



Position Papers for:
Internet Users and Infrastructures
for the Rural Economy in the
Digital Age:
A Forum for Policy and Practice

Oxford Internet Institute, 29th June 2012

Position Paper for Rural Forum

Bill Dutton
25 June 2012

I come into the forum with a few basic questions, many of which are admittedly naïve, but hopefully some will force us to question conventional wisdom and identify issues of relevance for research:

Is there a rural pattern of access and use of the Internet?

How does location matter, if it does, with respect to patterns of access to the Internet and related information and communication technologies, such as smart phones, tablets and more? I suspect that access is more difficult in rural areas, but is this indeed the case, or are rural residents simply older and less well to do? Over the years, is rural access becoming more or less equivalent to other locations, such as in terms of access to broadband Internet in the household?

What about how the Internet is used?

I am particularly interested in whether people who live in rural areas have any differences in patterns of Internet use. For example, are communities stronger in rural areas? If so, social media might be less important to the rural resident. Alternatively, are conventional sites of rural communication diminishing, such as the local pub, and making social media more critical to the rural community? Will rural residents depend more on the Internet for communication and community, as they are more isolated.

What about attitudes to public policy, such as freedom of expression?

Rural residents might be more conservative and concerned about the impact of the Internet on everyday life and work. Therefore they might be more supportive of regulation and other policies aimed at controlling Internet use.

Where do rural residents work, and how does access to the Internet at work link with access at home?

It may be that many rural residents are employed – in their first or second job - in villages and towns or major urban areas, and therefore have very different experiences with the Internet at home and at work? I would expect that those who use the Internet at work – a politician, for example – would be more frustrated by the lack of access at their rural residence than those who do not have access to the Internet at home or work.

Are there technical fixes to rural access?

Are their new technologies or infrastructures that could address the rural broadband divide? Are technologies up stream that will erase these divides? Would the use of 'white space' spectrum, or the more efficient use of existing spectrum help?

Equitable Infrastructures or a Mix to Meet Needs Efficiently?

In early debates about fibre to the home (FTTH) in the USA, critics often joked about 'fibre to the barn', arguing that fibre optic links would be unnecessary in many rural areas and for many rural applications? How equitable must our national infrastructures be, or could they be fit for purpose? Then again, this recent article about fibre to the home in rural Yorkshire is a great counter to my doubts: <http://www.guardian.co.uk/technology/2012/jun/25/kcom-yorkshire-broadband-digital-spring>

What is the priority accorded rural communication issues?

A more general policy question that interests me is an apparent paradox about the priority given to rural communication issues. On the one hand, rural issues seem to have captured a great deal of symbolic importance and visibility, possibly due to the romantic views individuals have of the countryside and rural life. On the other hand, it seems very difficult to mount effective campaigns to address rural communication issues. Possibly the cost is too great, or the votes are too few, but the rhetoric about support for rural communication does not seem to be matched by the reality of policy and practice, such as related to issues of access to broadband Internet or mobile networks. Is this right, or is the opposite the case: are rural issues accorded more significance than they are due?

Who should be the target of work on rural communication issues?

Who are the key politicians, and activists championing rural communication issues? What agencies and public and private actors are supportive and unsupportive of addressing key rural communication issues? Do we understand the political ecology of rural communication policy?

What are the most promising policy or regulatory initiatives for rural Britain, or the various nations?

Can we list some of the key initiatives and proposals in play, and identify the most promising for addressing rural needs? Are the nations a source of innovative ideas on addressing rural communication needs? What can we learn from Digital Wales, for example, and other national efforts?

Finally, what are the issues that should be prioritized for research?

