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Digital Inclusion:
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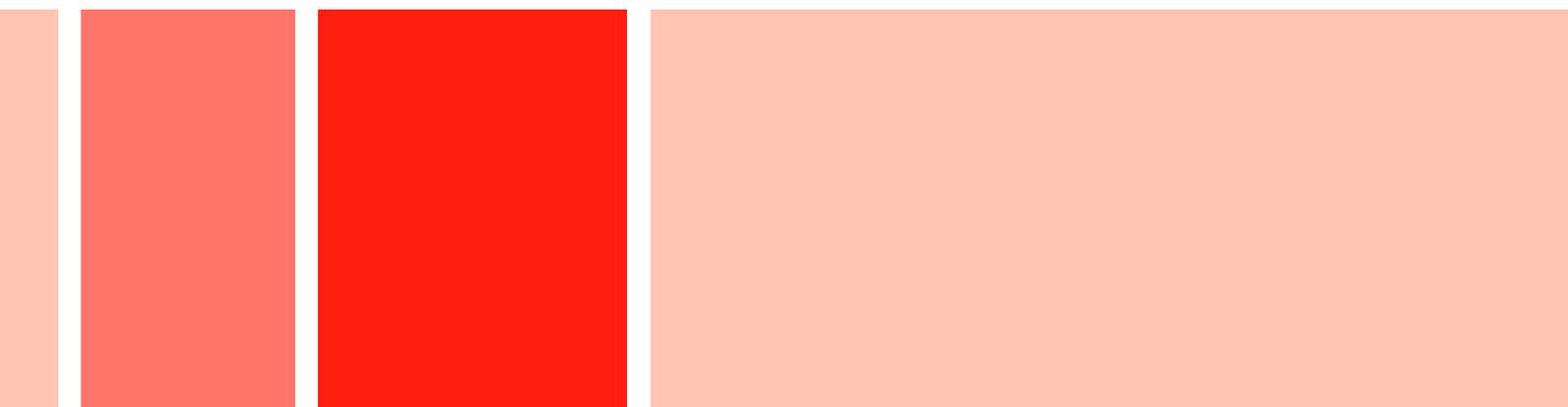
Digital Inclusion:

Economic and social benefits for individuals and wider society

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Part I: Introduction

This report provides a review of the extant research into the economic and social benefits of digital inclusion for individuals and wider society, highlighting lessons learned and challenging some of the underlying assumptions that have informed policy decisions to date. The review in Part II was undertaken to address lacunae already identified, in order to help develop the evidence base for the Welsh Government as they move forward with this topical and wide-reaching policy area.

From the review of the evidence and the methods informing this, recommendations are made in Part III on how to develop a robust framework for exploring costs and benefits in Wales.

Leading on from the review, and informed by existing studies and the methodological recommendations in Part III of this report, Part IV includes a series of case studies based on interviews with older people in Carmarthenshire, in order to provide an understanding of the lived experiences of those affected by digital inclusion policies.

Part II: Evidence Review

Pattern of digital exclusion in Wales

The evidence shows that digital exclusion is an issue that disproportionately affects older people. It is estimated that the 785,000 adults who do not use the internet in Wales include:

- 515,000 who are aged 50+;
- 155,000 residents of social housing;
- 120,000 employed; and

- 45,000 unemployed.

Amongst the 500,000 economically inactive who are digitally excluded, approximately:

- 45,000 are at home/with their family;
- up to 60,000 are long-term sick or disabled; and
- 390,000 are retired (Welsh Government, 2010).

Potential economic benefits of digital inclusion – a review of the evidence base

The review of the evidence for the economic benefits of digital inclusion shows that:

- Physical access to ICT is not a magic bullet that raises participation in education, the job market, or political life. Nor does it encourage positive social behaviour.
- It is the way that ICT is used that has a significant effect, not physical access. Merely owning a computer is not enough.
- In order to boost educational achievement and future earning potential, underlying inequalities need to be addressed.
- Unrestrained use at home has been shown to have a strong negative impact on school performance if mainly used for leisure.
- There is some limited evidence that ICT skills, subject to caveats, **may have the potential** to increase wages in certain fields.
- There is no existing strong evidence base for the economic benefit of providing government services online.

Potential social benefits of digital inclusion

As highlighted in the Welsh Government policy documents that shape this report, achieving digital inclusion is central to embracing the opportunities and imperatives of this rapidly evolving world. It is an agenda of, and for, our times. The review of the evidence finds that:

- Current research from around the world continues to highlight that access is not enough.

- Once participants are given the opportunity to explore the possibilities of ICT use in a safe and supportive environment, they became much more involved and positive about ICT in general (Stanley, 2001; Van Dijk, 2006).

- Given the findings that show that owning a computer, but not using it, has a stronger negative effect on educational attainment than not owning a computer, this is an important lead to follow when encouraging participation and confident use of ICT.

The case for digital inclusion is strong, but only as long as the well-being and inclusion of all citizens in all aspects of life in Wales remains the focus. 'No person left behind' could well be the deserving subtitle of this policy framework.

Part III: Developing a robust framework for exploring costs and benefits of digital inclusion in Wales

Part III includes recommendations on how to develop a robust framework for exploring costs and benefits of digital inclusion in Wales. This section begins from the perspective that the evidence base pertaining to the economic costs and benefits of digital inclusion and exclusion is not entirely robust. In order to move ahead with inclusive, evidence-based policy that is beneficial to all citizens, the Welsh Government must strengthen its understanding of the complexities of the digital divide and the financial repercussions to individuals, businesses, and the public sector.

In order to properly comprehend and analyse the digital landscape, there is a need to consider how different groups are being excluded and the costs and benefits of getting them online. This will be shaped by the factors that shape policy in the first place. To do this, there is a need to move beyond the 'simple access paradigm of the "first level digital divide"' (Goode, 2010: 499) and look

instead at how people use technology, utilising a holistic, mixed methods approach in which each aspect of research feeds into the next.

The main points that are to be remembered, are that:

- **Account for a universal service** – Any research into digital inclusion will need to show the cost and benefits not just in the easy pilot cases including those that are already engaged, but also for those that will arise if a universal service is provided (such as the elderly, socially excluded, disabled, refugees or immigrants). Where it becomes evident that a universal online service will not be plausible, the limitations will have to be clearly outlined and the cost of alternative provision also included.

- **Design with social justice in mind** – Digital innovation in the public sector should not just be about creating cheaper, more efficient and better services for individuals to consume – it should be about creating a better society – and that involves consideration of the distribution of benefits from innovation as well as the nature of the innovation itself.

- **Weigh the social costs and benefits** – Private benefits are not a justification for public policy. When weighing the costs and benefits, the question should be posed as to whether the project will deliver in the areas of health, education, public service delivery etc., and do those benefits justify the costs?

In conclusion, the Welsh Government works to a social justice agenda and when developing policy, social benefits should outweigh the costs.

There is much scope for the lionisation of the private benefits that accrue to individuals with increased digital inclusion, and these are important to keep in mind as they may act to encourage participation amongst those that would otherwise be excluded. However, private benefits cannot be used to justify government intervention with public policy.

When developing a model for policy intervention, it is vital to keep in mind that social cost-benefit analysis is not simply an analysis of the effects of a project or policy on public expenditures and public and private revenues. Instead the focus is on the costs and benefits for society as a whole. It should be concerned with the net benefit to human welfare.

Part IV: Case Studies – Carmarthenshire 50+ Forum

Part IV of the report looks at how non-use of the internet impacts disproportionately on Wales' older population. Once the statistics have been made available, and analysed to show the likelihood of ICT use for different sectors of the population, we begin to build a picture of the access divide that exists in Wales, and strongly mirrors other types of social exclusion.

> 'LSOAs[1] with low levels of digital inclusion tend to be those with relatively older populations and/or those with high levels of social and economic exclusion. These characteristics reflect the roles that personal choice (and its relation to age and life stage) and socio-economic exclusion play in digital engagement' **Welsh Government (2011b: 52)**

At this point, it behoves us to consider the different ways that people use, or do not use, ICT. In order to do this, Part IV uses a series of case studies that explore the themes that became evident during the interviews. While case studies are difficult to generalise from because of inherent subjectivity, and because they are based on qualitative subjective data immediately applicable only to a particular context, they are important because they deal with creativity, innovation, and context. When used in combination with extensive survey research and innovative mapping techniques such as those provided to the Welsh Government by Experian, case studies can enable us to glimpse the lived experiences of those affected by policy and infrastructure changes.

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[1] LSOAs (Lower Super Output Areas) are small geographic areas with populations of around 1,500 residents and a relatively high degree of social homogeneity.

The themes explored in the case studies include the following:

- An ambassador for internet use?
- Ways in which ICT and the internet are being used
- Mentorship, inter and intra-generational learning
- Courses in Carmarthenshire
- Proxy users
- Physical access
- Clarity and accessibility of websites and services
- Security issues
- Ghostbusters – who to call when things go wrong

Each individual experience is just that – a combination of a lifetime's worth of circumstances, choices, incidents and social contexts. As Haythornwaite (2001: 364) contends, media and communication researchers need to 'build a picture that situates internet use in the rest of individuals' lives, including the people with whom they interact, the technologies they have around them, their lifestage and lifestyle'. If those who are not using ICTs feel that they are participating in society and do not wish electronic mediation of that participation, then it may fall to the government to ensure that they can continue to do so without penalisation.

PART I

Introduction

1. Introduction

1.1 Background

This report provides a review of the extant research into the economic and social benefits of digital inclusion for individuals and wider society, highlighting lessons learned and challenging some of the underlying assumptions that inform policy decisions at this time.

In March 2011, the *Digital Wales: Delivery Plan* set out how the Welsh Government intends to achieve the goals outlined in *Delivering a Digital Wales* and *Delivering Digital Inclusion: A Strategic framework for Wales*, which was launched in December 2010. The plan describes what is already being done, and what actions are proposed, for the next five years. These all fall within the five key thematic areas of Digital Inclusion, e-Skills, Competitiveness, Public Services Transformation and Digital Infrastructure which stem from the five fundamental objectives of the original policy document:

- A digitally inclusive, sustainable society;
- A thriving and competitive digital economy;
- Transforming public services;
- First class digital infrastructure; and
- Skilled and competent people.

In doing so, it proposes 'a coordinated and comprehensive approach to ensuring that Wales is positioned to take full advantage of the opportunities offered by the digital age'. Furthermore, the proposed actions will also help construct 'the solid infrastructure, skills and competitive base which are essential elements of the *Economic Renewal: A New Direction,* published in July 2010' (Welsh Government 2011a: 2). This is building upon assumptions about the costs and benefits of digital inclusion within Wales, which has actually been identified as an area that requires further evidence. Specifically,

the Welsh Government's (2011b) *Digital Inclusion Analysis Package* notes that:

> 'There is scope for our understanding of the economic impact of digital inclusion on individuals and wider society to be strengthened, which may in turn challenge for some of the underlying assumptions of the existing evidence base.' **Welsh Government 2011b: 10**

In recent years, digital inclusion has become a 'container concept' (Van Dijk, 2006: 222), carrying many diverse meanings in different fields. While this means that definitions, and therefore measurements, vary, which makes comparisons difficult, it also means that the important issue of inequalities within the information society has been placed squarely on both the academic and policy agenda. This has been flagged by some within both commercial and government sectors as vitally important, as it has led to unprecedented cross-departmental and public-private-third sector collaborations. While this is a positive development from many perspectives, it also means that the evidence base must be carefully considered before policy decisions are made without there being a solid case for action.

This document therefore uses a broader definition of digital inclusion that includes that of *Delivering a Digital Wales* (Welsh Government, 2010a) and *Delivering Digital Inclusion: A Strategic framework for Wales* (Welsh Government, 2010b) and the interaction between them. For this reason, it incorporates but transcends the narrow definition of digital inclusion used by the Welsh Government in the policy document; *Digital Wales: Delivery Plan* (Welsh Government. 2011a) in order to stimulate discussion and development in this exciting and important policy area.

1.2   Research aims and objectives

The purpose of this review is to describe the main findings and shortcomings of recent research into the economic and social costs and benefits of digital inclusion and exclusion for individuals, businesses, and wider society, while challenging underlying assumptions of policy intervention in these areas. This will help develop the evidence base for the Welsh Government as they move forward with this policy area.

The review will be based within a framework shaped by the five fundamental objectives of *Delivering a Digital Wales*. Within this will be considered the evidence surrounding the economic and social benefits of digital inclusion from the perspectives of income, education, ethnicity, gender and age as well as acknowledging other areas such as disability and access, where there is a need for further research.

From the review of the evidence and the methods informing this, recommendations will be made on how to develop a robust framework for exploring costs and benefits in Wales.

Leading on from the review, and informed by existing studies and the methodological recommendations in Part III of this report, there will be a series of case studies with older people in Carmarthenshire, in order to provide an understanding of the lived experiences of those affected by these policies. Welsh Government analysis shows that age is the single most important characteristic in relation to digital inclusion, as will be explored below.

1.3   Methodology

1.3.1   Review of the evidence base

Completeness cannot realistically be attained as the dataset of articles, books and reports covering this topic now reaches into the thousands. For this

reason, those papers and reports that have been instrumental in shaping policy have been prioritised. This selection includes those reports that feed into, and shape, influential documents. This will be augmented by those that provide a strong and sound argument for differing viewpoints as these will also feed into the follow-up recommendations on how to develop a robust framework for exploring the costs and benefits of digital inclusion in Wales.

The rise of international data banks, that hold the results of multiple multinational surveys and are freely available to researchers, has brought with it the concern that good practice in comparative methodology is not matching technological growth. Questions must be asked regarding equivalence of concept and stimulus even when using secondary data (Bollen, Entwisle, and Alderson, 1993; Elder, 1976). Information from government reports or social research organisations are often cited as truth, but questions must be raised as to whether the original researchers have accurately described how they obtained their results. As an example, a 1998 study found more than 200 definitions of poverty that were used interchangeably between and within studies done at an international level. If a researcher then wished to compare the results of any of these studies, ostensibly measuring the same problem, they would not be able to reach any valid or objective conclusions (Oyen, 2004). Ensuring that the definitions within each report or paper are compatible, or at the least comprehensively outlined, is therefore vital if research is to inform policy.

1.3.2 Developing a robust framework for exploring costs and benefits in Wales

This section will be informed by the critique of the evidence base regarding the costs and benefits of digital inclusion. The methods matrix that evolves from this analysis will be adapted to the needs of the Welsh Government and will be informed by HM Treasury's *Green Book: Appraisal and Evaluation in Central Government*. Methods and approaches developed and discussed by

the LSE Public Policy Group and Oxford Internet Institute[2] will also be incorporated.

1.3.3 Case Studies

As those with whom we wish to work are to be considered the experiential experts[3] in this case, criterion sampling has been used to determine where, and with whom, to work. Participants considered had to meet both inclusionary and exclusionary criteria. We had to recognise that attempting to encompass the hundreds of community organisations that address digital inclusion in Wales is beyond the scope and timeframe of this project. The strong connection between age and digital exclusion, tied to the continued shift of public services to digital platforms means that digital exclusion can increasingly be perceived as a problem for older people. The decision was, therefore, made to adopt a case study approach involving a small number of individuals affiliated to the 50+ Forum in Carmarthenshire.

It has been said that 'while structural factors are important determinants of historical events, they only begin to tell us what the events are about and how people live the events' (Auyero, 2003: 88). The life story approach 'makes it possible to go beyond the pre-constructed discourses and surface assertions collected through survey research…[and] has to be considered as a methodological tool providing access to a body of information that is more detailed, more discerning, but also far more complex to analyse than that collected through other approaches' (Chanfrault-Duchet, 1991: 89). By connecting policy analysis, survey research, statistical analysis and mapping and qualitative interviews, a more holistic picture of the costs and benefits of digital inclusion in Wales can be constructed.

