



Community-led broadband in rural digital infrastructure development: Implications for resilience



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ABSTRACT

Community-led broadband initiatives represent a relatively recent shift in rural broadband provision. They are locally-led organisations that voluntarily spring up to respond to the lack, or perceived lack, of adequate broadband in their communities. Particularly present in rural spaces, few studies have investigated this mode of broadband delivery, which is gaining attention in the United Kingdom and internationally. This paper seeks to explore the implications of the participatory nature of such broadband initiatives, identifying a) whether pursuing a participatory community-led model for broadband deployment plays a role in enhancing rural social resilience, and b) specifically how leadership and informal digital champions are positioned and perceived throughout this process, and their relationship with rural social resilience. The conceptual framework of 'social resilience' acts as a contemporary analytical tool for understanding the impact of community-led broadband. Using findings from 56 semi-structured interviews across two phases from two community-led broadband organisations, Broadband for the Rural North (B4RN) in England and Broadband for Glencaple and Lowther (B4GAL) in Scotland, this paper contributes to both digital scholarship and the theoretical development of 'resilience' as a concept.

Community-led broadband is shown to reflect a 'localism' development approach, and this process has strengthened local rural identity for individuals. The role of digital champions, as leaders in the community-led broadband movement, is key to developing the digital resource within rural communities. However, it can also be problematic, entrenching existing inequalities and feelings concerning exclusion, ultimately detracting from individuals' ability to participate. The process and the eventual presence of new technology have contributed to new spatial understandings of community identity, based on regional linkages, and new communities of interest. We conclude that community-led broadband, and in particular the leadership and participation processes, can contribute to social resilience overall, but ultimately is another example of uneven rural development.

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1. Introduction

In 2010, the UK government announced its ambition "to have the best superfast broadband network and connected society in Europe by 2015" (BIS, 2010, p. 13). Superfast broadband services (Internet connections with line-speeds of at least thirty megabits per second as defined by Ofcom, 2013b) are often beneficially associated with individuals' social activities, employment options, and overall community resilience (DCMS, 2011; Grimes, 2003;

Ofcom, 2012b). The government commitment to superfast broadband connectivity was further cemented in a 2015 strategy on digital communications infrastructure: to make broadband of at least 100 megabits per second (Mbit/s) available to 'nearly all UK premises' (HM Treasury and DCMS, 2015). However, from a spatial perspective, it is broadly acknowledged that households in rural areas of the UK remain less likely to have access to superfast broadband than their urban counterparts, even with these ambitious nationwide policies (e.g. Reisdorf and Oostveen, 2015). For example, as of 2012, the start of this research, the Office of Communications (Ofcom) reported that 65 percent of premises have access to superfast broadband in the total of the UK. However, rural coverage was limited to 19 percent (Ofcom, 2012a). This decreases

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the likelihood of broadband access and/or use having an impact on the development of rural social resilience.

The market-led, neoliberal approach of the telecommunications industry has traditionally neglected rural broadband infrastructure development due to its lack of commercial viability, contributing to this imbalance (Simpson, 2010; Sutherland, 2016). Urban coverage, conversely, is relatively stable and continuously being improved. This is primarily because superfast broadband roll out is cheaper to deploy in higher density areas and has been prioritised by a telecommunications industry structured within the principles of neoliberalism (Briglaier and Gugler, 2013; Ofcom, 2013a; Simpson, 2010; Skerratt, 2010). Public intervention, primarily structured as national subsidies such as Broadband Delivery UK (BDUK), is active across the UK to respond to this rural market failure and decrease the related spatial 'digital divide'. Complementing these subsidies are community-led broadband initiatives. These are locally based grassroots initiatives being developed to deliver broadband solutions to rural areas as a response to these prevalent market forces in the UK. Buneman and Hughes (2013, p. 1) noted that "There is a quiet revolution that is taking place in the provision of rural broadband. An increasing number of communities are building their own distribution networks ...". However, these 'community-led' superfast broadband initiatives have not been considered in detail within the context of wider community development processes. The concept of social resilience provides a relevant and useful analytical method to understand the varied, but relevant, individual and community impacts of community-led superfast broadband initiatives.

