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Mobile : A powerful tool for Digital Inclusion

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1. Executive Summary

Digital exclusion remains a significant challenge in the UK (one recognised by the government in its recent Digital Inclusion Strategy).[1] Seven million adults – approximately 13% - are offline. Within this group the elderly, those with disabilities, and those with lower incomes and less education are all disproportionately represented.

This figure has been gradually falling, but there are substantial challenges ahead. This is because most of those with the desire to get online have already done so. Consequently a significant majority of those still offline report that they have no interest in moving online. Indeed, the proportion of households who are offline and say they are not interested in moving online has been static at around 11% of all homes for some years. This group has been and will continue to be challenging to interest in going online. While lack of skills and cost issues continue to be mentioned as reasons to be offline, they are much less often cited than lack of interest.

There are many reasons to move online – it can bring social connection and inclusion; provide cost savings through online shopping, and great convenience for those with limited mobility; and it is increasingly important for employment and engagement with government. But these reasons alone are not enough to encourage the last 7m people online; addressing this group will need a rethink of approach and refocus on enablement and motivation. In particular, it argues for offering paths online that:

- Come to the user, rather than requiring a (potentially reluctant) user to seek them out
- Are as simple as possible, to ease the skills challenge and to enable experimentation (to inspire further usage)
- Are robust, in the sense of easy to maintain and unlikely to be damaged by a beginning user
- Are integrated, incorporating both equipment and connectivity

Programmes to support individuals in moving online typically focus on fixed broadband solutions and skills, but mobile is very capable of meeting the needs set out above. Moreover, the internet is increasingly a mobile phenomenon being accessed from mobile devices (such devices currently generate 32% of page views) and the

[1]Cabinet Office, *Government Digital Inclusion Strategy*, 13 April 2014

amount of web content tailored for mobile browsing is on the increase. Over half of UK adults use a smartphone or other mobile devices to get online. In the near future, internet exclusion will be exclusion from a medium primarily used via such devices. Governments must not underestimate the role mobile technology and networks have to play in bringing more and more people online.

Moreover, mobile has attributes that make it highly valuable as a tool to address digital exclusion: tablets and smartphones with cellular connectivity are easy to use and technically robust; require much lesser financial commitment than a PC with fixed broadband; are well suited to transient individuals and those with in-home mobility challenges; and come with a range of integrated capabilities (such as cameras) which many PCs lack. Finally, and perhaps most importantly, they are easy to take to the 'digitally reluctant', who have less interest in being online and may not present themselves at an online centre or library.

Mobile is already price competitive with fixed broadband at the data volumes new internet users are likely to consume, and is likely to become more so as tariffs and equipment costs continue to fall.

As the task of helping people move online is becoming more challenging, it makes sense to use all tools that are at our disposal - mobile is a tool well suited to addressing this problem and it will be the best option for an increasing number of individuals transitioning online.

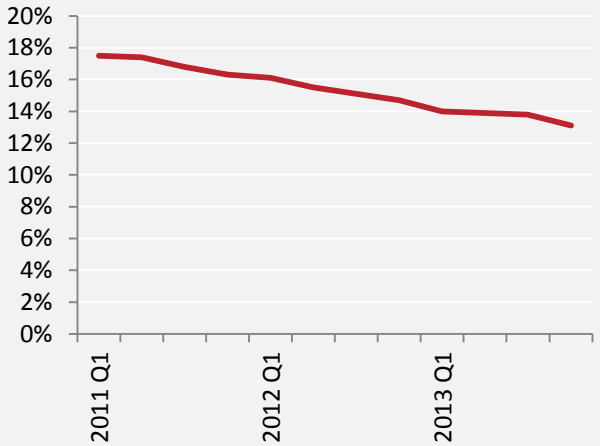
2. Who is not online?

Summary

- 6.7m UK adults (13.1%) are not online
- Age is a significant factor – almost three quarters of this group are 65 or older
- Just over half have a disability
- Socio-economic group is also relevant, with over 70% in C2DE (and with associated lower income and education)
- Women make up 59% of those offline

In the UK 13.8% of adults, or 6.7m people, have never used the internet. This figure has been declining by approximately 1.5 percentage points per year (Figure 1).

Figure 1: Internet non-users[2]



Despite the significant numbers still offline, the UK is performing relatively well by comparison to other countries. For Europe as a whole, the portion of adults offline is 25.3%. That said, there is certainly room for improvement – for the Nordic region the figure is just 6.6%, half that of the UK.[3]

Note that these 7m people who are not themselves online are not necessarily entirely digitally excluded – 70% report that they could find someone to access the internet on their behalf, though clearly this is substantially less convenient, and might not happen in practice.[4]

On the other hand, even some of those notionally online may lack the basic digital skills to make the most of their internet access. The BBC estimate that 4m adults are in this category, for a total of 11m who are digitally disadvantaged.[5]

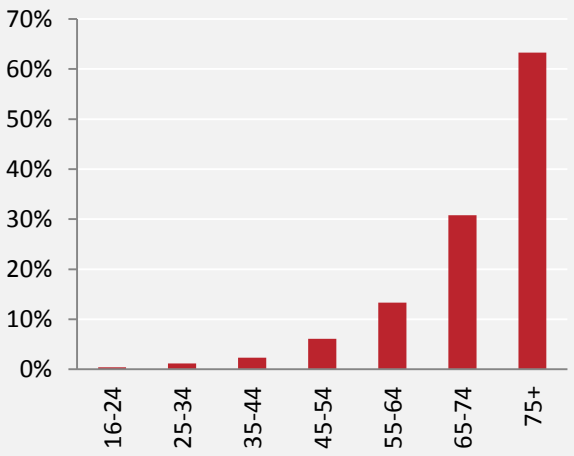
While the focus of this report is on achieving digital inclusion (that people go online), digital participation (that people *stay* online as regular users) is clearly also a vital objective.

[2] ONS, *Internet Access Quarterly Update, Q4 2013*, 19 February 2014
[3] Authors' analysis of data from ITU, *World Telecommunication/ICT Indicators database 2013*, 6 December 2013
[4] OII, *Cultures of the Internet: The Internet in Britain*, October 2013
[5] BBC, *Media Literacy: Understanding Digital Capabilities follow-up*, September 2013

Age

Age is a key driver of likelihood to be online (Figure 2). In the UK for those aged 64 and younger, only 5% are not online. For those aged 65 and older the figure is 45% (and 64% for those 75+).

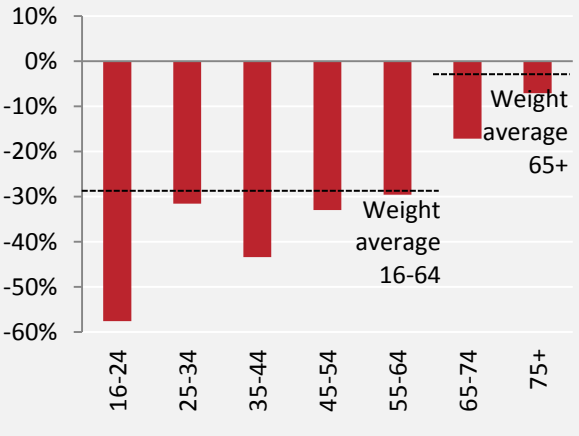
Figure 2: Portion of age group offline[6]



As a consequence, the elderly make up a very high proportion of those not online – 1.9m are 65 or older, compared to just 1.8m who are 64 or younger (73% vs 27%).

It's an obvious statement that the reason so many of the elderly are offline is because this age group has been slow to change. Over the last two years, the number of those aged 65 or older who were offline fell by just 11%, and as much as five percentage points of this drop is likely due to the cohort effect (the transition with time into this age group of younger individuals who were already online).[7] This 11% fall compares to a 33% reduction for those aged 64 or less (Figure 3).

Figure 3: Reduction in adults in age group offline, Q3 2011 - Q3 2013[8]



However, this has important consequences – the age group that historically has had the highest rate of internet adoption is, now, almost entirely online. The age group that remains offline, those aged 65 or over, is the group that has the slowest rate of internet adoption. This suggests that it may be becoming harder to reduce the numbers of those offline.

Note that the above analysis considers whether individuals have ever used the internet. However, there is also evidence that even once they have used the internet, the elderly may be less frequent users. For example, amongst those aged 75+ who have ever used the internet, 15.9% have not done so in the last three months, compared to just 0.6% of those aged 16-24.[9]

[6] ONS, ibid
[7] Authors' analysis and estimates of ONS, ibid
[8] Authors' analysis of ONS, ibid
[9] ONS, ibid. For a more detailed discussion of infrequent users, see Tinder Foundation, *Understanding the Littles*, 2013

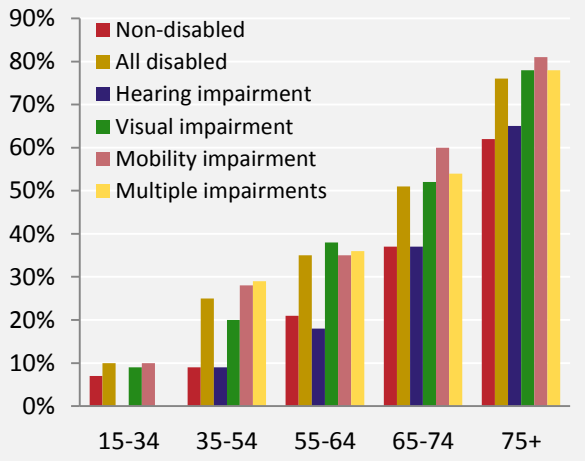
Disability

Of adults offline, 3.6m (53%) have some form of disability, a significantly higher rate than the general population.[10] Individuals with one or more disabilities have a 45% chance of being offline, compared to 17% for those with no disabilities.[11]

However, the picture is complicated, since those with disabilities are generally older, and this higher offline rate is in part driven by age rather than the disabilities themselves. (For example, 36% of those with hearing impairments are offline, compared to the 17% average, but this is almost entirely driven by age – within each age bracket, those with a hearing impairment are almost exactly as likely to be online as those without).

