

Written evidence submitted by

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Executive Summary

A sizeable minority of the UK population lack access to basic digitally-enabled services and therefore do not yet participate in the Digital Economy. There is a growing social and economic gap between those who are connected and those who are not, the 'digitally excluded'. This submission outlines available evidence as to the extent of broadband coverage in the commercially hardest to reach areas and the implications for those who currently are 'not served' and 'under-served'. Drawing on data from the dot.rural Rural Public Access WiFi Service (Rural PAWS) study, designed to promote connectivity amongst 'hard to reach' households in a remote rural area, the Internet experiences of our study participants are outlined. The behaviour and experiences of a mid-life farming couple before their participation in PAWS (with a poor Internet connection) and during their participation in the project (with a much faster connection provided to facilitate access to online Government services) is reported. Of particular note are economic benefits and enhanced professional practice directly associated with improved digital connectivity.

Sources:

This evidence is drawn from ongoing research, the Rural Public Access WiFi Service (Rural PAWS), being undertaken at the University of Aberdeen's Rural Digital Economy research hub, dot.rural. The research is supported by the award made by the RCUK Digital Economy programme to dot.rural; award reference: EP/G066051/1. Other work undertaken by the authors, all based at the University of Aberdeen, is quoted where appropriate. References are included at the end of this document.

Extent of broadband coverage in hardest to reach areas

1. Access to a reliable, high speed Internet service is now accepted as being essential to support economic growth and innovation, yet a sizable minority of the UK's population have never used the Internet (7.1 million adults in the UK) [1] and many lack access to basic Internet services. The reasons why individuals do not engage with the Digital Economy are varied, including lack of interest, costs (although of decreasing importance) and age. For some, inadequate fixed and mobile infrastructure has left their communities off the digital map, most notably in remote and rural areas across the UK.
2. Broadband infrastructure data published by Ofcom, in December 2013, reports the availability of superfast broadband at local authority level across the UK. Infrastructure improvements bringing superfast broadband to consumers have been concentrated in urban areas and other parts of the UK with relatively high population density. The variation in

provision across urban and rural areas shows that superfast broadband is more readily available in England than it is in Scotland and Wales, although 'predominantly rural' local authority areas of England fare much worse (at 45.6% coverage) than their urban and 'significantly rural' local authority counterparts (85% and 70.3% respectively) [2].

3. While Ofcom publish fixed broadband data at Local Authority and unit postcode level the regulator does not report data about satellite broadband use in the UK other than providing a UK-wide overview of uptake. Satellite solutions for rural areas underserved by fixed broadband are becoming more common-place, however in the absence of unit postcode data for satellite broadband uptake (commercially sensitive information held by satellite Internet Service Providers) it is very difficult to gain a full picture of broadband coverage in remote rural areas, other than the connectivity provided by fixed infrastructure. Ofcom's mobile telecommunications data, reported at local authority level, shows that mobile Internet (3G and 4G) access in many rural areas remains limited, or non-existent and is thus not a feasible alternative means of connectivity to those without fixed broadband servicing their home or business premises.
4. Ofcom (2013) estimated that 5% of the UK population cannot access a broadband connection of at least 2Mbit/s, of which 60% are located in rural areas. On average, one-fifth of rural premises may, in connectivity terms, be classified as 'not served' or 'under-served' by existing broadband infrastructure [3]. The limitations of current infrastructure were clearly set out in the recent Royal Society of Edinburgh consultation report where poor infrastructure is shown to limit uptake in remote rural areas regardless of age, income status etc. and thus does not parallel the linear relationship between uptake and deprivation reported in urban areas [4].
5. Communities and individuals residing in remote rural areas are, by nature of their geography, more likely to be digitally excluded simply because of *where they live* rather than as a result of personal or household socio-economic attributes and as such they are less likely to be able to engage online with the creative, social, commercial and civic life regarded as normal in other parts of the country [5]. A number of research participants across various dot.rural projects have reported the problems they have experienced in securing a home broadband connection. Some of these individuals want to be online but the physical infrastructure in their area means they cannot have a home broadband connection. Others struggle with inadequate connectivity (e.g. very slow speeds, an unreliable service), with implications for business activities and for personal lives.

Digital access and experience of digital-only programmes

6. The Rural Public Access WiFi Service (Rural PAWS) is an inter-disciplinary study drawing upon expertise in Internet engineering and rural geography at the University of Aberdeen. It explores how to enable digital inclusion for businesses and households in commercially 'hard to reach' remote rural communities without, or with less than acceptable, access to broadband services. The study establishes the technical requirements to deliver the Rural Public Access WiFi Service and explores whether users find this service adequate for their Internet practices and needs.