Next generation broadband in rural UK: mobilising, meeting and anticipating demand

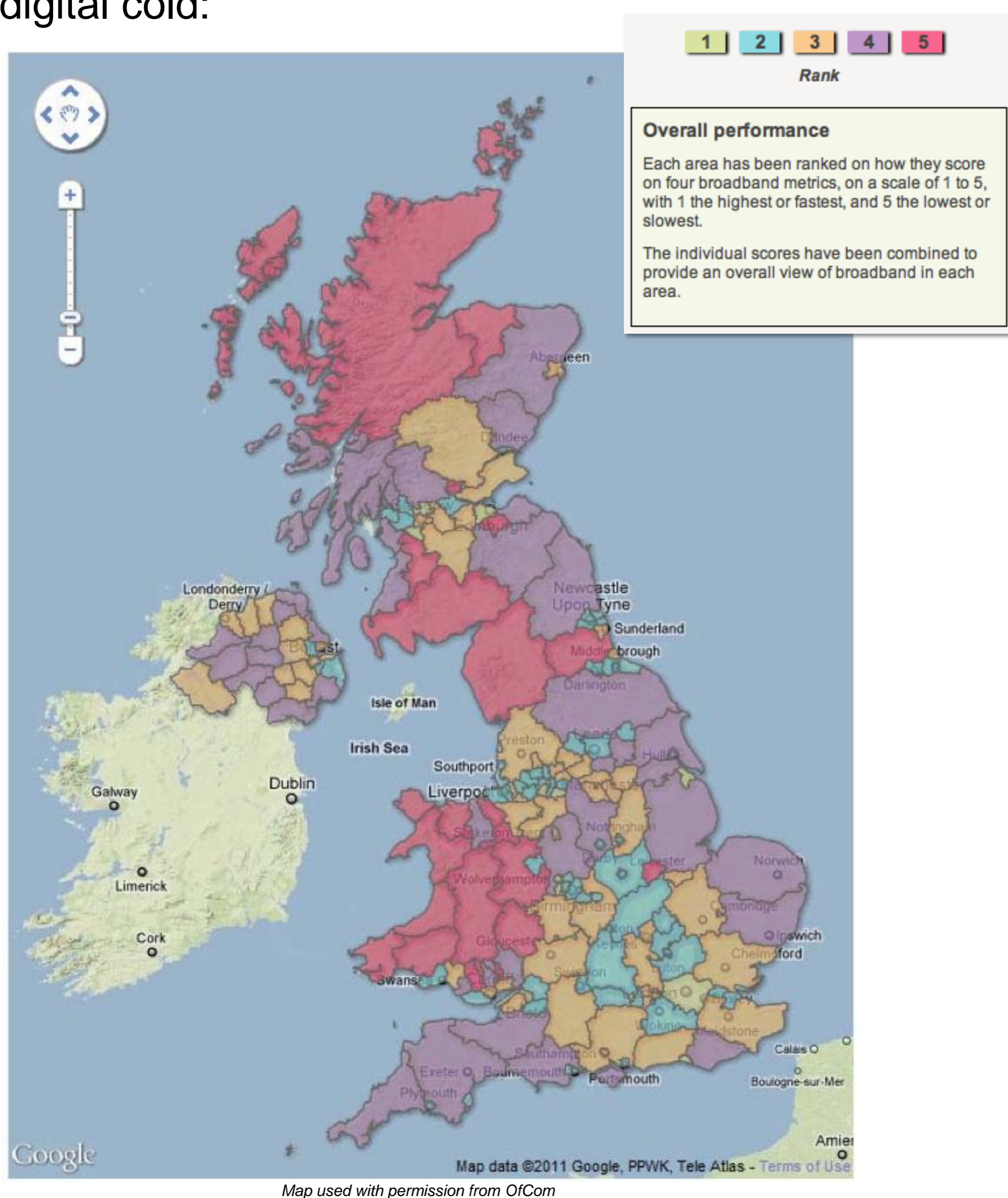
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State of rural broadband in the UK and why this matters

Next generation broadband is integral to social and economic development and to the delivery of UK government policy objectives. Despite strategies and investments since the 1990s, much of rural UK remains in the “**final third**” with “**not-spots**” and “**twilight zones**” hampering inclusion and development. Connectivity in urban UK, meanwhile, is getting faster, faster. In fact, significant infrastructural investment, including by communities themselves, is required even to maintain the rural-urban digital divide. Demand for next generation broadband is persistent and increasing amongst rural businesses and communities. This is because **next generation broadband enables the realisation of commonly-accepted “rights” for UK citizens**, irrespective of location – and the role of next generation broadband in supporting the delivery of these rights is indisputable.

