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A review of the rural-digital policy agenda from a community resilience perspective

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ABSTRACT

This paper utilises a community resilience framework to critically examine the digital-rural policy agenda. Rural areas are sometimes seen as passive and static, set in contrast to the mobility of urban, technological and globalisation processes (Bell et al., 2010). In response to notions of rural decline (McManus et al., 2012) rural resilience literature posits rural communities as 'active,' and '*pro*active' about their future (Skerratt, 2013), developing processes for building capacity and resources. We bring together rural development and digital policy-related literature, using resilience motifs developed from recent academic literature, including community resilience, digital divides, digital inclusion, and rural information and communication technologies (ICTs). Whilst community broadband initiatives have been linked to resilience (Plunkett-Carnegie, 2012; Heesen et al., 2013) digital inclusion, and engagement with new digital technologies more broadly, have not. We explore this through three resilience motifs: resilience as multi-scalar; as entailing normative assumptions; and as integrated and place-sensitive. We point to normative claims about the capacity of digital technology to aid rural development, to offer solutions to rural service provision and the challenges of implementing localism. Taking the UK as a focus, we explore the various scales at which this is evident, from European to UK country-level.

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1. Introduction

This paper will outline the policy imperatives in rural development and digital agenda contexts for the increased resilience of individuals and communities through Internet connectivity and eServices. The paper contributes to existing literature on community resilience, within the broader context of rural studies. Due to the pervasiveness of digital processes in contemporary society, and as ICTs become an integral, sometimes invisible, aspect of rural life, rural scholars are increasingly obliged to consider digital divides and rural technologies. Technology more broadly is at the centre of many rural debates, including biotechnology and GM crops (Woods, 2012). Nonetheless, digital technology remains a niche topic in rural studies. The dynamic, multi-scale processes of digitally-enabled rural resilience are an important addition to the complex picture of rurality developing in current research.

The paper reports on findings from a review of EU and UK policy-related documents from 2005 to 2015 (see Appendix 1), with a comprehensive analysis of how these play out at UK country level over the last five years.[1] These cover the digital agenda, rural and community development. The review identifies where one policy field has referenced others (e.g. where digital agenda documents prioritise or mention rural areas and/or community-led approaches) and where community resilience is explicitly referenced or inferred through proxy terms (see Table 1). This policy and grey literature is analysed through relevant critiques from recent academic literatures, bringing them together at the intersection of rural-digital agendas and resilient communities. A central aim of the paper is to interrogate this relationship. We ask: through what channels is enhanced rural resilience enacted or proposed in policy

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[1] By 'policy-related document' we mean any communications produced by or for government bodies that are accessible to the public.

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Table 1
Table of resilience terms and overlapping terminology/proxies used in policy.

Resilience term	Encompassing or overlapping themes	Proxies in policy Docs
Self-organising/ mobilising	Agency, efficacy, pro-active, responsibility, collective capacity	'empower' 'enable' 'engage' 'responsibilisation' 'participation' 'widen choice' 'partnerships' 'independently' ' local development'
Social Capital	Networks; connectedness; support structures; cohesive;	'inclusion' 'exclusion' 'cohesion' 'participation' 'connectedness' 'networked' 'reduce isolation'
Social learning	Social memory; Social capital; peer learning	'Life-long learning' 'Developing knowledge base' 'Knowledge transfer' 'informal learning' 'social innovation' ' digital champions' 'partnerships' 'community based learning'
Capacity	Resources; resourcefulness; stocks; assets; capitals (social, economic, environmental);	'Skills' 'Ability' 'Confidence' 'Competitiveness' 'resource efficient' 'capacity building'
Multi-scalar	Interacting scales; resilience pathways; lock-in; outwards-facing communities	'Facilitate' 'encourage' 'support' 'Promote' 'