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Editorial

Rural resilience in a digital society: Editorial

1. Introduction

The development of digital technology across the globe has taken place at considerable speed; however, this has not been at an even pace within all places (Graham, 2011; Philip et al., 2015; Riddlesden and Singleton, 2014). There has been a fundamental unevenness to the delivery of digital technology in all its forms that has been shaped by existing geographic and social inequalities (Graham et al., 2012; Townsend et al., 2013) and has, in turn, shaped the characteristics of new inequalities. This special issue critically explores how, in different rural spaces, the delivery and use of digital technologies differs massively and how this can impact on the ability of rural communities to be resilient in an increasingly digital world. In following the multiple variations in availability, accessibility, quality and use of digital technologies in rural communities, this special issue highlights how different rural communities have, first, been significantly disadvantaged by slow delivery of post-dial up ('narrow band' or 'first generation') Internet telecommunications infrastructure and, second, going beyond an infrastructure-based narrative we evidence how rural communities have utilised pre-existing resilience to help improve their ability to maintain and improve social and economic relations where telecommunications infrastructure development has failed to keep pace with national and international advances.

This special issue originates from a Working Group convened at the 25th Congress of the European Society for Rural Sociology, 2013, organised by researchers from the RCUK dot.rural Digital Economy Hub at the University of Aberdeen. The Working Group brought together European-based scholars concerned with the level of broadband infrastructure available to rural communities in the context of the European Digital Agenda for Europe (DAE). This translated at that time, across many countries, as the market-led roll out of Superfast Broadband. Papers presented at the Congress explored the types and degrees of disadvantage associated with the lack of access to broadband infrastructure and technologies that rural – particularly remote – communities experience and the ways they seek to overcome the challenges arising from barriers to fit for purpose Internet access and associated relative disadvantage. In this special issue contributions from those who participated in the 2013 ESRS Congress are joined by contributions from other, non-European, scholars to lend a more international perspective, albeit one that focuses on the global North.

The special issue marks the current 'state of play' for rural-digital agendas. This Editorial Introduction highlights the major contributions that the collection of papers offers in terms of interventions within the overlapping academic literature on rural digital divides, digital inclusion, rural development and resilience. It draws together policy recommendations (Roberts, Anderson, Skerratt and Farrington, 2017; Salemink, Strijker and Bosworth, 2017; Philip, Cottrill, Farrington, Williams and Ashmore, 2017) and outlines 'ways forward' for ongoing research in this field. Furthermore, it speaks to wider concerns in rural studies around neo-endogenous development and how conceptualisations of the 'networked' or 'relational' rural (Heley and Jones, 2012; Shucksmith, n.d.; Woods, 2009) are complicated or re-stated by (lack of) access and use of internet-enabled technologies, as well as explorations of multifunctional rurality and diversification, through reference to a range of sectors (business, heritage, health) and their interactions with internet-enabled technologies (Beel, Wallace, Webster, Nguyen, Tait, Macleod and Mellish, 2017; Townsend, Wallace, Fairhurst and Anderson, 2017; Hodge, Carson, Carson, Newman and Garrett, 2017). The special issue also provides a much needed reminder to contemporary digital sociological and digital geography scholars of the implicit urban bias in 'pervasive' and 'ubiquitous' technologies discourse. For example, the proliferation of smart cities, creative cities and recently published work on neogeography (Graham et al., 2012; Haklay et al., 2008; Wilson and Graham, 2013) is overwhelmingly situated in an urban context. This does not reflect the life-worlds of everybody and papers in this special issue contribute to the body of evidence on how the rural sits in relation to technologies discourse.

Our collection of papers highlight the differentiation of rural Internet users through empirical case studies of rural creative industries and high-skilled workers (Townsend et al., 2017; Ashmore et al., 2017), of older rural populations (Hodge et al. , 2017) of rural service providers (Pant and Hambly-Odame, 2017.; Hodge et al., 2017; Beel et al. , 2017) and in terms of peripheral and isolated communities and socio-economic differences (Philip et al. , 2017; Park, 2017; Wallace et al. , 2017). It also highlights varying contextual factors such as policy across rural communities and UK national and European scale (Roberts et al. , 2017; Salemink et al. , 2017; Philip et al. , 2017). A strength of this special issue is the combination of scales and methods at which analyses are carried out; the contributions range from fine-grained, qualitative research on community-level case studies, to large systematic policy and literature reviews at European and International scales, to quantitative National-level and regional studies.

Contributions to the Special Issue are grouped into two sections. The first group are presented under the heading 'ICT, infrastructure and digital divides'. These contributions synthesise current literature on the rural digital divide, assess National-level policy responses and evaluate community-led alternatives for accessing broadband infrastructure. The second group deal more broadly with the use and benefits of the internet in rural areas. Under the heading 'Harnessing digital technologies and crossing divides',

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these papers illustrate how broadband internet access has provided opportunities (although barriers still exist) in different rural places and overlapping rural sectors including business, health, heritage and local services. We first introduce all the contributions to the Special Issue below, followed by reflections on relationships between rural digital society and notions of 'Rural Resilience' that stem from the research our contributing authors have presented. We conclude by suggesting how we can move forward with regards to future research on rural resilience and digital technology.

2. ICT, infrastructure and digital divides

Digital divides refer to the uneven ways in which people have access to digital technology. This presents itself and is created through a number of factors, including, for example accessibility of different technologies (e.g.: expensive equipment), provision of technologies (e.g.: the telecommunications infrastructure), and education (e.g.: not knowing how to use different technologies). Singly or in combination these factors contribute to the ways in which people are disadvantaged in their ability to make use of digital technologies. The first set of papers in this Special Issue address the issue of digital divides from a number of illuminating positions. They reflect a more nuanced conception of digital unevenness than a simple rural-urban divide.

Salemink, Strijker and Bosworth's paper offers a comprehensive review of the literature on digital divides and charts its progression over the last decade or so, drawing international comparisons. It reviews digital policy from countries across the global North and concludes with recommendations for future policy that suggest how to better position rural areas in future digital society developments. The contribution distinguishes two major strands of research, connectivity research and inclusion research and argues that these strands should be combined to create 'customised policies' to address digital divides in future digital policy agendas.

Roberts, Anderson, Skerratt and Farrington scrutinise the European rural-digital policy agenda in their paper, using a community resilience framework to critically assess the mechanisms and assumptions through which it functions. Community resilience, sustainability and associated proxies are frequently mentioned in inclusion and digital infrastructure policy statements, via assumed future benefits and the responsibilisation of local groups to create their own access (community broadband initiatives) and support structures (digital inclusion voluntary charters or champions). Focusing on the translation of the European policy agenda into a UK context they find that the language surrounding rural broadband infrastructure policy in the UK contains normative claims about its capacity to aid rural development, offer solutions to rural service provision and the challenges of implementing localism. However, their analysis suggests that digital inclusion policy is currently piecemeal, focusing on 'show cases' without a coherent rural focus.

Philip, Cottrill, Farrington, Williams and Ashmore's paper follows the rollout of broadband to the 'final few' rural communities within the UK. The paper reports an analysis of data published by the UK's telecommunications regulator, Ofcom and a series of qualitative vignettes which together highlight the real and lived uneven geography of digital infrastructure supply to rural areas. It then shows how this impacts most heavily on the most remote areas. The paper contributes to our understanding of the paradox faced by rural communities and policy makers in delivering broadband through a market driven approach. That is, the rural communities that would potentially benefit most from better broadband connectivity in both economic and social terms are always furthest away from that delivery. This raises serious questions about the economic viability and long term sustainability of remote rural communities as well as impacting upon the ability for such communities to be resilient in difficult economic times. Finally, the paper also challenges public policy makers to think through better ways of delivering broadband provision so that rural communities are not further disadvantaged by market driven approaches.

Sora Park highlights the intersection of multiple factors that influence rural digital exclusion. She uses data from the Australian Bureau of Statistics to show that whilst remoteness was a key determinant of rural digital exclusion, other sociodemographic variables including, for example, educational achievement and employment status also played a significant role. The need for building better capacity in rural areas is stressed, with the authors arguing that both supply (infrastructure) and demand (education and employment opportunities, industry sector and socio-demographics) must be considered in the development of future rural digital inclusion strategies.