Broadband as infrastructure

It is now a commonly-held view, internationally, that next generation broadband infrastructure (fixed and mobile) is as essential as roads, electricity, air and water travel. Physical challenges in deploying broadband in rural areas include: few street cabinets, weaker backhaul, length of lines in copper phone wire networks, and number of masts required for new generation mobile broadband. Further market disincentives include small numbers of dispersed population. The “Fixed Broadband Map” below shows the overall performance of fixed broadband services to date (based on a metric of broadband take-up, superfast availability, modem sync speeds and percentage receiving less than 2Mbit/s), demonstrating the risk that many rural areas remain left in the digital cold:



Why does this matter and should next generation broadband access be considered as a “right”?

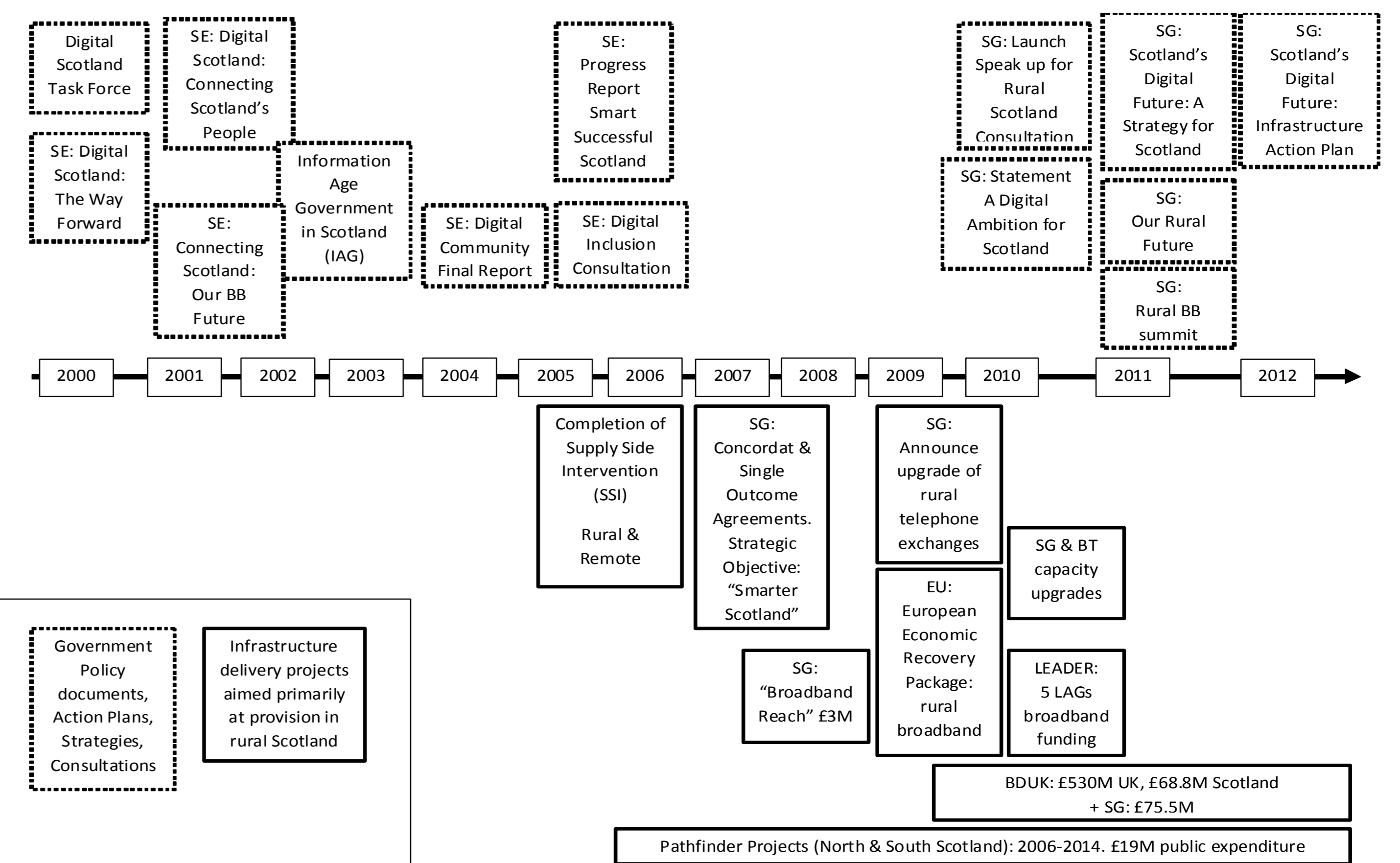
The **value of internet access** is well-established, for accessing information, shopping, social networking, education, leisure, services, as well as for enhancing social, economic and cultural lives through opportunities for greater connections. Its economic value is calculated to contribute between 2.5% to 6% to GDP.

