

1.2 There is strong evidence to show that developments in telecommunications and broadband infrastructure contribute positively to economic growth. Studies of the impact of fixed-line telecommunications found that around one third of the per capita GDP growth rate could be attributed to infrastructure investments (Röller and Waverman, 2001). More recent longitudinal studies have produced similar findings showing a significant and positive correlation between telecommunications infrastructure and growth (Datta and Agarwal, 2004). Early studies, following the diffusion and penetration of broadband technology confirm the causal impact of broadband infrastructure on economic growth and productivity (Czernich et al. 2009, LECG, 2009). Research suggests that with the right skills and infrastructure in place, broadband strategies could increase national productivity and growth by up to 15 per cent (Waverman and Dasgupta 2010). Applying the framework developed by Röller and Waverman (2001), Koutroumpis (2009) estimates that broadband deployment has had a strong and statistically significant effect on growth in the European Union, although the data cover only the years 2003-2006. Findings suggest that the growth effect of broadband is more pronounced in countries with high existing levels of broadband penetration – that is, the marginal impact of adding broadband lines is higher in developed countries where there is a "critical mass" of broadband lines already in place (Wieck, R, Vidal, M, 2010).

1.3 The Digital Agenda for Europe 2010-15, which comprises part of the Europe 2020 Strategy for smart and inclusive growth has been a principal driver behind public sector investment in broadband infrastructure. The Digital Agenda for Europe sets clear targets for the European Union (EU) and Member States which have an important role to play in encouraging the development of broadband infrastructure in Europe through policy, regulation and funding (EPRS, 2015). Secondly, advancements in technology have driven the availability of increased broadband speeds as internet service providers have sought to deploy improved technology, upgrade existing or out-dated infrastructure – or do both. Private sector internet service providers have also been driven to implement service improvement programmes in order to satisfy consumer demand. There are however, still wide differences in the availability of broadband between member states and across regions.

1.4 It is important here to make a distinction between (i) the implementation of infrastructure which enables businesses and residences to access broadband, and (ii) the take-up of this service which enables its use. Benefits are almost always only derived when both the infrastructure and take-up have occurred. Recent UK-level research (SQW, 2013) has sought to identify and estimate the projected economic, social and environmental impacts associated with faster broadband and to attribute Gross Value

Added (GVA) Impacts to a suite of publicly funded interventions designed to further the availability and take-up of faster broadband provision. The study concluded that the availability and take-up of faster broadband will add about £17 billion to the UK's GVA by 2024 (an uplift that contributes an average of 0.07 percent to real GVA over this period) and deliver a range of social impacts associated with better flexible working, leading to household savings rising to £270 million by 2024 and accounting for 1.6 million tonnes of carbon dioxide equivalent (CO2e) savings per annum by 2024. Currently in the UK almost eight in ten households now have fixed broadband access at home. Home internet access continues to grow, with 85 per cent of adults having access in the first quarter of 2015, representing a rise of three percentage points since on the same period in 2014. Fixed home access has shown greater increases again over the same period, rising by five percentage points and representing 78% of adults (Ofcom, 2015c). Despite advancing broadband capability in urban areas however, there is growing concern about a new emerging 'digital divide' which sees more rural communities left with relatively poor levels of broadband service.

1.5 In December 2010, Welsh Government cited next generation broadband as a fundamental part of its Digital Wales Strategy (2010). The strategy recognised that the health, education and equality of the people of Wales would be increasingly reliant on access to affordable high-capacity broadband services. The Welsh Government Programme for Government (2011) that followed set out the Government's aspiration that all premises in Wales have access to next generation broadband services by 2015. Having identified that around 41 per cent of premises would gain access to faster broadband services through a commercial roll-out by 2015, the Welsh Government determined to invest significant capital funds bringing next generation broadband services to regions of Wales where the private sector had concluded it was not economically viable to do.

1.6 The original contractual agreement with BT, which commenced in 2013, was to provide 655,000 premises with access to superfast broadband services by the end of June 2016, followed by robust Welsh Government testing and verification (over an agreed time period) to confirm submitted numbers. Following an Open Market Review, the Deputy Minister for Skills and Technology announced that approximately 40,000 additional premises in the Superfast Cymru intervention area would be covered. The review showed the number of premises that needed to be addressed under the project had increased. This was for example because of new-build premises or where premises due for roll-out under telecommunications' companies own plans had been deemed economically unviable by them. The build phase of the contract was extended to June 2017. Under the reviewed agreement, BT is obliged to provide 690,000 premises within the Superfast Cymru intervention area with access to superfast broadband of at least 30 Mbps by the end of June 2017. The remaining premises not included in the roll-out will have the option to be connected through future interventions and targeted schemes such as Access Broadband Cymru.

1.7 The Welsh Government's Department for Economy, Science and Natural Resources (ESNR), in partnership with BT, is responsible for the roll-out of the Superfast Cymru scheme. Since its launch in 2013, over 0.5 million homes across Wales have been given access to superfast broadband. Despite this, it is recognised that there is scope to increase levels of awareness of superfast broadband services amongst both households and businesses. Recent research that included a survey of both businesses and households across Wales found that 36 per cent of non-connected households and 33 per cent of non-connected businesses cited a lack of awareness as their reason for not being connected to next generation broadband (Auditor General for Wales, 2015). The Department for Economy, Science and Natural Resources (ESNR) first approached the

Internal Research Programme (IRP) keen to better understand the needs and requirements of two target populations and specifically, women aged 25-45 years and men and women aged 45-65 years old. Initial research suggested these groups in particular could benefit from a greater understanding of the benefits of superfast. Ofcom data suggests that we currently have limited information to help us understand how to meet the needs of these target populations. The Internal Research Programme (IRP) was commissioned to undertake the first stage of research into the everyday motivations and behaviours of these target populations and their awareness of and attitudes towards broadband services. Findings from this research will serve to inform the design and development of a tailored communications campaign which it is hoped will increase awareness of the benefits of superfast broadband across the intervention area.

Aims of the Research

1.8 The aims of the research were therefore to:

- Understand what are the everyday motivations of people within the populations identified;
- Understand how people within these populations currently use the internet and to carry out what activities;
- Capture the current level of understanding among target populations about how the internet can be used to help them meet their everyday needs;
- Identify barriers inhibiting the target populations' greater use of the internet;
- Capture the target populations' current level of understanding of technical terms associated with broadband.

1.9 This research provides indicative data from the target populations of interest for this study. The findings from this research may serve to inform the future design of a public relations campaign and supporting online tool which could be marketed to the target populations with the intention of fostering and preparing to meet demand amongst these groups. The campaign will deliver citizen focused public information to encourage take-up in areas that can now benefit from superfast broadband thanks to government intervention. This approach will be supported by an online presence at www.gov.wales/broadband, a superfast online life tool and a series of local roadshow events across Wales.

1.10 This research project is likely to be supplemented in future by further longitudinal insight work to establish to what extent the targeted marketing campaign has increased demand or take-up of superfast, fibre broadband.

1.11 The following section outlines the methodology adopted for this research. Section three explores some of the key literature around the provision and take-up of conventional and next generation broadband infrastructure and services and discusses some of the models that have been used to estimate the economic, social and environmental impacts of next generation broadband. Section four provides the findings of the focus groups with men and women aged 46-65. Section five summarises the findings of the telephone interviews with women aged 25-45. Finally, section six provides some conclusions about the target populations' understanding, knowledge and use of both conventional broadband and superfast broadband, but also what information is absent or incomplete, preventing informed judgements being made. This section also provides some recommendations as to how this analysis could be used to understand the target populations' needs and motivations to use or take-up superfast broadband services, and segmented by population characteristics in order to tailor future communications.

2. Methodology

2.1 It was decided that a qualitative study comprising a series of focus groups would be the preferred method of primary data collection to understand the target populations' understanding, attitudes and use of superfast broadband. Focus groups are useful when seeking to gain indicative views on an issue from the general public or any other diverse group. The ability to discuss an issue with several people at once is not only a cost effective method of research; it also provides a dynamic discussion which is not achievable in a one-to-one interview. This can often lead to a richer discussion and more thoughtful consideration of all related issues. Owing to the phased nature of the domestic roll-out of the Superfast Cymru scheme, it was determined that the IRP would facilitate four focus groups in different locations across Wales including Cardiff, which was identified as a location that had been included in the earlier commercial roll-out of superfast broadband and the more rural locations of Carmarthen, Colwyn Bay and Pontypridd. These locations were selected in order to gather experiences and opinions from residents across communities which will have experienced any impact from the domestic roll-out of superfast broadband to varying degrees.

2.2 The mixed focus groups were to comprise participants from both target populations including women aged 25-45 years and both men and women aged 46-65 years old. These age groups were selected because the younger women matched most closely the characteristics of the 'socialisers' and the older age group matched the age band most closely associated with the characteristics of the 'functionalist' group. However, the decision was taken to include both men and women in the older age group to obtain a more balanced set of views, despite the 'functionalist' group predominantly comprising women (Ofcom, 2013). The mixed focus groups were held in the early evening at local community venues in order to maximise attendance from both target populations. It was felt that the proposed method would allow the researchers to better identify where there were converging and diverging perceptions, understandings and experiences and to draw out any gender differences that might exist between the target populations.

2.3 In order to encourage participation in the research and to compensate participants for their time and travel expenses, it was agreed that it would be necessary to offer a financial incentive, payable following participation in the focus group. Participants contacted to participate in the research were offered a £20 high-street gift voucher. The use of financial incentives was approved by ESNR.

2.4 It was felt that the most appropriate sampling frame for the study would be the re-contact list[1] drawn from the National Survey for Wales 2014. The re-contact list was the most pragmatic solution to recruitment, as it was a ready made database of individuals who had indicated they would be happy to take part in further research. The way the data for the National Survey was collected also meant that we could separate individuals by location and age in order to recruit those falling into the 'socialiser' or 'functionalist' groups. However, the sample is not representative due to the self-selecting status of those who are on it. Participants meeting the age criteria and living within a 12-mile catchment area of the proposed focus group locations were contacted by telephone to assess and confirm their eligibility and commitment to participate in the research. To comply with the minimum standards expected following the implementation of the Welsh Language Standards in March 2016, all participants, at first point of contact were asked for their language preference and offered the opportunity to receive a recruitment phone call in the language

[1]The re-contact list is comprised of those who took part in the National Survey for Wales 2014 and who agreed to be re-contacted by the Welsh Government for future research purposes.

of their choice. Participants who opted to receive a recruitment phone call in Welsh were offered the option of participating in the focus group through the medium of Welsh. Those who preferred to converse in Welsh were then re-contacted by a Welsh-speaking social researcher to gauge their interest in taking part. There was not sufficient interest from respondents who cited Welsh as their preferred language in participating in the research and therefore insufficient demand to warrant delivering a focus group through the medium of Welsh, or providing simultaneous translation.

2.5 IRP researchers began recruitment in January 2016 and continued for a period of six weeks, contacting individuals identified from the National Survey re-contact list 2014, explaining the purpose and scope of the research and sending those who agreed to participate a bilingual confirmation e-mail outlining the details of the forthcoming focus group and addressing a number of frequently asked questions. Participants were later re-contacted to confirm their attendance at the focus group. Owing to the level of drop-out experienced, particularly from the younger female target population (25-45 years) in the run-up to the focus groups, changes were made to the recruitment strategy in its latter stages. Over the course of the remaining two weeks of the recruitment phase, revisions were made to the bi-lingual recruitment e-mail for inclusion in the online newsletters of a small number of Third Sector membership organisations whose membership delivers provision aimed at the target populations intended for the research and a call out on social media targeted at geographically appropriate Twitter handles generated a small number of additional participants for the focus group in North Wales.

2.6 The focus groups were facilitated over a two week period in March 2016. A total of twenty participants attended the focus groups[2]. Participants who attended comprised exclusively of the older target population (46-65 years) with the highest levels of drop-out experienced amongst those participants from the younger target population (25-45 years) who were expected to attend. All focus groups, excepting the focus group in Colwyn Bay which was exclusively male, achieved a near gender-balance.

2.7 Following completion of the focus groups, it was decided that, due to none of the younger women being able to attend the focus groups, further primary research would be required in order to capture the views of the younger female target population (25-45 years). It was agreed in collaboration with the ICT Infrastructure policy team that approval would be sought for an extension to the project to include a series of ten semi-structured telephone interviews with female participants aged 25-45 years. Participants for the telephone interviews were drawn from the National Survey re-contact list 2014, with those who had originally committed to attending the focus group given first contact. Ten telephone interviews were carried out over a three week period in July 2016[3]. A greater number of interviews were afforded to catchment areas around Pontypridd and Colwyn Bay in order to redress the balance in the number and gender of participants.

2.8 The focus groups and subsequent telephone interviews were recorded and notes were then collated from the focus groups and the transcriptions of the recordings to identify key themes. The identities of the participants and those data derived from the primary research are anonymous and no individual can be identified from the information presented in this report.

[2] The breakdown of attendance at the focus groups is as follows: Pontypridd (4), Cardiff (5), Carmarthen (5), Colwyn Bay (6)

[3] The breakdown of interviewees in each location is as follows: Pontypridd (3), Cardiff (2), Carmarthen (2), Colwyn Bay (3)

3. Literature Review

3.1 This section provides a review of some relevant academic, policy documents and other sources to outline the issues pertinent to this research. It explores the key debates in relation to the economic case for superfast broadband (SFBB) and its installation and take-up, but does not provide a systematic review of the entire body of literature. All of the academic literature discussed here relates to SFBB installation and take-up at a UK level. As SFBB capability is in the process of being installed in Wales and in the UK more widely, reliable, long term data on take-up from both businesses and residences is not available at a UK or Wales level at present. There are some indicative data on take-up from the United States, and there are also some indicative data at a UK level, alongside projected take-up to 2020. These data have been compiled making various assumptions and this should be borne in mind when interpreting the data.

3.2 Section one of this review discusses the economic case for SFBB in terms of the investment made in installing infrastructure to enable businesses and residences to access the service, including a discussion of the reservations around investing in SFBB and the potential benefits identified. This is followed by a discussion of the data available on take-up of SFBB, and the projections on take-up by residential properties to the year 2020. This section will also outline the theory on take-up of new innovations, such as SFBB, using Rodgers' (2003) *Diffusion of Innovations* theory. Section three will discuss the issues around differential access and take-up of SFBB by geographical area, focusing on the urban/rural divide, an issue of particular relevance for Wales. Finally, the discussion turns to the policy direction of the UK and Wales in terms of improving broadband infrastructure and the placement of this research in the wider policy context. This report focuses on using the theory and existing information behind take-up of SFBB to understand public knowledge of SFBB and what it can offer them, providing a framework for informing the public about SFBB and its potential benefits.

The economic and social case for superfast broadband

3.3 Superfast broadband, or 'next generation broadband', constitutes the advancement in quality and speed of broadband infrastructure currently in the process of being implemented in many countries across Europe, including the UK. SFBB employs alternative technology to conventional broadband internet services, namely optical fibre and, in some instances in conjunction with existing copper wire. Optical fibre is capable of transmitting much higher rates of data per second than conventional services. This has advantages in terms of speed and volume of data transfer to businesses and homes, and because the quality of the data transmission is determined by the terminal equipment and not the fibre, the infrastructure is therefore said to be 'future-proof', offering the potential for higher rates of data transmission in the coming years. The infrastructure to support SFBB has been available in developed nations, such as South Korea, Japan and the USA for some years (Analysys Mason, 2015). The European Commission recognises the importance of both basic universal access to conventional broadband, as well as the potential for increasing the availability of SFBB in its Digital Agenda for Europe (DAE) (2010). This specifies availability of broadband for all Europeans by 2013, deployment of 30 mbps (megabits per second) broadband capability to all Europeans by 2020, and adoption of 100 mbps broadband by 50 per cent of European households by 2020. The DAE highlights the need for SFBB as a means to meet the challenges of the future economy and society, specifically to address and promote social inclusion and business competitiveness in the EU.

3.4 The potential benefits of implementing an upgrade to SFBB have been outlined in the research. Dini et al (2012) identify causal connections between broadband deployment and the growth of the market economy, although the direction of causation is unclear. Research suggests that increasing broadband penetration by 10 percentage points can increase annual per capita GDP growth by between 0.9 and 1.5 percentage points (Czernich, in Dini, 2012: 19). The UK Broadband Impact study, carried out for the Department of Culture, Media and Sport (DCMS) estimated that the availability and take-up of faster broadband speeds will add an estimated £17 billion to the UK's Gross Value Added (GVA) by 2024.

3.5 It is suggested that broadband can encourage innovation to flourish between users of broadband without the need to be co-located, and this attracts those with similar interests or agendas in a process of 'virtual agglomeration'. It suggests that investment in better ICT infrastructure can also lead to significant job creation (Liebenau, in Dini, 2012: 19), with total net employment impacts of an additional 56,000 in the UK, 20,000 of which are attributable to publicly funded intervention (SQW, 2013). The DCMS report estimates that 60 million hours of leisure time per annum to 2024 could be saved through teleworking and the use of faster broadband. It is also estimated that travel for business could reduce by as much as 9 per cent (SQW, 2013). Also identified are potential benefits in the development of e-health, the online facility which enables medical professionals to conduct consultations with patients, diagnose and prescribe treatment efficiently and without the need to meet face-to-face. This has the potential to transform the delivery of healthcare into the future. This emphasis on efficiency and savings through online delivery is also identified as being beneficial for public services delivery, education and commerce. Finally, the report emphasises the potential of higher broadband speeds to create added social benefits through the formation of 'communities of interest', applications created through user-generated content, which establish and reinforce social relationships. The potential to increase 'social capital' is one that should be taken into account as a bottom-up positive effect, as well as the positive macroeconomic potential of faster internet speeds.

3.6 Other research supports the idea that SFBB infrastructure is commercially viable and of social and economic benefit to the public and business. However, the key issue surrounding the implementation of infrastructure to support SFBB is the costs of doing so often outweigh the returns on investment in areas of low population density, where geographical challenges exist in laying down fibre capability and there is low consumer demand for a superfast service. This is where public sector intervention has played a part in making up the shortfall in investment, with governments investing in infrastructure, in partnership with service providers, in order to improve availability and stimulate demand in areas of market failure. Although there is some evidence that there is a strong case for governments in OECD countries to subsidise deployment of basic or superfast broadband to households (Gruber et al, 2014), there is conflicting evidence that suggests public subsidy of infrastructure carries risks, and that the potential benefits of such investment should be fully scoped beforehand. Such research favours the implementation of universal access to combat the 'digital divide' of those who can afford broadband receiving an increasingly efficient service, whilst those who receive no or very low speeds become increasingly left behind (Kenny and Kenny, 2011). Seys et al (2012) in their research into the development of SFBB infrastructure in Western Europe, highlighted that uncertainties exist in both the supply and demand of SFBB. Issues around supply include the hampering effect of existing infrastructure and the existence of market failure in certain locations. Issues on the demand side include low demand for fibre-based networks and a significant proportion of the market that is indifferent to broadband, and resistant to paying a premium for the service.

3.7 Where decisions have been made to proceed with public subsidies for infrastructure to support fibre services, as they have in Wales, the issues identified above are important to address in order to ensure the investment receives a return in the form of take-up by businesses and households. In terms of supply side issues, they have been addressed through the commitment to implementation made by Welsh Government, in partnership with BT. In terms of the demand side, the two main concerns identified by Seys et al, that the public are (i) indifferent to SFBB and (ii) that their demand for the service is low, need to be addressed if the investment is to provide any return. There appears to be a role for the Welsh Government in informing the public as to the benefits of SFBB and to raise awareness of the availability of the service in order that informed decisions about take-up can be made by consumers. This research therefore seeks to understand current awareness and understanding about the technology and its advantages over conventional broadband, and whether consumer priorities and activities conducted over the internet will be enhanced by an SFBB service and lead to greater take-up.

Current and projected take-up of superfast broadband

3.8 A long-term measure following completion of the infrastructure implementation of SFBB in Wales is the percentage of the population opting to take-up the service in their home or for their business. This section will; address the objectives of the Welsh Government with regards to take-up, explore the current data on take-up in Europe and the US, followed by a discussion on how we understand the process by which an innovative technology becomes more widely adopted, using Rodgers' Diffusion of Innovations (2003) theory. Issues specific to the Wales will also be examined, in particular the challenging geography of the country, which poses an engineering challenge for implementation, but can also create social and economic divides and has consequent effects on take-up.

3.9 There are several benefits to take up for individuals, businesses and public bodies. The economic and social benefits for users of SFBB are outlined above, but in addition public bodies like Welsh Government, that subsidise roll-out of SFBB in non-commercially viable areas, can claw-back a proportion of the initial investment made in infrastructure. This is dependent on the proportion of take-up of SFBB in the general population, and the money recouped can be re-invested in improving other aspects of ICT infrastructure. As well as the individual level benefits, there are also government-level benefits to take-up. In the UK, owing to it being a very recent improvement, and for which universal access is yet to be achieved, there are little data available on take-up of SFBB. Additionally, when asking those who have home broadband what type of service or speed they have in the home, a lack of technical knowledge has resulted in unreliable information regarding speed. This makes it difficult to understand the proportion of people who have a standard or superfast service. In 2013, the Pew Research Centre conducted a survey of American adults, and found that 70 per cent had a 'high-speed' broadband connection in their home, and that 8 per cent reported that they had a fibre optic connection. However, given the inability of survey respondents to accurately identify the speed of their connection, this research cannot verify that 'high speed' broadband in fact meant superfast or conventional speeds, only the mode through which the service was delivered.

3.10 There are some data on take-up of SFBB in the UK, using speed tests of internet connections as opposed to self-report, with Ofcom reporting that 27 per cent of residential properties in the UK had taken-up a superfast broadband connection of 30mbps or higher (2015c). This indicates initial market demand for SFBB, but does not constitute widespread take-up. Research by Analysys Mason (2015) indicated that at the end of 2014, current take-up of SFBB in the UK lay at just under 30 per cent, higher than the other four principal EU economies (France, Germany, Spain and Italy). A report by Mott

McDonald (2016) predicated that by 2023, take-up of any form of fibre service in Wales would be 61%, with 52% taking up a superfast fibre service. This was based on models which took into account historical take-up data, level of competition and other local market factors.

3.11 Wales is one example of a region of the UK in which SFBB roll out and incentive for residences to take-up the service is particularly challenging. Its geography and patterns of population dispersal mean that the roll-out of infrastructure is more difficult in remote rural areas, and that the economic costs of roll-out are higher due to the lower returns of providing superfast capability to sparsely populated areas. Evidence suggests that rural populations are relatively disadvantaged in terms of internet access, with their location offering markedly lower broadband speeds, as well as having to wait longer for material improvements to infrastructure due to the lack of commercial viability (Townsend et al, 2013). Additional barriers to adoption of broadband in rural locations include characteristics such as lower than average income, higher than average age, lower than average level qualifications held and lower than average levels of digital literacy. Added to the relatively high costs of broadband in these areas, this provides a further barrier to take-up of services this further compounds the impact of the digital divide. Townsend (2013) advocates prioritising universal access over access to SFBB, but she also makes the point that although broadband services are widely available, public awareness of the services are still low, and that accurate information is required about alternative services to ensure the public are properly informed about the choices available to them.

3.12 Current figures provided by BT indicate that in Wales 159,000 properties have signed up to a fibre service[4]. In order to reach the anticipated 90 per cent projected take-up by 2020 (Analysys Mason, 2015) and secure better connected residences in both urban and rural locations, current understanding and demand for SFBB has to be understood in more detail. As well as monitoring take-up of SFBB, the attitudes of the public towards next generation broadband need to be understood in order to address knowledge gaps in the most effective and impartial way. This will allow the public to make informed decision as to whether SFBB is the right service for them.

Diffusion of innovation

3.13 As well as understanding the current state of roll-out and take-up of SFBB, it is worth taking into account how innovative services are adopted by the general public, and the levers through which an innovation becomes a mainstream service. Rodgers' (2003) *Diffusion of Innovations* theory is useful in understanding this process.

3.14 Rogers' theory explains how an innovative idea or product becomes mainstream in society. Diffusion is the process through which the innovation is communicated through social channels over a period of time, and members of a social system then make decisions about whether to adopt the innovation. Adoption is based on the views of 'opinion leaders' within their social system and their own knowledge of the innovation and a cost-benefit analysis of its utility. Rodgers' theory proposes that adoption follows a normal distribution, with 'innovators', being enthusiastic about cutting edge technology taking up innovations first and who make up 2.5 per cent of the population. Early adopters are the next group, who use the information from the innovators to make their own adoption decisions, and form 13.5 per cent of the population. They take on the role of 'opinion leaders' and deem whether the innovators' adoption is worthwhile. This then forms the basis of the decisions made by the wider population; if the 'early adopters' feel that it

[4] A 'fibre service' is defined as are people who have bought a fibre product but not necessarily at a superfast speed. For example, properties may be too far away from their cabinet to get a speed classed as superfast.

has been worthwhile, this paves the way for the 'early majority' and the 'late majority' (34 per cent of the population apiece) to take up the innovation. This is where the tipping-point occurs; the innovation is now mainstream. The final category, the 'laggards', are defined as traditional isolationists in their social system. They are more suspicious of the innovation and their isolationism decreases their awareness of the benefits of it, consequently they are slower to adopt, with some never adopting new technology. We see this clearly with the small minority (15 per cent) of households which do not have an internet connection, three quarters of whom never intend to take-up an internet connection (Ofcom, 2015b). Rodgers also proposes that successful diffusion of an innovation depends on effective dissemination of accurate knowledge about the innovation, in addition to successfully persuading opinion leaders to adopt the innovation.

3.15 This theory helps us understand how superfast broadband may reach a tipping point in terms of adoption, and become the preferred internet service in the near future. This research focuses on those in the population who form the 'early majority' category, and who may be influenced by early adopters as to the benefits of SFBB. Through market segmentation research into types of internet users, we are able to identify users from this group. The aims of the research are to understand the current knowledge and attitudes of this group, to determine whether they are aware and willing to buy such services, and the enablers and barriers to adoption.

Typologies of individuals' internet use

3.16 As well as understanding of how people adopt new technology, it is also useful to understand how people use technology once it has been appropriated. Much research has focused on defining and segmenting internet users by their purpose and activity online, in order that information and marketing can be directed at people more intelligently beyond one-dimensional understandings of internet take-up alone. Understandings of internet use have therefore evolved from an examination of measures, such as frequency of internet use (Selwyn, in Brandtzaeg, 2010) towards a more nuanced understanding which accounts for what activities people perform online, as well as the demographic characteristics of that group.

3.17 Aljukhadar and Senecal (2010), in their segmentation analysis, identified three groups, or 'segments'; the basic communicators, a group who use the internet to communicate predominantly via email. This group were mostly highly educated females who occupy all age groups and income brackets and tend to use the internet less frequently than others. The 'lurking shoppers' are consumers who use the internet to navigate and heavily shop, are predominantly older, highly educated males and females, have a high level of perceived expertise online and are more likely to be in the higher income bracket and have higher internet speeds. Finally, the 'social thriver' engages with others more frequently through blogging, chatting, video streaming and downloading. This group is made up of slightly more females, is younger (35 years or below) and falls into the lower income bracket. Most 'social thrivers' maintain a higher than average broadband speed.

3.18 This kind of segmentation tells us not only about online activity, but some of the key characteristics of those who fall into particular categories. Typologies have also become more sophisticated as internet use has become more widespread and diversified. Brandtzaeg (2010), in a meta-analysis of Media-User Typologies (MUTs) used several criteria, including frequency of use, variety of use, typical activity and typical platforms used. He was able to define eight groups of users based on these criteria;

(1) *Non-users* – no internet use of any form;

(2) *Sporadics* – low frequency of use and low variety, their use is unpredictable;

(3) *Debaters* – medium frequency and variety of use, this group go online for purposeful discussion and action;

(4) *Entertainment Users* – medium frequency and variety of use, this group predominantly use the internet for gaming, watching video and more advanced uses, such as making user-generated content and programming;

(5) *Socialisers* – Medium frequency and variety of use, this group like keeping in touch with family and friends, connecting with new people. Their use is more 'spontaneous and flexible' and they are heavy users of social media;

(6) *Lurkers* – Medium frequency and low variety of use, these users go online to kill time and lurk without contributing significantly;

(7) *Instrumental users* – medium frequency and variety of use, they primarily use the internet for information and civic purposes. This is often work-related, and they rarely use the internet for entertainment purposes;

(8) *Advanced users* – High frequency and variety of use, these users go online for a wide range of reasons, including gaming, webpage design, shopping, programming etc. They use a wide variety of platforms.

3.19 Similar typologies have been designed to understand internet users and the best way to target services to them, and this has become more sophisticated as online trends have evolved. Ofcom (2013) conducted a similar analysis which took into account not just the frequency and nature of internet use, but also the differing and multiple modes of access through novel internet-enabled devices such as tablets and smartphones. Their report identified six groups, with not dissimilar characteristics to those identified in Brandtzaeg's meta-analysis. The groups and their characteristics are illustrated in the table below;

Table 2.1: The groups and their characteristics regarding internet use as identified in the Ofcom Consumer Segmentation Research (2013)

Segment	Characteristics
Pioneers	Younger, working males with higher than average income; they are likely to own lots of internet-enabled devices, are very online-savvy and have a high involvement in technology.
Deal Seekers	More likely to be younger, working males with an average income. They are interested in technology and motivated to get the best deals possible. They are more likely to switch providers and buy bundled services.
Slip-streamers	More likely to be younger, working males with higher than average household income. They are digitally confident and use multiple devices, but are more likely to be concerned with maintaining online privacy.
Socialisers	More likely to be female, under 45 with an average household income. They are socially active but technologically disengaged. They are pragmatic and more likely to wait until a device has become cheaper before buying. Led less by technology and more likely to own devices considered fashionable and suitable for daily use.
Functionalists	More likely to be female, over 45 and with a higher household income. They are most likely to use devices that are suitable for daily use and do not take much interest in technology. Their activities are limited to emailing and using social media and are less likely to try new online services.
Disconnected	More likely to be female, over 45 and have a limited interest in technology. They do not access the internet at all; using mainly TV, landline, radio or standard mobile to communicate. 1 in 3 is aged 75+. They see little point in going online and need educating to be able to do new things.

3.20 These groups cover the broad spectrum of internet use by different groups, and make broad generalisations about the composition of each group based on demographic characteristics. Of particular interest for this research are the 'socialisers' and 'functionalists', due to their characteristics and the increased probability that they will form part of the group that adopts SFBB as part of the early or late majority, as defined by Rodgers. These form the largest bulk of the population, and therefore an understanding of how often this group goes online, the devices they use, the activities they perform, and crucially, the current appeal of adopting SFBB within this group. This will provide insight into whether take-up will increase over the coming years, and what form of engagement is needed to communicate the availability and benefits of the service.

UK and Wales' digital infrastructure: the policy context

3.21 Recent years have seen the prioritisation of the delivery of SFBB to as high a proportion of UK homes and businesses as possible. At a UK level, Broadband Delivery UK (BDUK), a part of DCMS, is responsible for delivering the current commitments on broadband delivery. These commitments are;

- Phase 1 - provide superfast broadband (defined in this case as 24mbps or higher) coverage to 90 per cent of UK premises by early 2016 and access to basic broadband (2mbps) for all from December 2015;
- Phase 2 – provide superfast broadband coverage to 95 per cent of UK premises by the end of 2017;
- The final 5 per cent – explore options to provide superfast coverage to the hardest to reach parts of the UK.

3.22 In March 2016, Ed Vaizey, the Minister of State for the Digital Economy stated that phase 1 had been met, with phase 2 in progress and the focus moving towards covering the 'final 5 per cent' of UK premises, In May 2016, the Government announced its intention to legislate for a broadband Universal Service Obligation (USO) in the upcoming Digital Economy Bill. This would give citizens the legal right to receive a minimum broadband speed, which is expected to be set at 10 mbps.

3.23 Wales has responsibility for rolling out its own broadband infrastructure programme. The commitments for doing so were outlined in *Delivering a Digital Wales* (2010), the objectives of which were facilitating a first class digital infrastructure to enable; productivity growth, facilitation of a thriving ICT sector, use of digital technologies to transform public services, support of culture and creativity in Wales, transforming learning and universal access to good-quality broadband. This document committed the Welsh Government to implement SFBB infrastructure to enable all businesses access by the middle of 2016 and for all households to be enabled by 2020. Additionally, the Welsh Government pledged that any infrastructure funded through public intervention would be capable of delivering broadband services of at least 30 mbps and in some cases over 100 mbps. As of August 2016, Ofcom reported that 77% households now had access to the internet in Wales (Ofcom, 2016). This includes those with and without a fibre service.

3.24 The rollout of Superfast Cymru to give access to the majority of premises in Wales is ongoing and is due to be completed in 2017. The Welsh Government is currently exploring solutions to understand how the remaining more difficult to reach locations could be connected to superfast speeds. The next steps following the majority of the infrastructure implementation will be to engage with the public to understand their current awareness of SFBB and the key differences to standard ADSL broadband, to effectively communicate the benefits of SFBB and to establish whether it is suitable for consumers based on their level of need. The policy team have therefore decided to focus on the 'socialisers' and 'functionalists' as important groups to target, as the most sizeable and who are typically less technologically engaged. It will be this group who it is most important to understand as advertising and information is designed to encourage take-up of SFBB. This research will therefore engage 'socialisers' and 'functionalists' in discussion on these issues to establish their life goals and priorities, their current knowledge around SFBB and their own internet service, what the internet enables them to do, whether they see value in taking up a SFBB service and the reasons for doing so or not.

Summary

3.25 Return on investment in SFBB is secured through encouraging and monitoring take-up of the technology. The appetite and rate of take-up is however unknown at this stage, despite some modelling that indicates high take-up between now and 2020. Theories indicate a 'tipping point', a stage at which the majority of consumers are convinced of the need for SFBB in their homes and take-up increases in pace. However, to understand how this process might happen, we need to understand the perspectives of this majority group. Typologies of internet users are helpful in understanding the demographic characteristics and the nature of their online use, and therefore Ofcom's typologies are being adopted to identify users who are not yet bought-into SFBB, but whose levels of understanding and interest in the service are unknown. Understanding their internet use will be crucial to developing effective communication to aid them in making the best decision over their broadband service.

4. The 'Functionalists': Key Findings

4.1 This section analyses the findings from the focus groups and as a result of the attendance at these groups, is representative of the views of the men and women in the 46-65 age group only.

Knowledge of Superfast Broadband in Wales

4.2 **There is some basic knowledge amongst the public about the service in Wales and the key differences between conventional and superfast broadband.** In order to understand respondents' baseline understanding of what we would be discussing, some questions were posed to the group around their knowledge of superfast broadband. A majority had an understanding that superfast broadband operates over fibre optic cable infrastructure as opposed to over the existing ADSL copper wire telecommunications infrastructure. There was some basic knowledge of the technical language associated with superfast broadband but this was limited and often did not extend beyond terminology. This was also a fair representation of people's knowledge of the speed of superfast broadband provision; both those with and those without a superfast service had limited technical knowledge about the speed of their service and how it differed to conventional broadband. Some were able to describe anecdotal differences between the services and made reference to activity which superfast broadband enabled them to carry out with greater efficiency, including the use of multiple devices.

Priorities and Goals of Everyday Life – What is important to our respondents?

4.3 **The majority of respondents talked about the primary importance of communication across many facets of their daily lives.** Communication with family was key and family networks took many forms; respondents talked about the importance of communicating with family who lived locally but led busy lives and family who were living or travelling overseas; respondents talked about the need to find ways of communicating effectively inter-generationally; and a need to maintain good relationships with family or with others that facilitated good relationships with family, such as an employer or fostering agency.

4.4 Communicating in a professional capacity with employers, customers and suppliers and other organisations was a priority for many; employed respondents talked about the prominence of work in their daily lives and for some, the importance of maintaining good communication with employers who supported them to work from home; self-employed respondents appreciated the value of having a good profile and communication with their customers and suppliers; a smaller number who were retired talked about the importance of finding further use for their professional skills and interests in a voluntary capacity in the community.

4.5 **Supporting young family members with their education and development was a priority for many and pursuing one's own personal and professional development was a goal for some individuals.** Respondents who were pursuing their own further education or retraining talked about the importance of being able to access and communicate with educational institutions and professionals online and via distance learning methods; respondents who were involved in supporting their children or grandchildren with their own education and development spoke about their efforts to support family to carry out the school run, complete homework tasks, study for GCSEs, complete UCAS applications or apply for jobs.

4.6 Supporting the development of one's children and grandchildren also extended to a number of respondents playing an active role in providing access to a range of personal enrichment activities such as after-school, weekend and holiday activities. Respondents mentioned a variety of online and offline entertainment and leisure activities, particularly when discussing their own personal hobbies and interests. Making good use of one's leisure time with opportunities to pursue hobbies and interests was important but a secondary concern for many, where in most cases, keeping one's children or grandchildren entertained took overall priority.

4.7 **A number of respondents expressed the importance of being able to strike a healthy and fulfilling balance of activities that allowed them to achieve their personal goals.** Most important was respondents' desire and perceived ability to exercise self-efficacy and control over the influence the internet has in their lives. Many discussed the ways in which the internet, when used 'well' could enhance their lives and provide them with opportunities to maximise the availability or quality of their leisure time, to seek out and enjoy better quality experiences or simply spend their time 'offline' in a more creative, productive or efficient way.

> *[It's] all about balance, making sure you're as healthy as you can be, making sure you're financially sound, have time for yourself, you have time for other people […]and sometimes the internet allows you to do those things.*
> (Respondent, Colwyn Bay)

4.8 The internet, in the main, was considered by a majority of respondents to enable good communication with family and friends, and in some cases, gave respondents a sense of being connected to the world. All respondents carried out some degree of online activity to communicate and maintain good relationships with family and friends. A majority of respondents used video communication tools like Skype or Facetime to stay in contact with family living at a distance or travelling overseas or when they themselves were on holiday.

> *If we didn't have the internet – and a good internet connection for Facetime – we would never see [family].*
> (Respondent, Pontypridd)

4.9 The majority of respondents liked the visual, immediate and proximal nature of the medium and in general, preferred it to social media which was largely felt to be the domain of younger family members. Where a small number of respondents did refer to their own personal use of social media, largely Facebook, it was driven by a desire to engage with content being posted online by younger family members or by a need to "keep up with family and friends" who might have embraced the technology earlier and with greater frequency:

> *My mother has just gone on Facebook so she tells me "Have you seen those photos of the grandkids online?"*
> (Respondent, Pontypridd)

4.10 **Social media usage featured prominently in respondents' descriptions of their children and grandchildren's internet usage;** respondents talked about the importance younger family members invested in social media, largely Facebook and Twitter, for maintaining connections with their friends. For a small number of respondents, social media was a means for them to maintain relationships with their children and communicating with them via their preferred method. This was a most common experience for those with children and grandchildren living at a distance but also with younger family members close at home:

> *If I want to communicate or find out anything about the children, it is via social media. It's so sad. I never thought I would be that way.*
>
> (Respondent, Cardiff)

4.11 There did appear to be a suggestion of some gender differences in the ways in which respondents described their online communication with family and friends, and more specifically their social media use. Some male respondents referred to different activities their female partners will carry out online in order to maintain connections, organise social events and communicate with family and friends. At times respondents described distinct roles and subsequent activities which they undertook.

> *I only use it for work, my wife uses it more socially than I do…but she usually uses it…I'll be watching the telly, she'll be there with her laptop, or she'll go onto sites, like antique sites or furniture.*
>
> (Respondent, Carmarthen)

> *[I] don't really keep in touch – only occasionally. Not on social media, but [the] wife is on Facebook to communicate with family and friends – she does the friends bit!*
> (Respondent, Colwyn Bay)

4.12 These findings indicate a degree of gender differentiation across the older age range in that, rather than supporting the Ofcom segmentation analysis, which defines the 'socialisers' as women aged 25-45, women aged 45-65 whom Ofcom define as the 'functionalists' fulfil a socially active and facultative role online. For those participants who were self-employed, a greater number cited more varied online activities, often but not exclusively to support business aims, and more frequent use of social media, this included web design, online ordering and issuing invoices and promoting and building the profile of the business on social media channels. A greater range of social media tools were used by those respondents with their own businesses including YouTube, Twitter, Facebook, Instagram and Tumblr as well as a range of web advertising tools and sales platforms such as eBay.

4.13 Respondents mentioned carrying out a variety of online activities in order to engage in distance learning and other personal and professional development activities. The activities can be broadly categorised into two groups; communications and accessing resources. Activities included sending and receiving e-mail communications with fellow students and booking appointments with tutors, accessing research and learning resources and library facilities. Those respondents supporting younger family members with their education cited both their younger family members' exclusive use of some online learning resources, such as Mathletics, and their own personal online activities, such as online research, to facilitate or supplement younger family members' offline learning and personal development. Some respondents talked about the importance of supporting younger family members to navigate transitions from mainstream education to further or higher education or from education to the workplace via online activities required to complete a UCAS application or apply for a job.

4.14 Where entertainment and leisure activities were mentioned, respondents referred to a variety of online interests and also referred to ways in which some offline hobbies and interests were enhanced by some online activity. Those activities exclusively carried out online which were most commonly cited were researching and booking holidays, watching catch-up TV services, downloading and streaming films, downloading and listening to music and general surfing. Where respondents cited offline leisure activities and hobbies such as cooking, gardening, craft or attending cultural events, many also mentioned that they used the internet in order to maximise the value or the ease of the activity by, for example, searching for recipes, sewing patterns, inspiration or booking tickets online.

4.15 **A large majority of respondents commented on their frequent use of the internet for general surfing and research purposes.** Among the activities most commonly mentioned were use of maps and navigation tools, checking the weather forecast, reading news articles online and online shopping.

> *I haven't bought a newspaper in years. I read all my news online. If I can't get it online, then I don't know about it; even the news on TV, I flick through, so conversations I have with people are more about what I've read online than what I've seen on the TV.*
> (Respondent, Cardiff)

4.16 Furthermore, respondents often accessed information relating to local public services online including advice and guidance on recycling and refuse collection, local transport or planned road works, health services. Respondents also spoke about a number of services with which they engage and access online in order to book GP appointments, tax their vehicles and carry out online banking.

The downsides to internet use

4.17 Respondents identified a number of negative aspects of using the internet. This revealed several things about how respondents deemed ways of using the internet to be productive or unproductive. The internet, despite enabling respondents to fulfil a number of priorities in their day to day lives can sometimes be a barrier to respondents achieving their goals. Respondents described the ways in which the internet can alter their expectations, their behaviour and their relationships. There was common acknowledgement the speed with which technological developments had altered the way in which respondents live their lives. A number of respondents talked about their own or others' dependency on the internet:

> *I had no [internet] service this morning and I didn't know what to do. You forget to be human. I had to remember to buy a newspaper because I normally read the news online.*
> (Respondent, Cardiff)

4.18 Respondents felt that the internet can bring people closer together but it and the use of some web-enabled devices could adversely affect one's capacity to communicate and build relationships effectively with others. Respondents expressed concern about the role they felt the internet and had to play in altering and diminishing both the length and the quality of face-to-face interaction and communication. Many spoke about the ways in which the internet's role in enabling better, faster and more expansive communication with others could also be a barrier to maintaining quality relationships with others. Some respondents commented on the ways in which they perceived the internet and SMART-enabled communication to be having an impact on behavioural norms and social etiquette:

*Being older, you can see the change in young and old in terms of manners. People who you talk with face-to-face are also using their mobiles at the same time, half listening to you, feel that it is rude. Listen or b****r off!*
(Respondent, Colwyn Bay)

4.19 The majority of respondents expressed current and future concerns about younger family members. Respondents described the impact of these behavioural changes across generations in their family or observed and offered general forecasts about the impact of these changes on future generations. Older respondents expressed concerns about what some perceived to be unhealthy or dependent use of the internet and described differences between the ways in which they and younger internet users often use the internet,:

Sometimes once the kids are on there, you can't get them off. They want a lot of conversation, but I don't. For me, it has a functional use, [I] use for a reason, not to chat or gossip. Just to tell me what I want to know.
(Respondent, Colwyn Bay)

4.20 A number made reference to intergenerational differences regarding the frequency and ways individuals choose to communicate. Though there was some recognition of the ways in which the internet can help individuals to maintain more immediate links with family and this was viewed to be a positive easy means of both making and receiving regular 'check ins' to and from younger family concerned about one's safety and wellbeing, this was a minority observation. Intergenerational differences were felt, by the majority, to have the potential to or to be already adversely affecting their relationships, particularly with those with whom they lived in close proximity:

Thinking about spending quality time with family, I went to visit my son and his girlfriend; you walk in "Hi lad", "Hi dad" – when I was young you'd offer a cup of tea sit down and have a little chat about what you're doing with your time […] Next minute, the telly's on with the iPad and you're like "Is anyone going to talk to me?" It's a generation gap. I don't think they realise.
(Respondent, Colwyn Bay)

4.21 A number of respondents however also commented on the ways in which they perceived the internet to be affecting their own attitudes and behaviours. Though many viewed the speed and efficacy of online communication as a means of enabling better relationships with others, particularly those who lived or travelled at a distance, many made references to the ways in which this could impact on the ways in which they communicated and maintained relationships with those with whom they lived or worked in close proximity. Many respondents cited instances where, SMART or online forms of communication, are becoming preferred communication or entertainment systems for some but at the expense of better quality interactions with family:

The kids will sit next to each other on the sofa and text each other rather than talk to each other […] Mind you; adults are guilty of that too. I've texted my daughter when I've been upstairs and she's downstairs in the same house.
(Respondent, Cardiff)

Sometimes we just don't talk enough to them. It's too easy to text or to talk to someone on Facebook. Weeks go by, and you think, we haven't been to the house.
(Respondent, Colwyn Bay)

4.22 As well as noting the ways in which the internet could be seen to change familial relationships, a smaller number of respondents also referenced ways in which the internet could sometimes be insufficient or an inferior method of communicating and establishing and maintaining relationships with colleagues and other professionals:

> *You can't do everything over the internet and with Skype or a video conferencing system. You do have to meet, because you get more done in the socialising around coffee and chatting in the business sense than you would if you stuck to Skyping and so on. It's to do with the human contact, you won't get if you aren't in the same room as people you're doing business with. […]*

4.23 A similarly small number of observations were made about the way in which the internet is seen to be having more nuanced effects on attitudes and behaviour, such as one's capacity to invest time and capacity in processing information: :

> *It's easier to ring them than e-mail in work, because people can just look at the e-mail and think "That's a lot."*
> (Respondent, Colwyn Bay)

4.24 More broadly, a number of respondents observed that a number of institutions and public bodies exclusively or preferentially make their services available online and that this can present a barrier to those who are unable to obtain access or make efficient use of the internet. These individuals feel they are unable to exercise choice in the way they access services. The majority of respondents commented on perceived inequalities of opportunity relating to the availability and use of internet services across Wales and the ways in which this can serve to marginalise individuals:

> *What about people who don't go online; there are plenty of them. Not everyone has a computer, but some services are only available online. What happens then? … [I] went to the council to ask about something, they chucked me out and told me to go online.*
> (Respondent, Colwyn Bay)

4.25 Furthermore, many respondents spoke about the way in which disparities between those areas which do and those which don't have access to superfast broadband could serve to exacerbate inequalities and disadvantage particular communities. Respondents, particularly but not exclusively in the rural communities of Carmarthenshire, articulated that the poor, or lack of conventional broadband provision resulted in inequalities and disadvantages which were felt to potentially have far-reaching socio-economic consequences:

> *There is no better way of [being engaged with the world] than through superfast broadband, if you can get it. That's the problem from my point of view. There are people in this area – in West Wales – people in other areas will get a cracking deal, so this knocks onto the education of our children, our business…*
> (Respondent, Carmarthen)

4.26 Respondents in Cardiff also talked about the important contribution equal access to broadband provision should make to "level the playing field":

> *I watched this programme on TV about this young couple somewhere in the valleys… and he was looking for work and had to travel to the job centre because they didn't have internet in the house, so he was having to make this really long journey just to get to the job centre […]*
> (Respondent, Cardiff)

4.27 **Generally, there was a commonly held view that broadband provision should be considered a standard utility and for some, a fundamental human right of living in a developed economy.** Respondents in Carmarthen and Cardiff were quicker to articulate their perspectives on the ways in which the commercial viability of superfast broadband provision might explain the lack of or sparse availability of the service in particular geographies. There was a general consensus among respondents in Carmarthen that the area was not often viewed as a commercially viable investment for internet service providers. There was a commonly held view that consumers were rarely prioritised for services, were unable to benefit from competitive deals and may also subsidise other areas in which residents are able to access and negotiate more competitive deals from multiple service providers:

> *Well, let's look at it at it this way; we all think we have a right to water, we all think we have a right to electricity…The way the world is now, we all have a right to good internet…It's a fundamental part of our world now, isn't it, for most people? And that's what really isn't coming across from big companies, because as you say, they don't see any money in it in West Wales.*
> (Respondent, Carmarthen)

> *Superfast broadband should be the standard service for everyone – everybody should have faster internet connection and at no extra cost […] In Korea or Taiwan, every household has 200 mbps and they don't pay extra for it. The Government took the decision to put that kind of technology in place.*
> (Respondent, Pontypridd)

4.28 The majority of respondents in Cardiff echoed these thoughts, commenting that the internet has become a "basic utility" and "an expectation" for most people. There was some feeling that superfast broadband should be a standard service and some agreement that consumers should not have to supplement the cost of the provision. There was however, some acknowledgement that new infrastructure is needed to support the technology and some recognition of the time and cost required to deliver the service:

> *Superfast broadband should be a staple thing. There should be a level playing field […] superfast broadband is a necessity rather than a luxury. I feel like, on principle, that I shouldn't be giving extra money for what should be a standard service.*
> (Respondent, Cardiff)

4.29 Those with an understanding of the internet's integral value to those who are self-employed were quick to highlight the impact that the consistencies in superfast broadband provision can have on the productivity and profit-making capabilities of micro and small and medium-sized businesses:

It ought to be everywhere! As standard, it's pathetic how poor we are. There's a guy down the road… and he's got a national mapping business that he's running out of his office. He employs three or four people and they have Government contracts and he has to pay a fortune to have it done in satellite, because there's [no service] there.
(Respondent, Colwyn Bay)

Internet Use and Issues of Risk

4.30 Concerns about online security and safety were shared by the majority of respondents and frequently mentioned as an important issue. Respondents were mindful about a number of risks, both with regards to the safeguarding of one's children and one's own personal information. The safety and safeguarding of children online was a pertinent issue for many who often felt ill-equipped to understand and manage risks. Risks most frequently cited included the prevalence and accessibility of explicit and graphic content, pornography and cyber bullying. Female respondents, particularly but not exclusively, articulated a number of concerns relating to ensuring the safety and safeguarding of younger family members online:

There is also the darker side to internet use. [You] don't know who you're talking to or who your children are talking to. You have to be aware of those things and what your children are doing online. […]
(Respondent, Carmarthen)

4.31 Ensuring that children's internet use is age-appropriate, safe and proportionate was of primary concern and was in some cases, for respondents with responsibilities for younger children, the rationale for restricting or limiting internet use. Those respondents with responsibilities for older children, whilst conscious of the risks, did express an understanding of the way in which their children used the internet to maintain connections and understood that these were important. A small number spoke about their efforts to use the internet as a means of educating and engaging their children – and to some extent, themselves in what it means to manage their personal safety online. Respondents commented on the way in which the scope and pace of technological advances were influencing the kind of parenting decisions they make and changing the relationships they have with their children.

It changes the way we interact with our children; before technology we had to trust where children were but now technology means I need to know where they are and what they're doing all the time.
(Respondent, Cardiff)

4.32 Similarly, the majority of respondents expressed some concerns about their ability and success at safeguarding their own personal data online. Respondents, in Carmarthen and Colwyn Bay in particular, talked about the ways in which the internet could encroach on their personal space or could be considered an "invasion of privacy"[5]. Some respondents had experienced breaches of their own online security or the loss of their personal data.

[5] Respondent, Carmarthen

I heard this story about a man discussing something with a friend and then an advert appearing for a product on his phone – worry about who may be listening in. Worries about iCloud hack of famous people and stolen pictures.
(Respondent, Carmarthen)

4.33 **There did appear to be some gender differences with regard to the way in which respondents' judged their competence and confidence to manage online security.** Given the small sample sizes and the limited data to be drawn from telephone interviews with female participants aged 25-45, it is not possible to offer a view on whether these differences can be attributed to gender or age or indeed, another factor.

Son always alters settings on technology to make sure it is safe for the grandchildren to use. Good if you know someone who can make it safe, but I wouldn't know how to do this.
(Respondent, Carmarthen)

4.34 There were occasions where respondents referred to the inaccessible nature of some online infrastructure, services and content. Respondents talked about institutions' perceived preferences for providing services online, a growing assumption that individuals have the ability and desire to access services online and the complexities of navigating poorly designed websites. Some commented on the perceived poor connectivity between online and offline systems and the difficulties that can present themselves when trying to navigate these systems.

4.35 **The majority of respondents tended to view the future of online technology and what it may or may not enable them to realise of their personal goals with some trepidation.** There was some acknowledgement that the world would continue to become more proximal and the things in it, more immediate and close at hand and for some respondents, this brought clear benefits; notably greater personal freedom and the ability to retain close contact with friends and family who travel and live and work overseas. There was some recognition too, notably in Cardiff, of the need to embrace technological advancement:

The next big internet-related development will come along and change everything again and then we'll take that for granted too. It all feeds this ever-increasing need for technology.
(Respondent, Cardiff)

4.36 Respondents talked about the prominence with which the internet might feature in people's lives in future; some respondents reflected on the speed with which the internet and technology had changed the way we live our lives and there was some feeling that people's dependency on technology would at least remain the same or increase in future. The majority described the importance of being able to decipher the good from poor content and find ways to retain the benefits of the internet:

You have to bear in mind that not everything on the internet is correct or true; garbage in and garbage out. Need to use common sense.
(Respondent, Carmarthen)

4.37 **There was a sense that respondents in these areas were conscious of an increasing need to achieve a balance between embracing and maximising the benefits of technology and retaining some control over its influence on their lives.** There were divergences in experience as to whether the internet enabled or hindered people's ability to achieve a healthy work-life balance:

> *[The internet] gives me time during the day because when there's rubbish on TV at night and the wife says she wants to watch the soaps, I will do some work. There's a good side to that and a negative side; I can choose but you can't always switch off, can you?*
> (Respondent, Colwyn Bay)

4.38 Some respondents talked about decisions they had made to moderate or reduce their internet usage, having regained an appreciation of the benefits of carrying out the activity offline:

> *[I] appreciate reading (and smelling) a real book. You can't smell a Kindle.*
> (Respondent, Carmarthen)

4.39 The majority felt that the internet and online developments would continue to influence our behaviour and the ways in which we interact with and form relationships with others:

> *We're a society of instant gratification and instant access; and I can see that becoming more and more a part of our behaviour.*
> (Respondent, Cardiff)

4.40 The majority of respondents commented that online communication would not be positive if it were to replace face-to-face communication with others:

> *Maintaining contact with family, but there's nothing like being able to speak to them face to face. So it needs to be a give and take thing. We use it to meet up. It's not good if it completely replaces physical face-to-face contact.*
> (Respondent, Carmarthen)

4.41 Some also noted both the advantages and disadvantages of having better internet-enabled workplaces and ways of working in future; respondents in Cardiff and Pontypridd in particular commented that the types of jobs and working arrangements that might be prevalent in future would depend on broadband connectivity. Respondents recognised the opportunities that internet connectivity might present for people to work flexibly but also recognised that it might bring with it an increased risk of isolation and loneliness for home workers. Respondents commented that if home-working were to become the status quo, it may have a negative impact on wellbeing:

> *Work is a social activity […] It can put a lot of stress and pressure on the person [working alone] to deal with issues alone and with no support.*
> (Respondent, Cardiff)

Current broadband service and attitudes towards SFBB

4.42 Respondents had varying degrees of knowledge about their current internet service; in the main, very few respondents were able to comment on the internet speed to which they had access and instead could comment on their typical usage and activities. The most commonly cited internet service providers were BT, Sky and TalkTalk. As one might

expect, respondents most commonly complained about the speed and agility of their current internet service with variations dependent on the geography in which they were resident and whether or not they had access to superfast broadband.

4.43 **Respondents had little knowledge in relation to superfast broadband and did not describe being in receipt of any communications about superfast broadband provision in their area.** The majority of respondents considered and engaged with their current internet service provider as their principal source of information about superfast broadband. Respondents' experience of poor public communication about the service and the proposed roll-out plan meant that few had the knowledge to translate the way in which commercial superfast broadband offers from various internet service providers might provide them with personal benefits. Some respondents felt ill-equipped to deliberate the cost versus the benefits of superfast broadband in a meaningful way that would help them to make sound judgements about their need for the service:

> *What you hear from providers is that they're rolling out superfast broadband; they don't tell you about price, or the work that needs to be done, or when there is going to be an increase in your monthly charges[…] The lack of information is a barrier to take-up. I'm sure people think it's going to turn superfast and that's it.*
> (Respondent, Carmarthen)

4.44 **There was some indication of gender differences influencing respondents' confidence to seek, assess and negotiate the best value offers.** A number of female respondents described either their own perceived lack of knowledge or competence in distinguishing between different offers and discerning which would offer best value for their needs.

> *It's just too complicated for me to work out which would be the most economical option for me; carrying out the research and judging the best deal is off-putting […] The bundle deal is easier to understand […] Market lingo is another language which is too difficult to understand.*
> (Respondent, Pontypridd)

4.45 Respondents who have superfast broadband were able to identify clear differences between a conventional and superfast service and articulate the benefits they experienced. This included the capacity to manage multiple internet-enabled devices and activities in the home, improved speed and greater choice and flexibility – from managing relationships with family and employers to entertainment options. The majority of respondents, who either experience poor conventional broadband and lack the superfast broadband infrastructure to upgrade their service or simply do not have superfast broadband, faced barriers such as being unable to establish and maintain a secure internet connection, as well as being able to manage multiple internet-enabled devices and activities in the home and poor speed.

4.46 **By far the biggest impact respondents described is the impact poor connectivity is felt to have on equality.** Respondents talked about inequality on a number of levels; the perception that Wales can often be overlooked or deprioritised for investment, that rural areas of Wales are not seen to be viable or priority business cases for investment. Consequently, individuals can be disadvantaged both as consumers of less competitive offers from fewer service providers and as citizens in their personal and professional endeavours.

It's unfair. We've been discriminated against long enough and we are paying… We subsidise their better service at a lower cost. I subsidise […] I've never been able to get the best deal on Sky for my broadband because I haven't got the right [internet] connections to do that. So I can't get the best deals with the best service, I'm therefore subsidising others. So, it's about saying, why should I carry on doing that?
(Respondent, Carmarthen)

4.47 This accords with the views of some respondents in Colwyn Bay, who talked about the additional impact that poor connectivity can have on people's ability to be active citizens.

You cannot take part. It's almost a right; in that you cannot take part in a full democratic society if you are not able to access the government systems that are available online[…] If you cannot find information […] if you cannot access services […]you are a deprived citizen and you cannot take part in society as full democratic person.
(Respondent, Colwyn Bay)

4.48 **There is a general need for better provision of impartial information, advice and guidance about superfast broadband which allows people to translate what an improved service could mean for them.** A number of respondents felt they needed a better understanding of what superfast broadband would allow them to do over and above their current service. Those respondents that had switched to superfast broadband had been prompted to do so, in the main, because their conventional broadband service had been unable to support their current needs and was impacting on their ability to organise and manage their daily activities.

4.49 **Cost and affordability were key factors influencing the majority of individuals' decisions about whether or not to take up superfast broadband.** Respondents' views about cost and affordability revealed some differences of opinion about the perceived need for superfast broadband; a number of respondents in Pontypridd and Cardiff felt that they currently experienced no negative impact or challenges with their current service and therefore felt that they had little or no need for superfast broadband. However, respondents in Carmarthen and Colwyn Bay were very conscious and inhibited by the need for an effective conventional broadband infrastructure and therefore mindful of inherent economic disadvantage they might incur in order to reach a level of equity. Respondents very clearly expressed that location was a barrier to accessing good quality internet and indicated that the lack of a level playing field for consumers could also be a barrier to take-up:

So the point there is they're developing Ultrafast but they haven't sorted out the people who are on 2G somewhere […] Not just in Wales but in other parts of the UK that are rural.
(Respondent, Carmarthen)

4.50 There was however broad consensus that superfast broadband should be a basic utility and expectation for all, no matter where they choose to live or their personal circumstances.

5. The 'Socialisers': Key Findings

5.1 This section provides a summary of the findings from the ten telephone interviews with women aged 25-45. The telephone interviews were overall much shorter than the focus groups, and so decisions were made to exclude some of the issues from the interviews that were covered in much greater depth in the focus groups, opting to focus on the most important questions. The focus group plan and the interview schedule are attached as appendices A and B to allow for comparison.

Knowledge of superfast broadband

5.2 Like the 46-65 age group, knowledge of what SFBB is, whether it is available and how it would benefit individuals is low for the 25-45 year old women. A couple of interviewees mentioned the increased speed when compared to conventional broadband, but when pressed could not identify any other differences between the services. One respondent in Cardiff was unsure if what they knew about SFBB was correct;

> *NP: Where have you got that information [about superfast broadband] from?*
> *I: Stuff that I've collected from various places… I don't know much about superfast broadband to be honest and if I've picked something up it's likely to be off the telly, off the local radio or off a billboard even […] I don't even know if what I know about superfast broadband is correct and I certainly didn't do any research myself since we spoke last.*
> (Interviewee, Cardiff)

5.3 Another Cardiff resident was sure that SFBB was not available in her area, even though Cardiff was one of the first areas BT targeted for the commercial roll-out. When asked where they got their knowledge from, some admitted that they had guessed, whereas others referred to advertising from TV, radio and billboards. A couple of interviewees mentioned the tangible benefits associated with having SFBB in the home, namely being able to use multiple devices without buffering and enabling quicker downloads;

> *JC: So there's a lot of buffering when multiple devices are being used?*
> *I: Yeah, exactly. My son with his games…my son wants me to upgrade to [superfast broadband], but we'll see!*
>
> (Interviewee, Colwyn Bay)

5.4 One interviewee, who worked as a software developer, was very aware of the progress of the roll-out due to her workplace acquiring SFBB as soon as it was available;

> *I watched the whole roll-out happen across Wales. With being an internet programmer we've really needed it in work and we've been watching it every week and been waiting for it and as soon as it came… we got it straightaway for the office. We were finding it really really difficult. …It's been absolutely vital, it's made the whole world of difference.*
> (Interviewee, Colwyn Bay)

5.5 This was however, very much the exception. There appears to be gaps to fill in terms of the public's knowledge about availability and the nature of the service. Like the older age group, understanding of the way the service worked and how this translated into consumer benefits was not clear. There was a need for clearer communication on these points as a basis for facilitating demand for the service.

Goals, priorities and activities online

5.6 When asked about individual life goals and priorities, and how these life goals were pursued through online engagement, there were clear and consistent priorities across the age group. These priorities also chimed with the responses from the 'functionalists' in terms of their relative importance. For nine out of the ten respondents, ensuring children were happy, healthy and supported in their education was the main goal;

> *My children, health…that's about it really…the most important things to me.*
> (Interviewee, Pontypridd)

> *Obviously bringing up my children, making sure they have a stable home life and just making sure they're happy.*
> (Interviewee, Colwyn Bay)

> *Making sure my daughter has everything that she needs. Ermm ensuring that my daughter is safe, happy…she has [sic] clothes, roof over her head.*
> (Interviewee, Colwyn Bay)

5.7 This focus reflects largely the stage of life of the interviewees, most of whom are parents of young children or teenagers, and the focus of their time and energy was very much on their children first and foremost, with priorities for themselves being secondary. Following this, another important priority was ensuring they maintained their own health, whether this be through an effort to lose weight, maintain healthy living habits or researching diets and health conditions;

> *…we've been looking into a vegetarian diet, so it's good that we can research that, so that's a good way forward. Myself, I'm already vegetarian, so it's good for my kids to look at it, and I can research stuff as well. And it's just there, everything's there, y'know, if one of us isn't feeling good, we can just go on the NHS website and have a look.*
> (Interviewee, Pontypridd)

> *Well at the moment my health is one of my personal goals, getting my health back to what it should be and so I try to get out everyday and make the most of each day, and I do use Facebook to help with that, so that you arrange to meet with people and things like that, and communicate.*
> (Interviewee, Carmarthen)

5.8 The wish to achieve happiness was also a prominent theme, with a variety of definitions of what it meant to be happy expressed. Examples included having regular contact with loved ones or through making time for their hobbies;

> *I: Just doing the things I love, really. Gardening, spending time with loved ones, walking, getting out and about.*
> (Interviewee, Colwyn Bay)

> *JC: And how does the internet enable you to do all the things you've mentioned? How does that help you?*
> *I: With communication, keeping in touch with people. My daughter is abroad at the moment, she calls me and she Facetimes me, things like that. Keeps in contact…emailing, things like that.*
> (Interviewee, Cardiff)

5.9 Other priorities included ensuring that they were doing well in their careers and enjoying their work, supporting others in their work e.g. the family business, supporting their community, and relaxing in their spare time through having entertainment on hand in the home. When asked how the internet helps in achieving their goals, the interviewees had the following responses;

> *Well, my son's got a business that he sells [X] and my husband's business relies on the internet, he sells [X], so that's important to me for them…Also entertainment for watching things on BBC iPlayer and films on YouTube and Netflix.*
> (Interviewee, Carmarthen)

> *Work…doing well in work…*
> (Interviewee, Cardiff)

5.10 **In terms of how this translated into actual online activities, seven out of the ten mentioned social media use as something they did regularly.** This included a greater awareness of different social media and wider range of platforms and activities used when compared to the responses from the 'functionalists'. This included the use of Facebook, WhatsApp and Snapchat. As with the older age group, these social networking facilities were used to keep in touch with family and friends;

> *I don't really use email, people mainly just text or a lot of people have got iPhones and stuff so…that's good for sending pictures to people, like [through] Facebook and things and…the main thing I use is Facebook and WhatsApp so like you can keep in touch with people much easier, so you can send them pictures and stuff like that.*
> (Interviewee, Cardiff)

> *JC: And you mentioned social media there, Facebook and Pinterest, with Facebook, what kinds of things do you do there. Is it the social aspect or buying and selling anything?*
> *I: Well, mostly social, but also buying and selling.*
> *JC: Ok, and who do you keep in touch with most on social media?*
> *I: Probably family members that I don't see that often. Just most of my friends I would see from week to week.*
> (Interviewee, Colwyn Bay)

> *I use it for social media as well to keep in touch with friends that don't live around here.*
> (Interviewee, Colwyn Bay)

5.11 Overall, the reported uses of social media were more wide-ranging than in the focus groups, with interviewees using Facebook not just to post photos or message family and friends, but also to join groups related to their hobbies or to their work, to learn more about healthy living and diagnosed health conditions and organising social events. In relation to the most widely mentioned priority, taking care of their children, the second most popular activity related to searching out and using programmes and apps to support their children's education (quotes);

> *Yeah, it's good backup for their education and helps them search for things that they wouldn't….y'know they wouldn't normally have access to that kind of information…*
> (Interviewee, Colwyn Bay)

Without question, with regards to their [my children's] education it means that they have access to much better technology, better facilities than I had when I was in school, for example. … I know my daughter has recently been to something called Hwb at school which is a Welsh Government initiative.
(Interviewee, Cardiff)

5.12 In practice, this referred to helping children research online for school, play educational games and search for YouTube videos to supplement their formal education. Other prominent activities included work related activity, such as connecting with other professionals on social media and shopping, which was a popular activity and was often reported as an easy and convenient way to purchase a whole range of items without having to travel to do so;

Yeah, because my shopping is so important, because I'm in work full time, I don't have time to go shopping so the fact that you can do everything so easily on the iPhone and online Amazon etc – that makes my life so much easier and shopping…I do pretty much everything online, my grocery shopping, everything.
(Interviewee, Cardiff)

…sometimes I do shopping online if I'm not well. If I'm not well and I can't go out I'll shop online…Asda's…
(Interviewee, Pontypridd)

5.13 Other activities, reported to a lesser extent, included accessing public services such as council tax and waste collection information, NHS Patient Line, information about crime rates in the locality and information about practice times for children's sports clubs. Checking public transport timetables, looking up directions, looking up information on social events such as gig listings were also mentioned. These activities were often cited as useful in enabling life to run smoothly and ensure organisation, especially for their children.

5.14 Interviewees were then asked whether they envisaged their goals and priorities changing in the future, and how they viewed the internet as playing a part in changing priorities. Changing priorities were closely associated with changing circumstances in life, with issues relating to children growing up and moving out of the family home, and long-term health issues driving changes in priorities, as these quotes illustrate;

I: Well there will be changes…my daughter is going off to boarding school so she won't be around as much on a daily basis,[…]. And I'll probably want to spend more time with friends and there will be more time for me so things are going to change but really when she's away and as she's getting older then that will change and shift a little bit.
NP: And do you think there is anyway in which the internet would help you in that shift in lifestyle?
I: I think I would do online dating y'know meeting people online and that will help me more.
(Interviewee, Cardiff)

In the future I would like to be…I have [health condition} you see so…and I was a teacher so I've had to go through the process of retirement. So I would like in the future to be able to deal with my health issues in a better way so I can actually go out into the world and maybe start a new career. So, I would envisage that the…anything that I did would probably be internet-based training, so you can do online Masters courses and things now, which would suit me a lot better because I could do that at home when I feel well enough to study and when I feel I don't have

to go to a university and struggle with parking, getting to the lecture theatre and all that.
(Interviewee, Carmarthen)

Barriers and negative aspects of internet use

5.15 Interviewees were then asked if there was any aspect of their lives where the internet was not helpful, prevented them from doing things that were important to them, or had an otherwise negative impact. There were three different kinds of responses to this question. The first identified practical barriers to the way the internet operated. Interviewees identified problems with lack of connection or poor quality connection as being problematic, as well as the issue of buffering occurring when multiple devices were being operated over one connection;

[The internet service provider] haven't helped me with my connection. The internet on my phone…they did, they did change the contract couple of times when I didn't have a connection from my phone. I told them I was paying for something and not getting the full service from it.
(Interviewee, Pontypridd)

…Also, because we're at the end of the telephone line, at the end of a half mile lane, …its very patchy, so that's a bit of a problem…It can go down for a few minutes a day here and there, and all of a sudden you're in the middle of something and it will suddenly switch to being offline.
(Interviewee, Carmarthen)

I think because…sometimes my son moans I think, if we're all using it at the same time, because he plays a lot of games that have high graphics…high definition graphics and there's a lot of data going back and forth. If I'm watching Netflix, and my daughter's on the PC and my son goes to play a game sometimes he gets a bit frustrated because he can't [play his computer games]
(Interviewee, Colwyn Bay)

5.16 The second issue discussed by a couple of participants related to the distancing effect of using online media to communicate with others. It was felt that online communication can draw people away from engaging in face-to-face contact, which was considered more meaningful for some, as these quotes illustrate;

…because you are in touch with people that you don't actually see as much. You know, you put things online and you're messaging so then you don't always pick up the phone and speak to people.
(Interviewee, Cardiff)

I can check up on services, what's going on, crime in my local area, my bins, what's going on in my community and on my street. The down side is that I don't need to leave my front door to do that…I need to go to the trouble to engage in my community.
(Interviewee, Cardiff)

5.17 These sentiments aligned with that of the older age group, of which some clearly felt that the time spent on devices was excessive and interfered with the quality of interaction with younger members of the family. As with the older age group, there was some anecdotal evidence of interviewees requiring the use of the internet to be balanced and proportionate with everyday life and engaging with others in the 'real world';

You become reliant on the things you use, and if there is equipment out there, if there is better technology out there and it's affordable then of course, it does impact It can make people a little lazy so we try to get outside, exercise, go places and use the internet to help with that really…to find out all the different places to go to. It can broaden horizons as long as you use it wisely and not just for entertainment. You need to use it as a resource.
(Interviewee, Cardiff)

5.18 Finally, there was some mention of risk for children online, with one mother explaining the challenges around monitoring her son's online use;

Well it depends obviously on the downfalls of having that availability, we've obviously been quite strict, we've got…so there are settings that we've got on the internet where I won't allow certain things to be looked at. So TalkTalk, who we're with, I've got tight bars, so its not…because obviously my son, he turned 18 yesterday, because of his learning disabilities as well, sometimes he could put things in to research and it wouldn't exactly fetch up what you were looking for, so we've got…anything that…any sites that are for adult use or gambling…they're all banned…
(Interviewee, Pontypridd)

5.19 This indicated a concern with risk, which suggests a degree of consensus with the older age group, but given the time constraints of the telephone interviews, was not explored or covered in great depth.

Current broadband service and appetite for switching to SFBB

5.20 The interview then moved on to discuss practical issues around the broadband service each interviewee currently had and the potential interest in switching to SFBB. Initial questions revealed that one of the ten currently has a superfast broadband service, and that the most common providers overall were Sky and BT. Interviewees were asked about the quality of their current service and to state the advantages and disadvantages. **Overall, responses were more favourable than unfavourable where interviewees were discussing their conventional broadband service, indicating that satisfaction was good.** The most common advantages stated about their current service was that it was fast and reliable, problems with the service were often rectified quickly, and that good bundle deals could be had, as the quotes below illustrate;

[Internet service is] reliable, I don't know really. Pretty much all internet seems the same so as long as it works… It is quite fast, to be fair. You know, you're not really waiting for stuff to load all the time.
(Interviewee, Carmarthen)

All the positives are it's cheap, it's reliable.. When I did have a problem at Christmas with my router box, they sorted it out straight away for me.
(Interviewee, Colwyn Bay)

I: The advantages at the moment are, I get one bill for my broadband, phone and my electricity…
JC: Oh right, that's handy…
I:…its all part of a package deal.
(Interviewee, Colwyn Bay)

5.21 In terms of disadvantages, inconsistencies on price, and deals expiring after a number of months were identified, as well as broadband being patchy in rural areas, as Carmarthenshire residents noted. This was consistent with the views of the Carmarthen focus group, where respondents commented extensively on the poor service they received. Where problems occurred with the service, some customers felt that there were hidden charges for call-outs and that sometimes their provider could be difficult to get hold of when problems occurred. Finally, interviewees were asked whether they would switch to SFBB as it was currently offered, and the reasons for their view. **For a number of interviewees the benefits were apparent in terms of the ability to take part in gaming and run multiple devices without buffering, but any recognised benefits were offset by the higher price point when compared to conventional broadband services;**

> *I would like superfast broadband but it's the cost that's putting me off at the moment. But if it was the same price [as conventional broadband] I'd get it, without a doubt..or even if it was a little bit more, I'd get it. It's just it's a significant price difference.*
> (Interviewee, Colwyn Bay)
> *If it's just about making it a bit quicker and it costs more, then probably not. It would depend on the services on offer but I'm happy with what I've got at the moment.*
> (Interviewee, Cardiff)
> *Unless it was the same cost…I wouldn't pay more that what I currently am. What we have suits our needs at the moment. We're both happy with what we have.*
> (Interviewee, Carmarthen)

5.22 As the quotes explain, many felt that they did not receive a bad service at the moment and that, on balance, the requirement for a superfast service was not worth the extra cost for this reason. **Two interviewees from Carmarthenshire, echoing the findings from the focus group, emphasised the need for more information on what the service provided;**

> *…and I don't always think you get the best deal, the best information from [internet service providers] as to what's best for you and it would be nice to have some independent advice, not something that you're always buying into for two years, or five years, or something like that.*
> (Interviewee, Carmarthen)

> *I'd need to know the different things it could offer, apart from speed.*
> (Interviewee, Carmarthen)

5.23 Of the one interviewee who had taken up a superfast service, there were positive feelings regarding the service and its value for money;

> *JC: Ok, and when you were considering taking up superfast, could you see any downsides at all? Was it all positive for you?*
> *I: No, not really. I mean obviously there's a cost implication if you're going to upgrade to anything. But I think that by far exceeded, for me, the benefits than the costs. But I don't think it was that much of a difference to have it.*
(Interviewee, Pontypridd)

5.24 **Overall, there was little appetite for take-up of the service in the small sample of perspectives of women aged 25-45.** This is driven primarily by the view that the current costs are too high and that their needs are served adequately by conventional broadband service. Indications also show that understanding what the service is and what it can offer consumers is lacking, and that the appetite for take-up may increase if the public had access to more information on availability and benefits of superfast. This was found in both the focus groups and interviews, suggesting that this is a common issue for 'socialisers' and 'functionalists', and is not specific to a particular age group, gender or location identified within this research.

6. Conclusions and Recommendations

6.1 This section offers a summary of the key findings of the focus groups and the telephone interviews, before making recommendations for the forthcoming communications campaign.

6.2 Firstly, data from both the 25-45, or 'socialisers' and the 46-65, or 'functionalists' age groups showed that, whilst people were aware of SFBB being a faster service, there was little more known in the way of technical differences and how these differences represented a substantial improvement in service. This was somewhat more marked for women in the 46-65 age group. This lack of knowledge led to an inability for respondents to understand, or make meaningful, any of the benefits of SFBB that they might enjoy if they took up the service. The link between the characteristics of the service and the usefulness of these characteristics to the everyday activities people perform was missing and something that could be addressed through an effective communications campaign. Additionally, participants were also unsure of the availability of SFBB in their area, and erroneous knowledge in this respect is a major barrier to take-up, evidenced by one Cardiff resident who believed SFBB was unavailable when in fact a fibre service had been available to them for some time[6].

6.3 In terms of goals, there was some variation in the importance placed on certain goals and priorities in life. Of particular importance for 25-45 year olds was the need to support children to be healthy, happy and well-educated, and this mirrored the priorities of older respondents to support their grandchildren in similar ways. Other important priorities for both groups included keeping in contact with family and friends, doing well in their careers and having the opportunity to take up other educational opportunities to suit changing life circumstances. Although the internet was felt to enhance communication and make long-distance communication easier, many felt it led to a decline in the quality of face-to-face communication as multiple devices became more ubiquitous in the home, causing a decline in conversation in favour of increased screen-time.