That said, other disabilities do have additional impact – for those aged 35 and over, a disability increases the chance of being offline by approximately 15 percentage points (within each age band). This is particularly significant for those of working age, who otherwise have only a low chance of being offline (Figure 4).

Figure 4: Portion offline, by age and disability[12]



However the fact that disabilities for those under 35 do not meaningfully increase their likelihood of being offline suggests that these impairments need not be absolute barriers to internet adoption.

Socio-economic group, education and income

Of those who are offline, 71% are in SEG C2DE (compared to 49% of the total population). Those in this SEG are almost three times as likely to be offline as those in ABC1.

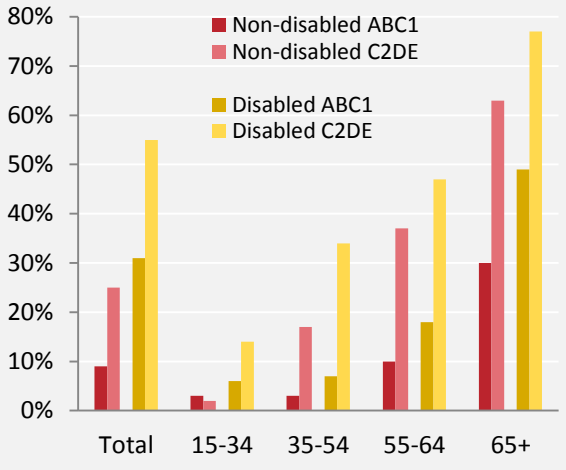
[10] ONS, ibid

[11] British Population Survey data for Q3 2012, cited in Ofcom, *Disabled consumers' ownership of communications services*, September 2013. (Note that due to different underlying sources and time periods, these figures do not exactly reconcile to the ONS data for 2013)

[12] Authors' analysis of Ofcom, ibid. Note that for hearing and multiple disabilities for those aged 15-34, the sample size is too small to be meaningful

Once again the picture is complicated by the fact that those in SEG C2DE are also more likely to be older and have disabilities. However, SEG has a strong, independent impact. For those aged 35 and over, being in the category C2DE generally adds approximately 30 percentage points to the chance of being offline in virtually all age and disability categories.

Figure 5: Portion offline, by age, SEG & disability[13]

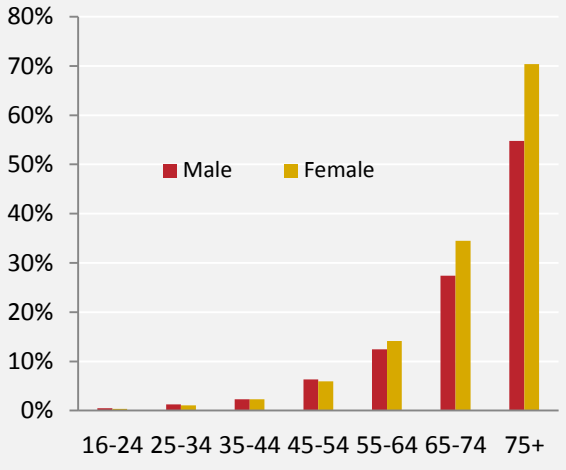


SEG is closely tied to education, and those without educational qualifications are significantly more likely to be offline – 60%, compared to 16%, 8% and 5% of those with basic, further and higher educational qualifications respectively. Also related to SEG is household income – of those with income under £12,500, just 58% are online, compared to 88% of those receiving £12,500-20,000.[14]

Gender

For those aged 64 and younger, there is little gender difference amongst those offline. Above 65, women both make up a larger share of the population (54%) and are less likely than men to be online (Figure 6). As a result, those offline are 59% female, very largely because of a substantial group of women aged over 75 who are not online.[16] (This group makes up almost one third of the entire offline population.

Figure 6: Portion offline, by age and gender[15]



Conclusions

A great majority of those offline are older – 73% are 65+, and 46% are 75+. They are also likely to be C2DE SEG, with 71% in this SEG. In part because of their age, 55% of those offline have one or more disabilities. Many of those offline fall into two or more of these categories.

However, none of these attributes are inherent barriers to being online – we now turn our attention to the specific reasons individuals are not internet users.

[13] Authors' analysis of Ofcom, ibid
[14] OII, *Cultures of the Internet: The Internet in Britain*, October 2013
[15] ONS, ibid
[16] ONS, ibid

3. Why are people not online?

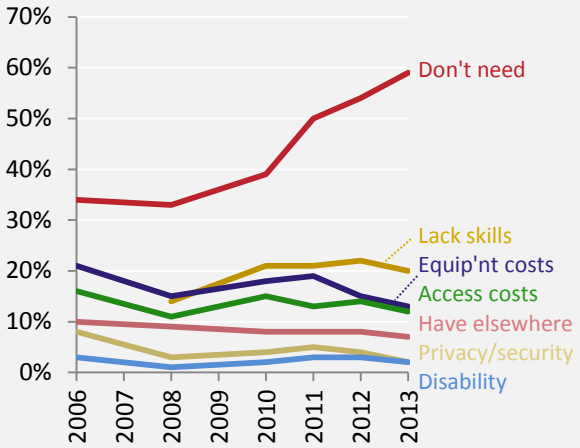
Summary

- A very substantial portion of those offline say that they are not interested or do not need to be online
- Many of those offline lack the equipment to get there
- Lack of skills and fear of technology are significant factors
- Cost issues are important to a minority

In this chapter we consider why individuals without the internet are offline. [18] [19]

By a significant margin, the most widely cited reason in ONS surveys is a perceived lack of need, at 59% (Figure 7). This figure has been rising steadily, although this is as a result of those who did perceive a need successfully making the transition online (and hence dropping out of the sample) rather than an increasing number of households who feel they do not have a need for the internet. Indeed the number saying they are not online and feel no need to be so – the 'digitally reluctant' - has held remarkably steady, at around 11% of households (Figure 8).

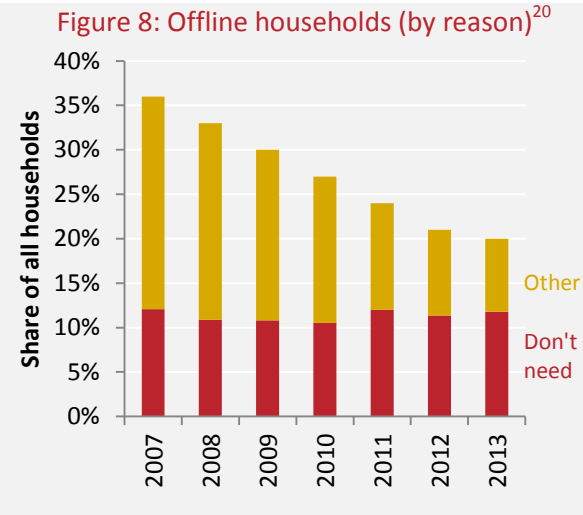
Figure 7: Reasons for no household internet[17]



This strongly suggests that the success of programmes for digital inclusion thus far has been to enable the willing to get online (or to improve the skills of those already online – 60% of those registering at UK online centres had used the internet in the previous week).[21]

However, the approaches used so far appear to have had far less success in generating interest amongst the digitally reluctant. This group will have to be provided with both means *and* motive to get online.

Figure 8: Offline households (by reason)[20]



[17] ONS, *Internet Access - Households and Individuals, 2013*, 8 August 2013

[18] See also a valuable discussion in: Cabinet Office, *Government Digital Inclusion Strategy*, 13 April 2014

[19] Our focus is on UK evidence. For US data see Pew Research Centre, *Who's Not Online and Why*, 25 September 2013. For Europe see European Commission, *E-Communications Household Survey*, November 2013. In both cases, the story is broadly similar to that for the UK

[20] ONS, ibid; Ofcom, *Communications Market Report 2013*, 1 August 2013; authors' analysis. Note that this share of households can not be compared to the share of individuals discussed in the previous chapter

[21] IFF Research (for Tinder Foundation), *2012-2013 Annual Report on UK Online centres*, 28 April 2013

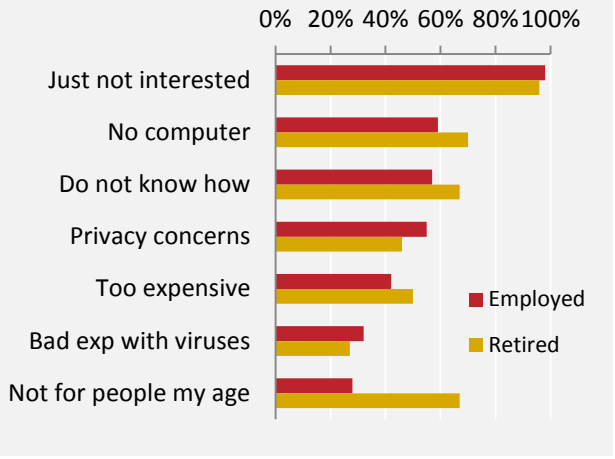
This is a qualitatively different problem, and raises a range of practical issues. For instance, this group are probably much less likely to seek out centres offering training – it may be necessary to take a demonstration of what the internet can offer to places where they do go. More generally, if the approaches used to date have not worked for this group, then new approaches will be required.