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[2] http://microsites.oii.ox.ac.uk/digital-exclusion/
[3] The concept of 'experiential experts' is taken from Ruth Behar, 1993 and Guest et al, 2006. This refers to those who are specifically chosen to participate because of their knowledge or experience with the relevant topic.

1.4   Report structure

As mentioned above, there are three more sections to this report. Part II is the evidence review. This is made up of a background of the pattern of digital exclusion in Wales, followed by a review of the evidence base surrounding the potential economic benefits of digital inclusion, the potential social benefits of digital inclusion, and then an interpretation and review of the rationale for policy intervention in these areas.

Part III is a series of recommendations on how to develop a robust framework for exploring costs and benefits in Wales.

Leading on from the review, and informed by existing studies and the methodological recommendations in Part III of this report, is Part IV which is made up of a series of case studies with older people in Carmarthenshire, providing an understanding of the lived experiences of those affected by these policies.

PART II

Evidence review

1. Pattern of digital exclusion in Wales

1.1 Background

Within the policy framework that has been developed around digital inclusion in Wales there is the underlying belief that the ability of people to use new technologies is becoming as important as reading and writing. Individuals and businesses without these skills are likely to become increasingly socially and economically excluded as they make up a smaller proportion of the population and higher proportions of public and private services are increasingly provided solely online[4].

Because of this, in 2009, the Welsh Government decided to develop a strategic response to the high number of adults who were digitally excluded. The Digital Inclusion Framework identifies those people who are most likely to be digitally excluded; including older people; those who live in social housing; those with lower socio-economic status; on lower income; the unemployed; the economically inactive and the disabled. It is estimated that, in 2010, they numbered approximately 785,000 citizens, which was approximately 34 per cent of adults in Wales. There is the recognition within this policy framework that achieving the digital inclusion of people, both as citizens and consumers, is essential to ensure that they can benefit from the rapid pace of technological change within our society.

1.2 Mapping digital exclusion in Wales

As demonstrated in the following charts, national percentages mask differences amongst the local authorities. The digital divide is socio-economic rather than geographical. This becomes even more apparent once the unit of analysis is the lower super output area. Areas that are not classified as EU

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[4] The Digital Champion for the UK has even called for 'Directgov SWAT teams' that would aggressively pursue the 'first wave of digital only services' (Letter, 14 October 2010: 2).

Convergence Areas[5] still contain highly differential levels of access, leading policy makers to reconsider the constraints of the Communities First Programme.

The programme will still be based in the most deprived areas in Wales but it will be more flexible and there will be more attention to ensuring that Communities First supports the most disadvantaged individuals and groups, as opposed to having rigid geographic boundaries. The exact boundaries will be agreed between the Welsh Government and local partners, during, and after, the consultation process. (Minister for Local Government and Communities, 2011).

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[5] The Convergence Area include the 15 local authorities of Isle of Anglesey, Conwy, Denbighshire, Gwynedd, Ceredigion, Pembrokeshire, Carmarthenshire, Swansea, Neath Port Talbot, Bridgend, Rhondda Cynon Taff, Merthyr Tydfil, Blaenau Gwent, Caerphilly and Torfaen. These areas receive funding from the European Regional Development Fund (ERDF) and the European Social Fund (ESF) which is matched by the Welsh Government in order to regenerate Wales' most deprived communities (http://wefo.wales.gov.uk/programmes/).

Table 1.1 Percentages of adults 18+ digitally included by local authority

Rank	Local Authority	Convergence Area	Digitally Included Count	%	All Adults 18+ Count	%	% Digitally Excluded
1	Cardiff	N	190,016	12.11	255,221	10.74	25.55
2	Vale of Glamorgan	N	70,538	4.50	98,787	4.16	28.60
3	Monmouthshire	N	49,616	3.16	69,502	2.93	28.61
4	Ceredigion	Y	42,587	2.72	61,290	2.58	30.52
5	Flintshire	N	82,315	5.25	120,030	5.05	31.42
6	Bridgend	Y	72,496	4.62	105,915	4.46	31.55
7	Newport	N	75,233	4.80	109,954	4.63	31.58
8	Wrexham	N	72,316	4.61	107,174	4.51	32.52
9	Powys	N	71,941	4.59	106,638	4.49	32.54
10	Swansea	Y	122,285	7.80	184,356	7.76	33.67
11	Denbighshire	Y	50,893	3.24	77,894	3.28	34.66
12	Pembrokeshire	Y	60,446	3.85	93,540	3.94	45.38
13	Torfaen	Y	45,587	2.91	71,218	3.00	35.96
14	Conwy	Y	58,604	3.74	92,062	3.88	36.34
15	Caerphilly	Y	85,496	5.45	134,781	5.67	36.57
16	Gwynedd	Y	57,606	3.67	91,037	3.83	36.72
17	Carmarthenshire	Y	91,134	5.81	144,284	6.07	36.84
18	Anglesey, Isle of	Y	34,653	2.21	55,541	2.34	37.61
19	Rhondda Cynon Taf	Y	113,653	7.25	186,091	7.83	38.93
20	Neath Port Talbot	Y	65,578	4.18	110,982	4.67	40.91
21	Merthyr Tydfil	Y	25,609	1.63	43,868	1.85	41.62
22	Blaenau Gwent	Y	29,932	1.91	55,109	2.32	45.69
	Total		**1,568,534**	**100**	**2,375,274**	**100**	
Source: Experian (2011)							

Figure 1.1: Percentage of adults 18+ digitally included: Lower Super Output Area
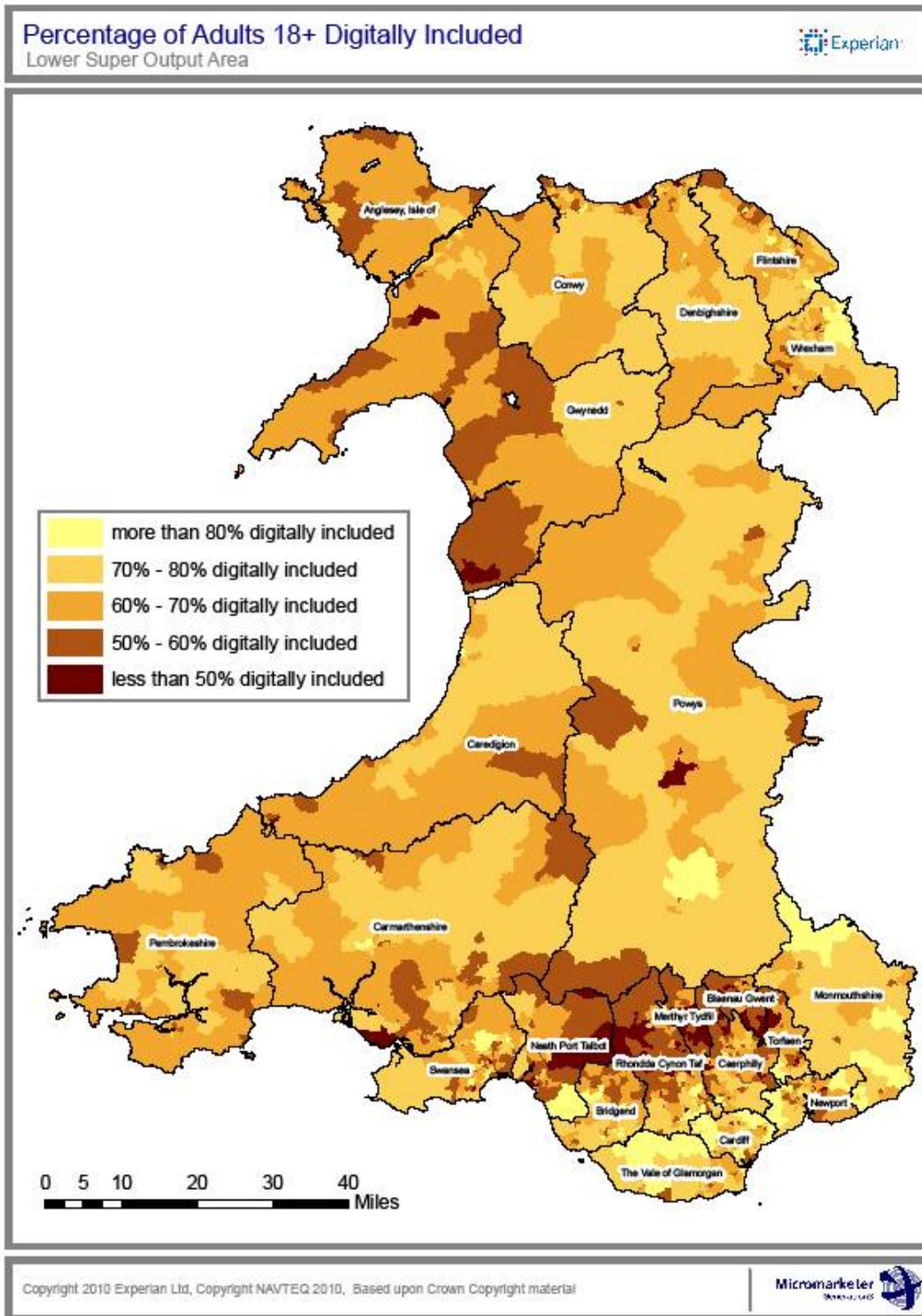
Source: Experian (2011)

Within the policy documents, it is estimated that the 785,000 adults who do not use the internet include:

- 515,000 who are aged 50+;
- 155,000 residents of social housing;
- 120,000 employed and
- 45,000 unemployed.

Amongst the 500,000 economically inactive who are digitally excluded, approximately:

- 45,000 are at home/with their family;
- up to 60,000 are long-term sick or disabled and
- 390,000 are retired (Welsh Government, 2010).

In research undertaken by Experian, commissioned by the Welsh Government, retirees make up only 15 per cent of the over 18 population, but around four out of ten of the digitally excluded population. Similarly, the over 55s make up approximately three out of ten of the over 18 population, but account for six out of ten of the digitally excluded population.

Data from the 2010 National Survey for Wales has also been broken down by age. Figure 1.2, below, shows this graphically. When these numbers are combined with concerns about access to information and services that are rapidly moving online, it becomes evident that digital exclusion is an older people's issue.

Figure 1.2: Digital inclusion / exclusion amongst older people in Wales (2010)
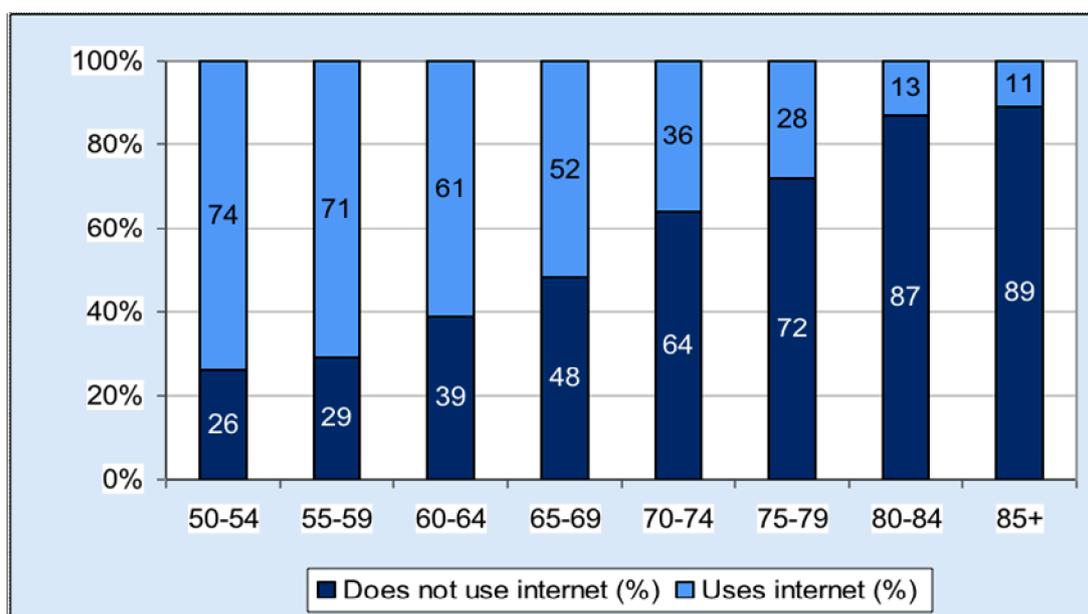
Source: National Survey for Wales 2010 (Welsh Government)

All of the above cited studies treat digital inclusion/exclusion as a dichotomy. Physical access to the internet, to a computer and/or to other technologies has remained the main focus of both public sector research and policy, meaning that a person who has accessed the internet once in the past six months, using a slow dial-up connection and being guided the entire time, may be categorised in the same group as a person who owns multiple devices through which they access and engage with the internet in multiple ways on a daily basis. No distinction is made between consumption or production of content by respondents, or the quality of access or participation. This is not to say that separate categories should be made for each form of access, or type of internet connection, but that the quality of engagement is of utmost importance in understanding digital inclusion.

1.3   Reasons for non-use in Wales

There are many reasons for not having, or using, the internet, but they can generally be divided into two broad categories: voluntary and involuntary. Involuntary reasons can include lack of physical infrastructure or skills and perceived or actual costs. Voluntary reasons range from distrust to disinterest, via a reliance on proxy use. A recent OFCOM report (2010) found that:

'Less than one in ten (9%) adults in Wales said that they did not have internet access at home for involuntary reasons. This was similar to the UK average and lower than in Scotland (15%) and Northern Ireland (12%). England was the nation least likely to state involuntary reasons for non-ownership (8%). Wales had the highest proportion of adults who said that they were likely to get access to the internet (10%). This was twice the UK average of 5%. Adults in urban areas (11%) were more likely to say that they intended to get access than those in rural areas (6%).' **Ofcom (2011)[6]**

Research within academia backs this division up, but also reminds us that 'the internet is not one technology but means different things to different people and is used in different ways for different purposes' (Selwyn et al, 2005: 7). Through a series of home based, structured interviews and a second round of more in-depth semi-structured interviews, researchers found that although '92 per cent of the survey sample reported having the potential to access a computer […] only 52 per cent had actually used a computer during the previous 12 months' (ibid: 9). Those that did use ICT extensively were generally found to be supporting their regular household activities and interests. Use levels decline as the internet fits less well into pre-existing habits. Non-use is quite complex and intertwined with existing socio-economic factors and household politics.

The evidence base regarding the causes of low take-up of the internet has been increasing in recent years, as widening provision of infrastructure has not necessarily led to widening use. Wong et al (2009) discovered that potential access to infrastructure did not greatly differ across groups, but that knowledge and usage scores were much more unequal. Further survey research backed up these findings, as non-material factors consistently impacted more heavily upon the decision of whether to go online or not.

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[6] http://www.ofcom.org.uk/static/cmr-10/WAL-4.5.html

Table 1.2 Reasons for lack of internet access

	Social Trends	Eurobarometer (UK respondents)
Material Factors	18% Cost of equipment	14% Cost of subscription
	15% Cost of access	7% Cost of computer/modem
	2% Physical disability	5% Cost of installation
		0% Lack of local infrastructure
Non-Material Factors	39% Don't need internet	55% Lack of interest
	21% Lack of skills	2% Don't know what the internet is
	20% Don't want internet	1% Unsuitable content
	4% Privacy/security concerns	
Source: European Commission (2010); Randall (2010)		

Research in other arena has changed the focus to one that considers the different types of participation and inequalities of access, as well as their repercussions for citizenship: 'access to and *competence in* the use of the means of communication arguably define a relationship that contributes substantially to defining the quality of the experience of citizenship in the modern world' (Calabrese and Burgelman, 1999: 8). This has been of especial importance in research surrounding educational attainment and ICT use. The types of inequality that have been identified can be seen below:

Table 1.3 Types of inequality connected to the digital divide

Types of inequality	Solutions
Technological	Technological opportunities (physical access)
Immaterial	Life chances Freedom
Material	Capital (economic, social, cultural)
Social	Positions / Power Participation
Educational	Capabilities Skills
Source: Van Dijk (2006: 223)	

The recognition of these types of inequality in current research shows that a background of classical sociological concepts of inequality is still present if rarely called upon. That said, the policy approach in Wales draws much more strongly upon a combined social justice and economic model, while that for the UK is relying on the market and on business as a driver of inclusion – a strategy that has been shown to be insufficient in the past.