6.4 In terms of their current broadband service, most expressed satisfaction with their current package, with the exception of some complaints about the service being unreliable and buffering if multiple devices were being used on one connection. Generally, this meant that their needs were fulfilled by their current service, and therefore the appetite for a fibre service was low. To compound this, many respondents commented that the price difference was too high for them to consider changing at this time, with their current service being fast enough. Respondents living in more rural areas, where a satisfactory service was not always received, placed more emphasis on equality of access to the internet, even considering it to be as crucial as water or energy to be able to function day-to-day. They felt strongly that their access issues should be prioritised alongside the need for SFBB to address the issues of the 'digital divide'. Overall, these views may account for some of the barriers to take-up with Wales and across different demographic groups.

Further Research

6.5 This research provides an indication of knowledge and perspectives on this issue, but requires some further, ongoing engagement to establish the subtle differences across different groups in different locations across Wales. The use of focus groups and interviews with a small number of individuals means that any findings cannot be applied to

[6] Most residences in Cardiff are able to access SFBB, with some exceptions. In this case, the respondent was able to access the service, but believed that the service wasn't available to her.

the population as a whole. Consequently, it is suggested that public knowledge and views on take-up of SFBB could be monitored on a larger scale over time through a survey containing both closed and open questions to capture not only take-up but the reasons for it. The running of a survey should be considered in the context of when communication campaigns have taken place, looking to understand where such campaigns may have had impact, and to adjust messages to the public based on the responses.

6.6 What follows are a set of recommendations to inform the anticipated communications campaign.

Recommendations

1. **Communications activity should consider the expansion of impartial advice on take-up of a SFBB service and addressing the ease at which the public can access this information.**
   Respondents often expressed confusion or were misinformed as to what SFBB was, what it could provide them with, how they could access it and how they could establish which provider would give them good value for money on a fibre service. The communications campaign would benefit from disseminating impartial information which pulls all of this together and provides consumers with one place to go to receive this information. The findings suggest that reducing confusion on these issues is the first step to increasing take-up.

2. **The communications campaign should focus on highlighting tangible benefits of a fibre service for consumers.**
   The focus groups and interviews have shown a significant gap in knowledge of SFBB and how it could be beneficial for individuals in relation to achieving their life goals. Any communications should seek to establish benefits, and think about how those benefits can be clearly expressed to the public, for example with concrete examples of benefits given, in order to encourage a faster rate of take-up. The communications messages should also address the key barriers to take-up identified in this research. This may include debunking myths which provide a barrier to more consumers taking up the service, or providing more information on the benefits of SFBB, or the alternatives to it, such as a cheaper fibre service.

3. **Communications messages should be differentiated, taking account of differences found across age, gender and location of respondents.**
   The research highlighted many commonalities in views, but also some differences depending on demographic characteristics of respondents. Due to the differences identified in both access to and ways of using the internet, the communications campaign should take note of any differences, particularly in terms of the urban/rural divide, between older and younger consumers, and between men and women, when constructing public messages.

Bibliography

Aljukhadar, M., and Senecal, S., (2011) Segmenting the online consumer market. Marketing Intelligence and Planning 29(4) 421-435.

Auditor General for Wales, (2015) *Welsh Government Investment in Next Generation Broadband Infrastructure*

Brandtzaeg, P.B., (2010) Towards a unified Media-User Typology (MUT): A meta-analysis and review of the research literature on media-user typologies. Computers in Human Behaviour 26 940-956

Czernich, N., et al (2009) Broadband infrastructure and economic growth (CESInfo Working Paper No. 2861)

Davies, R., European Parliamentary Research Service (2015) *Broadband Infrastructure: Supporting the Digital Economy in the European Union.*

Dini, P., et al (2012) *Costs and Benefits of Superfast Broadband in the UK.* London: LSE Enterprise and Convergys.

European Parliamentary Research Service (2015) Broadband Infrastructure: Supporting the digital economy in the European Union. Brussels: EPRS

Gruber, H., et al (2014) Broadband access in the EU: An assessment of future economic benefits. Telecommunications Policy 38 1046-1058

Kenny, R., and Kenny, C., (2011) Superfast Broadband: is it really worth a subsidy?. Info 13(4) 3-29.

Koutroumptis, P., (2009) The economic impact of broadband on growth: A simultaneous approach. Telecommunications Policy 33(9) 471-485

Ofcom (2013) *Consumer Segmentation Research*. London: Ofcom.

Ofcom (2015a) *Consumer Experience Report 2014*. London: Ofcom

Ofcom (2015b) *Stakeholders Research*. London: Ofcom

Ofcom (2015c) *Communications Market Report: Wales*. London: Ofcom

Ofcom (2016) *Communications Market Report: Wales*. London: Ofcom

Orr, G., (2003) *Diffusion of Innovations, by Everett Rodgers (Review).* http://web.stanford.edu/class/symbsys205/Diffusion%20of%Innovations.htm Accessed: 1st August 2016

Marcus, J.S., and Elixmann, D., (2013) Build it! But what if they don't come? Info 16(1): 62-75

Mott McDonald (2016) *Superfast Broadband Cymru Take-up Forecast.* London: Mott McDonald

Pew Research Centre (2013) *Home Broadband 2013*. URL: http://pewinternet.org/Reports/2013/Broadband.aspx

Rebbeck, T., and Yardley, M., (2015) *Report for BT: International Benchmarking Report.* London: Analysys Mason.

Roller, L.H., and Waverman, L., (2001) Telecommunications Infrastructure and economic development: A Simultaneous Approach. The American Economic Review 91(4): 909-923

Seys, C., et al (2012*) FTTH in mature broadband markets: Quo Vadis?* Ghent University: URL: https://biblio.ugent.be/publication/2958184
Accessed: 15th August 2016

SQW (2013) *UK Broadband Impact Study: Impact Report*. Edinburgh: SQW.

Townsend, L., (2013) Enhanced broadband access as a solution to the social and economic problems of the rural digital divide. Local Economy 28(6) 580-595.

Waverman and Dasgupta (2009) Connectivity Scorecard 2009. IRL: http://www.alejandrobarros.com/wp-content/uploads/old/TheConnectivityReport2009.pdf

Welsh Government (2010) *Delivering a Digital Wales: The Welsh Assembly Government's Outline Framework for Action*. Cardiff: WG

Welsh Government (2010) *Digital Wales*

Welsh Government (2011) *Programme for Government 2011-2016.* Cardiff: Welsh Government

Wieck, R. and Videl. M., (2010) *Investment in telecommunications infrastructure, growth, and employment - recent research.* 21st European Regional ITS Conference, Copenhagen 2010

Appendices
Appendix A: Focus Group Planning Tool

Superfast Broadband – Internal Research Programme Focus Group: Session Plan

Objective: To facilitate a series of questions and group activities designed to explore and record participants' understanding, use and attitudes towards superfast broadband

Time allocated: 2 hours

Time	Activities	Resources	Learning outcome/s
5 mins	• Facilitators to introduce themselves and their role/s, thank participants for their time and give a re-cap on the purpose of the focus group • Facilitators to explain what the research will be used to inform, how information gained will be stored and confidentiality and anonymity of research – explain it will be recorded.	Tape recorder	• To understand the purpose and utility of the focus group
15 mins	**Icebreaker** • Facilitator/s to introduce themselves and thank people for making the time to attend the f/g • Facilitator to introduce the activity and the purpose of the icebreaker	Participant bingo sheets (max. 8 options); pens for participants	• Participants to learn basic information about each other • All participants to contribute information about each other to group • To familiarise themselves with the space and facilitators
15 mins	• Facilitator to introduce quiz and available resources to support the activity • Facilitator to confirm correct answer/s • Facilitator to record answers on flipchart • Summarise activity by asking participants to identify what they have learned/any surprises	Flipchart; flipchart pens (for participants); sets of coloured card; quiz questions (for facilitator); sweets (optional)	To establish: • Target populations' baseline understanding of broadband (e.g. terminology, functions, and benefits); • Target populations' baseline usage of broadband (e.g. activities, most common or frequent online activities); • Target populations' baseline

			understanding of the technical terms associated with broadband; • Understand to what extent each target population can translate technical terms associated with broadband into personal benefits of purchasing broadband
25 mins	**Session 1: Personal Goals and Being Online** *Facilitators to guide the group in thinking about the following questions;* • What aspects of your everyday life are most important to you and why? Here you can discuss your personal goals and anything relating to family and friends. • How does the internet enable you to achieve your these personal goals in your lives? • How might the internet be a barrier to you to achieving these personal goals in your lives? • How does this translate into everyday activities online? *If these don't translate into everyday online activities, what are the reasons for this?* • How do you envisage your personal goals changing in future? How, if at all, could the internet enable you to achieve these personal goals in future?	Flipchart, flipchart pens	To explore and understand: • Understand what is 'important' in the everyday lives of individuals within the two target populations; • Identify any common themes that can be attributed to each target population; • Establish to what extent and how each target population currently uses broadband to meet the requirements of their everyday lives; • Establish to what extent and how each target population perceives that broadband might help them to meet the requirements of their everyday lives;
10 mins			
30 mins	**Session 2: Current Internet Provision and Superfast Take-up** *Facilitators to discuss how happy group are with their current internet set-up and what they are dissatisfied by;*		To explore and understand: • Target populations' knowledge and understanding of what activities can be done online;

	• What internet speed/provider do you currently have and what are the key advantages and disadvantages of this service? • How do you perceive your current internet service to be of personal benefit to you in your everyday lives? Does your current internet service have any negative effects on your everyday lives? If so, how? • How does your current internet service help you to do the things most important to you? Is there anything it doesn't help you with? Is there anything your current service doesn't enable to do online that you would like to be able to do online? What difference might this make? • How do you view the services of SFBB compared with conventional internet/your current service? • Would you be tempted to switch to SFBB and what do you imagine you would use it for if so? What would tempt you to switch to SFBB and why? • If you don't think you would take-up a SFBB service, what are the reasons for this?		• Target populations' understanding of the advantages of carrying out these activities online; • Target populations' current level of awareness about the Superfast Cymru programme/superfast broadband in general and how it might benefit them. • Understand what factors may have influenced the target populations': - existing knowledge and understanding - decision making - online activities, if any
10 mins	• Facilitators to summarise content of the session and to thank participants for their time • Facilitators to distribute evaluation forms • Facilitators to distribute voucher incentive codes • Questions	Evaluation forms; or (alternative) gather feedback on post-it notes	• To understand next steps in the research process • To provide feedback to inform future delivery of internal research programme

Appendix B: Telephone Interview Schedule

1. **What aspects of your everyday life are most important to you and why? Here you can discuss your personal goals and anything relating to family and friends.**

2. **How does the internet enable you to achieve your these personal goals in your lives?**
    a. *How might the internet be a barrier to you to achieving these personal goals in your lives?*

3. **How does this translate into everyday activities online?**
    a. *If these don't translate into everyday online activities, what are the reasons for this?*
    b. *How do you envisage your personal goals changing in future? How, if at all, could the internet enable you to achieve these personal goals in future?*

4. **What internet speed/provider do you currently have and what are the key advantages and disadvantages of this service?**
    a. *How do you perceive your current internet service to be of personal benefit to you in your everyday lives? Does your current internet service have any negative effects on your everyday lives? If so, how?*

5. **How does your current internet service help you to do the things most important to you? Is there anything it doesn't help you with?**
    a. *Is there anything your current service doesn't enable to do online that you would like to be able to do online? What difference might this make?*

6. **How do you view the services of SFBB compared with conventional internet/your current service?**
    a. *What would tempt you to switch to SFBB and why?*

7. **If you don't think you would take-up a SFBB service, what are the reasons for this?**