Lack of skills was cited as a reason for being offline by 20%. In addition, it seems plausible that a significant proportion of those feeling no need for the internet would in fact also lack the skills to get on line should they wish to.[22]

Cost was not a paramount reason for being offline, with 13% citing equipment costs and 12% access costs (with some overlap between these two groups). Seven percent of respondents without access at home have it elsewhere – perhaps a place of work or education, internet café or library. Privacy and security concerns and disability are minor issues, with just 2% citing each as a reason not to have internet at home.

Further evidence regarding reasons for being offline comes from the Oxford Internet Institute's regular Oxford Internet Survey (OxIS). Again this shows that a lack of requirement is the most cited reason for not being online (Figure 9).

Figure 9: Reasons non-users do not use internet[23]



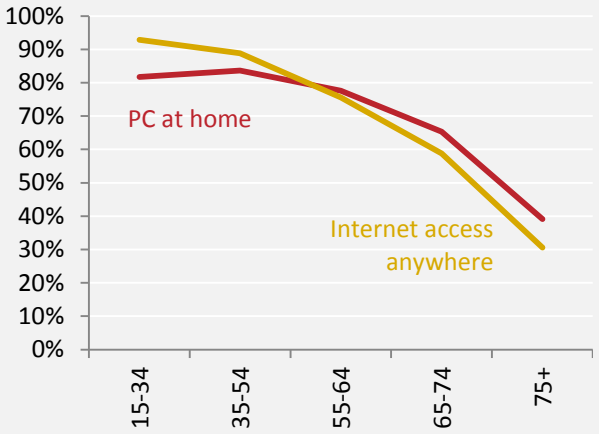
However, this survey also highlights the importance of the availability of computers (a question apparently not asked in the ONS survey). Approximately two-thirds of non-users said that lack of a computer was a reason. Clearly this is a major issue, potentially suggesting a lack of IT skills and a cost barrier for the individual concerned.

[22] The ONS survey did allow for multiple responses (so that an individual could cite both lack of need and lack of skills), but it seems likely that many of those with no need would not in fact also cite lack of skills, if they had no particular desire to be online in the first place

[23] OII, *Cultures of the Internet: The Internet in Britain*, October 2013

Ofcom research also suggests that PC availability and being online are strongly linked (Figure 10).[25] For older demographics, internet access appears capped by PC penetration (this group are unlikely to have access at work instead, and are less likely to have a smartphone). To put this another way, for the significant portion of those offline who are over 65, it is not simply a matter of providing connectivity to an existing PC – rather, they will need both the motive and skills to get online, *and* a device to enable this.

Figure 10: Internet and PC penetration[24]

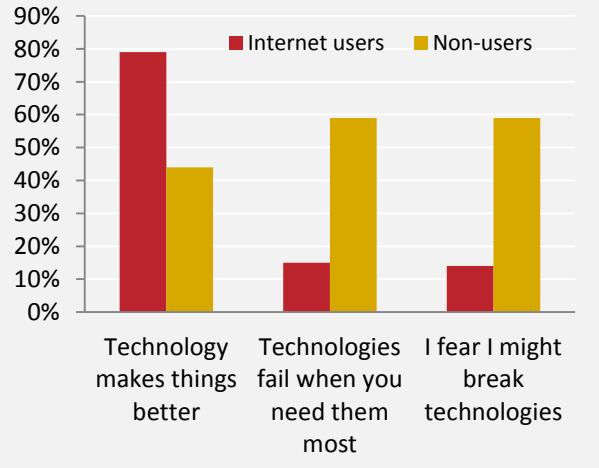


Returning to the OxIS research on reasons why individuals are offline, two thirds stated explicitly that they did not know how to use the internet. Possibly because of different phrasing of the question, this is an appreciably higher figure than the 20% citing skills as a barrier in the ONS survey.

The OxIS survey found that cost was a factor for just under half of non-users, somewhat higher than reported in the ONS survey. However OxIS found that cost was more important for those (a smaller group) who had *ceased* to be online – changes of financial circumstance led some to drop internet access.[26]

OxIS also asks about attitudes to technology. Amongst non-users, almost 60% agree that "I fear I might break technologies", which again suggests that those not online are concerned about their skills. Over 50% of non-users in the OII survey also agreed that the internet would be "frustrating to work with".

Figure 11: Attitudes to Technology[27]



While valuable, survey evidence in this area has its limits. For instance, people may over-report that they have no need of or interest in the internet, since this is perhaps a less embarrassing answer to give than admitting a lack of skills or that the internet is unaffordable. While few cite their disability as a reason for being offline, we know in practice that disabilities make a substantial difference to the likelihood of being online.

[24] Authors' analysis of Ofcom, *Disabled consumers' ownership of communications services*, September 2013
[25] Citizens Advice Scotland made a similar finding: Citizens Advice Scotland, *Offline and Left Behind*, May 2013
[26] BBC research made similar findings – see BBC, *Media Literacy: Understanding Digital Capabilities*, July 2012
[27] OII, ibid

Note that we have not addressed above lack of availability of broadband – this is because this is a very minor factor in digital exclusion, with less than 1% saying this is a reason they are offline.[28]

According to Ofcom only 140,000 households cannot receive fixed broadband.[29] A larger group of households may only receive lower speed broadband (for instance, 3% of households receive 1 Mbps or less), but this is unlikely to be a significant factor in digital exclusion. Many of the key internet activities likely to be of immediate interest to most new users - such as email and web surfing - have relatively low bandwidth needs.

Mobile broadband coverage is also high – 99.1% of premises have 3G from at least one operator.[30]

Thus digital exclusion is now in essence a demand-side problem. With limited exceptions, the supply side is in place.

Conclusion

Increasingly, those offline will need to be provided with both the motive and the means if they are to move online (with 'means' comprising both equipment and skills). Providing motivation will be a combination of: demonstrating the advantages to being online; reducing the barriers to getting online; and reducing the *perception* of barriers to being online.

This argues for offering paths online that:

- Come to the user, rather than requiring a (potentially reluctant) user to seek them out
- Are as simple as possible, to ease the skills challenge and to enable experimentation (to inspire further usage)
- Are robust, in the sense of easy to maintain and unlikely to be damaged by a beginning user
- Are integrated, incorporating both equipment and connectivity

[28] Ofcom, *Media Literacy Tracker 2012*, 23 April 2013
[29] Ofcom, *Infrastructure Report 2013 Update*, 24 October 2013
[30] Ofcom, ibid

4. Why should people be online?

Summary

- The key reasons to be concerned about digital exclusion are the benefits of the internet for: social connectivity; social inclusion; good deals and comparison shopping; home delivery; employment; and engagement with government
- Such benefits are generally well able to be delivered by mobile devices and mobile networks
- The applications that require fixed broadband are less used (even by those with access to fixed connections) and are typically not those with the greatest societal value
- This suggests that there is no reason to preclude mobile as a tool for digital inclusion

The benefits of being online are substantial and diverse, ranging from sending emails to watching *Gangnam Style*. However, there is a difference between the advantages of being online and the reasons why we, as a society, are concerned about digital exclusion. To take a simple example, those online may enjoy online gaming, but it is not a substantial policy concern that those offline are missing this opportunity.

This distinction matters, because it influences what technical solutions are appropriate in seeking to address digital exclusion. For instance, mobile solutions might not be appropriate for peer-to-peer file-sharing, but if such sharing is not why we worry about digital exclusion, then there is no reason to preclude mobile as a solution on this basis.

In this section we set out what we believe are the key reasons why digital exclusion is a problem, and consider the technical implications. These reasons are social connectivity and inclusion; cost savings through online shopping; great convenience for those with limited mobility; access to employment; and engagement with government.

Note that these are generally a mix of private benefits to the individual concerned, and wider externalities. The newly-online grandparent using Skype benefits both himself and his grandchildren. The new user renewing her driver's licence online gains convenience for herself, but also generates cost savings for the DVLA.

Social connectivity

The internet is a powerful tool for being in touch – email, Skype, Twitter, Facebook and many other applications enable people to be in regular, cheap and rich contact with friends and relations. The importance of such tools is evident in usage statistics – for example, Facebook alone has over 34 million unique users per month in the UK.[31]

Online tools may be displacing more traditional forms of communications. For instance, voice minutes (fixed and mobile) fell by 11% between 2007 and 2012, and postal volumes fell 27% in the same period.[32] Thus those offline are not only missing out on the advantages of online media, they are dependent on traditional tools that others are moving away from – they face not just an opportunity cost, but a direct loss of existing connectivity.

Email is the single most attractive internet application to those who are not online, according to Ofcom research.[33] Communications tools (of any type) are likely all the more important to the homebound or isolated, which may include many of those currently offline.

The great majority of communications tools are highly usable on a mobile device – email has been widely used on mobiles for at least a decade and today Facebook is the second most popular site accessed from mobiles, with 9m monthly users in the UK.[34]

Of course this disadvantage is balanced by the communications advantages of a mobile solution which can be used anywhere (and which brings with it text messaging).

Social inclusion

Increasingly there is a social expectation that everyone is online. People who are not online may feel stigmatised or disadvantaged when those around them are using and discussing the internet, but they are not participating. To take a simple example, they may be asked for their email address, but have to say that they do not have one.