The United Nations has recognised **the internet as a means to achieving rights** such as freedom of speech, and access to health and education. In **Finland, internet access** has been declared a **right**, since, “like banking services or water or electricity, you need an internet connection. Universal service is every citizen’s subjective right”.

For more information on *Rural Scotland in Focus 2012*, please see: www.sac.ac.uk/ruralpolicycentre

What has been done to address the UK’s rural digital capacity?

Government: the challenge of broadband access in rural regions is not new. In Scotland for example, since the formation of the Scottish Parliament in 1999, ‘Digital Scotland’ has been on the agenda:



Scotland Digital Policy and Investment Timeline: 2000-2012

Rural communities: have been finding a viable solution for unreliable, slow and/or expensive broadband access, due to: distance from exchange, weak backhaul, and lack of market intervention. Communities across the UK have identified these issues as inhibiting economic development and competitiveness, and reducing their sustainability. Enhanced speed and service are believed to have a positive social and educational benefit.

Where next?

It remains imperative to address “**geographic exclusion**”, otherwise commentators believe a **society of unequal opportunity** will persist. What more needs to be done to complement ongoing national investment?

- Enhanced collaboration between **academics and industry**, such as www.dotrural.ac.uk. This is generating: cross-fertilised ideas; technologies for particular rural challenges; and lessons for future deployment. Other innovative examples are: the **Tegola Project**, where Edinburgh University partnered with communities on Scotland’s West coast, Lancaster University’s work in the Village of Wray, and University College Farnmouth’s work in Cornwall.
- Greater collaboration between **communities and both the private and public sectors**. This has taken place in a few instances, and creates opportunities for **testing alternative technologies and business models** and for **increasing participation**.
- Increased testing of technological fixes by the private sector**, such as potential use of “White Space” (parts of spectrum no longer needed due to switch to digital TV).
- Systematic learning from multiple pilot projects**. Deliberate pooling of experience and of how challenges have been addressed can then take place efficiently across sectors and locations.
- “**Bigger thinking**” that brings together parallel **infrastructural investments**. For example, should developers of wind turbines be encouraged to site mobile phone masts in the same community area, to enhance mobile Internet access?

Conclusions

Combining strategic, Government-led plans and investment, with innovations and investment from rural communities, academics, private sector and public sector, is essential. The impetus is strong, given evident benefits and demand. The impetus is stronger, since next generation broadband availability, access and use are all enablers in reaching UK government objectives. These can be perceived as “rights” for UK citizens, irrespective of location.

Internet Users and Infrastructures for the Rural Economy in the Digital Age: A Forum for Policy and Practice

Position Paper: Vicki Nash, Research & Policy Fellow, OII

In 2003, the OII held its first policy forum on the subject of the broadband Internet (assumed to refer to anything above 1Mbps at a point in time where those on copper cable were still enjoying just 48-56Kbps), considering how best its potential might be realised. [The resulting report](#)¹ devoted significant attention to the question of ‘broadband divides’, referring not just to differential access to infrastructure and bandwidth, but also to differences between localities in terms of drivers of supply and demand, industry size and shape, demographics like population and age of population as well as local political factors. In relation to rural broadband provision specifically, the report noted that the (at the time) common assumption of income being the driving factor for digital exclusion appeared not to hold in this case; one UK participant noted that broadband was available in the twenty most deprived wards in SE England, because these were all high density urban areas, whilst at the same time, many more affluent but less heavily populated rural areas still lacked a broadband connection.

That report asked how such ‘divides’ might be overcome, considering the role of government in stimulating competition versus requirements for ‘universal service’, as well as in applying other policy levers such as providing community funding or driving innovation through public sector leadership, (in education, health etc). It is notable that even at this relatively early stage in the life of broadband technology, the role of local communities and local business in stimulating innovation was specifically highlighted with participants noting that the success of such initiatives might in large part result from a better match between local needs/aspirations and the service provided.

The debate today may no longer revolve around the provision of a broadband connection, but the roll-out of high speed connections and advanced Internet infrastructure is the new version of this heavily political issue, and it may be useful to reflect on some of those early discussions about broadband rollout to see how far we have come. Given that the focus of this forum is on the broader question of the adequacy of digital infrastructure in meeting the needs of rural economies, the central question I would like to raise at this policy forum is:

‘How much have we learnt about supporting the rollout and take-up of advanced Internet infrastructure to rural areas in the past ten years?’

¹ Dutton, W.H., Gillett, S.E., McKnight, L.W. & Peltu, M. [Broadband Internet: The Power to Reconfigure Access](#), Oxford Internet Institute Forum Discussion paper no. 1, University of Oxford

Given the extent of technological advance over the past ten years, and important research developments which have tracked evolving socio-technical issues such as convergence, the impact of social networking or the emergence of 'next generation' users, we might expect to be in a significantly advanced position to understand the needs of rural communities and the various means of meeting these. Looking at the array of policy measures in place, it is not so clear that this is the case; it would be great to be reassured.

Forum: Internet Users and Infrastructures for the Rural Economy in a Digital Age

Superfast Cornwall – Key issues for discussion

Superfast Cornwall Labs – our programme is really keen to engage with researchers who would like to use Cornwall as a 'testbed' for new ideas, innovation and research.

Superfast Cornwall Labs is a collaborative activity investigating current thinking, research, technological developments and trends to push at the boundaries of what is possible through superfast broadband and the value it can bring to the economy.

Superfast Cornwall is a pioneering programme to bring superfast broadband to Cornwall and the Isles of Scilly, making it one of the best connected places in the world by 2014. It is the largest ever build of a superfast broadband infrastructure in a rural area anywhere in the world. We are already one third through the build and have connected lots of homes and businesses. This provides an unprecedented opportunity for Cornwall to become a test bed for the future. Superfast Cornwall Labs explores, trials and develops; breaking new ground to help realise the full potential for superfast broadband for today's homes and businesses.

We are interested in the following areas:

- *Innovation* - How will businesses (in rural and semi-urban areas) capitalise on superfast broadband and how will it foster innovation (e.g. producing superfast broadband-enabled digital content)? Can we undertake horizon scanning to identify the direction of travel?
- *Digital inclusion* - How can we ensure that the digital divide doesn't deepen as a consequence of superfast broadband? What are the hooks to get digitally excluded people engaged? Superfast Cornwall is running a digital inclusion programme and can share experiences.
- *Social impacts* – How can we best measure the social impacts of superfast broadband e.g. impacts on inclusion/exclusion, well-being? How do we measure/witness behaviour change in order to understand and apply best practice?
- *Skills* – what are the skills needs of businesses and individuals in order for them to capitalise on superfast broadband? How can we deliver skills provision and does superfast broadband open new opportunities for learning?
- *Telecare/telehealth* – How can superfast broadband specifically input into this arena? How would we best work with health colleagues to engender change?
- *Culture/art* – How can superfast broadband and associated technologies create new ways of creating/sharing art and enhance cultural value (this links to the rural connective with dot rural and University College Falmouth)?

The latest information on the Superfast Cornwall programme is on our website:

<http://www.superfastcornwall.org/>

We have a detailed evaluation plan to assess the economic, social and environmental impacts of the programme (I am happy to share a summary). We have completed a baseline evaluation report and will undertake a mid term review in March 2013. We have also agreed to part fund 4 PhDs (with Plymouth University and University College Falmouth) on e-health, creative industries, the delivery of public and remote e-services and social inclusion. Further details can be shared if appropriate.

Centre and Periphery: reflection on the new? relations in digital economy research in Cornwall.

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Abstract

This paper proceeds from a pilot research project, the University of the Village, undertaken in Cornwall, Wales and Surrey between September 2011 and May 2012. The project was a collaboration between three universities (University College Falmouth, Glamorgan University and the University of Surrey), BT and local communities based in selected Cornish, Welsh and Surrey villages.

My reflections here will specifically relate to the Cornish part of the project and it will be used to reflect on the particular framing of the research projects in Cornwall, especially those which relate to digital technologies and renewable energy research. The question I want to propose for the critical consideration during this forum relates to, on the one hand, the recognised difficulty in analysing local applications when framed by the national context; and on the other, the dangers which might follow when divorcing the local initiatives from the national and global infrastructures and contexts which might and often support such initiatives.

Introduction

United Kingdom [1], [2], along with most of the western world [3], [4], recognises digital advance as crucial to securing its future as one of the leading knowledge economies. Digital technologies and information are identified in

the *Digital Britain* white paper as the environment in which we live and work. Providing a universal internet service to all is recognised as fundamental to Britain's success in the digital era. However, rolling out broadband infrastructure in rural areas proves that little is known about economic and social applications of digital technologies in rural areas of UK.

The Centre for the Digital Economy at the Academy for Innovation and Research at University College Falmouth directly engages in research which investigates forms of engagement with digital technologies in Cornwall. As art, design, performance and media practitioners we are especially interested in initiating and experimenting with methods and projects which develop and study the creative application of digital technologies which take into account the context of our location. Engagement with local communities and businesses is recognised as a crucial element of many of these practices and research. There is an urgency to recognise the value generated by the application of digital technologies by the communities of users/participants who work in direct response to the requirements of those communities and their local contexts so that the social, economic and cultural issues which exist in those communities do not become secondary

to the technologies and that they are not exploited only as an illustration of those applications.

Critical research of the digital

In recent decades, researchers have studied and documented the influence of what has been considered as the digital revolution on our everyday lives [5–11]. The term digital revolution refers to the processes in which industrial forms of production are replaced with post-industrial or so called information technologies, and where production processes are collaborative, distributed and decentralised.

Increasingly researchers who engage critically in the study of the digital in its many domains have recognised its heterogeneous aspect which goes beyond the technology itself. As such it includes social and cultural practices around the design, use and application of digital technologies as well as political, historical and economic contexts in which those technologies are designed and developed [12–19]. Following from that, the understanding of digital economy in rural areas has to be framed more broadly and needs to include emerging and existing processes of information and knowledge production, preservation, dissemination and application as well as policy and funding frameworks which often support those initiatives centrally either locally, nationally and internationally.

In many of the above cited sources and literature, the idea of technology as a tool for empowerment and emancipation of the society is problematized. What needs to be further questioned and researched is what other forms of infrastructures (institutions, organisations) exist locally and how they can be included in forming a broader network of support which contributes to sustainability of technological and digital networks as well as communities which use them. To initiate social, economic and cultural changes and innovations in our communities there is a need to develop, support and sustain practices around the use of

those technologies, which in return lead to reinventing the ways in which technologies are used. As it was possible to observe, following the examples of so called Twitter or Facebook revolutions in North Africa and Middle East, it is not the social technologies that change political conditions of those nations, but the way in which technologies were used for generating and organising actions that brought about political and social changes over the last years [20].

University of the Village and its Cornish context

The University of the Village research project started with the objective to explore and experiment with a particular model of education delivery which on one hand focuses on the community rather than individual, and on the other makes use of technology and particularly superfast broadband which is currently being rolled out in Cornwall. The questions of community, technology and organisation are of course not new and have been researched in the context of interdisciplinary field of computer-supported cooperative work, as well as within the broader field of social media and social technologies. Artistic and related practices also provided many projects in which the relation between users and technologies were probed and advanced [21].

The aim of the University of the Village project was to explore in more detail the way in which superfast broadband can be harnessed to support learning in rural areas, where forms of learning and creative education are recognised as the basis for a support and development of the creative rural economy and the social, economic and cultural foundations for economic sustainability of village communities in Cornwall. The project has been successful: the participants who engaged in the project collaboratively produced a film, they learned about the basics of film making and editing, they gained skills in working with online editing software. But they also directly

engaged in designing curriculum for the course and its delivery, as well as being able to meet and work together with other members of the community. All of the participants also mentioned the importance of the community as an important member of this research project and the fact that there was an understanding that their contribution to the project was also valued. Another success of the project was a spin-off initiative which was directly inspired by this research making use of technologies applied in the educational context to a particular commercial event: participant of the University of the Village and at the same time a proprietor of a local pub organised a dinner with wine tasting which connected Cornwall with New Zealand winery. The valuable and interesting observation to me as a researcher involved in the project, was the recognition how the boundary between research, practice and community engagement manage to blur and intertwine, allowing for a creative and positive approach to developing possible applications for local business and importantly further engaging communities in developing ways of utilising technologies in the local context.

Conclusion

What requires problematizing and further discussion is some of the ways in which practices around technologies and innovations are framed. Example of that in particular is the way in which many of the research and related initiatives are communicated under the general umbrella in which Cornwall is represented as a 'living lab' or a 'testbed' and renewable energy 'observatory for the nation' [22], [23]. What is at stake here relates to the issue of how they reproduce particular, colonial power relations which contribute to strengthening the familiar centre – periphery, division and such. It is for this reason that I want to consider those issues by posing a question to the forum: how can we as engaged researchers, practitioners, policy makers and funders design and support research without having to reproduce power relations which

represent and embody unequal and divisive affairs which we claim to work against?

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Internet Users and Infrastructures for the Rural Economy in the Digital Age: A Forum for Policy and Practice

Organized by the RCUK Rural Digital Economy Research Hub (dot.rural), University of Aberdeen, in collaboration with the Oxford Internet Institute, University of Oxford

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<http://www.newport.ac.uk/staff/gi/Pages/GillianYoungs.aspx>.

Digital Innovation in Rural Contexts: New Models and Partnerships in Digital Economy

Rural contexts as settings for new (ground-breaking) forms of digital innovation emphasizing, for example:

- Online multimedia potential for giving new profile to the ‘local’ including in areas in need of economic regeneration, aiding local SME and micro businesses transitions to the digital economy, raising the profile of local economies and their detailed characters and facilities, contributing to new visions of communities in the digital age and new forms of digital engagement for members of communities of all ages, advancing inter-generational digital engagement, offering new forms of connectivity and outreach among local authorities and organizations and communities.

Hyperlocal media: see www.3vttv.co.uk

<http://www.youtube.com/watch?v=PIHz-o4Ope0>

<http://stakeholders.ofcom.org.uk/binaries/consultations/localtv/responses/university-of-wales.pdf>

<http://www.bevanfoundation.org/blog/putting-on-a-show/>

<http://www.blaenau-gwent.gov.uk/leisure/18177.asp>

- Online multimedia, knowledge society and rural digital innovation. Digital heritage and tourism among the core areas of economic, educational and social potential. Community (multilingual) rebranding in the digital age. New forms of community engagement in making digital transformations a reality. Place-based approaches to the Internet of things. Rural contexts as physical, informational, social and economic capital in a digital age.

Monmouthpedia

<http://en.wikipedia.org/wiki/Monmouthpedia>

<http://www.youtube.com/watch?v=zE-hjGW1y3U>

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Digital Scotland: reaping the benefits

A major inquiry conducted by the Royal Society of Edinburgh

Digital technologies are changing our society, transforming the way we communicate, work, consume, are active in our communities; and how we deliver and access public services, community planning, education and healthcare. They bring opportunities for us as individuals, for businesses, government, civil society and our cultural bodies to innovate, to connect with global audiences regardless of our location, or to deliver better services more efficiently.



DIGITAL INFRASTRUCTURE

For Scotland to be an attractive place to live, do business and visit, it must have a world-class digital infrastructure. This infrastructure should allow anyone, anywhere, to access the internet, at speeds that can deal with the full range of demands we place on it now, and in the future. The Royal Society of Edinburgh explored the question of how to deliver a digital infrastructure for Scotland in its October 2010 report *Digital Scotland*. Since then, the RSE has positively engaged with the Scottish Government and other stakeholders on the development of a national strategy. The Scottish Government published *Scotland's Digital Future: Infrastructure Action Plan* in January 2012.

DIGITAL PARTICIPATION

But securing a world-class digital infrastructure for Scotland is merely a means to an end. If we are to maximise the benefits that high-speed internet can offer, Scotland's people, businesses and organisations must have the desire, skills, and tools to use it. The Royal Society of Edinburgh is therefore

undertaking an inquiry into how Scotland can reap the benefits of the digital society, and how to ensure that digital technologies are helping to narrow the social divide, rather than widen it.



REMIT

It is proposed that the remit of the RSE Inquiry should be to:

- Explore how to engage with key groups of individuals who do not currently use the internet, ensuring that they are aware of the benefits it can offer to them; and the levers that can be used to support people to confidently and safely get online.
- Assess the use of digital technology across the business landscape in Scotland, particularly amongst SMEs; and identify how to encourage creativity and innovation across all sectors that will create new business opportunities, increase profits, or lead to cost-savings.
- Consider the opportunities for delivering public services, community planning, education, healthcare and cultural services through digital technologies; and how these opportunities can be exploited.
- Examine the current and potential future uses of digital technologies in civil society, both in delivering voluntary services and in increasing representation through e-democracy.

Digital Scotland: reaping the benefits

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OUTCOMES AND IMPACT

The Inquiry aims to contribute to public debate and understanding of the opportunities presented by digital technologies; and to inform policy- and decision-making that will support people, businesses and organisations not only to get online but to get maximum benefit from creative use of the internet.

The Inquiry will:

- Engage with the public, communities, industry, civil society, local and central government, and other public bodies, to stimulate debate on the potential opportunities presented by digital technologies; and the skills and access to equipment needed to fully participate in and benefit from the digital society.
- Make recommendations about the ways in which people and organisations can be encouraged and supported to use the digital technologies appropriate for them; taking account of levers held by central and local government, industry, and civil society, including communities and family support.
- Consider how creative, innovative use of technologies can be nurtured amongst Scotland's people, businesses and service providers to place Scotland at the cutting edge of the digital era and reap maximum social, cultural and economic benefits.
- Explore the role of digital technologies in narrowing the social divide, including the necessary safety nets that will prevent those in hard-to-reach groups from falling further behind in the digital society.
- Disseminate its findings, with specific recommendations for policy-makers and stakeholders at the European, UK, Scottish and local levels.



SUPPORTING THE INQUIRY

Bringing together expertise in technology, social science, business, and public service delivery, this Inquiry represents a concerted effort to address the challenges of low levels of digital participation in Scotland. Its comprehensive approach will set out a vision for a society that can take full advantage of the opportunities offered by digital technologies, and make recommendations on how to get there.

Inquiries of this scale incur substantial costs and a significant sum needs to be raised through sponsorship and support to allow us to deliver an influential report.

Based on previous experience, we expect the costs of this Inquiry to be around £150,000, covering regional visits, public lectures and events, original research, publicity, committee meetings, secretariat support, publishing and dissemination activity. In order to maintain our independence, we seek contributions out-with central government, from organisations that recognise the importance of this RSE project.

Along with the knowledge that an offer of funding will contribute to bringing this Inquiry to life, supporters will be acknowledged in the Inquiry report, associated print literature and on the RSE website. Supporters will also be invited to participate in appropriate events.

We hope that you will agree that this project is a worthy one and, even in the prevailing economic climate, will be able to assist us in delivering this important initiative.

If you require further information, or are interested in pledging support for the project, please contact Gordon Adam, Director of Business Development, on **0131 240 2781** or email gadam@royalsoced.org.uk.