Ashmore, Farrington and Skerratt move the scale of analysis to the community-level. Their paper compares two rural community-led broadband initiatives, one in Northern England and one in Scotland. They find that strong leadership and processes and structures that actively encourage participation can enhance resilience-building overall, but that this is best served by a joined-up approach that links actors and development priorities at local and extra-local levels. For example, digital champions or leaders are critical for resource identification and gaining engagement within a community when starting the process of setting up a local digital infrastructure network. However leaders can sometimes entrench existing inequalities and feelings of exclusion, ultimately detracting from other community member's capacity or desire to engage.

3. Moving beyond simple rural-urban digital divides: harnessing digital technologies

The second set of papers sit within the wider literature on digital divides that explicity seeks to move digital divide debates beyond considerations framed around a simple user and non-users binary (Park et al., 2015; Robinson et al., 2017). Internet users do not all have access to the same spectrum of online activities, reflecting differences in users' abilities to consistently access reliable, high speed internet connectivity or to access the technologies that enable them to use the internet effectively at a reasonable cost. Multiple socio-economic factors influence an individuals' capacity to go online, including potentially fluctuating interest and needs. The second set of papers encourages us to think about what qualifies as 'digital participation' or 'engagement' alongside better understandings of levels of use, the utility of digital connectivity and its 'meaningfulness' for individuals and rural communities. The contributions all illustrate why it is important to move beyond viewing rural (non) users as a homogenous group.

Wallace, Vincent, Luguzan, Townsend and Beel's paper introduces social cohesion in terms of system integration (organisational, communal spaces on and offline) and social integration (informal, networks, sense of belonging). This conceptualisation is a useful point of entry for an evaluation of intertwining on and offline relationships at community level and the extent to which these foster social cohesion, an important contributor to community resilience. Contrasting two rural communities in Northern Scotland, their study concludes that ICT is becoming an integral part of rural social relations but it can play very different roles with regards to promoting and sustaining social cohesion for different social and cultural groups, as well as for different kinds of locational communities. This paper draws on research undertaken in two communities with access to broadband internet and, like Park et al. shows that factors other than access/no access to broadband,

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determine the extent to which rural community groups are moving online. The characteristics of the two case study communities may typify rural areas in many other national contexts and this paper's findings are of relevance to most other Global North rural contexts where 'traditional' social networks are being reshaped and reformed through development of online presence.

The Canadian context is illustrated in Pant and Hambly-Odame's paper which operates at two levels, offering detailed analysis of the uses and benefits of a rural region's high-speed broadband network for local businesses and business support organisations, and reflecting on the process of working with the partnership that delivers this broadband infrastructure. This contribution reveals location- and sector-specific benefits of broadband that rural small businesses and community organisations have realised from increased access (including availability and affordability) to broadband as well as stressing the importance of the reliability of internet connections. Pant and Hambly-Odame, like Roberts et al. and Salemink et al. stress the necessity of flexible digital infrastructure delivery programmes rather than a fixed, one-size-fits-all approach.

Townsend, Wallace, Fairhurst and Anderson examine the benefits of digital connectivity to rural businesses in a Scottish context. Their paper focuses on the creative industries, recognized as an increasingly important contributor to the rural economy. They find that being digitally connected is essential for the creative sector and that online applications are used to support a variety of business related activities. The extent to which broadband connectivity can alleviate the penalty of distance for rural creative practitioners is dependent on whether digital connections can support the download and upload speeds required to perform business-related activities. Significantly, the paper reports that a lack of access to adequate broadband is perceived as such a barrier to business sustainability that it is a factor that could influence decisions for creative practitioners to relocate their business and their households away from rural, and especially remote rural areas. Resilient rural communities need to be able to sustain an active working age population and support a diverse economic base; inadequate connectivity means that the creative sector is a vulnerable sector within the rural economy.