Note that this is different from feeling the lack of any particular internet application such as email – even those who are unfamiliar with what the internet can offer can feel this exclusion.

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[31] Comscore, *UK Digital Market Overview January 2014*, January 2014
[32] Ofcom, *Communications Market Report 2013*, 1 August 2013
[33] Ofcom, ibid
[34] Ofcom, ibid

Certainly a mobile solution can meet this need for social inclusion – indeed, given the rapid trend to mobile (discussed in more detail below), a smartphone may be a better signifier of inclusion than a desktop at home.

Good deals and comparison shopping

There are several economic advantages to being online. E-commerce can offer a wider range of goods and shopping around can bring lower prices. In some cases, the best prices are only available through online purchase.[36] In addition to the advantages for the consumer, online interaction can save money for the enterprise as well.

Figure 12: Apps of top 10 UK retailers[35]

Mobile devices are well able to deliver these benefits. Online shopping is a low bandwidth, low traffic activity, and can work well even on smaller screens. E-commerce apps are now widespread, and can be simpler than their website equivalents. As a consequence, purchases via mobile devices are growing rapidly, estimated at £6.6bn in 2013 and expected to rise to a quarter of all retail e-commerce by 2016.[37]

Home delivery

Cost savings are valuable to any consumer. But e-commerce brings another substantial advantage – home delivery. For those with mobility challenges this can be particularly valuable (and doubly so if weather makes conditions treacherous). Sites such as Amazon and Tesco can offer (in combination) virtually all types of goods an individual might wish to buy.

Again, the these benefits are available via mobile devices (and networks), thanks to retailer mobile apps and mobile-optimised websites.

Employment

Increasingly being online is a key enabler of employment. This is in part because digital skills are required in ever more jobs, but also

[35] OII, ibid
[36] For an attempt to quantify these benefits, see SQW (for the Post Office), *Broadband in the Home: An Analysis of the Financial Costs and Benefits*, 18 September 2008
[37] eMarketer, *Mcommerce Takes 15% of UK Retail Ecommerce Sales*, 20 June 2013

because discovering vacancies and applying for them can only happen online.

Jobs classified advertisements in newspapers have fallen dramatically (dropping 88% in real revenue terms between 2005 and 2012[38]), as employers have moved to more efficient online jobs sites, or simply place vacancy notices on their own websites. Even relatively low skilled jobs such as shelf-stacking in supermarkets may have a requirement to apply online (Figure 13).

Figure 13: Sainsbury's vacancy notice

For the majority of those offline who are already retired, this is clearly less of an issue – but it is an acute problem for younger people without internet access.

As with e-commerce, mobile is entirely capable of addressing this issue – mobile versions and mobile apps for job sites are available, in addition to the standard versions, and mobile may improve applicants' chances by increasing their availability and responsiveness.

Engagement with government

The Government has committed to a 'digital by default' approach for its transactional services (to be in place by 2015).[39] As for private organisations, moving transactions online can reduce costs. Socitm estimate a per-transaction cost of £0.15 online, compared to £2.83 by phone or £8.62 for face-to-face.[40] For the end-user online can increase convenience (if they are an internet user).

The assumption that interaction with government is online by default is likely to disadvantage those offline (even if the government is maintaining offline access[41]).

The Government has committed that such services will be usable on mobile devices:

> "Digital services must adapt seamlessly to meet the needs of mobile internet users. The new digital service standard will include a requirement to design digital services that are

[38] WARC
[39] HM Treasury, *Budget 2012*, March 2012
[40] Socitm *Channel Value Benchmarking* 2012, quoted in Scott Alford, *Planning Portal & Local DirectGov - 'Really Useful' Event*, 13 February 2013
[41] Through the *Assisted Digital* programme

usable on mobile devices as well as desktop and laptop computers."[42]

While this has not yet been universally accomplished across government services, it is enabling substantial mobile transactions in some areas. For instance, 33% of applications for Carer's Allowance are via a mobile device.[43] The NHS has over 5 million unique users from mobile devices per month.[44]

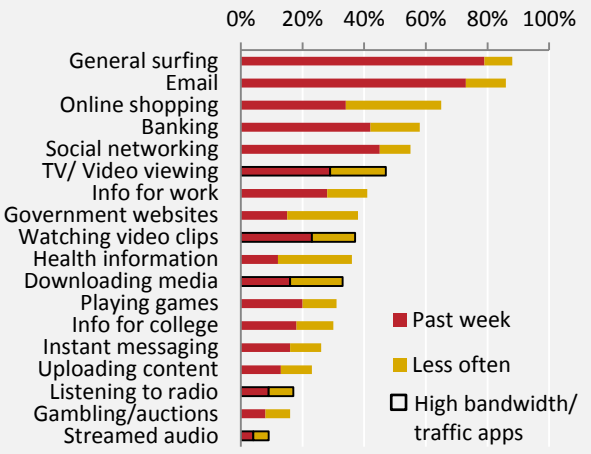
Some government services may require the uploading of documents, but this needn't require a PC. Indeed, a mobile device photo of a document is considerably easier to capture and upload than a scan from a scanner on a PC.[45]

Conclusions

As we have seen, mobile is very capable of addressing the key needs that drive concerns about digital exclusion. This is not to say that mobile is a complete substitute for fixed broadband. For example, a consumer who regularly watched HD programmes on iPlayer would likely be better off with the greater data allowance of fixed.

However, the great majority of what people do online requires neither high bandwidth nor substantial data (Figure 14). Mobile may not be suitable for all *uses*, but is suitable for many *users*, particularly in the context of remedying digital exclusion. Moreover, there are many applications where mobile is superior to fixed, or indeed the only possibility. Navigation applications, photo uploading and real-time travel updates are all examples.

Figure 14: Reported use of the internet[46]



[42] Cabinet Office, *Government Digital Strategy*, 10 December 2013
[43] GOV.UK, *When will more people visit GOV.UK using a mobile or tablet than a PC?*, 8 January 2014
[44] Comscore, *UK Digital Market Overview January 2014*, January 2014
[45] For an example of how simple this can be, see this demo (from a mobile device): http://blog.davidtruxall.com/wp-content/uploads/2013/07/camera.html
[46] Ofcom, ibid

5. What is currently being done?

Summary

- The focus of current digital inclusion initiatives is solidly on building digital skills
- Total funding for these initiatives is probably less than £20m a year, with strong reliance on volunteers to support others going online, and on voluntary donations
- Most adult skills building takes place on fixed computers in Online Centres, often in public libraries or community centres
- There is some recognition of the value that mobile devices can add to these efforts, but to date limited specific use of them

Government activity

To date, the focus of government investment has very much been on fixed internet infrastructure, not digital inclusion.[47]

Under the first phase of BDUK's support for rural broadband, £1.2bn of public money[48] is being spent to improve fixed access speeds.[49] In addition £150m has been committed to the super-connected cities programme. A further spend of £500m is anticipated under phase two of BDUK's rural broadband programme, and there is a £10m pilot programme for phase three. Thus various branches of government are spending almost £1.9bn to improve fixed broadband speeds.

These are larger sums than have ever been considered for digital inclusion, and *far* larger than the sums available today.

As part of the Digital Britain plan, in 2010 BIS published a *National Plan for Digital Participation*.[50] At that time, over £300m of Government funding was being made available for a wide range of activities to support digital inclusion, with many agencies[51] involved

[47] Note that £150m has been committed to the Mobile Infrastructure Project, primarily to address "notspots" in 2G (voice/SMS) coverage.
[48] Central and local UK government and European funding
[49] NAO, *The rural broadband programme*, 5 July 2013
[50] BIS, *National Plan for Digital Participation*, March 2010
[51] The closing section of the National Plan for Digital Participation includes around 40 proposed actions, while its Annex 1 (in 22 pages) identifies over 40 then existing initiatives from different actors in public, private and third sectors.

and co-ordinated through a Digital Participation[52] Consortium, to be led by Ofcom.

Subsequent budget cuts greatly reduced the funding available for these activities, and some organisations closed.[53] Today the Tinder Foundation (the largest body in the digital inclusion sector) has a budget of £5m, obviously a fraction of the sums discussed above being spent on infrastructure.

Nonetheless, as outlined below, many of the main players then are still making major contributions today. The main focus is solidly on building digital skills.

Key third sector players

A recent European report[54] estimates that there are over 13,000 organisations working on e-Inclusion in the UK (Figure 15). The report highlights that by comparison with other European countries, the UK has:

- A high proportion of e-Inclusion organisations in the voluntary sector
- A high proportion (65%) of small organisations, with under 10 people
- Relatively high reliance on fees paid by service users (cited by over 20% of survey respondents).

Figure 15: Estimated number of e-Inclusion organisations

Type	Count
Public sector	**8,175**
National, regional or state agency	598
Municipal/City government	1,865
Public libraries	3,803
Government run telecentre	921
Formal educational institution	441
Other	547
Third sector	**4,377**
Non-governmental organisation	1,044
Association, charitable organisation or foundation	2,128
Community organisation	748
Co-operative	106

[52] The term "Digital Participation" has been taken to mean more than simply "Digital Inclusion". As true participation is understood to imply not just access but significant actual use, measurements look at *Reach, Breadth* and *Depth* of online use.

[53] In particular, the educational technology agency BECTA closed. It was responsible among other things for managing a £300m government Home Access Programme for providing free computers and internet access to 270,000 families in England.