2.   Potential economic benefits of digital inclusion – a review of the evidence base

2.1   Background

Completeness cannot realistically be attained as the dataset of articles, books, and reports covering this topic now reaches into the thousands. For this reason, those papers and reports that have been instrumental in shaping policy have been prioritised. This will be augmented by those that provide a strong and sound argument for differing viewpoints as these will also feed into the follow-up recommendations on how to develop a robust framework for exploring the costs and benefits of digital inclusion in Wales. As a caveat, it must be acknowledged that the March 2011 document; *Digital Wales: Delivery Plan,* recognises that there is a body of research emanating from the private sector, academia, the voluntary sector and elsewhere that can be brought into future versions of the plan.

In developing the Digital Inclusion evidence base, the Welsh Government recognises that some of the underlying assumptions around the economic benefits of digital inclusion need to be critically reviewed. While Welsh policy will 'tie in with parallel experiences elsewhere to share and learn from experience' (Welsh Government 2011a: 16) from the wider UK, digital policy in Wales does not follow a market-based model. Its raison d'être is social inclusion and participation, as evidenced in its development and implementation to date. However as much of the evidence base is in the public domain, and referenced in policy documents in the devolved nations, it

is worth considering the research underpinning the assumptions of the UK Government to further inform policy formation in Wales.

2.2　Economic argument presented in policy documentation

A report by PricewaterhouseCoopers (PwC 2009), which helped inform the economic assumptions of digital inclusion policy at the UK level, found that:

- Households off-line miss out on savings of £560 per year from shopping and paying bills online. For 3.6 million low income households this is equivalent to savings of over £1 billion a year being lost from shopping and paying bills online.
- Children's educational performance can be improved by home access to a computer and the internet. 1.6 million children in families who do not use the internet to go online at home could boost their total lifetime earnings by £10 billion.
- People with good ICT skills earn between 3-10 per cent more than people without such skills.
- Each contact made by the public with a service deliverer, and each transaction they conduct online which was previously not done online could save the service provider between £3 and £12 per transaction (*Delivering digital inclusion*, 2010: 4-5, citing PwC 2009).

These findings will now be critically reviewed in turn.

2.2.1　Households off-line miss out on savings of £560 per year from shopping and paying bills online. For 3.6 million low-income households this is equivalent to savings of over £1 billion a year being lost from shopping and paying bills online

This amount is drawn from the 2008 SQW Consulting report to the Post Office, *Broadband in the Home: An Analysis of the Financial Costs and Benefits.* The problematic use of average savings will be considered below,

but the misrepresentation of the original findings is immediately concerning. The PwC document states:

> 'These potential financial savings to digitally excluded households at different income levels do not take account of the costs of being online, in particular the initial costs of acquiring a personal computer and the running costs of online access. Significantly however, even if these costs are taken into account, *the savings from online purchases for most households, even those on the lowest incomes, more than offset the running costs of a computer.*' **Martha Lane-Fox, UK Digital Champion (2009: 6, italics added)**

However, the original document states:

> 'The analysis suggests that the households in the lowest two income deciles (i.e. those with a household income of less than £215 per week) may still not have achieved a direct financial net benefit from broadband internet (at the assumed typical prices for entry level computers and broadband service) even after three years.' **SQW (2008: 18)**

As seen in Tables 2.1 and 2.2 below, the bottom four income deciles will not recuperate their outlay within a year. By numbers of taxpayers, this group includes more than 50 per cent of the population, a fact that belies the next claim that low-income households could be saving billions.

Table 2.1 Gross household income ranges for the decile groups

Decile	Range of Household Income (£ per week)
Lowest decile	0 - 142
Second decile	143 - 214
Third decile	215 - 292
Fourth decile	293 - 383
Fifth decile	384 - 496
Sixth decile	497 - 623
Seventh decile	624 - 762
Eighth decile	763 - 938
Ninth decile	939 - 1,273
Highest decile	1,274 +
Source: SQW estimates, July 2008	

'Income distribution impacts' refer to the fact that when taking average savings, the savings of higher income households will have a greater weight than those of lower income households (because they spend and save more). *The Green Book of Appraisal and Evaluation in Central Government* states that it is 'important that the distributions of each option are considered during appraisal' (2003: 24). This is further developed by specifying that:

> 'Proposals that deliver greater net benefit to households or individuals in lower income quantiles are rated more favourably than those that benefit higher quantiles [...] Benefits accruing to households in a lower quantile would be weighted more heavily than those that accrue to households in higher quantiles. Conversely, costs would be weighted more heavily for households in lower quantiles.' **HM Treasury (2003: 24)**

These practices are not evidenced in either the SQW or the PwC papers. The savings that are being measured are due to potential reduced household expenditure and increased investment income. SQW presents all of these clearly and where possible, the lower estimations are used in order to not overstate the possible benefits. Even so, the extrapolation of some of the savings and investments seem to be unlikely for lower income households and have not obviously been weighted with them in mind. Package holidays, accommodation services, car hire, purchase of vehicles, mortgage interest repayments and increased returns on the investment of savings all assume certain levels of income, the holding of a bank account and driver's licence and the desire, literacy, and ability to navigate the web pages required to gain the potential savings. Equally, the cost of purchasing the equipment and setting up an internet connection, learning how to use it, dealing with computer glitches and the maintenance and updates that are needed are not all included or weighted for the lower quantiles.

Table 2.2: Estimates of broadband's cumulative direct financial benefits minus costs per income decile[7] (£ per household)

	Month after connection																	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Lowest decile	-307	-306	-305	-304	-303	-302	-301	-300	-299	-298	-298	-297	-296	-295	-294	-293	-292	-291
Second decile	-303	-297	-291	-286	-280	-275	-269	-263	-258	-252	-246	-241	-235	-230	-224	-218	-213	-207
Third decile	-291	-273	-255	-237	-219	-201	-184	-166	-148	-130	-112	-94	-77	-59	-41	-23	-5	13
Fourth decile	-283	-258	-233	-207	-182	-157	-131	-106	-81	-56	-30	-5	20	45	71	96	121	146
Fifth decile	-272	-235	-199	-162	-126	-89	-52	-16	21	57	94	130	167	203	240	277	313	350
Sixth decile	-263	-217	-171	-125	-80	-34	12	58	103	149	195	240	284	332	378	423	469	515
Seventh decile	-254	-200	-146	-91	-37	17	71	125	180	234	288	342	396	451	505	559	613	667
Eighth decile	-238	-168	-97	-27	44	114	184	255	325	396	466	536	607	677	748	818	888	959
Ninth decile	-222	-135	-49	38	125	211	298	384	471	558	644	731	818	904	991	1,077	1,164	1,251
Highest decile	-183	-57	69	194	320	446	572	697	823	949	1,074	1,200	1,326	1,451	1,577	1,703	1,829	1,954
All	**-261**	**-213**	**-165**	**-117**	**-70**	**-22**	**26**	**74**	**121**	**169**	**217**	**265**	**313**	**360**	**408**	**456**	**504**	**551**

Source: SQW estimates, July 2008

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[7] Note that the first column shows the first month's benefits per decile, minus the initial outlay and minus one month's costs.

Table 2.3: Expenditure categories in which the use of broadband internet could potentially provide significant savings

Reference	Expenditure category
3.1	Clothing
4.4	Electricity, gas, and other fuels
7.1	Purchase of vehicles
7.2.2	Petrol, diesel, and other motor oils
7.3.4	Other travel and transport
8.2	Telephone and telefax equipment
8.3.1	Telephone account
9.1.1	Audio equipment and accessories, CD players
9.1.2	TV, video and computers
9.1.3	Photographic, cine and optical equipment
9.5.1	Books
9.6	Package holidays
11.2	Accommodation
12.4	Insurance
13.1.1	Mortgage interest payments
Source: SQW analysis of ONS expenditure categories in Family Spending 2007	

The research carried out by SQW Consulting is transparent and accessible, and the obvious benefits that accrue to individual users from certain income groups should not be played down, but equally should not be misrepresented and therefore undermined. Presenting the original findings correctly could lead to more innovative policy responses such as support for communal ownership or increased use of public access points. As there are other benefits besides the purely economic, those in the bottom deciles could still decide to make the investment, but with more realistic monetary expectations.

2.2.2 Children's educational performance can be improved by home access to a computer and the internet. 1.6 million children in families who do not use the internet to go online at home could boost their total lifetime earnings by £10 billion

The connection is evidently made between improved educational performance and increased future earnings. The citation for increased educational

performance is a Department for Education and Skills research report that finds that:

> 'There was a statistically significant positive association between pupils' home use of ICT for educational purposes and improved attainment in mathematics at years 6 and 9, and a modest but more extensive association with attainment in English and mathematics at year 11. Using a home computer for educational purposes at year 2 did not have a statistically significant positive association with pupil attainment. The majority of parents believed that computers helped their year 2 child to learn useful skills and knowledge, though they could not readily identify what these were beyond things such as learning words or to type more quickly.' **Valentine et al (2005: 8)**

However, the report goes on to say that:

> 'There was a statistically significant positive association between pupils' use of ICT out of school for leisure purposes and decreases in attainment. *This effect was over twice as large an effect as the positive association of using ICT for educational purposes.* In other words, it is not access or general use of ICT per se that could raise attainment, but rather how the technology is used that matters. The more time pupils spend playing computer games, the less time they may have available for other tasks, including homework and study. Some children reported pretending to their parents that they were using the home computer for educational purposes when they were actually using it for 'fun'. Thus, pupils need to be made aware of the disbenefits of predominantly leisure uses of ICT and encouraged to adopt a more responsible attitude to home use of ICT for school work.' **Valentine et al (2005: 8, italics added)**

This is in line with research that has been conducted in different countries and for different sectors that has found home pc ownership associated with decreased maths and reading scores unless tied to effective parental monitoring (Clotfelter et al, 2010; Rosen, 2011; Tondeur et al, 2010). What appears to affect performance is the *way* that the computer is used, not that it is present. Even research that does find a statistically significant relationship between household computer ownership and the attainment of five or more GCSEs at grade C or higher admits that other factors are more important for the attainment of any GCSEs (age of mother, sibling order, type of school), and that owning a computer but not using it is worse than not owning one at all (Schmitt and Wadsworth, 2004). This would appear to support the idea of

ICT as cultural capital. It is not the ownership, but the way of engaging with the technology that is important, and socio-economic status affects the latter even when computer ownership has become so ubiquitous that it does not affect the former (Tondeur et al, 2010; Wei and Hindman, 2011).

Importantly, the above findings have been attained using a wide range of methods and experimental designs. Large-scale quantitative surveys with regression analysis in Belgium (Tondeur et al, 2010), and longitudinal analysis of time series data from the BHPS[8] (Schmitt and Wadsworth, 2004) combine large data sets with statistical analysis to control for proxy relationships. Large-scale international comparative studies test whether cultural context and educational styles are more significant than ICT use (Rosen[9], 2011; Warschauser, 2003). Exit interviews in junior high schools and computer use diaries combined with interviews in universities and in schools in the USA (Goode, 2010; Clotfelter et al, 2010; Wei and Hindman, 2011; Margolis et al, 2003), as well as a similar use of diaries, interviews with children, parents, and teachers and combined school records (Valentine et al, 2005), take the results of the statistical analyses further in order to tease out the underlying reasons for observed differences and relationships.

The body of evidence once more underlines that digital exclusion both mirrors and magnifies the other exclusions already present in our society. Recent studies claim that it is educational attainment that affects how people use the internet and that differential use of the internet has a stronger effect on the knowledge gap than traditional media sources. A case study approach combined with an on-line survey of university students in the USA found that the educational system as it stands actually compounds ICT use inequalities then expects students to have certain abilities in order to fully participate in their university education (Goode, 2010).

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[8] The British Household Panel Survey began in 1991. The wave 1 panel consists of 5,500 households and 10,300 individuals drawn from 250 areas of Great Britain. Additional samples of 1,500 households in each of Scotland and Wales were added to the main sample in 1999, and in 2001 a sample of 2,000 households was added in Northern Ireland, making the panel suitable for UK-wide research (http://www.iser.essex.ac.uk/bhps).

[9] http://www.eurekalert.org/pub_releases/2011-05/uog-prs052311.php

Merely owning a computer is not enough. In order to boost educational achievement and future earning potential, underlying inequalities need to be addressed. In the UK, rural children have been shown to be more likely to use ICT at school in lunch and after school clubs, with the same positive connotations as monitored use at home. Equally, unrestrained use at home can have a negative impact on school performance if it is mainly leisure use. If £10 billion are to be added to the future earnings if those young people without access to the internet at home, more needs to be addressed than physical home access and broadband speed (Clotfelter et al, 2010; Valentine et al, 2005).

2.2.3 People with good ICT skills earn between 3-10 per cent more than people without such skills

This would imply that whether educational performance improved or not, future earnings would benefit from increased ICT skills. If Rodino-Colocino's findings that US corporations look for highly trained individuals rather than highly educated individuals for ICT work holds true in the UK, this may be a straightforward claim, however there is no research demonstrating this at this time, and the premium for increased skills currently appears tied to education levels.

The PwC document arrives at the 3-10 per cent premium via a report by the UK Online Centres (2008) and a study by the Centre for the Economics of Education (2007). A further European study is cited as claiming a 19.5 per cent increase. The original research states that:

> 'Ultimately we cannot be absolutely confident that we can identify a 'causal effect'. More specifically we cannot be precise about how much of the impact of computer use on earnings is due to individual unobserved heterogeneity, but broadly speaking, our conclusion is that in the UK there is good evidence to suggest that the rate of return to computer use may be between 3-10%.' **Dolton and Pelkonen (2007: 16).**

There has been much debate over the direction of causality between ICT use and wage premiums. The paper claiming a 3-10 per cent wage premium also hypothesises that ICT pay premiums may be standing in for other characteristics such as networking ability, connectivity, position within the institutional hierarchy, or job type (Dolton and Pelkonen, 2007:12). Similar findings also show that 'men in the NCDS and E-Living surveys receive higher earnings regardless of how they use a computer. The increase for women depends on how the computer is used' (Dolton et al, 2007: 15). These research findings would suggest the continuation of existing inequalities due to social position rather than a positive premium for general ICT skills.

However, international comparative research has found repeatedly that technologies can account for up to a quarter of the growth in demand for the college educated since 1980 (Michaels et al, 2010). This has led to a polarisation of demand in the labour market as ICT substitutes for routine tasks but complements non-routine analytical tasks, at the cost of middle educated/skilled workers (Autor, 2009; Autor and Dorn, 2009). It is suggested that this has created a U-shaped demand curve as non-routine manual labour is not affected by the ICT premium and this work is not substituted nor complemented by ICT (Autor, 2009; Michaels et al, 2010). The wage premium for ICT use depends on which type of workers is studied as well as the age and gender of the worker. 'The impact also depends on whether cohort or general cross-section datasets are analysed' (Dolton et al, 2007: 692).