Beel, Wallace, Webster, Nguyen, Tait, Macleod and Mellish's paper asks how community activity, connectivity and digital archives can support interest in local heritage as well as help to develop more resilient communities. Through the example of two case studies of community digital-heritage projects this paper explores the role of cultural practices in building community resilience and empirically 'places' cultural resilience. It explores the role of 'bottom-up' volunteer labour, and contextual factors such as place identities and knowledges, traditions, histories and customs, and the role the process of digitizing archives plays in strengthening community cohesion as well as supporting the development of wider socio-economic benefits. The paper provides a practical demonstration of how appropriate digital technology can have a real and positive impact in rural areas.

The final paper of this Special Issue moves back to the Australian context to look at the relationship between internet connectivity and rural service provision for the elderly. Hodge, Carson, Carson, Newman and Garrett identify the nature and extent of digital interactions between older people and service providers, and the enablers and challenges for online service engagement. Older participants demonstrated considerable interest in learning how to use the Internet for accessing particular services, with social support networks and third party facilitators being crucial enablers. Service providers' ambitions to engage with older people online appeared more limited as a result of entrenched stereotypes of older non-users and a lack of digital skills within service provider organisations alongside organisational and funding constraints. This paper illustrates how digital applications could be of considerable benefit to rural communities at a time when increased withdrawal of physical services is being experienced and highlights that digital divides can be reinforced by increasingly outdated stereotypes. These need to be challenged to ensure that digital exclusion is not further entrenched at a time when digital service provision will become increasingly prevalent.

4. Rural resilience?

Current research about and using the concept of resilience abounds in the social sciences. Resilience as a concept relevant to research in the social sphere has been criticised for being too loosely conceived and all encompassing, for not being aligned with a clear methodology and for overlooking how power functions in decision-making for resilience (Anderson, 2015; Cote and Nightingale, 2011; Davidson, 2010; MacKinnon and Derickson, 2013). These critiques notwithstanding, a resilience perspective has been used to good effect in insightful (normative) work exploring how and what makes individuals, businesses, communities and regions more resilient and it is this, we argue, that justifies a focus on resilience in rural social science research. Our understanding of resilience refers to both short- and long-term socio-political processes of change, not the more commonly cited ecological definitions in which resilience means adaptability or bounce-back-ability from 'shocks,' which in social systems often translates as natural disasters. In these papers, the ability to get online in a meaningful way is both an outcome of being or having resilience and a process through which resilience characteristics are exhibited, as well as a context to resilience and, in some cases, a social change that it is necessary to become resilient to.

Anderson (2015) argued that the strongest work on resilience borrows from a broad framework, lending specificity and appropriate selection of factors from typologies and motifs covered across the literature. The papers in this Special Issue each approach resilience – as a concept and methodologically – in different ways. They bring the 'connections between resilience and specific economic-political apparatus, including neoliberalism, into a question to be explored rather than a presumption from which analysis begins' (Anderson, 2015 p. 60). Digital agendas exhibit distinctly neoliberal features. Through analysis at different scales, locales, and with reference to various combinations of economic drivers and policies, the contributions in this Special Issue begin to unpack what it means for rural communities to be or have resilience in a digital age. We respond, for example, to Weichselgartner and Kelman, 2015 question about how urban and rural resilience are, or should be, differentiated by exploring a specific empirical issue: rural broadband adoption and use.

The papers in this Special Issue share the strong conclusion that those who can access (acceptable) broadband Internet connectivity within rural areas are able to reap rewards in economic and cultural terms. Yet not everyone choses to connect, and those who are online do not all have access to a reliable, fast broadband service. Relative disadvantage and likely exclusion from dimensions of an increasingly globalised rural society can be experience by both rural users and non-users of the Internet. The conclusions from research reported in this Special Issues' contributions include proposals for localised and responsive approaches to rural inclusivity in a digital society.