[54] Gabriel Rissola and Maria Garrido, *Survey on eInclusion actors in the EU 27*, IPTS 2013.

Federation	78
Informal network	67
Trade union	22
Other	184
Private sector	**564**
Cybercafe	56
Private training organisation	335
Private formal educational organisation	28
Other	145
Total United Kingdom	**13,116**

This report describes only on a few large national organisations, part of whose role is to co-ordinate and support small local organisations. It is important to recognize the often innovative contributions made by the many small and medium organisations.

Race Online 2012 and Go On UK

Race Online 2012 was set up in 2009 under the Digital Champion, Martha Lane Fox, with the aim of getting as many people as possible online by the Olympic year 2012. This was always designed to be a limited-life project; since 2012, its inspirational leader has moved on and the organisation has become Go On UK, with 8 institutional founders and funders (Big Lottery Fund, E.On, Post Office, EE, Talktalk, Lloyds Banking Group, Age UK and the BBC). Go On UK's budget for FY2013 was £1.2m.[55]

Go On UK continues as a focal point for all UK digital inclusion efforts, with deep involvement in skills-building initiatives. Its current flagship is the digital skills and knowledge exchange at www.digitalskills.com.

Tinder Foundation

Tinder Foundation is the new name for UK Online Centres, which was spun off from BIS as an independent agency in 2011. It has around 30 staff and last year had a budget of £5m. [56] Its core funding has been from BIS and DWP, for which the current contract expires this year.

Tinder Foundation works with and through an extensive network of over 5,000 community partners, most but not all of which are Online Centres in public libraries, community centres and so forth (and separately funded, through local government or whatever resources they can muster). The Online Centres vary, but in general they provide both public internet access and training in basic online skills, usually using fixed computers.

[55] Go On UK Ltd, *Financial Statement for the year ended 31 March 2013*, 24 December 2013
[56] Tinder Foundation, *Financial Statements*, 31 July 2013

Tinder's central achievement has been its Learn My Way online resource for adult learners, which works equally well on fixed and mobile devices. This has enabled 1.2m people to gain digital skills. Tinder also runs several online resources with largely self-explanatory names, for example: Community Howto (for community organisers), Digital Housing Hub (for social housing providers) and a Social Digital Research Network (for academics and researchers).

Tinder's national partners are Go On UK, BT, Digital Unite, Talktalk, EE, Nominet Trust, Post Office and Three.[57] EE contributes primarily by training volunteers from their own staff as Digital Champions[58], and Three by supporting some hard-to-reach communities with free mifi[59] and dongles.

AbilityNet

AbilityNet is the leading UK charity supporting ICT access for people with disabilities. It advises industry on what is needed, and helps individuals free of charge to identify ICT equipment that is suited to their particular sets of abilities. It is behind the One Voice for ICT Coalition, which lobbies for accessible websites and inclusive design.

Citizens Online

A well-established player in this space, Citizens Online was set up in 2000 as a charity to promote the public interest in internet connectivity, long before this became fashionable. It has around 30 staff and a distinguished track record in both delivery and research projects, often partnering with other organisations.

Digital Outreach

Digital Outreach is a company majority-owned by Age UK and Community Service Volunteers, specialising in communications and influencing behaviour change, on behalf of the voluntary sector. Commissioned by BIS, it ran and in 2011 reported on the *Get Online, Get Connected* project of internet taster sessions, engaging offline people in places where they go to take part in their usual preferred local activities. It remains an active partner for this type of "embedded outreach", which is now a favoured approach.

Digital Unite

A company that has been providing digital skills training since 1996, Digital Unite "trains the trainers" (Digital Champions) and its skilled tutors provide individual home tuition at hourly rates. Its associated Digital Unite Trust is a complementary charity which mounts the

[57] Tinder Foundation *Annual Review 2012-2013*
[58] 50 by March 2013, rising to 200 by the end of 2013. EE, *Digital Champions* (accessed 18 February 2014)
[59] Mifi is a wifi enabled router with internet connectivity via a cellular connection

annual Spring Online events to encourage newcomers online, especially older people. It works closely with Age UK through the Age Action Alliance Digital Inclusion Group.

NIACE

The National Institute for Adult Continuing Education is a long-established charity that appreciates how digital technology can support its original aims of promoting lifelong learning. Its Digital Learning activities have a Digital Inclusion strand, in which it co-operates with other organisations mentioned here, with a special focus on sheltered housing; it runs an annual Digital Learning conference, which last year debated the implications for inclusion of Bring Your Own Device.

UCanDoIt

UCanDoIt is a charity that, like Digital Unite, trains and sends tutors to people's homes; it specialises in supporting people with disabilities to go online, and charges them on a sliding scale depending on what they can afford. It believes that it is operating at a small fraction of the scale of the need, and appeals for funds to enable it to reach more disabled people.

Major funding sources

In the past 5 years several different departments of central Government have been involved in digital inclusion (in particular, BIS, DCMS, DCLG, Cabinet Office, DWP and DfE), but little central government funding is now available explicitly for the purpose. However, the "digital by default" programme and other departmental goals suggest that other centrally funded activities also serve digital inclusion. This is most obvious in the case of education (DfE) and skills (BIS).

The National Lottery, via The Big Lottery Fund, backs some projects with a focus on digital inclusion and others with a digital inclusion component. It is currently considering bids for £15m (to be spread over two years) to deliver a Basic Online Skills programme across the UK.[60]

[60] Big Lottery Fund, *Big Lottery Fund's Basic Online Skills programme - Stage One: Questions and Answers*, 31 October 2013

The Nominet Trust, founded in 2009 to use surpluses from Nominet's operations[61], has been an active investor in technology for social purposes. Each year it has dispensed around £5m to a cross-section of projects, most of which can be seen as contributing to digital inclusion and participation. Projects tend to focus on research and developing applications for different groups.

Figure 16: Sample Nominet-funded mobile apps

- Virtually free: To combat agoraphobia
- Vinspired: Mobile microwork for young volunteers
- Flowy: Smartphone game to reduce anxiety
- Get connected: To help young people in crisis
- Effective interaction: a personalised app to build bridges between young offenders and their youth workers.

Digital inclusion initiatives using mobiles

Most digital inclusion initiatives in the UK are still based on fixed terminals. That said, some organisations active in the sector have recognised the potential of mobile, and are beginning to incorporate it into their programmes.

Go On UK feel that the spread of mobiles offers significant opportunities for strengthening digital inclusion, for example because:[62]

- Many of the people who need to be reached are unlikely to attend Online Centres. One-to-one peer support in their own homes (or other mutually convenient location) will be much more effective, and this is most easily achieved using mobile equipment.
- There is a significant subset of offline people for whom using a mobile or tablet is more socially acceptable than using a PC would be. For some, PCs carry negative "typist" connotations, whereas mobiles are known to be currently fashionable.
- Digital skills may well be passed on incidentally, at gatherings dealing with entirely other topics (say, family history or energy efficiency), or in a purely social context. If people have their own mobiles with them, they can learn a lot from being with others in this way.

Helen Milner, Chief Executive of the Tinder Foundation, has described:

> "…the instinctive feeling that I have that smartphones and tablets are a game changer for digital inclusion ... [M]obile

[61] As the UK domain registry, Nominet is a public purpose organisation with substantial revenues.
[62] Discussion with authors

> technology isn't the silver bullet just yet but there are some pretty good things about it ... In time, all of our courses will not only be mobile friendly, but will support people to use mobile technologies to make the most of the online world. What mobile definitely does represent is a great opportunity, allowing us to reach whole new audiences who cannot – or do not want to – benefit from fixed broadband and who find the whole "keyboard and mouse" thing clunky and not useful…."[63]

Tinder is putting this into practice in the field. For example, during their eReading Room project near Stockport:

> "Tutors … were able to respond to what learners wanted to explore, and put on sessions specifically about tablets, family history and Skype. They also bought tablets they could lend to learners.
>
> One of the main outcomes of the project for Starting Point - and especially the new technology - was that it made volunteering "a bit cooler", driving intergenerational learning. Another real success has been in using it to take learning out of the classroom, attracting more learners and volunteers".[64]

In a recent survey of Online Centres, 73% of centres said they used tablets to deliver learning; commonly cited advantages were easy outreach delivery due to devices' high mobility, and increased usability for new users, especially older and disabled people who found keyboard and mouse difficult[65].

Tinder currently has under way a new Home Access Project funded by BIS, which will enable 20 centres[66] to acquire a range of devices for users to try out, boosting their confidence before using such devices at home. The aim is to evaluate how people fare with different devices; the outcome could be significant for mobile use in the sector.

Tinder is also looking at going to the user at new locations. For instance it is considering outreach at doctors' surgeries and

[63] Helen Milner, personal blog, 25 January 2013
[64] Tinder Foundation *Annual Review 2012-2013*
[65] Direct communication to authors from Tinder Foundation.
[66] See for example Community Connected, *Home Access Project* (Accessed 18 February 2014)

outpatient clinics as part of its work with the NHS's Digital Health Literacy programme.[67]

Digital Unite note that

> "For older people, the combination of tablets and apps is easier to master and use than a PC. Indeed, 1 in 3 of last year's Spring Online events involved tablets or smartphones and of the 270,000 unique visitors to the Digital Unite website each month almost a third (32%) access from something other than a PC/laptop."[68]

For this year's event, Digital Unite tells volunteers:

> "The internet definitely has legs and your Spring Online event could have too. With a laptop and a dongle or a tablet or smartphone, you could take technology to learners"[69]

Conclusion

The UK effort to address digital exclusion is diverse, and highly dependent on a vast range of voluntary and social organisations. This has some significant advantages – training is most potent when delivered face-to-face, and local organisations are often better equipped to reach potential learners. This fragmented approach has also been the only option, given limited funding even at the national level. It naturally leads to uneven provision across the country.