Within the argument for a higher wage premium is also the claim that digital inclusion could increase employment prospects through greater access to information about job opportunities or training (Fresh Minds, 2008; Hall Aitken, 2005). While the PwC report does admit that 'it is not possible to explicitly link an increased likelihood of employment simply by having access to online job searches' (2009: 32), there is an understanding that there will be additional benefits to jobseekers gained by feeling less excluded from the search and application process (Fresh Minds, 2008; Hall Aitken, 2005), particularly given that some jobs are only advertised online.

A thread that links all of these would appear to show that expanding the types of computer use and job specific training would enact a greater skills premium than merely increasing generic computer skills. These capacities and confidence with them will obviously be an important base for future growth.

2.2.4 Each contact made by the public with a service deliverer, and each transaction they conduct online which was previously not done online could save the service provider between £3 and £12 per transaction

The PwC report considers how 'government can also benefit in terms of the reduced costs of providing services to the digitally included, whether this be the provision of information or transaction services' (2009: 44). According to the report, savings refer to 'the potential efficiencies that can be derived from switching contacts and transactions to online channels' (2009: 47) from more expensive ones such as the telephone, post, or in-person meetings. As the research says, 'from the perspective of public service transformation, digital inclusion is primarily an issue of channel strategy and migration' (ibid). The potential savings of between £459m - £1,837m is based on evidence from 19 local authorities on an 'average costs of a contact/transaction for different channels' (ibid) gathered in 2008. Table 2.4 below is reproduced from the PwC report, concerning the average costs per transaction of different channels.

Table 2.4: Average costs of transactions in different channels

	Face to face	Telephone	Post	Online
Cost per transaction (£)	10.53	3.39	12.1	0.08
Source: PwC (2009: 47)				

These are, of course, only one of many often widely-varying estimates of transaction costs that have been measured to date. In Table 2.5 other cost

findings are reported. The methodology used by NWeGG[10] in association with CIPFA[11] was documented and published by Communities and Local Government in March 2008, titled *Delivering Efficiency: Understanding the Cost of Local Government Services.* Socitm's 2009 national benchmarking exercise, which sampled 120 councils, put the average cost of servicing face-to-face enquiries at £6.56 and web transactions at £0.27 (Greenwood, 2009: 7).

Table 2.5: Various average costs of transactions (£) in different channels

	NWeGG	**Socitm (min)**	**Socitm (max)**
Face-to-face	7.81	4.83	9.56
Telephone	4.00	1.28	5.57
Online	0.17	0.22	0.56
Source: Phythian, (2008)			

In addition, going back to the original research, the 8 pence cost for online contact and transactions cited in *The Economic Case for Digital inclusion* refers solely to contact via web forms that are integrated with councils' back-office systems. As highlighted by the Institute of Public Finance (2006), if electronic services are not integrated – meaning that councils have to manually re-key electronic data into back-office systems (still common in local government) – the true cost of a web transaction can exceed contact by other 'traditional' channels.

> 'It became apparent when analysing the specific cost of web transactions […] that cost per transaction was generally significantly lower in services where systems were integrated, or automated, and higher where there was no integration (i.e. data from web forms had to be re-entered manually in local authority systems)' **IPF (2006: 7).**

The web may be a low cost-channel, but unless it works right first time and every time, it just adds costs.

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[10] North West eGovernment Group: http://www.communities.idea.gov.uk/comm/landing-home.do?id=3471932

[11] Chartered Institute of Public Finance and Accountancy: http://www.cipfastats.net/

Another rather significant finding of the customer profiling research was that those most likely to be among the digitally excluded were also those dependent on public services and least likely to shift channels, therefore dampening expectations for potential efficiency savings (McNish, 2009: 8). If access to services are not immediately obvious, this can lead to an even lower likelihood of users shifting channels. An example is provided below.

Failure to find information — an example from Socitm News

It is important to understand the scale of the issue here. The Socitm *Insight Website take-up service* provides all the evidence of a major problem. If we take the case of Salford City Council, this is one of the best council websites according to the annual *Better Connected* survey, classifying it as 'excellent' for the second year running. Yet, when we look at the responses to our user survey, we find that nearly 19% of visitors do not find what they are looking for. With the number of unique visitors exceeding 104,000 in March 2009, this means that 19,900 visitors failed in finding information or services.

The *Website take-up service* also asks visitors what alternative means of contacting the council visitors they might have used, had the website not been available. Over 40% say the phone, 19% say e-mail and 9% say a personal visit. These equate to 8108 phone calls, 3840 e-mails and 1694 personal visits, or, relating it to daily figures, up to 364 phone calls (approx 45 an hour), 175 e-mails or 77 visits per working day. Even if some do not carry out this intention, this avoidable contact amounts to a great deal of wasted time for both the website visitor and the organisation, not to mention much inconvenience all round.

As you might expect, there is a strong correlation between failure to find information and dissatisfaction with the website. For visitors who find what they are looking for, the *Website take-up survey* shows that overall satisfaction runs at 74.1%; if they do not, it runs at minus 52.6% (calculated as those satisfied with the experience less those dissatisfied). In fact, Salford's performance here on success of the visit at 19% is a little better than the average in our March sample of over 120 councils. The lowest failure rate recorded is slightly over 12% and the highest just under 30%. If successful private sector companies dependent on the web for their profits scored even this lowest rate of failure, then they would act swiftly to stem the losses. The problem is clearly endemic and requires a radical review as to the importance of the website and the way it is managed. For most councils this means major changes in thinking, culture, and practice for web governance, management and delivery.

(Greenwood, 2009: 7).

There are other savings besides those due to channel switching.

> 'For the citizen or the business the experience of benefiting from public services is greatly enhanced by the access and engagement being made easier by ICT. The less time spent and the less complexity or difficulty encountered in requesting services

then the greater the value to the citizen. In this respect having online access to all public services is crucial as is having ongoing electronic communication and status reporting.' **McClelland (2011: 8)**

As seen in this quote from the *Review of ICT Infrastructure in the Public Sector in Scotland*, savings to the public in terms of time, ease of access, reduced costs due to not having to travel or take time off work, are all to be taken into consideration when measuring the benefits of online public service provision. Even though the Scottish review also bases the numbers for efficiency savings to government on the PwC report and associated citations, it is important not to lose sight of the potential savings if services are provided in an integrated manner.

Table 2.6: Categories of service transformation benefits

Form of Benefit		Beneficiary	
		Public service provider	**Citizen**
Financial		• Reduced demand for service (and time costs of delivery) • Scope for economies of scale	• Reduced costs of transmitting information
Non-financial	Time based	• Reduced processing time through common standards • Reduced need for handling multiple submissions • Reduced error rates • Scope for more flexible working	• Reduced need for multiple submissions
	Value based	• Information benefits (double count) • More accurate data • Scope for information sharing	• Quicker responses • Improved information • Improved choice/convenience • Improved service: choice, functionality, personalisation, integration • Democratic engagement
Source: PwC (2009: 46)			

2.2.5 Additional concerns

Another area that is commonly cited as bringing potential savings to both government and individuals is healthcare. Health and wellbeing covers a wide swathe of meanings, costs, and benefits depending on individual circumstance, including age, location, education, and other socio-economic factors. The main claims focus on avoided costs and include:

- Reduced transaction costs generated by people that remotely access health information and services;
- Reduced attendance at GP consultations, outpatients and accident and emergency: people that access health information will have greater health literacy that in turn, will allow them to make more appropriate and informed choices about when and how to access health services; and
- A more efficient and effective health service due to a reduction in 'did not attend' rates and reduced demand for face-to-face engagement with health care (PWC, 2009:37).

A report conducted by Imperial College London on behalf of NHS Choices, the multipurpose NHS website, found that the majority of GPs questioned had not heard of NHS Choices, that most patients questioned had not mentioned NHS Choices during their consultation, or checked it previously, and that those most likely to use NHS Choices (white, female, young), were those least likely to be checking the internet for health reasons (PWC, 2009: 38; Nelson et al, 2010: 49). The Office for National Statistics has found that approximately one fifth of internet users do search online for health reasons, and it is understood that:

> '[t]here is significant market demand for internet health and medical information. Currently most of that demand is being supplied by commercial operators with profit motivation and without the levels of validation and quality assurance employed by NHS Choices.' **Nelson et al (2010: 55)**

This raises concerns that without education and prior knowledge about trustworthy sites, and support from GPs and other health practitioners, health outcomes could actually be negatively impacted by internet use. With a framework of support and connections between different providers of both healthcare and education however, the benefits could be manifold.

Additional concerns that require further study include accessibility for disabled people and for immigrants and those with lower levels of education who may require clearer formats.

3.   Potential social benefits of digital inclusion

3.1   Background

'Nothing can open more doors for a person than literacy. But knowing how to read is no longer sufficient to be 'literate' in the 21st Century. Basic literacy must be supplemented with digital literacy.' **Clyburn (2010: 4)**

Years of research have shown that access to the internet in itself, no matter the speed of the connection or the ubiquity of access points, does not solve inequalities in how people make use of the opportunities available online. The evidence shows that in some areas a digital underclass has emerged composed of socially isolated individuals with lower levels of education, who may become further entrenched in a digital underclass if policy were to focus narrowly on access. Researchers refer to this as the 'usage gap' in which there is differential use of applications in daily practice between people of different social class and education (Van Dijk, 2006; Bonfadelli, 2002; Park, 2002; Cho et al, 2003).

Technological determinism, or the belief that technology drives social change, is hiding the fact that research has increasingly found that all familiar social and cultural differences in society are reflected in computer and internet use. For example, Ono and Zavodny's (2007) analysis of digital inclusion across five countries concluded that *digital inequality reflected pre-existing social and*

economic inequalities across all five countries. Reflecting developments in Belgium, where the government recognised that 'too much focus on technology also creates the risk of attention being distracted from what is really involved: the need to function properly in the knowledge society' (Tondeur et al, 2010: 152), policy makers working on digital inclusion in Wales have recognised this and set out a framework that aims to include all citizens in the developing public sphere enabled by digital technology.

3.2 Delivering Digital Inclusion – assumptions behind policy

> - People acquiring the confidence, motivation, skills and competencies that allow them to communicate more easily through digital technologies;
>
> - Reducing their isolation and social exclusion;
>
> - New opportunities opening up for people to contribute and participate in society and the economy. Life challenges can be dealt with in new ways;
>
> - Learning can be personalised, democratic processes widened, and 'communities of interest' can share information and provide support in new ways;
>
> - Consumers obtaining goods and services more easily and more cheaply, particularly helping families on low income and individuals on benefits;
>
> - Citizens having the opportunity for greater democratic participation;
>
> - The internet offers the public easier, more efficient and effective access to public services;
>
> - For government, there are potential efficiencies in public service delivery as well as economic benefits from the digital economy.
>
> **Welsh Government (2011a: 3)**

As highlighted in the policy documents, achieving digital inclusion is central to embracing the opportunities and imperatives of this rapidly evolving world. It is an agenda of, and for, our times.

The economic points have been dealt with in the previous section. Current research from around the world continues to highlight that access is not enough, but that there are many benefits to individuals in being involved in the society they live in, which today entails being digitally included. Ethnographic research conducted in San Diego shows that the 'digital divide's topography is

defined by psychosocial factors as well as access' (Stanley, 2001: 1). Through the use of qualitative research, such as interviews and usage diaries, ownership and access to the internet are shown to not accurately reflect computer use or literacy. However, once participants were given the opportunity to explore the possibilities of ICT use in a safe and supportive environment that was not alienating due to the social context, they became much more involved and positive about ICT in general (Stanley, 2001; Van Dijk, 2006). Given the findings that show that owning a computer but not using it has a stronger negative effect on educational attainment than not owning a computer, this is an important lead to follow when encouraging participation and confident use of ICT.

3.3 What do recent research findings show?

Although age, quickly followed by economic capital, are the strongest mediating factors in the digital divide, cultural and social capital are also important factors as the possession of them means having the know-how and resources to operate and engage with technologies meaningfully at the personal level (Grant, 2007).

Children's digital skills should be enhanced through regular education, focusing especially on information and strategic skills (given their already high level of operational skills). Studies have found that when given the opportunities to learn about political participation online through digital media literacy education, students are more likely to engage in political participation online (Kahne et al, 2010), but that 'teens who have poor health literacy are more likely to search for sexual health information using slang terms, which may lead to less credible Web sites' (Brown, Keller, and Stern, 2009: 17). The important role that teachers and parents need to play in ensuring that ICT is a constructive tool in the construction of a thriving and inclusive digital society means that they must also be digitally included and confident with ICTs.

As for older people, the illiterate, the disabled, and ethnic minorities, as the San Diego study reported above showed, there should be special courses

offered, adapting to their needs, learning pace and style. If nothing is done, the 'information and strategic skill divide' will continue to widen, with the skilled people being able to take advantage of the internet to achieve their personal goals, while the less skilled continue their struggle to locate correct information (van Deursen and van Dijk, 2009). The Communities 2.0 project is clearly well placed to implement such plans, but also to act as a portal through which further evidence regarding the social benefits of digital inclusion can be gathered and disseminated.

4. Interpretation and review of the rationale for policy intervention in these areas

> 'The very technology that has the power to empower us all also has the potential to increase the problems of social exclusion unless we act to bridge the digital divide […] The government is determined to bring us into the digital age.' **Selwyn (2004: 342-343)**

The overriding conclusion of this review is that the underlying assumptions of the economic benefits of digital inclusion are more complex than first thought. Therefore there is a clear need for more sustained research and a more robust evaluation to inform the development of related policy.

With regards to the social benefits of digital inclusion, the evidence cannot be extricated from other socio-economic factors tied to various types of digital literacy, participation as citizens and community members and other inclusionary/exclusionary characteristics particular to age, education, gender and socio-economic status. This is because digital is merely another layer in the public and private spheres, and as such, replicates and strengthens existing inequalities, opportunities and participation.

The Green Book of Appraisal and Evaluation in Central Government states that:

> 'All new policies, programmes and projects, whether revenue, capital or regulatory, should be subject to comprehensive but proportionate assessment, wherever it is

practicable, so as to promote the public interest […] The purpose of the Green Book is to ensure that no policy, programme or project is adopted without first having the answer to these questions:

- Are there better ways to achieve this objective?
- Are there better uses for these resources?'

Step 1: Justifying action

The Pareto Principle (named after the eponymous Italian Economist, but often known just as the 80-20 rule) suggests that in many real-world situations 80 per cent of the features required in a project can be gained with just 20 per cent of the effort[12]. Focussing on the 80 per cent that can be achieved with the least investment often makes good business sense. Once the harder to reach areas are considered, the marginal benefit relative to effort falls drastically and the last 20 per cent may cost many times more than the first 80 per cent. In the business world, this difficult area may not be produced or provided. However, public services do not work that way. The engagement of citizens in hard to reach rural or inner city areas; special needs education; elderly care and inclusion; design of accessible services for a range of disabilities; these may all fall into the hard to reach 20 per cent of provision yet are a vital part of the social contract entered into by the government. For this reason, ensuring that all citizens are digitally engaged if they want to be, but provided for if not, is absolutely justified.

Step 2: Setting objectives

The policy documents, such as *Delivering Digital Inclusion*, have been explicit in their aims and objectives. The March 2011 document; *Digital Wales: Delivery Plan*, recognises that there is a body of evidence in the private sector, academia, the voluntary sector and elsewhere that can be brought into future versions of *Digital Wales*. It must also be highlighted that while the policy documents discussed within this report do refer to the market-based

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[12] http://www.pinnicle.com/Articles/Pareto_Principle/pareto_principle.html

model of the UK Digital Champion, the model informing their development is more from a social justice, inclusionary perspective. Thus, long-term economic rationale is an important driver for investment in digital infrastructure but social cohesion and equality remain at the fore.

If that is to remain so, the case for digital inclusion is strong, but only as long as the well-being and inclusion of all citizens in all aspects of life in Wales remains the focus. 'No person left behind' could well be the deserving subtitle of the policy documents discussed herein[13].

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[13] Welsh Government (2010a). *Delivering a digital Wales (evidence pack to support the main document)*; Welsh Government (2010b). *Delivering digital inclusion: A strategic framework for Wales*; Welsh Government (2011a). *Digital Wales: Delivery Plan (Delivering a Digital Wales)*.

PART III

Developing a robust framework for exploring costs and benefits of digital inclusion in Wales

# 1.	Introduction

> 'Well known works have espoused narrow and quantitative accounts of divides, overlooking qualities of technology diffusion and the contexts where diffusion takes place. Thus, the dominant rhetoric on the phenomenon has looked at the split between digital technology use and non-use, as well as economic and easily quantifiable drivers of divides such as socio-demographics.' **Tsatsou (2011: 318)**

As demonstrated in the previous section of this report, the evidence base pertaining to the economic costs and benefits of digital inclusion and exclusion is not entirely robust. In order to move ahead with inclusive, evidence-based policy that is beneficial to all citizens, the Welsh Government must strengthen its understanding of the complexities of the digital divide and the financial repercussions to individuals, businesses, and the public sector.

In order to properly comprehend and analyse the digital landscape, there is a need to consider how different groups are being excluded and the costs and benefits of getting them online. This will be shaped by the factors that shape policy in the first place. To do this, there is a need to move beyond the 'simple access paradigm of the 'first level digital divide'' (Goode, 2010: 499) and look instead at how people use technology, utilising a holistic, mixed methods approach in which each aspect of research feeds into the next.

- **Account for a universal service** – Any research into digital inclusion will need to show the cost and benefits not just in the easy pilot cases including those that are already engaged, but also for those that will arise if a universal service is provided (such as the elderly, socially excluded, disabled, refugees or immigrants). Where it becomes evident that a universal online service will not be plausible, the limitations will have to be clearly outlined and the cost of alternative provision also included.

- **Design with social justice in mind** – Digital innovation in the public sector should not just be about creating cheaper, more efficient and better services for individuals to consume: it should be about creating a 'better

society' – and that involves consideration of the distribution of benefits from innovation as well as the nature of the innovation itself.

▪ **Weigh the social costs and benefits** – Private benefits are not a justification for public policy. When weighing the costs and benefits, the question should be posed as to whether the project will deliver in the areas of health, education, public service delivery etc., and do those benefits justify the costs?

2.   Methods matrix

2.1   Population and digital landscape

While survey data and quantitative analysis alone does not provide a full picture of the digital situation in Wales, it is an important start because it highlights patterns of inclusion and exclusion that can be used to ensure that targeted practices are put in place with populations that are evidently most affected. This is especially impactful when mapping techniques are used to graphically provide a clear picture of the data, as has been done by Experian on behalf of the Welsh Government. Experian used data from their Experian Lifestyle Survey, which includes over 1,150 separate pieces of information about over 10 million UK consumers. This is gained through multiple data collection methodologies, thus reaching a representative proportion of the population[14].

Using statistical regression analysis, survey data also demonstrates which characteristics, or combinations thereof have more of an impact on ICT (non-) use within Wales. Once this has been ascertained, the populations of each group, and their broad geographical location, can be used within the framework for analysing the economic costs and benefits of digital inclusion.

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[14] Full methodology for Experian modelling process available.

It is important when using survey data to show patterns in population and ICT use, that sufficient numbers are included so as not to present a skewed picture. Rather than attempt a smaller survey that will not be helpful in making generalisations at the local scale, it should be kept in mind that regular waves of a National Survey for Wales are being carried out, accessible from the Welsh Government, that can support such analysis.

2.2   Profiling

Profiling is becoming key to the provision of local government services because it ensures that policies reach different sectors of the population. This is vital as a one-size-fits-all cost/benefit analysis will either greatly over or underestimate the potential economic benefits provided by digital inclusion.

Once different user groups have been identified, in-depth, qualitative studies can be carried out to create technobiographies of the ways in which ICTs are engaged with within each target group[15]. This, combined with the statistical analysis of each population, allows a deeper understanding of the underlying demographics and characteristics. Focus groups, in-depth interviews, or life histories, combined with survey data, will provide comprehensive stories about how participants' engagement with technology affects their lives in other ways, as well as whether, or how they would use particular services if they were provided online. They could explore the question as to what does the online world/experience look like to a member of each of the groups. How are initial barriers tackled in order to ensure a positive and supported experience? And how could that experience impact on social exclusion issues such as educational or health inequalities, barriers to employment or political participation? As ICT is used in ways that are meaningful to the user, existing inequalities may have to be addressed in order to create benefits in each scenario (Selwyn et al, 2004; Dolton et al, 2007).

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[15] These could be based on age, income, employment status, or a combination of such socio-economic factors.

By creating these profiles, and investigating them further, both direct and indirect benefits can be calculated and more tailored policies developed to maximise impact.

2.2.1 Green Book highlight: distributional analysis

- It is important that the distributional implications of each option are considered during appraisal. This type of analysis enhances the understanding of the fairness of proposals, their social impacts and their scale.

- The impact of a policy, programme or project on an individual's well-being will vary according to his or her income; the rationale being that an extra pound will give more benefit to a person who is deprived than to someone who is well off. In economics, this concept is known as the 'diminishing marginal utility of additional consumption'.

- Other distributional issues may also arise, and should be considered during appraisal. A proposal may have differing impacts according to age, gender, ethnic group, health, skill, or location. These effects should be explicitly stated and quantified wherever feasible. For example, the costs and benefits of a proposal might be broken down according to the ethnic group they accrue to, providing appraisers with a basis for comparison and analysis.

- Generally though, these other distributional issues are largely correlated with income. Therefore, if more in-depth analysis is undertaken, it should focus on how the cost and benefits of a proposal are spread across different socio-economic groups.

- For the purposes of project appraisal, relative prosperity may often be best defined by relative income, adjusted for household size, and divided into quantiles (e.g. quintiles or deciles). The equity impact of competing options can be compared by charting the impact each has on different 'quantiles' of the income distribution. Proposals that deliver greater net benefit to households or individuals in lower income quantiles are rated more favourably than those that benefit higher quantiles.

- A more in depth analysis uses distributional weights to adjust explicitly for distributional impacts in the cost-benefit analysis. Benefits accruing to households in a lower quantile would be weighted more heavily than those that accrue to households in higher quantiles. Conversely, costs would be weighted more heavily for households in lower quantiles.

- A project aiming to improve market efficiency through the correction of market failure needs also to consider equity outcomes. In this case, an explicit adjustment would be particularly helpful as an equity check for the proposal. Similarly, an adjustment is desirable when faced with a decision between competing equity motivated projects, aimed at regenerating areas containing different socio-economic populations.

- Applying an explicit distributional adjustment requires quite detailed information about the affected population. A judgement must be made as to whether the necessary socio-economic information is available at an acceptable cost, given the importance of the proposal and the likely scale of the impact of distributional analysis.

- Where appraisers decide not to adjust explicitly for distributional impacts, they must provide a justification for this decision. This judgement should be informed by the following considerations:

1. The significance of the impact of distributional analysis to the proposal under consideration;
2. The ease with which distributional impacts can be measured; and
3. The scale of the impact associated with a particular project or proposal.

HM Treasury (2003: 24-25)

2.3 Social cost-benefit analysis

HM Treasury's Green book explains social cost-benefit analysis as a way of expressing the value of a proposed government policy to society. It seeks to express the full social costs and full social benefits of policies in monetary terms so that the consequences of a diverse range of policies can be compared using a common metric.

2.3.1 Green Book highlight: cost-benefit analysis

- The relevant costs and benefits to government and society of all options should be valued, and the net benefits or costs calculated. The decision maker can then compare the results between options to help select the best. It is important to avoid being spuriously accurate when concluding from, and presenting the results of, data generated by the appraisal. However, the confidence in the data provided by the analysis will need to increase, depending on the importance or scale of the decision at hand (for instance, depending on how much resource will be committed by the decision).

- In this context, relevant costs and benefits are those that can be affected by the decision at hand. Although they will vary depending on the scope of the proposal, some general principles apply. It is useful early on in the appraisal process to consider widely what potential costs and benefits may be relevant.

- Costs and benefits considered should normally be extended to cover the period of the useful lifetime of the assets encompassed by the options under consideration, although, if the appraisal concerns the contractual purchase of outputs and outcomes (e.g. in PFI), the appraisal period may be different.

- Costs and benefits should normally be based on market prices as they usually reflect the best alternative uses that the goods or services could be put to (the opportunity cost). However, market prices may need to be adjusted for tax differences between options.

- Wider social and environmental costs and benefits for which there is no market price also need to be brought into any assessment. They will often be more difficult to assess but are often important and should not be ignored simply because they cannot easily be costed.

- Cashflows and resource costs are also important in an appraisal, as these inform the assessment of the affordability of a proposal. However, they do not provide the opportunity cost and, therefore, cannot be used to understand the wider costs and benefits of proposals. Proposals are also likely to require resource budgets, so that it is clear how they will be funded, and, ex post, accounted for.

HM Treasury (2003: 19)

In order to calculate the additional benefits that could be gained by each group through digital inclusion, it is useful to calculate the benefits that are being foregone through digital exclusion. There are three types of benefits to be considered here:

- **Benefits foregone to the citizen**: The amount of money that each group member misses out on as a consequence of conducting activities in person rather than online.

- **Benefits foregone to the government**: The amount of money that government organisations dealing with citizens in each group could potentially save as a consequence of reaching the members of each group online rather than in person.

- **Benefits foregone to the economy**: Refers to losses in national output as a consequence of each of these groups not improving their overall condition as a consequence of not using online services.

2.3.2 Benefits foregone to the citizen

The methodology used by SQW consulting (2008) in calculating the savings that could be made by households through internet use is a fairly sound base. However, by utilising population profiles, a more realistic analysis of savings, increased investment possibilities, and the impact and plausibility of initial costs could be made.

Benefits foregone by not using the internet = A*B*C*D

Where:

A = Number of people in each group

B = Probability of using the internet for people in this cluster

C = Rate of internet use for a specific activity if the internet is used for this particular group

D = Cost of each activity per person

2.3.3 Green Book highlight: valuing benefits

- The purpose of valuing benefits is to consider whether an option's benefits are worth its costs, and to allow alternative options to be systematically compared in terms of their net benefits or net costs. The general rule is that benefits should be valued unless it is clearly not practicable to do so. Even if it is not feasible or practicable to value all the benefits of a proposal, it is important to consider valuing the differences between options.

- In principle, appraisals should take account of all benefits to the UK. This means that as well as taking into account the direct effects of interventions, the wider effects on other areas of the economy should also be considered. These effects should be analysed carefully as there may be associated indirect costs, such as environmental costs, which would also need to be included in an appraisal. In all cases, these wider effects should be clearly described and considered.

- Real or estimated market prices provide the first point of reference for the value of benefits. There are a few exceptions where valuing at market prices is not suitable. If the market is dominated by monopoly suppliers, or is significantly distorted by taxes or subsidies, prices will not reflect the opportunity costs and adjustments may be required and specialist economic advice will be needed. An example of this is the effect of EU subsidies on the market for agricultural land.

- The results of previous studies may sometimes be used to estimate the economic value of changes stemming from current programmes or policies. There will be increasing scope for using this 'benefit transfer' method as databases expand, though care must be taken to allow for different circumstances. The characteristics of the consumers or client group for which data exist may differ from those of the proposal under consideration. These factors can limit the extent to which values can be transferred or generalised.

- In the absence of an existing robust (i.e. reliable and accurate) monetary valuation of an impact, a decision must be made whether to commission a study, and if so how much resource to devote to the exercise.

- Where it is concluded that a research project to determine valuations is not appropriate, a central estimate, together with a maximum and minimum plausible valuation, should be included. These figures should be included in sensitivity analyses to give assurance that benefit valuation is not critical to the decision to be made. A plausible estimate of the value of a benefit or cost can often be drawn out by considering a range of issues.

HM Treasury (2003: 21-22)

Both the initial and ongoing costs of having broadband internet access are estimated, and then subtracted from the total potential benefits for each activity for each group, which are derived from the following (not an exhaustive list, and with different components for each group):

- Reduced household expenditure, as a result of being able to search for, compare and/or purchase certain goods and services online at a lower price than is typically achieved off-line (private).

- Increased investment income, by taking advantage of the higher interest rates that are available for online savings accounts (private).

- Educational opportunities increased due to access to distance learning, ICT training, or use of online research tools for traditional education (private and social aspects due to a educated population/workforce being more able to make informed decisions, as well as the increased likelihood of civil/political participation).

- Increased employment prospects due to access to online job applications, information about available positions, increased confidence with ICT use or qualifications gained online (private and social aspects – decreased cost of unemployment and increased income from taxes).

- Access to public services online with accompanying savings of time and travel costs as well as more flexible use of the service (private and social aspects, include public savings and environmental gains).

- Entertainment and communication (private).

- Increased health prospects and reduced provision costs to the NHS (private and social).

Each of these potential benefits and savings is associated with an evidence base and ongoing studies. These should be drawn upon in order to calculate

the levels for each group as they will be used in different ways and with different impacts due to a range of socio-economic factors.

While it is important for a full understanding of the situation to take into consideration all the individual benefits that can accrue due to being digitally included, those benefits that are actually private in nature (consumption benefits, increased returns to investment, entertainment and communication) should not be used to justify the case for government intervention. These areas can be used as a 'hook' in order to interest those that may not be inclined towards ICT, but are not to be part of the summation of economic benefits on the whole.

2.3.4 Benefits foregone to the government

In order to calculate the savings that can be made by switching channels for the provision of information and services to the public, it is increasingly important for authorities to collect information on costs and volumes transactions in a manner that allows for comparisons across authorities. Where possible, this should take account of the CIPFA Best Value Accounting Code of Practice (BVACOP), annually updated. One of its many functions is to try to standardise information that is used for comparative purposes. It is understood that all local authorities have a copy of the Code and thus can refer to it when necessary to assist with their calculations.

Activity Based Costing (ABC)[16] or the 'cost to serve' allows councils and organisations to know more precisely what a service costs to provide and how it might be delivered in a different way or via a different channel so a more informed debate might take place. Those authorities that are using a detailed time recording system should be able to complete this exercise, as the data requirements are similar. For those authorities not yet recording activity based costs, it may be necessary to put in place new mechanisms so as to be able to provide the information required.

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[16]http://www.esd.org.uk/esdtoolkit/Communities/EffectiveServiceDelivery/ContentView.aspx?
ContentType=Content-516

Support is already in place for those government organisations that wish to carry out this type of appraisal, though it will be important to ensure that the costs of providing information and those of providing services are differentiated.

2.3.5 Green Book highlight: valuing costs

- Costs should be expressed in terms of relevant opportunity costs. It is important to explore what opportunities may exist. An example of an opportunity is to use land in a different, more valuable, way than in its current use. Another is the alternative use of an employee's time. Full time equivalent (FTE) costs should be used to estimate the costs of employees' time to the employer, and should include pensions, national insurance and allowances, as well as basic salaries.

- Costs of goods and services that have already been incurred and are irrevocable should be ignored in an appraisal. They are 'sunk costs'. What matters are costs about which decisions can still be made. However, this includes the opportunity costs of continuing to tie up resources that have already been paid for.