In the context of rural digital policy agendas, we propose that key resilience terms are especially helpful for thinking about how and why communities benefit or become disadvantaged in the ways they do. Some of our contributors provide support for Scott 's (2013) claims for understanding rural resilience, allowing for an

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exploration of historical path dependencies, 'lock-in' to development trajectories, deliberative modes of decision making, and the mix of endogenous and exogenous forces interacting at the local level. For example, Salemink et al. ask 'to what extent are rural communities, united in civic initiatives or community action groups, and telecommunications companies able to regulate this process together, and where do they need government support?' (p.10). Roberts et al. find that in rural digital policy, 'resilience' can be an effective discourse for 'responsibilising' the community (Anderson, 2015) on the one hand to develop their own broadband networks and support systems within the community to build digital capacity, and, on the other hand, remove financial and regulatory support mechanisms (via partnerships that work on a voluntary and often non-transparent basis) within a neo-liberal, localism backdrop. Ashmore et al. highlight some of the weaknesses and mutability of the resilience concept through illustrating how community endeavours can be vulnerable to the capital (network, knowledge and determination) of one or a few leaders, and pay heed to the non-neutrality of resilience processes whereby not all members of the community gain buy-in to a community broadband scheme for reasons related to dynamics and power-relations across socio-economic and geographical groupings. Similar uneven distribution is evident in Wallace et al.'s analysis of broadband usage for enhancement of quality of life *between* and *within* communities in a commuter belt rural and a more peripheral rural village. Across the papers generally, digital capital (in the form of access, literacy, use, benefits) can be seen as mutually supporting other forms of capital that enhance rural resilience. Indeed, in this issue, Hodge et al. argue that strategies for enhancing social capital (through networks and inclusion) are at least as important as improving technical capabilities, for rural elderly populations (2017 p18).

We can only provide a snapshot of rural digital society in a constantly evolving technological landscape. Our contributions could exhibit the same potential limitations that much work on technology does in that they will quickly become redundant. However, although digital technologies have and will continue to change, the issue of 'lagging behind' and inequality of opportunity within rural areas caused by prominently neoliberal structures has not changed over the last several decades so it is more than likely that the central contributions of the special issue will carry forward as a digital society becomes an even more entrenched aspect of modern life.

5. Concluding thoughts: ongoing rural digital scholarship

Contributions to this special issue sit within a literature that understands that digital inequality and exclusion cannot be analysed in isolation, separate from offline disadvantage and that the continued integration of digital technologies into new aspects of daily life means that forms of disadvantage mutate (Helsper, 2012; Robinson et al., 2015). This collection of papers provides evidence of distinctive rural forms of digital disadvantage and vulnerability which take shape within and in turn create a variety of different forms of social, economic and cultural disadvantage. We feel that there is something particularly punitive to those who live in rural locations being unable to fully exploit the opportunities afforded by digital technology. If digital telecommunication infrastructure and applications are not equally available to all, regardless of location, those working and living in not served or underserved areas, such as many rural areas, are disadvantaged. This in turn *restricts the ability of rural locations to grow economically, socially and culturally on their own terms.* In stressing this final point, the Special Issue has sought to show how rural communities have embraced digital technologies when they are available to them. Any attempts to close the digital divide and to allow rural communities to fully engage in a digital society must have a territorial focus. A continuing digital inclusion agenda for rural communities, based upon flexible, responsive and inclusive (participatory and equal opportunity) policy, one that is cognisant of and concerned to address uneven digital geographies of place is, we argue, crucial to the future sustainability and resilience of rural communities and rural places.

Looking forward, we anticipate that work on rural digital divides will need to take into account changing landscapes in technological provision. Despite ongoing uneven infrastructure provision, the landscape does and will change quickly in terms of fixed and mobile connectivity. A future research agenda should take these rapid changes into account and interrogate the extent to which governmental promises of reducing the rural-urban digital divide are being delivered on. We propose that future research in this area takes in-depth and longitudinal approaches that look at motivations, attitudes and barriers of rural users and how these respond to changes in technological provision. There is a need for ongoing studies that critically question the different uses and benefits of technologies across diverse rural groups, and studies that consider the relationship between socio-demographics, rurality and digital inclusion. Finally, we suggest that future research in this field considers the development of appropriate technologies and policies, and the most effective routes to implementation – whether these be through bottom-up community led initiatives, through Government-led investments and schemes or through partnerships which encompass multiple approaches.

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