This fragmented approach also makes co-ordination and institutional learning more difficult (a challenge that central bodies like Go On UK and the Tinder Foundation work to address). For instance, some national organisations have recognised the potential of mobile as a tool to address the digital divide, but deployment in the field is still comparatively limited and external support systems are lacking.

[67] Helen Milner, "Making digital health information available to all", *Digital by Default News*, 27 September 2013
[68] Digital Unite, *Where we are in the challenge to get the nation 'digital by default'*, 3 February 2014
[69] Digital Unite, *How to get involved in Spring Online / 3. Make your event mobile* (Accessed 14 February 2014)

6. The wider trend to mobile

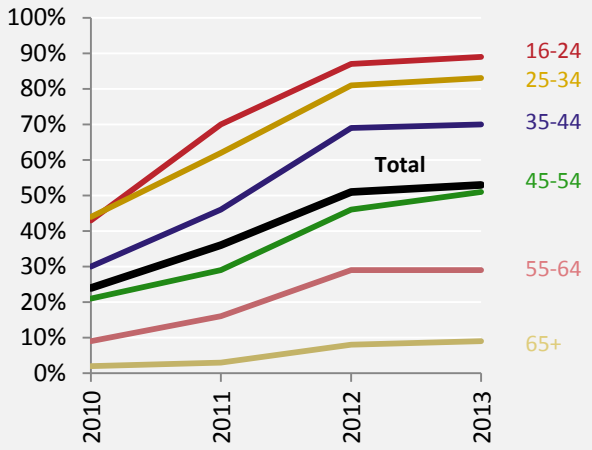
Summary

- Over half of all adults use smartphones and tablets
- Traffic from such devices is already a third of internet totals, and rising fast
- Increasingly, digital exclusion is exclusion from mobile

What it means to be online is changing fast. As recently as four years ago, virtually all internet use was via a browser on a PC.[71] However, the rise of smartphones and tablets is rapidly changing patterns of consumption.

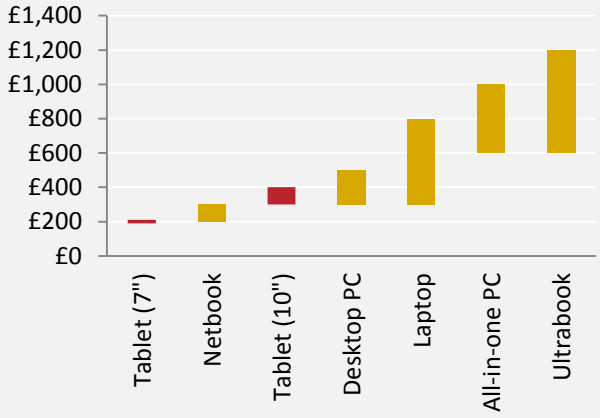
Today, 53% of adults use such devices to go online. In the youngest age group, 89% have done so, though for older age groups the figure is much lower - 9% for those 65+ (Figure 17). However, this gap will gradually close, not least because (as Deloitte say) "it is becoming almost impossible to buy a feature phone".[72]

Figure 17: Internet use on mobile or tablet[70]



Globally, smartphones and tablets are now outselling PCs by approximately 4:1.[74] As the cabinet office puts it, a "mobile [device] is fast becoming the default option for accessing the internet".[75] Such devices are already relatively cheap – basic smartphones retail (even without a mobile plan) for £50 or less[76] and Galaxy 7" tablets with 3G are available for £190. Computers are generally more expensive (Figure 18). In addition, for customers taking wireless data plans, mobile devices may be included at no extra cost.

Figure 18: Equipment price ranges (before any mobile operator subsidy)[73]

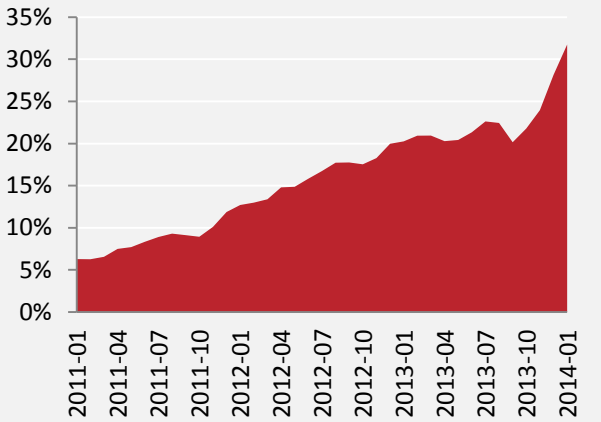


[70] ONS, *Internet Access - Households and Individuals, 2013*, 8 August 2013. Includes tablets
[71] Either Windows or Apple, and desktop or laptop
[72] Feature phones are mobile phones other than smartphones. Deloitte, *Technology, Media & Telecommunications Predictions 2014*, 14 January 2014
[73] RNIB, *Getting online with computers and tablets*, November 2013. Note that these are prices for new equipment – refurbished devices (both fixed and mobile) will be cheaper
[74] Benedict Evans, *Mobile is eating the world, autumn 2013 edition*, 5 November 2013. See also Gartner, *Gartner Says Smartphone Sales Grew 46.5 Percent in Second Quarter of 2013 and Exceeded Feature Phone Sales for First Time*, 14 August 2013 and Gartner, *Gartner Says Worldwide PC, Tablet and Mobile Phone Shipments to Grow 4.5 Percent in 2013 as Lower-Priced Devices Drive Growth*, 21 October 2013
[75] Cabinet Office, *Government Digital Inclusion Strategy*, 13 April 2014
[76] See for Vodafone, *Smartphones from £50* [accessed 25 April 2014]

Moreover, prices will fall further, both due to economies of scale and due to the growth of the mobile internet in developing markets, which is giving device manufacturers a strong incentive to develop affordable devices[77].

The trend to mobile devices is evident in internet traffic statistics. As of January 2014, phones and tablets represent over 32% of page views, up from 20% a year prior.[79] On this trend, mobile devices will be the predominant form of web-use by the end of 2015.

Figure 19: UK mobile page views as share of total[78]



Even these figures understate mobile's portion of internet usage, since they exclude smartphone apps, used for everything from banking to weather forecasts.

This pattern of usage is evident across a wide variety of types of website and application. For instance, 37% of visits to GOV.UK[80] and 36% of iPlayer requests[81] are already from tablets and mobiles, and these figures are rising fast.

Thus in the near future, digital exclusion will primarily be exclusion from the use of smartphones and tablets, with exclusion from PC usage as a secondary concern. In many circles there are already widespread expectations that people will always be available to friends or colleagues via their mobiles, with potential problems for those who do not fulfil such expectations.

[77] Datawind's new "ubislate" models, developed for use in India, are now available in the UK, starting at £29.99 (with only Wifi connectivity); adding 2G EDGE connectivity raises the price to £69.99.
[78] Statcounter [Accessed 6 January 2014]
[79] Note that this does not imply the same level of usage via mobile *networks*. Much usage of mobile devices is via wifi and a fixed broadband connection
[80] Figure for first week of January 2014. GOV.UK, *When will more people visit GOV.UK using a mobile or tablet than a PC?*, 8 January 2014
[81] Figure for November 2013. BBC, *BBC iPlayer Monthly Performance Pack*, 19 December 2013

7. How can mobile contribute?

Summary

- Mobile is certainly not a panacea for the problems of digital exclusion, but it has many attributes that can enable it to make a valuable contribution
- These include: lower financial commitment; suitability for mobile individuals; ease of use and technical resilience; and built-in peripherals
- For the likely traffic volumes of newer users, mobile is cost competitive with fixed solutions

As we have seen, there is a range of reasons why people are offline. There are also different aspects to being online that are likely to be most tempting to those considering a move online. This diversity suggests that a range of tools is valuable to help people online. While a fixed solution may be ideal for many, for others mobile may offer a better combination of costs and benefits.

This is certainly not to argue that mobile is a panacea to the problem of digital exclusion – it is not. Rather, it is a powerful tool to enable the transition online of a subset of those currently excluded.

In this chapter we set out some of the characteristics of mobile (in comparison to fixed) that make it highly relevant for this subset. We then consider some of the potential objections to mobile in this context.

Advantages of mobile in addressing digital exclusion

Can go to the user

As we have seen, an increasing proportion of those offline are 'digitally reluctant', saying they have little interest in being online. Such individuals are unlikely to present themselves for training at online centres, or libraries with PCs. Mobile devices however can easily be taken to them, and the potential quickly demonstrated. This could be by friends and family, by care workers, via outreach at (say) medical facilities and so on.

Low cost for low traffic users

To a significant extent, mobile broadband costs are driven by volume of usage. By contrast, fixed broadband costs are largely fixed, regardless of usage. This means that mobile is relatively more competitive for lower usage users (including, typically, those in their earlier years of internet use).

Greater ability to manage costs

Fixed broadband is typically sold on a monthly subscription, and frequently comes with a 18 or 24 month contract. This can represent a substantial financial commitment to a new user, particularly if they are not certain they actually need the internet.