Social resilience has increasingly been the subject of contemporary social research, both as a theory and an application for community-based enquiry (see Skerratt, 2013; Davidson, 2010; Magis, 2010; Adger, 2000). Community participation and leadership are understood theoretically to play significant roles in resilience (see Norris et al., 2008; Pfefferbaum et al., 2005) and the general dialogue of community participation and leadership, particularly within the rural setting, has been extensively studied and reviewed (see, for example, Beer, 2014; Dinh et al., 2014; Torgerson and Edwards, 2013; Skerratt, 2011; Woods, 2005, 2011). This paper seeks to enhance this dialogue and specifically unpack the dynamics of participation and leadership in relation to social resilience using case studies of community-led broadband. We question a) whether pursuing a participatory community-led model for broadband deployment plays a role in enhancing resilience and b) specifically how leadership and informal digital champions are positioned and perceived throughout this process, and their relationship with resilience. These questions serve to further our understanding of community-led broadband processes in contemporary digital society.

We outline, first, past resilience research, culminating in the identification of main dimensions of resilience for analysis. We then briefly summarise the place for community-led approaches in broadband deployment in the UK, setting the digital policy and broadband development context. Following this, the qualitative methods used in setting out the resilience framework will be outlined, establishing the research methodology. Finally, we will examine the findings, illustrating a snapshot of rural processes relating to broadband deployment, and linking the roles of participation and leadership with resilience thinking.

2. Developing a resilience framework through theory and practice

Officially named *Time* magazine's buzzword of the year in 2013 (Brown, 2014), 'resilience' has become an increasingly popular term in both academic and policy literature as well as popular media.

Definitions of resilience are highly dependent on academic discipline, authorship and audience and are constantly evolving, even in independent fields. Ecologically, resilience refers to the development of ecosystems and their ability to absorb changes and maintain structure in times of disturbance (Holling, 1973). These traits also describe resilience in the context of physical materials (Gordon, 1978). Psychological resilience provides parallel lessons concerning resilience as a social process, and highlights the centrality of human agency and decision-making (Skerratt, 2013). Thus, the complexity of the term 'resilience', coupled with the wide range of potential uses, poses challenges to using it as a framework of social systems (Walker et al., 2004). This section builds our understanding of social resilience and contextualises the current literature in order to address it as a framework for social science research. We will place resilience in the context of its scalability, and the most relevant critiques of the concept. The resultant conceptual framework of social resilience captures three dimensions of resilience including the availability and development of capitals, the ability to proactively engage and exercise human agency, and place-based characteristics such as previous community engagement and community memory, which we term 'sense of place'.

Resilience, as a technical term, is generally understood to have originated in the 1970s from work done by Holling (1973) in ecology (Scott, 2013; Skerratt, 2013), as the development of ecosystems and their ability to absorb changes and maintain structures in times of disturbance, referred to as their ability to 'bounce back' (Adger, 2000). However, as the concept has become increasingly used and developed in the social sciences, recent literature, using both theoretical and applied approaches, argues for an evolution of the theory of resilience when applied in the social context.

Ideas of resilience at a community level have been developed to exemplify "opportunities that disturbance opens up in terms of recombination of evolved structures and processes, renewal of the system and emergence of new trajectories" (Folke, 2006, p. 259). This emphasises adaptive capacity building and generates a dynamic interplay between sustaining, and developing or transforming, *with* change. It is also demonstrated that "... community resilience takes us beyond making plans for a disaster, to building strengths in a community that will facilitate the process of resilience when needed" (Sherrieb et al., 2010). Scott (2013) outlines 'evolutionary' resilience, where resilience acts as a 'bounce forward' mechanism, a transformative process. It reflects not only the capacities, or resources, of a community, but also the decisions and actions of the individuals within it, drawing on psychology of personal health literature (Berkes and Ross, 2013; Skerratt, 2013). This also perhaps draws on ecological models for human development, also discussed in psychology, which identifies the relationships between individuals and their communities (of family, peers, school, culture and so on) and how those factors can influence human development (Bronfenbrenner, 1994). Therefore building community resilience includes overlapping social and physical resources at various, nested scales (McManus et al., 2012; Maguire and Cartwright, 2008). This is often directly discussed in terms of a capitals framework, incorporating social, economic, and environmental capitals (Steiner and Atterton, 2014). Graugaard (2012), for example, examined local currency as a tool for community resilience, emphasising how different elements of capitals could contribute to resilience in intersecting ways. Therefore, it is our belief that capitals and resources within communities play a central role in resilience development, and form our first 'dimension' of resilience.

A key critique of the resilience theory brings us to our second 'dimension' of resilience. This is related to ideas of vulnerability and resilience, and queries social resilience with respect to its relationships with power (e.g. Armitage et al., 2012; Cote and

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