- It can be useful to distinguish between fixed, variable, semi-variable and step costs:

1. Fixed costs remain constant over wide ranges of activity for a specified time period (such as an office building);
2. Variable costs vary according to the volume of activity (external training costs, for example, varying with the number of trainees);
3. Semi-variable costs include both a fixed and variable component (maintenance is an example, where there is usually a set planned programme, and a responsive regime whose costs vary in proportion to activity, i.e. the number of call-outs); and,
4. Semi-fixed, or step costs, are fixed for a given level of activity but they eventually increase by a given amount at some critical point (after telephone call volumes reach a certain level, a new call centre may be required).
5. Categorising costs in this way can aid sensitivity analysis, but the categorisation should be used carefully. A cost that is fixed relative to one factor may change with another. More complex modelling may be required to describe how costs change over time and with different variables.

- For substantial proposals, the relevant costs are likely to equate to the full economic cost of providing the associated goods and services, and for these proposals, the full economic cost should be calculated, net of any expected revenues, for each option. The full cost includes direct and indirect costs, and attributable overheads. The full cost of the Base Case, as built up in this way, should also equal the total of the analysis of costs into their fixed, variable, semi-variable and stepped elements. A dual cost analysis of this kind enables opportunity costs to be fully considered, and sensitivity analysis to be conducted later on.

- Cost estimation can be difficult, depending on the class of costs under consideration. It will normally involve input from accountants, economists and other specialists, depending on the type of appraisal. The appraiser needs to understand and communicate clearly the scope of the appraisal to ensure that specialists provide relevant cost information, whilst ensuring that opportunities have been thoroughly explored.

- Depreciation and capital charges should not be included in an appraisal of whether or not to purchase the asset that would give rise to them (although for resource budgeting purposes they may be important). Depreciation is an accounting device used to spread the expenditure on a capital asset over its lifetime. Capital charges reflect the opportunity cost of funds tied up in capital assets, once those assets have been purchased. They are used to help test the value for money of retaining an asset. They should not be included in the decision whether or not to purchase the asset in the first place.

- Some projects expose the government to contingent liabilities – that is commitments to future expenditure if certain events occur. These should be appraised (and monitored if the proposal goes ahead). One class of contingent liabilities is the cancellation costs for which the government body may be liable if it terminates a contract prematurely. Such liabilities, and the likelihood of their coming about, must be taken into account in appraising the initial proposal. Redundancy payments fall into this category, but as the wider social and economic consequences of these should also be assessed, advice from economists should be sought.

HM Treasury (2003: 20-21)

There are further costs and benefits for the government that could be explored using this framework. Some of these are quantifiable (such as reduced unemployment costs, reduced health costs, increased productivity) but others not. A revised section of HM Treasury's Green Book (2003)

explores this more fully, and should be taken into consideration when developing an evidence-based policy.

2.3.6 Green Book highlight: non-market costs and benefits

> ▪ Most appraisals will identify some costs and benefits for which there is no readily available market data. In these cases, a range of techniques can be applied to elicit values, even though they may in some cases be subjective. There will be some impacts, such as environmental, social or health impacts, which have no market price, but are still important enough to value separately.
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> **HM Treasury (2003: 22)**

The Green Book refers to two techniques for the valuation of non-market impacts: Stated Preference and Revealed Preference methods. Stated Preference uses specially constructed questionnaires to elicit estimates of people's Willingness to Pay for (or Willingness to Accept) a particular outcome. Revealed preference observes people's behaviour in related markets. These preference-based techniques have been in use for some time as an essential part of social cost- benefit analysis. During this time, the behavioural sciences and other research has built up an evidence base about the potential uses of these methods, as well as their limitations.

In contrast to these preference-based techniques, a newer, subjective well-being approach, has been gaining popularity in recent years, which attempts to measure people's experiences rather than expose their preferences. The Life Satisfaction Approach uses reported life satisfaction in surveys such as the ONS's Integrated Household Survey, which began including questions on respondents' subjective well-being in April 2011, to value non-market impacts. The approach uses econometric methods to estimate the life satisfaction provided by non-market goods, and this is then converted into a monetary figure by also estimating the effect of income on life satisfaction. The approach therefore assesses the impact of policies on how people think and feel about their lives as a whole, instead of assessing impact based on what people say they want and what they choose. These methods are explored in

Fujiwara and Campbell (2011), *Valuation Techniques for Social Cost Benefit Analysis: Stated Preference Revealed Preference and Subjective Well-Being Approaches*, which acts as a revised section for the Green Book.

> - Adjustments will often be required to take account of distributional impacts, and relative price changes to develop the Base Case. As for all adjustments, they should be shown separately, clearly and explicitly in any supporting tables of data.
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> **HM Treasury (2003: 24)**

3. Conclusions

The Welsh Government works to a social justice agenda and when developing policy, social benefits should outweigh the costs. There is much scope for the lionisation of the private benefits that accrue to individuals with increased digital inclusion, and these are important to keep in mind as they may act to encourage participation amongst those that would otherwise be excluded. However, private benefits can not be used to justify government intervention with public policy.

When developing a model for policy intervention, it is vital to keep in mind that social cost benefit analysis is not simply an analysis of the effects of a project or policy on public expenditures and public and private revenues. Instead the focus is on the costs and benefits for society as a whole. It should be concerned with the net benefit to human welfare.

PART IV

Case studies – Carmarthenshire 50+ Forum

1. Introduction

1.1 Why is digital exclusion an older people's issue?

'The world would be a poorer place without ICT' **Alun, aged 61**

As discussed in Part II of this report, and highlighted in recent policy documents and evidence reviews from the Welsh Government (Welsh Government, 2011b), non-use of the internet impacts disproportionately on Wales' older population. To recap the most recently available figures from 2010: of the estimated 785,000 adults who do not use the internet, 515,000 are aged 50+; retirees make up only 15 per cent of the over 18 population, but around four out of ten of the digitally excluded population; the over 55s make up approximately three out of ten of the over 18 population, but account for six out of ten of the digitally excluded population. Internet use drops rapidly with age, moving from 74 per cent at 50-55 to 52 per cent at 65-69 and only 11 per cent at 85+. The Carmarthenshire 50+ Forum is a community organisation that represents the interests of this population, and the steering committee is becoming increasingly aware that digital inclusion is an issue that concerns their membership.

Once the statistics have been made available, and analysed to show the likelihood of ICT use for different sectors of the population, we begin to build a picture of the access divide that exists in Wales, and strongly mirrors other types of social exclusion:

> 'LSOAs[17] with low levels of digital inclusion tend to be those with relatively older populations and/or those with high levels of social and economic exclusion. These characteristics reflect the roles that personal choice (and its relation to age and life stage) and socio-economic exclusion play in digital engagement' **Welsh Government (2011b: 52**)

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[17] LSOAs (Lower Super Output Areas) are small geographic areas with populations of around 1,500 residents and a relatively high degree of social homogeneity.

At this point, it behoves us to consider the different ways that people use (or do not use) ICT and also need to outline what is meant by ICT in this context. Selwyn explored this in his 2004 study when he says that ICT

> '[…] is best seen as an umbrella term for a range of technological applications such as computer hardware and software, digital broadcast technologies, telecommunications technologies such as mobile phones, as well as electronic information resources such as the world wide web and CD ROMs. In theory, therefore, any notion of a digital divide must run separately (and even differently) through all these technologies. This plurality of technologies is complicated further by the use of the term 'digital' to refer to the content that is provided via such technologies – the 'soft'-ware rather than the 'hard'-ware. In other words, the digital divide can be seen also in terms of the information, resources, applications and services that individuals are accessing via new technologies.' **Selwyn (2004: 346)**

Those technologies, types of information and resources all contain aspects that can be considered extremely pertinent for older people. Government services such as health care, job seekers support, pension applications and advice, information about local council services, educational provision, driver licensing, car taxation and many others besides, can all be accessed online. It is easy to contact an Assembly Member or Member of Parliament and receive a swift reply when both parties are using email. Income tax filing now has to be done electronically and other government services that affect Welsh citizens are also moving in the same direction. Various forms of ICT can facilitate communication with family, friends, and peers, and use for education, research, entertainment and access to online shopping should also be taken into consideration, especially when users have lower mobility levels.

1.2 Questions considered during research

Replicating previous research, the questions that were kept in mind while conducting interviews and preparing these case studies were as follows:

- What types of formal/theoretical access to what technologies do people have at home, at work and in community settings?

- What types of effective/practical access to what technologies do people have at home, at work and in community settings?

- What is the nature and extent of the use of technologies facilitated by this access? Under what circumstances does meaningful use/engagement arise? What factors contribute to people continuing to be users of ICT and others to revert to becoming non-users?

- What types of social, economic, cultural and technological capital are people able to draw upon when using technology?

- What are the short-term outcomes of this engagement with technology for people and communities?

- What are the longer-term consequences of this engagement with technology in terms of individuals' participation in society?

- How are people's ICT access, engagement and outcomes patterned according to individual factors such as age, gender, class, geography, ethnicity and disability?

- What other mitigating factors and circumstances can be identified as having an impact on different social groups' propensity and motivations to engage with ICT? E.g. the 'capitalist driven' and state-driven development of ICT (Hoar and Hope, 2002; Selwyn, 2005).

In 2002 and 2003, Selwyn et al conducted an in-depth study into the different reasons for using and not using the internet, and the ways in which users were engaging with various technologies. The study combined a systematic, stratified sample of representative areas of the UK, with further in-depth qualitative interviews with 100 of the original respondents. These follow-up interviews looked at individuals' engagement with technology, their employment history and educational backgrounds. The researchers found that they could broadly categorise participants as:

- Broad frequent users (13 per cent of the overall survey sample), who reported making frequent use of the internet (i.e. 'very often' or 'fairly often') and used the internet for three or more different applications/purposes;

- Narrow frequent users (18 per cent), who reported making frequent use of the internet and used the internet for one or two different applications/purposes;
- Occasional users (11 per cent), who reported making occasional use (i.e. 'occasionally' or 'rarely') of the internet;
- Non-users (58 per cent), who had not made use of the internet during the past 12 months (Selwyn et al, 2005: 9-10).

The ways in which members of the 50+ Forum fit into these general use categories will be considered in the next subsection, as well as the underlying themes and concerns that became evident during the interviews. The case studies should be considered illustrative of these themes and concerns of lived experience that arose during qualitative interviews and are not intended as a systematic review of all experiences.

As those with whom we wish to work are to be considered the experiential experts[18] in this case, criterion sampling has been used to determine where and with whom to work. Participants considered had to meet both inclusionary and exclusionary criteria. We had to recognise that attempting to encompass the hundreds of community organisations that address digital inclusion in Wales is beyond the scope and timeframe of this project. The decision was therefore made to adopt a case study approach involving a small number of individuals affiliated to the 50+ Forum in Carmarthenshire. Access was facilitated by members of Carmarthenshire County Council, and members of the Forum who were willing to be contacted participated in telephone and Skype interviews during the third week of August 2011. Additional mini interviews also took place during the Forum meeting on July 28, 2011. These were carried out after the main meeting was over by Forum members who had been trained in the use of recording equipment by the Carmarthenshire Association of Voluntary Services (CAVS). The resulting audio will be edited and formatted by the same volunteers for use on the community radio station

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[18] The concept of 'experiential experts' is taken from Ruth Behar, 1993 and Guest et al, 2006. This refers to those who are specifically chosen to participate because of their knowledge or experience with the relevant topic.

ran by CAVS[19]. Participants were therefore being asked by their peers for their ideas for ways to help get older people to use computers and get online.

2.   Why the Carmarthenshire 50+ Forum?

On the Carmarthenshire County Council website, they outline their Digital Inclusion Initiative, tied in this region to the Communities 2.0 project. As they say:

> 'Communities 2.0 is a joint Welsh Government/ERDF[20] project delivered by a partnership of organisations to help community groups, voluntary organisations and social enterprises in Wales to benefit from using new technologies. [They] want to break down the barriers to using technology, inspire people, build confidence and create opportunities, through a partnership comprised of the Wales Co-operative Centre, Carmarthenshire County Council, Pembrokeshire Association of Voluntary Services, Novas Scarman, and the George Ewart Evans Centre for Storytelling at the University of Glamorgan.' **Carmarthenshire County Council[21]**

Communities 2.0 runs in the Communities First areas including the 30 per cent most deprived Lower Super Output Areas in Carmarthenshire. Carmarthenshire County Council have also extended the area of operation to the remainder of the population. This project considers Digital Inclusion to be:

> 'an agenda about people and improving their lives, being able to communicate more easily; getting goods more easily and for lower prices and about being able to access public services more easily. Digital inclusion is also about reducing social isolation. It is about people being able to benefit, both as citizens and consumers.' **Wales Co-operative Centre[22]**

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[19] http://www.cvcradio.co.uk/player.html
[20] European Regional Development Fund.
[21]
http://www.carmarthenshire.gov.uk/english/business/grants/rdpsirgar/pages/digitalinclusion.aspx
[22] http://clickconnectdiscover.org/technology

Within this, the key areas of activity include:

- Helping community groups undertake digital inclusion activities with their members
- Helping community groups to maximise their own use of technology
- Providing groups with support to earn income from their digital activities
- Working with groups to help them set up new ICT enterprises, including social enterprises
- Helping existing enterprises, especially social enterprises, to make better use of ICT
- Supporting individuals to gain ICT skills which will help them get jobs
- Providing advanced training in technical support for community groups
- Developing Centres of Excellence…which will act as hubs of specialist expertise.

The Carmarthenshire 50+ Forum is one of the community groups connected to the Council through this initiative. The 50+ Forum is aware that Digital Inclusion is an issue that affects its members and on 28 June, 2011 they held a meeting focussed on technology use. The meeting was strongly attended and based on participation and feedback organisers concurred that there was a lot of interest in the topic. Of the approximately 100 attendees[23], about half were already computer users. Proportions were lower each time as those present were asked whether they also used email, Skype, internet banking, or social networking sites. There was a definite engagement with the issue of Digital Inclusion amongst participants and it was obvious that they felt that it was relevant to, and affected, them, whether they were using ICT or not.

The 2011 50+ Forum survey is also the first one that can be completed online, and includes a section specifically pertaining to technology use. It is possible for members to complete the survey via the Forum website until September[24] (although they can also request a paper copy), and besides questions

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[23] 170 people had indicated that they would like to attend but the room did not have the capacity. Further meetings are planned.
[24] There were 500 responses to the survey, and results should be input and top line analysis completed by the end of September 2011.

pertaining to health, services and housing, members are being asked ten questions specific to technology use:

28. Which 3 words best describe how you feel about technology? (Tick up to 3 boxes)

☐ Exciting   ☐ Fun

☐ Scary   ☐ Efficient

☐ Essential   ☐ Complicated

☐ Annoying   ☐ Helpful

☐ Expensive   ☐ Boring

☐ Fearful

29. Which of the following, if any, does your household have? (Tick ALL that apply)

☐ Computer or laptop   ☐ Mobile phone

☐ Computer or laptop with internet access   ☐ Mobile phone with internet access

☐ Wireless internet access   ☐ Digital camera

☐ Digital television   ☐ Digital radio

☐ Games console

30. How often do you use the following digital technology?

	Don't use	Weekly	Monthly	Within the last six months	Within the last year	Longer ago
Digital television						
Internet at home						
Mobile phone						
PC or laptop at home						
Digital camera						
Games console						

31. Do you have access to the internet?

□ Yes   □ No

32. If you have access to the internet at home is this service broadband or dial up? (Tick 1 box only)

□ Broadband   □ Dial up   □ Don't know

33. What do you use the internet for? (Tick ALL that apply)

□ Social networking/keeping in touch with friends/family   □ Work

□ Telephoning over the internet/video conferencing   □ Downloading software

□ Learning (studying/training/homework)   □ Using chat rooms

□ Finding information about holidays/travel/accommodation   □ Hobbies/interests

□ Listening to radio or watching television   □ Using email

□ Finding information about goods/services   □ Selling goods/services

□ Personal banking/finance   □ Shopping

□ Reading or downloading news   □ General browsing

□ Playing or downloading music   □ Access council services

□ Other

34. Do you use the following?

Facebook   □ Yes   □ No

Twitter   □ Yes   □ No

35. If you wanted to contact Carmarthenshire County Council, which of the following methods would you be MOST LIKELY TO USE? (Tick 1 box only)

□ By telephone   □ Via the website

□ In person   □ By letter/fax

□ By email   □ Via Carmarthenshire County Council Digital TV service

□ Other

36. If you wanted to contact Carmarthenshire County Council, which of the following methods would you PREFER to use? (Tick 1 box only)

☐ By telephone   ☐ Via the website

☐ In person   ☐ By letter/fax

☐ By email   ☐ Via Carmarthenshire County Council Digital TV service

☐ Other

37. Would you be interested in any of the following training or advice sessions? (Please tick all that apply)

☐ Using a computer   ☐ E-Bay

☐ Internet and email   ☐ Web development

☐ PC repair and building   ☐ Social networking sites

☐ Digital photography   ☐ Internet safety

☐ Family history   ☐ Online banking

☐ Job searching using the internet ☐ Using a mobile phone

☐ Saving money online   ☐ Other

All of this demonstrates how digital inclusion and its mirror image, digital exclusion, are increasingly of concern to older members of Carmarthenshire's civil society, with its importance recognised by the local authority. The following section will explore the themes that became evident during the interviews.