By contrast, mobile data can be bought on a pay-as-you-go basis. This greatly reduces the financial commitment and perceived risk of moving online. This is doubly important for those whose income may be both low and volatile, and for those who remain tentative about going online and want to minimise initial commitment.

High street presence

Mobile operator shops are widespread, and can both promote getting online and provide some training (a role not generally provided by PC retailers). For example, Vodafone's Tech Team can let new users try out different terminals and – depending how busy the shop is - help set up email and social media accounts.

Moreover, users can leave a mobile operator's shop knowing their internet connectivity is working. Someone taking a PC home will, in most cases, then have to set up their internet unassisted.

Better suitability for mobile individuals

For those who may be moving home frequently, mobile avoids the need to disconnect and connect broadband service. For those in group housing, sheltered accommodation, rental accommodation and so on, mobile avoids any possible need to seek a third party's permission to install fixed broadband.

Better suitability where space is limited

For people living in restricted or mainly shared space, mobile equipment has big advantages – it need not take up precious floor or table space, and can be put away privately in a drawer.

An integrated solution

A consumer using fixed internet must buy a PC and secure broadband service, usually from two different suppliers. By contrast, with mobile both the device and the connectivity are (generally) bought from the same supplier. Thus if the user has a problem, there is no question who to call, simplifying troubleshooting for users with limited technical knowledge.

Mobile devices also have in-built features such as cameras, microphones, GPS and so on. On PCs these can be peripherals that need to be acquired separately, installed, provided with updated device drivers and so on.

Portable and personal devices

For those with limited mobility, there are advantages to portable devices such as smartphones and tablets – a trip to a particular room with a PC is not necessary to get online. This constant availability also supports casual experimentation, facilitating increased use over time.

The portable nature of mobile devices also means that users can readily take them home for a trial period. Setting up a computer and provisioning fixed broadband is time consuming and expensive. By contrast, providing a tablet on loan for a week for a new user to experiment is relatively simple.

Potential e-health benefits

Smartphones also have advantages for potential e-health applications. For example, reminders to take medication at a particular time of day are more effectively delivered to a smartphone than by email to a PC.[82]

Figure 20: MyMedSchedule mobile app

In the future, as people start to wear sensors for medical telemetry, smartphones will be the natural way to bridge such data to the wider network. Smartphones are also being tested for everything from fall detection (for the elderly)[83] to home hearing tests.[84]

Personal devices with accessible data

Smartphones are personal devices, with key data (for example, the address book) in a location that is 'known' to other applications. Thus the integration of applications is far simpler. Both email and video calling can work from the same address book, for example, whereas on a PC Gmail and Skype (say) would require the user to maintain one set of contacts for each.

Intuitive interface

Mobile device touchscreens are intuitive for new users to use, by contrast to a mouse and a keyboard. This is particularly important for many older users, who may never have learned to type. Such individuals are less likely to be concerned by the lack of a traditional keyboard.

[82] Lindsey Dayer et al, "Smartphone Medication Adherence Apps", *Journal of the American Pharmacists Association*, April 2013

[83] See for instance SY Hwang et al, "Fall Detection with Three-Axis Accelerometer and Magnetometer in a Smartphone", *Proceedings of the International Conference, CST 2012, Jeju Korea*, June 2012

[84] JM Choi et al, "Phoneme-Based Self Hearing Assessment on a Smartphone", *IEEE Journal of Biomedical and Health Informatics*, May 2013

Simple apps

Because of the smaller screens and simpler controls of mobile devices, applications tend to be more focused on key activities than their desk-top equivalents. For power-users, this may in some circumstances be a disadvantage; for beginners this simplicity is a great benefit.

According to Andy Washington, MD of Expedia UK & Ireland, designing within the constraints of a small touchscreen helps keep a service as clear and as simple as it needs to be to serve all users, including those who may be new to the internet, or find it a struggle.[85]

This simplicity also keeps the cost of applications down (typically at around the £1 mark), reducing the total cost of ownership of mobile solutions.

In addition to being simple in themselves, apps are simple to access - a single tap can take a user straight to whatever areas engage them, be that live sports coverage, recipes, lower energy bills or 1,001 alternatives.

Built in features to support those with disabilities

Many mobile devices come with features to assist those with disabilities. Triple-clicking the home button on an Apple iOS device brings up 'VoiceOver', a feature which provides an audio description of what's on screen, to assist those with limited sight. Siri, iOS' voice input, is useful for those with limited dexterity. Speak Selection will read out text (such as emails or webpages) to a user.[86]

Such features make general internet use easier, but there are also mobile apps that bring specific benefits for those with disabilities. For instance, the Jaccede app (a Vodafone Foundation Smart Accessibility Award winner) enables smartphone users to find nearby shops and venues that have step-free access and accessible toilets. Zoom Plus is an app that allows a smartphone user to zoom in on text and change its colours, helping those with poor vision or colour blindness. BIG Launcher replaces the many default icons with a small number of larger buttons for key applications.

Less risk of inadvertent damage

The controlled environment of mobile devices (particularly iOS devices) makes it much harder for beginning users to cause

[85] GOV.UK, *When will more people visit GOV.UK using a mobile or tablet than a PC?*, 8 January 2014

[86] Apple, iOS. A wide range of features for a wide range of needs. Accessed 10 February 2014. See also the Mobile Manufacturers Forum Global Accessibility Reporting Initiative database of mobile accessibility features at http://www.gari.info/.

inadvertent damage by changing a setting. Those users can be reassured that they are very unlikely to 'break' their device (except, perhaps, by dropping it). The level of customisation available in a PC environment, while valuable to the advanced user, may be dangerous for newer users.

Possible disadvantages of mobile

Cost

One potential objection to mobile is that traffic charges are higher. Certainly for very heavy users, this is a reason to prefer fixed broadband, where unlimited usage packages are available for only a moderate premium. However, in practice most users actually have relatively low traffic.

Figure 21: Sample fixed and mobile tariffs[87]

Item	Plusnet	Vodafone
Voice	Free weekend	Unlimited
Texts	N/A	Unlimited
Data	10GB	4GB
Contract	18 months	12 months
Monthly tariff	£20.49	£23.25

Average fixed broadband usage is 30GB per month,[88] but this headline figure masks enormous variation. The bottom 50% of users consume just 5% of traffic.[89] This would imply that for this group, average usage is just 3.0GB. It seems likely that new users would fall into this group, and indeed may well be at the lower end of it. If that is the case, then mobile data is very competitive. 3.0GB is in fact a substantial amount of data, enough for a combination of 15 minutes of video, 15 minutes of audio, 20 emails and 20 web pages every day.[90]

As Figure 21 shows, a mobile tariff with a 4GB data allowance is broadly comparable even to lower priced entry-level fixed broadband tariffs (with associated voice line rental), includes a greater allowance of minutes as well as texts, and is of course usable anywhere, not just in the home.

Of course, if average usage for the bottom 50% of internet users is 3GB, many new users may consume well below 4GB per month. For such users pay-as-you-go tariffs can be highly attractive. For instance, Vodafone currently offers 250MB of data for £5, or 1GB for £10 (both valid for 30 days).[91] Better publicity for such tariffs may be needed for more new internet users to take advantage of them.

In time an individual's usage may grow to the point where typical mobile allowances are no longer sufficient, and it may be appropriate

[87] Vodafone SIM-only deals, Plusnet Essentials Broadband and calls. Accessed 22 January 2014
[88] Ofcom, *Infrastructure Report 2013 Update*, 6 December 2013
[89] Note that this is within ADSL2+ uncapped packages – we have assumed this ratio holds across all users
[90] Vodafone Data calculator
[91] Vodafone, *Free SIM card for your 3G iPad or tablet* [accessed 5 February 2014]

to migrate to a fixed solution. This of course in no way invalidates using mobile as an 'on ramp' to get that person online in the first place.

Speed

A few years ago, mobile internet service might have been thought impractical for most people because of the slow speed of mobile data connections. But now minimum speeds typical of 3G service are widely, though not yet universally, available in the UK.

Operators are also rapidly rolling out 4G, which will offer higher speeds. For example, Vodafone's 4G coverage is over 36%, and will rise to 98% by 2015.[92]

Lack of certain peripherals

Mobile devices are less often used with peripherals such as scanners and printers. However, this is not in fact a major barrier, even for those individuals who need such capabilities. As we have noted, smartphone cameras can operate as de-facto scanners, suitable for all but the highest resolution requirements. It is also possible to connect a smartphone to a printer, for example using Apple's AirPrint. Naturally this requires the purchase of a printer and setting up connectivity, but the same would be true of using a PC with a printer.

Another option is the document and photo printing services which are already widespread on the high street. For these, pulling photos directly from a smartphone can be considerably easier than moving the same files from a PC to a memory stick and then to the printer (as a fixed-only user would need to do).

Not easy to use for everyone

Above, we have discussed the intuitive interface provided by a touch screen as one of the advantages of mobile. But this is not true for everyone; some people find mobiles too small for comfort, while others have trouble mastering the finger taps and flicks that smart phones and tablets respond to (though as we have noted, built-in smartphone features such as Siri voice instruction can mitigate such challenges).

Easy to lose

The risk of damage, loss or theft is plainly higher for mobiles than for PCs, because they are used out and about and are often attractive to criminals. However, phone snatchers already ignore the cheaper models, and as prices fall the underground market will decline.