7. A case study community in south Shropshire has been the focus of Rural PAWS activities. This locale is designated by the BDUK programme as an 'intervention area': in other words, properties in this area (at the time the study commenced, in April 2014) had not received superfast broadband and no infrastructure development plans were proposed under the current funded programme. There are households in the case study community located on the edges of fixed broadband infrastructure coverage, unable to receive broadband via existing copper cables and other households that are limited to very slow Internet sync speeds because of their distance from the telecommunications cabinet. 3G mobile provision in the area is negligible. The case study community is characterised as one where a sizeable number of properties are 'digitally excluded' due to infrastructure limitations. Other barriers to digital inclusion in the area include those whose personal attributes match those identified in recent reports published by, for example, the Office for National Statistics (ONS), such as a feeling of not needing to be online or not being sufficiently computer literate to feel confident to take the necessary steps to get online.
8. Rural PAWS delivers participants free access to a satellite-based Internet service (installed at no cost) for a period of 12 months. The connectivity available is rate-limited for normal use, but full broadband availability is provided to support access to government and other white-listed web sites. This limitation on the broadband offered is purposive in order to explore the minimum level of service required to meet 'Digital by Default' expectations. Whilst Rural PAWS broadband allows free use of government services, it seeks to avoid direct competition with paid Internet Service Provider (ISP) services. Commercial satellite broadband can offer high speed access but this is not the primary goal of Rural PAWS. The aim is not to displace satellite ISPs from the market, but instead to offer ready access to a minimal service – sufficient for occasional use. This should stimulate local demand for improved connectivity (to the benefit of the market) as well as bringing communities on-line and thus allowing people to enter a digital society [6].
9. A pilot deployment of Rural PAWS technology got underway in April 2014. Four households, containing ten individuals, agreed to participate in the Rural PAWS pilot and received a satellite broadband service through a specially designed Rural PAWS project router installed in their homes. All participating households are local business owners (including farm businesses and a tourism business) and they contain individuals of varied ages and previous engagement with digital technologies:
 - Three couple households (2 'older-generation', 1 'mid-life') and one family household – a 'mid-life' couple with two teenage children.
 - Two existing Internet user households (one using fixed broadband, and one making attempts to use mobile broadband) who both perceived that their existing Internet service was very slow, inconsistent and unreliable.
 - Two non-Internet user households (neither had felt any need to be online and had no experience of using computers or other Internet enabled devices).

10. These participants will be joined by a further four households in the same community in December 2014, to include one farm business and households whose age profile compliments that of existing Rural PAWS participants.
11. Pre-deployment interviews allowed us to understand participants' existing experiences of using the Internet. The mid-life farming couple household were frustrated about their existing broadband service, which was delivered via a mobile dongle. Their mobile Internet connection was inconsistent, unreliable and very slow. For example, it took 4 minutes, 49 seconds to load a single Sheep Society webpage. The couple had attempted to get fixed broadband at their farmhouse and spoke of the challenges this posed:

... it was really dodgy wasn't it and I used to spend virtually every Saturday on the phone to [providers] to try and get them to fix it.

And then they relayed the whole cable [...] and it got even worse after that, after they laid new cable. And they said sorry there's nothing we can do to get you Internet please don't phone us again.
12. These participants had not got round to organising the installation of a satellite broadband service in their home, the only alternative available to them in the absence of a DSL broadband connection. They were well aware of what could be done online, had the technical competence to exploit the Internet to meet their needs, and were aware of the financial penalties imposed upon them for not carrying out regulatory tasks online and for using paper alternatives e.g. sheep registrations, stock movements. Another farming family due to join the study shortly report similar experiences and competences.
13. The two older generation households participating in the study had no prior experience of using the Internet themselves, but were aware of things potentially of interest to them online. The women in these households thought being online would allow them to use a new mode of communication with friends and family, to keep up with local news and events and to organise and conduct some of their shopping and leisure activities. The women were apprehensive about the mechanics of going online (i.e. lack of computer literacy), but were willing to try it. The men in the households (both farmers) were ambivalent about being online at this stage and were content to leave online farming-related activities to their sons.
14. The fourth participating household, the only multi-generational household in the study, were *next generation Internet users* [7]: they were trying to use their fixed home broadband service to support up to eight Internet-enabled devices. They were already active in all domains of Internet use (work, social, shopping, communication etc.) and were putting their connection under considerable pressure. They were keen to see if the Rural PAWS technology could improve the 'basic' connectivity they had been living with, but were also keen to participate in research that would highlight the connectivity challenges faced by many who live in rural communities today.
15. Early analysis of the mid-term post Rural PAWS deployment interviews shows that access to the Internet has "*revolutionised*" the lives of the farming mid-life couple. They report

significant savings (post-Rural PAWS deployment) to their business and their household by their improved connectivity. Economic benefits arose from, for example, researching online a biomass system (now installed) and associated Renewable Heat Incentive (RHI) payments, sourcing a second hand car (saving £1,500), comparing prices for farm machinery and kitchen appliances and parts (saving £100 on a fridge-freezer), and using online voucher (discount) codes. More efficient business practice is evident. The participants have moved from “*enduring*” a service (at a cost of £15 per month) before Rural PAWS to receiving a faster service through Rural PAWS that has allowed them to, for example, complete their sheep registrations online (saving £126), report cattle and sheep movements online, and submit their Integrated Administration and Control System (IACS) online.

16. These participants are now awaiting a registration pack for the Common Agricultural Policy (CAP) schemes online. They recently attended a local meeting where it was reported that 85% of applications for basic payments are already submitted online. A large proportion of these submissions are made by agricultural agents, advisors, and consultants on the behalf of farm business clients, for a fee. This proportion is likely to increase as the submissions system transitions from one supporting paper or electronic applications to an electronic only system. Farm businesses without or with inadequate Internet connectivity will often have no choice but to use the services of others.

Support available for those required to use digital-only programmes

17. The most pressing issues appear to be how to engage with the most hard to reach non-Internet users, and how to ensure that they can access online public services when they have no interest or ability to be digitally connected in their own home. One way of addressing these challenges is through public provision of basic online connectivity that is open to all at no cost to the user. This raises interesting questions in the domains of public policy and use of public funds, and their relation to service providers’ financial and technical models of provision. These will be the topics of study in the on-going work of the Rural PAWS project.
18. While our study looks at the behaviour of only a very small number of users, our findings are illustrative of how improving connectivity can have a very positive impact in terms of improved business efficiency, user adoption of digital technologies, cost savings and enhanced business revenues, and social interaction. We believe that similar benefits would be made available to more people if the Rural PAWS model was adopted in other ‘difficult to reach’ communities across rural areas of the UK.

References

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