3.   Case studies

3.1   An ambassador for internet use?

It could be argued that all of the organisations mentioned above are connected in some way to the Welsh Government, or the Communities 2.0 project, and that they may therefore be reflecting an underlying mission statement rather than a demand from the 50+ community. While the evidence

does not support this supposition, 'Learn with Grandma'[25] began quite separately and can serve as an example of an initiative that has been started due to a perceived need and has met with success because of this. During the Skype conversation about this project, several themes arose that were then mentioned with regularity in subsequent interviews. They will be outlined here to serve as signposts to the next three sections, which will be followed by a further four that touch on concerns raised by respondents.

Valerie (aged 70, 'Learn with Grandma' founder)

Mrs. Valerie Wood-Gaiger MBE launched 'Learn with Grandma' in Wales in 2008 and has since taken it across Europe and as far afield as Tanzania. However, her journey all began with an application for a prize fund of £10,000, in which the last phase was an online vote. While she does not describe herself as 'a silver surfer' as she has been using computers and ICT in various ways since 1987, Valerie was not fully confident with the internet at the time and believed that the battle was lost. But with the support of her grandson, Valerie launched a campaign on Facebook and also sent out invites to family around the world via email. This combination allowed her to win the funding, and demonstrated to her the very different ways in which social networking can be used in support of other activities. As she said, email is limited to those people you believe are interested in something, while Facebook can open it out to those you may not have considered. Because of this experience, and through her organisation, Valerie has since become an activist for digital inclusion for older people as she feels that there is so much to be gained. As she says, 'a computer is a tool. It is just the latest tool that man has invented. It is a wonderful tool that has broken down international barriers. It can also break down age barriers'.

Raising a point that is touched on by others, Valerie spoke about the type of information that is available online and how this can be of interest to older people who may not be aware of such content. For example, for the local

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[25] http://www.grandma.cavs.org.uk

celebrations of Saint Dwynwen, the Welsh Patron Saint of Lovers, she found and printed the words to traditional songs in Welsh for members of her church community. This may not be of interest to everyone and older people are, after all, a heterogeneous group with various interests and needs. But use can be tailored to individual interest and as Valerie reminded, there are places to find out about saving money when visiting National Trust properties, the Botanic Gardens, the theatre and so on. Joining together as a group, individuals can save money – but only if they can get in touch with others who would like to go. So communication and networking can be used in this way to be involved and active in the real world as well as to save money.

A repeated theme is the importance of inter and intra-generational learning. If 'it takes a village to raise a child', it also holds true that we are losing traditional skills and knowledge that could be preserved through ICT[26]. A concern of Learn with Grandma is that in the UK, 60 per cent of grandparents care for their grandchildren (hiding the disparities in this across the country wherein the number are higher in those areas where there is less access and use of ICT already), and that in that role they could be sharing information and learning ICT skills, but often it is a matter of pride, of not wanting to show ignorance or to be seen as a fool. This issue is often raised when discussing courses aimed at older people. Education for older people needs to be more tailored to their needs. They need to know how to make it do what they want, not exactly how it works. As Valerie smilingly quips, 'I have been driving a car since I was 23 but don't know how an internal combustion engine works! The internet is the same'.

The idea of Learn with Grandma is not to replace or replicate what other people are doing, but Valerie feels that there must be more communication between service providers so that it is easier to access information and services in one place: 'a local map of services' is needed so that users can navigate the internet maze.

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[26] Institutions in Wales recognised this and Wales has been at the forefront of preserving digital archives since devolution (Green, 2005).

Also, she insists, being a pensioner is not 'who she is', and not everyone can be treated alike. Valerie's advice (with a smile) is not to get hung up on the few who do not want to join because 'there will always be Luddites'. As she says: 'When my dad put electricity into my grandmothers' cottage she would not have it upstairs – far too dangerous – she went to bed with a candle instead' and look how things have since changed.

3.2 Ways in which ICT and the internet is being used

During the course of the interviews it became obvious that each technobiography was as individual as the teller. A wide variety of experiences came to light, but what proved to be the golden thread was that on the whole ICT is being used as a tool to continue current activities, to support hobbies, and to maintain existing relationships. The patterns of use followed those outlined above, as illustrated in the following condensed biographies[27]:

Alun (aged 61, runs part-time business)

Alun uses the computer and internet every day of the week for one purpose or another. In the home he has a PC and a netbook so that he and his partner can both use the internet at home. They have home-hub so that his partner's children can use their laptops when they come home from university. The hub also has a wi-fi printer for the same reason. In the house he has fast broadband but his neighbours do have trouble with access.

He is presently running a small part-time business and is registered with several job agencies so that they can contact him regarding jobs in a variety of ways. He uses a computer and the internet for online banking, photography, keeping and accessing records online, researching household purchases, holidays and exchange rates online (with his partner) so that they can go directly where they need to, informed and prepared. He is an athletics coach so uses the website of the national body, as well as the local

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[27] Names of the interviewees have been changed.

Carmarthen club website, and keeps logs and routes of his own running schedule.

He uses Facebook and feels that the internet can improve quality of life as well as providing entertainment. He follows sport (rugby, cricket, athletics, football) on BBC Sport. He does not have Sky so cannot watch the games live, but can be involved even so. Alun is also an avid gardener and uses the internet to research plants, diseases, best time to plant and buy. He also loves walking and will research an area before going there. Maps can be downloaded and access checked. He does still print things off to read because he doesn't like reading on a screen so feels that he wouldn't like a Kindle or iPad, he still prefers a book.

Carys (aged 62, Skype user)

Carys uses IT in a variety of ways. An important position is given to communication, as she has a son and grandson in New Zealand, so uses Skype. She also keeps in touch with other family and friends and her grandson has shown her how to make a blog. She pays bills online (limited funds on a pension so every bit of saving is welcome), banks, and shops online. Local shops offer a 'put-away service' so those that she used to work with that had carers could have the shop delivered and put away on the shelves so that it didn't go off before the next visit from the carer. She described ICT as the 'best thing since sliced bread, as those that find little bits of their lives being taken away, are given the chance to carry on with their lives'.

Dai (aged 52, experienced video conference user)

When Dai was working with the Fire Service in the 1980s he was given a Sinclair ZX80, one of the first affordable personal computers available in the UK. While these computers were quite primitive, he was intrigued and decided that when home computers became more widely available that he would get one. He previously used video conferencing (the professional kind) and was a

bit nervous to begin with. Once he got it working he prepared an instruction book and demonstrated how to use it to his colleagues and got really confident with it.

He now uses Linux on his computer as he is more protected from viruses. He believes that because he used ICT at work, he feels more confident and able to figure things out; he uses the internet for many things, including banking, buying and selling on eBay, filling out forms (such as 50+ questionnaire), and recently, to look for a new house. He was able to look at hundreds of houses and then decide which to visit in person without wasting trips. He also has a medical problem and was able to inform himself about it online before going to the doctor. He knew what the different treatments were, what was being tested and what was the accepted wisdom. This allowed him to have a more informed conversation with the doctor when the time came. He was careful with the sites that he visited and was reassured when there was a consensus between different ones. He has tried renewing his prescriptions online but unfortunately this has yet to work, as emails seem to get lost.

Evan (aged 63, genealogy enthusiast)

Evan is currently tracing his family tree and has used forums to share and gather information. He feels that access to government data is really valuable for those doing historical research. The online archives of the National Library of Wales are really important and interesting and he appreciates the digitalisation of them. He also uses the Carmarthenshire County Council website and likes that more and more services are becoming available online such as planning information and bus timetables.

His wife is Swedish and has been using websites and courses to learn Welsh. There is a lot available which she finds really useful and supportive. They both find it really important that the Welsh Government is investing in this area based on his experiences as a child where the Welsh language was not considered useful and only richer people travelled so no one learned a language other than English. When he then learned Swedish later on in life it

gave him confidence to learn other languages and to travel and try new things.

Geraint (aged 67, volunteer)

Geraint works with organisations such as Age Concern, the Carmarthenshire 50+ Forum, Arriva Trains Wales, and Bus Users as a volunteer. In these roles, if he sees any problems on the transport networks he takes pictures and uploads them to a website to report them. As he uses ICT for his volunteer role, he would like to see free IT courses in communications for volunteers. He has to speak to Arriva trains and the Bus Users in Cardiff and it would be good to use Skype but he would like someone to go through how to use it, types of cameras that work well, and where to get them.

Hannah (aged 68, press officer)

Hannah is an active member of several local associations for which she has to send out press releases and minutes of meetings via email. In these roles, she does research for the organisations but finds it better to use books, as it is easier to concentrate. During the summer (2011) Hannah did a six-week course at the University of Swansea, which was free, as they needed more adult education participants. It was on Archaeology and the Holy Land and while she did research online, she found that it was useful to point her in the right direction but that she learned a lot more from books.

Hannah uses internet banking (although finds it very frustrating sometimes), and prefers the online telephone directory, as it is quicker and easier to use than the phonebook. However she does not use Facebook or Twitter as she does not want to share her personal information with lots of people and does not have many contemporaries doing so.

Ioan (aged 69, Photoshop and digital music)

Ioan is a retired optician who came to computers after reaching 50, when he was pushed into early retirement, and took an immediate liking to ICT in general. He became a volunteer in a studio where he learned to use Photoshop and to work with digital music, and helped young people publish their music. He also ended up teaching Photoshop for some years. Ioan has had a mostly positive experience with the internet and computing.

He has a Mac, a windows PC and a PC used just for working with music. Even though he has access to computers at his voluntary workplace, he still uses computers extensively at home, and finds it easier to work there when doing layouts due to the lack of interruptions. His wife is a writer so she uses the computer for that. She trained as a typist so does much of his typing for him. Even though he finds typing to be an increasing issue, he does not use speech to word programmes as he finds that it takes a long time to train it and then many mistakes are still made. Ioan feels that for other older people without the support he has (from his wife), this is more problematic (though he turns down the repeat speed on the keyboard to avoid making too many mistakes). He uses email constantly and feels that it is one of the best inventions of the 20th century.

John (aged 69, self taught)

John used to work for a communications company but left in 1988. At the time he was with them, there were early computers being used but it was not until his retirement at 60 that his son gave him a PC and he started using it at home (he did not need one while he was still at work) He is self-taught as he was 'technology interested' and not worried about playing around with it until he knew how to use it. He started with dial-up but has recently moved and where he lives now he has access to broadband.

He uses it for various purposes: for information purposes, finding out things that interest him from books or researching items that he wishes to purchase.

He does not buy food online but does use it for electronic goods and furniture. He uses it for word processing and email, and while he says he does not play games, he admitted to playing chess on the computer. He does not get movies or music. He did have Skype but where he used to live the signal kept dropping out so, he gave up. Our conversation reminded him that he now has a faster connection and could get back onto Skype.

John uses the internet to fill time, especially in the winter. He follows up projects and interests that he already has. He has moved recently and used council and government sites to change his address and check on local services online. He did not find the sites very user friendly although feels that the Carmarthenshire County Council site is a good one and has it on his list of favourites. He uses it for library ordering and renewing, to check rubbish collection times, and likes the A-Z index. John says that he has not changed interests or done anything differently. He uses ICT as another tool to add to the interests that he already has. He finds that it helps with letter writing as he is not very good with a pen and is changing to email because of the speed, but feels that we should use all of the tools available, not replace one with another.

Llewellyn (aged 71, rural Carmarthenshire)

Llewellyn began our conversation by informing me that he does not use many new technologies and that when he uses the internet it is more for e-mail and word processing, mirroring previous activities with earlier technologies. He used to work in higher education and therefore used ICT there.

As with many who have said that they don't use the internet much, Llewellyn went on to expand on many uses and said that he uses the internet every day, for one reason or the other: He does do some shopping online as he lives rurally, or 'in the wild' as he puts it, and for gathering information, although he prefers books and avoids reading on the screen. He also uses it to watch iPlayer if he misses a programme on television. As the chairman of a breed society, he uses the internet to communicate with members, and the

registration system is online. While working, he did some basic courses and does not feel that he needs anything more extensive. His wife uses a digital camera and the computer for uploading photographs.

Living where he does, the availability of internet shopping is helpful. It is 2.5 miles to the nearest post office so he uses online government services, such as TV and driver licensing. On the whole, his experience with the internet and computers has been mostly positive but it is not an integral part of his life.

3.3 Mentorship, inter and intra-generational learning

Carys (aged 62) has used IT for years within her job and if she doesn't know how to do something or would like to learn a new IT skill, she goes to her grandson. Intergenerational learning is something that she supports both due to her own experience, and to the projects that she worked with through the Carmarthenshire County Council. An example given was of an adult day-care centre (working with those with serious care needs, 85+). The first year uptake on a course of health and social care had a progressive tutor who brought the students on their 'play' module to the centre instead of working with small children. They used Wii sessions to improve motor and mental abilities and had really positive results surrounding this, including in the ensuing conversations. Carys also suggested that the Council could bring in time banking. Lots of courses and jobs require young people to have volunteer experience. Local authorities own or lease many properties and there are always seats left at the theatre or spaces in swimming pools. Intergenerational training could then be made sustainable and attractive for all involved.

Often, this learning can go both ways. At the moment, Seryn (aged 78) is a contributor to the St Clears Times magazine which is available online. She is also working with the project on the history of Carmarthenshire, which includes 100 years of photography. She has the material and her colleague has the technological knowledge and experience in making and running a website. She feels as though they learn together and that therefore they are a

partnership, and she is still the captain of her own ship, not just relying on someone else.

Mentors do not necessarily have to be provided in a formal setting, or for a particular activity. Alun (aged 61) feels that family needs to take responsibility for parents and grandparents; they need to be passing skills on. He uses the example of his mother who does not go out much any more and therefore watches television all day. Knowing what she could access, he feels that using the internet could be much more rewarding and stimulating for her. He feels that it must be an intergenerational effort, with families helping keep people included, and recently took his laptop to his mother to show her a video made of his new house, with the garden and changes made. This way she felt more included even if she could not physically visit. When Evan (aged 63) retired he returned to Wales. At that time he showed his dad how to access the internet at the local library and started using a computer more. He feels that people of his generation and older are afraid of messing things up as computers used to be very sensitive and could get damaged really easily.

Grandchildren and family members can be very important in mentoring, but often lack the patience to explain fully how to do things, and Gareth (aged 72) finds that he ends up doing this for friends and neighbours. He says that what many people would like is a drop in centre/telephone line where they could ask individual questions and have things resolved for them. Dai (aged 62) echoes this; 'they need someone as a mentor, who will help them make ICT do what they want it to do. Unfortunately courses tend to be exam based and they get bored and frustrated'.