[92] Vodafone, *Vodafone ultrafast 4G expands across the UK*, 17 February 2014

Coverage

In-home coverage of mobile broadband is constantly improving, but is not yet ubiquitous. Clearly a mobile solution is inappropriate for the relatively small number of individuals who have a poor signal at home – less than 1% of UK premises do not have 3G coverage from any mobile operator.[93]

Where mobile can be most powerful

As we have seen, mobile as a solution to digital exclusion has its strengths and weaknesses, and is not for everyone. We believe the following indicators are relevant:

Figure 22: Indicators of an individual's suitability for fixed or mobile solutions

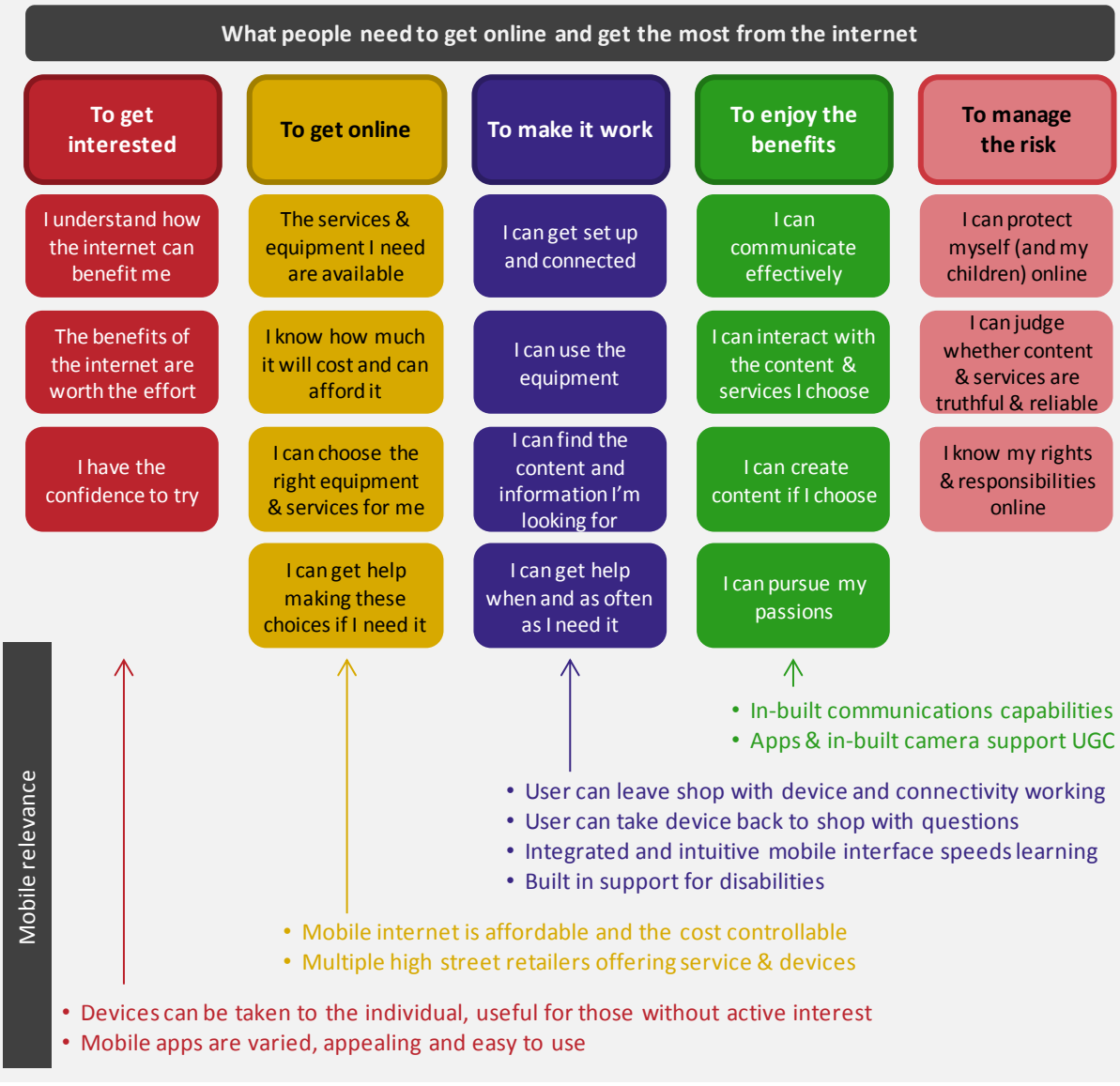
Mobile more suitable	Fixed more suitable
• Unconvinced about internet	• Ready for commitment
• Limited in-home mobility	• Lack of mobile coverage at home address
• Financially constrained	• Household already has PC and/or fixed broadband
• Transient	• Likely to be heavy data user
• Likely to benefit from e-health capabilities	• Need to create documents regularly
• Particularly cautious about technology	• Seeking a household, not a personal solution
• Lack of familiarity with keyboard	
• Social connectivity a key motivator	

Conclusion

The Communications Consumer Panel has described a consumer framework for digital participation, setting out the five key phases to getting online.[94] In Figure 23 we reproduce this framework, and note the particular strengths of mobile that are relevant to each of the first four phases – clearly mobile has a major contribution to make to the journey online.

[93] Ofcom, *Infrastructure Report 2013 Update*, 24 October 2013
[94] Communications Consumer Panel, *Digital Participation Research Review*, May 2010

Figure 23: Consumer Framework for Digital Participation and mobile relevance



8. Recommendations

As we have seen, the nature of digital exclusion is changing – increasingly, those offline simply do not perceive a need to move online and will suffer because of this. Past efforts to coax this group online have been largely unsuccessful, and thus new approaches are necessary, employing a wider range of tools than have been used to date.

Mobile has great potential as one such tool, and is currently underutilised. We believe the following steps could be valuable towards mobile meeting its potential in this context:

Recommendations for mobile operators and retailers

- Mobile handsets and software interfaces designed specifically for the elderly, those with disabilities or simply those seeking a less complex interface are becoming more common, and some are offered by some UK retailers. However, wider availability and greater prominence would both be valuable. (They can be hard to find on the websites of those mobile operators who do offer them.)
- Sector companies such as BT (with Get IT Together) and Microsoft (with getonline@home) are, understandably, promoting solutions based on fixed broadband and PCs. Mobile operators may wish to support similar programmes for mobile solutions
- Mobile operators and retailers could use their high street shops with properly qualified staff to promote and run training programmes for as long as customers need the support, and to demonstrate adaptations for elderly or disabled customers, perhaps in off-peak hours.
- Mobile operators will benefit from supporting and publicising new mobile apps with particular appeal to marginal internet users.
- Supporting community groups in actions like those recommended below offers opportunities for Corporate Social Responsibility in keeping with mobile operators' business objectives.

Recommendations for local government and community groups

- Online Centres not offering mobile training could add this to their repertoire, drawing on the experience of those that have already done so. The mobile options should be presented alongside fixed broadband.
- Where older or disabled people lack their own web access but do get care visits, carers carrying smartphones or tablets could use these to help the people they visit with any online business. As well as immediately reducing digital exclusion through proxy use, this might encourage some of those concerned to go online themselves. But it would mean addressing the time and skills constraints of the carers, and ensuring that the costs are covered.
- More generally, taking training 'into the field' rather than waiting for the digitally excluded to present themselves will be increasingly important. In this context mobile devices can be highly relevant.
- Guides to equipment and services that are suitable for getting online at home should include mobile devices and packages. As offerings change so fast, such guides should be linked to an independent web price comparison site (preferably Ofcom-accredited) dealing with suitable tariffs for people on low, reduced or uncertain incomes, including MVNO, downgrade and prepay options.
- To address user fear that they may run up large data bills, community groups could recommend network operator apps and text alerts which keep users posted on their usage. Similarly it may helpful for users to be aware of trial periods, such as Vodafone's Data Test Drive which (for contracts) offers unlimited usage for the first three months of a subscription and information on data used.
- Libraries and community groups should consider procuring a number of mobile devices for individuals to take home and experiment with. (The ability to remotely locate and wipe devices means this need not present undue security problems). Given constraints on budgets, this might require grants from third parties. Centralised procurement and technology management might also be helpful.

Recommendations for central government

- There may be a case for rebalancing government spending between infrastructure and training. As we have seen, at the moment the balance is strongly towards infrastructure. A failure to find appreciable funds for digital inclusion (from whatever source) likely represents a missed opportunity, since the return on investment to the government from spend on digital inclusion may be appreciable – as we have seen, each government interaction moved online brings appreciable savings, and those currently digitally excluded are likely to be heavy users of government services
- There is admirable work underway by GDS to improve usability of government websites, and in particular to enable their use on mobile devices. This can help the digitally excluded to move online via mobiles and sustained effort in this area is clearly valuable. For instance, from April 2014 all new and redesigned central government services must be designed with mobile devices in mind.[95] However, this appears to position mobile-readiness as a by-product of a development that may be happening anyway, rather than an objective in of itself. As mobile becomes the prime form of internet usage, services that are not mobile-ready will be hard to justify and there is an increasing need that online presence be "mobile by design".
- Given limited resources for digital inclusion, and a wide range of smaller organisations working at the grass-roots level, the government may wish to fund a study to compare the efficiency of fixed and mobile solutions in helping different groups of people to make the transition online. (Note there seems to be a general lack of evaluation and evidence of what works in combating digital exclusion.)[96]

[95] GOV.UK, *When will more people visit GOV.UK using a mobile or tablet than a PC?*, 8 January 2014
[96] For a detailed discussion of (limited)_existing evidence, see Age UK, *Digital Inclusion Evidence Review*, 23 October 2013