Respondents at the 50+ Forum were almost unanimous in their call for some form of mentoring or drop-in one-to-one learning scheme:

> 'If someone has never used one, it would be good to have a mentor.'

> 'I think people who know nothing about computers would appreciate mentoring by somebody who has some knowledge.'

'One simple thing is to get the people who are online to tell their husbands and wives who probably don't go online.'

3.4 Courses in Carmarthenshire

Geraint (aged 67) attends courses at the local technical college and for the past three years has received ILA[28] funding for these (50 per cent of fees paid by the Welsh Government via a voucher if certain criteria are met). By joining the student union he then has access to discounted software through the college (which can be updated). Because they are small, local classes, questions can be asked in Welsh, which is useful for those with Welsh as a first language. Geraint also points out that of eight people in his class, two are in wheelchairs and there are special keyboards that stop repeated typing for those with shaky hands. Perhaps most importantly for those involved, the course also acts as a social event. The classes run from October to March/April and they go to the cafeteria for lunch (which is affordable). It is a useful way to meet people in person that share age and interests.

For example, Hannah (aged 68) feels that while ICT, and the internet in general are already pertinent for older people (although some will never use it), the provision for training and access do not meet their needs. There is a definite need for local mentors because people are keen to try but don't want to pay for a 10 week course that may not cover what they want. They want short courses that show them how to do what they want to do with someone who is patient and able to explain things clearly. There is no need to make things complicated and teach people how to make spread sheets when all they want is to save the photos that they have taken with a digital camera. Most older people are familiar with a typewriter or word processer and want to be able to do the same things, but with a different medium.

Seryn has taken courses at college that were given credits from Aberystwyth University. This was in Excel, Access, desktop publishing etc. Now she finds

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[28] Individual Learning Account Wales. This scheme ended in March 2011.

that the courses offered through the 50+ Forum are not targeted at her as she is too advanced, but she knows lots of people who struggle with them as there is a computer language (terminology) that is needed in order to explain things to people, or to understand explanations. But there was a course in the village on Word that was just boring because the teacher just explained everything too in-depth and didn't stop talking to take questions. As she clarifies, 'there is a need to present things in a simple, uncluttered, concentrated manner that looks at specific tasks. There is no need to know how a computer works!'

Alun (aged 61) feels that if courses offered were more basic, clearer and focused on teaching people what they wanted to learn that it would be easier to get them interested. Those involved in organising them also have to be honest about the benefits that can accrue. There are individual financial and educational benefits but people can also remain involved when they are perhaps less able to get out of the house. Changes in town and events can be checked online, shopping done and a degree of control maintained.

While Gareth (aged 72) has not done a course himself because he learned how to use a computer before retiring, he knows many people who have and they are all disappointed. They have told him that they feel confused and lost and that the instructors tend to latch onto someone who seems good and don't address the others. They don't answer the questions that participants have because they have to stick to a syllabus. He knows one lady who did three or four courses at her own expense and told him she just wanted to know how to get digital photographs into a Christmas card that she was making.

This same idea was repeated over and over again by respondents at the 50+ Forum. They stressed the need for an environment in which they can learn without fear of being ridiculed (Interview 36), for courses to be more relevant to specific user needs (Interview 35), and reminded interviewers that those who are already computer literate have had years to develop those skills and that it is a lot to take in in one go. Learners need to be able to shape the courses to their needs (Interview 38).

From the other perspective, Ioan (aged 69) is now a trustee for a small charity that works with adult further education and works with ICT on a daily basis but has found that cutbacks have made it much harder to put on courses and that those who would have received free classes, now cannot access such support. From the perspective that he had with a small charity, the ending of EU objective 1 funding made a massive difference as most courses were free. Level 2 has been used in a different way. He also feels that changes made to Welsh Government and EU funding have greatly affected how courses in his area – which has relatively high levels of deprivation – are accessed.

The charity has several successful courses for beginners running, some specifically aimed at older people. During the summer they ran an internet shopping course that got full enrolment within a week. This will be offered again as there is an obvious demand. He feels that older people *have* to learn how to use ICT because more and more every-day things are being done online and unless older people participate they will be excluded. However, echoing the concerns of Valerie, Ioan notes a lack of coordination between the different providers of services. When courses are not being ran by volunteers (for example at a community centre or University), they are tied to syllabi and follow certain accredited courses that they must adhere to and cannot adapt. This doesn't meet the needs of the older people that could be taking the courses.

The charity also rents out a room twice a week to a group of volunteers. Age Concern started a project, for which they bought laptops and had a volunteer tutor to teach IT to older people. Unfortunately the project came to an end but those who had been taught set up a group and were given the equipment. Their group has been going for two years. They provide training on a one-to-one basis, designed around the requirements and desires of the person learning. Twelve members went on to do a course at Swansea University on Photoshop and they have even mounted two photographic exhibitions, as lots of people attending want to know how to work with photographs once they have been taken.

As shown in these examples, there is a need for training provision to meet demand, but funding arrangements obviously also have to be taken into consideration. Recent events on the Digital Inclusion Wales Stakeholders Forum[29] show that this has been taken on board and that drop-in digital training will be provided in Carmarthen beginning in September.

3.5   Proxy users

The location of many public access sites in libraries, schools and further education colleges has been seen as a barrier for those who do not view such institutions as being part of their lives or who cannot access them because of opening hours or because the location in the town or city centre is less accessible from rural areas. Cost is also a barrier for some, with one respondent at the 50+ Forum stating that while she has a computer and uses it to type letters, she is worried about the cost of going online and therefore relies on her family to access the internet (Interview 90-91).

Because of these factors, Gareth (aged 72) finds himself acting as a proxy user within his local community because he has developed a certain ability and is not afraid to try things. Local farmers now have to do their returns online, and as he says, they are good at being farmers but not all of them are confident with ICT so he helps them to do that. He also has a friend who sponsors a child in Africa but is not 'net-savvy'. In order for them to stay in touch, he prints off the emails sent from Africa, they read them and write an answer, and he then types it up and sends it to Africa.

In a common example of proxy use, John (aged 69) uses ICT for a wide range of reasons but his wife is not interested at all. She uses the information that he gets but doesn't want to participate. She finds keyboards and the mouse a problem and says that she would use it if it was simplified and voice activated. He is concerned about the perceived push for 'digital by default' because his

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[29] http://www.digitalinclusionwales.org.uk/

wife is worried that when he is not there, she will not have anyone to do things online for her. Even now, he doesn't bank online, as he doesn't trust the security and prefers to speak to a person. He feels that access should be available but not required, as certain people will never use it.

Government and public service delivery bodies should consider how they can respond to the potential of this kind of invisible support. Warren (2007) asserts that 'digital intermediaries' may play an important role in bridging the digital gap. As seen above, many digital intermediaries exist in an informal manner, such as a friend or relative helping an older person order online shopping. However, as the number of older people living alone increases, the concern is that they will be less likely to be able to rely on relatives for accessing services online. Warren suggests that formal digital intermediaries based in libraries or post offices would help those who do not already benefit from an informal intermediary. An attendee at the 50+ Forum also suggested that those who are acting as proxy users could be those best placed to act as mentors and help bring others online (Interview 88).

3.6 Physical access

While not such an issue as it was a few years ago, the speed of internet access is not uniform across the country[30] and several participants mentioned this specifically as an issue that affected their use.

Because of where he lives, Gareth (aged 72) has had a struggle to get broadband, doesn't get a mobile signal (though he has a mobile for emergencies outside the home he cannot give out his number as they will not get through if he is at home), and cannot get Freeview. He has purchased the device for digital radio (an extra cost) but doesn't receive a signal, and when he was recently looking at a new car was told that they will not have digital radios as there will not be a constant signal if people are travelling around (as one does in a car).

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[30] As recently evidenced in the Radio 4 study of 3G: http://www.bbc.co.uk/news/technology-13874818, http://www.bbc.co.uk/news/business-14574816

Dai (aged 62) took two years to get a line fault cleared. He knew it was a line fault because of the job that he had done previously but he had to chase it up constantly. Even now, on a good day, he only gets 2mb and the connection is patchy. He feels that the speed of a service will only affect those who are already online, those who do not have problems with computers in general, but it does affect which services they can access, and how engaged with ICT they can be.

Geraint (aged 67) is also in what has been increasingly termed a 'not spot' and recently has had companies coming by and trying to get him to switch to them as they will be providing digital services in the near future. However, as the landline still has to be paid, he feels that the costs add up and it would be expensive. As he has a medical issue, Geraint has a social services careline 'box' for if he needs help. This is tied to his current provider so he has been told not to move away from them as the system will hopefully be integrated. He also receives priority service because of this and is concerned that this would be lost if he migrated to another provider. The current provider subsequently visited him and told him that they may be providing a digital system soon and that it would therefore be cheaper to stay with them and wait for the service to improve. Geraint's experience illustrates the lack of choice that users may feel due to constraints that are not mentioned when cheaper and faster opportunities are offered.

John (aged 69) has also experienced such issues. He now gets up to 4mb but it took him two months to get his provider to come out and sort out the connection, caused by a maintenance fault. It was only once they finally visited (and took only three hours) that his connection got up to 4mb. If he had not worked with them previously and knew what the problem was, and that he needed to keep pushing them, he feels that it would never have been sorted. There are difficulties with different providers as they don't communicate and as people get older, they are less likely to persevere when things go wrong, especially if not totally convinced in the first place. They will give up and not go back.

Libraries generally only allow about half an hour or an hour's use, especially during busy periods, which may not be sufficient, especially when forms are being filled in, or the user is not fully confident. There are also restrictions on the sites that can be visited, and noise that can be made, so not all types of use are accessible in this environment.

3. 7 Clarity and accessibility of websites and services

As well as physical barriers to use, there are a number of other issues that can hinder access. For his work with the breed society, Llewellyn (aged 71) has to access the sites of DEFRA (animal health) and the Welsh Government consultation processes online. He said that the former are a nightmare to navigate and the latter are not easy; it is difficult to find reports and often ends up accessing them through third party websites because they are easier to find. For example, he recently wanted to read a consultation and report paper on TB in non-camelids so he went to the Camelid Association website because it was easy to find there. Llewellyn suggests that there could be some kind of index, or sorting system to make information more accessible. Llewellyn's example is a very specific one, but the same complaints – that websites are not clear; documents and processes are not all available or have to be printed and sent by post, and even when there are indices, information is not always filed under a title that is immediately obvious – were made repeatedly.

When taken within the context of a drive to get non-users participating, and Greenwood's findings that were mentioned in Part II, that 'there is a strong correlation between failure to find information and dissatisfaction with the website' (2009:7), it is important that this issue is addressed before users can be expected to increasingly use online government services.

3.8 Security issues

Online security is a concern that was evidently at the forefront of attendees minds during the 50+ Forum meeting, and while not appearing in the mini-interviews, it was almost constantly apparent in each of the telephone and Skype interviews, whether as an aside or as a main concern and barrier to use. Rhys (aged 64) does use the internet for a variety of activities but he doesn't trust online banking as he feels that internet security is definitely an issue. This concern has been fed by the scam emails that claim to be from banks and building societies and arrive with regularity, coupled with anecdotes about lost money from friends and family. Ioan (aged 69) points out that lack of internet security can also lead to unsolicited calls and letters (which led to his wife not allowing me to speak to him when I called at the agreed time on the landline). The centre where he volunteers runs one-day courses on internet security – for children and adults. They mainly have adults there to learn and the idea is that they then make children aware of the issues. There is always an interest in these courses.

Evan (aged 63) feels that identity theft is a concern, but he feels that people here are too trusting. He feels that his experience working abroad helped him to develop care with his personal details that has been helpful with the development of online technologies. He protects himself however he can but is confident with his online banking and does buy things online. Viruses are also a problem but they can generally be taken care of with general housekeeping. But older people are generally not taught how to do this.

Several participants specifically flagged social networking sites as dangerous due to the amount of personal information that is provided, and feel that young people are not aware of the security issues that are present on the internet.

The Welsh Government has been making strides in internet security for businesses and the e-Crime Wales project even won a 2011 Nominet internet

award for its work tackling e-crime in all of its forms.[31] The concern is that individual users are not being sufficiently protected, and older people in particular feel vulnerable when exposed to this new and insidious form of crime.

3.9   Ghostbusters

And when you talk to an expert, they expect you to know lots of things you don't. Their explanations are like telling someone how to scramble an egg without telling them that you have to break the eggs first (Hannah, aged 68). Seryn's experience typifies this concern. Seryn (aged 78) used to be a nurse in the NHS and was writing a book about her experiences. When she switched to a new laptop, one day all the data was lost. She tried to recover it to no avail and ended up discouraged. She knows others who have had similar experiences and feels that the problem is not knowing who to call, or who to ask to fix things that leaves users not wanting to continue trying. This is an issue as with repeated disappointments, users stop wanting to learn, and give up, making them harder to access in the future.

So who to call? Geraint (aged 67) has been using the internet since 1996 when he originally had dial-up. He was with one internet provider until about eight years ago but found that he had problems with their helpline if anything went wrong because they were based abroad and spoke quietly and very fast. He feels that this is probably an issue for others as well because with age and maybe difficulties with hearing, it gets harder to understand different accents, especially on the phone.

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[31] http://www.nominet.org.uk/about/Internetawards/2011/?contentId=8557

4.   Conclusions

> 'The content, function and form that the internet is being used for (and not being used for) by individual users are not just due to technical issues such as access and skills, or even human–computer interaction issues of ease of use or software design. Instead, the internet, like all other technologies, is party to shaping from social factors.' **Selwyn et al (2005: 7)**

While case studies are difficult to generalise from because of inherent subjectivity, and because they are based on qualitative subjective data immediately applicable only to a particular context, they are important because they deal with creativity, innovation, and context. When used in combination with extensive survey research and innovative mapping techniques such as those provided to the Welsh Government by Experian, case studies can enable us to glimpse the lived experiences of those affected by policy and infrastructure changes.

Each individual experience is just that, a combination of a lifetime's worth of circumstances, choices, incidents and social contexts. As Haythornwaite (2001: 364) contends, media and communication researchers need to 'build a picture that situates internet use in the rest of individuals' lives, including the people with whom they interact, the technologies they have around them, their lifestage and lifestyle'. Perhaps the most useful framework to utilise when doing this is the various dimensions of participation in society that can be seen as constituting 'inclusion' (cf. Berghman, 1995; Oppenheim, 1998; Walker, 1997). These can be grouped as:

- production activity – engaging in an economically or socially valued activity, such as paid work, education/training and looking after a family;
- political activity – engaging in some collective effort to improve or protect the social and physical environment;
- social activity – engaging in significant social interaction with family or friends and identifying with a cultural group or community;

- consumption activity – being able to consume at least a minimum level of the services and goods which are considered normal for the society; and

- savings activity – accumulating savings, pensions entitlements or owning property.

Thus the impact of ICTs could be seen in these terms, which reflect the extent to which technology use enables individuals to participate and be part of society, or the extent to which 'ICTs enhance our abilities to fulfil active roles in society, or being without them constitute[s] a barrier to that end' (Haddon, 2000: 389). In this instance, it should also be kept in mind the evidence from the ONS (2010) that suggests that in Britain, personal choice is the most reported reason for not having household internet access, with six out of ten non-users reporting they had no need or desire to have household access. In comparison, three out of ten non-users reported that equipment or access costs were too high, and two out of ten reported lack of skills as the main reason. If those who are not using ICTs feel that they are participating in society and do not wish electronic mediation of that participation, then it may fall to the government to ensure that they can continue to do so without penalisation.

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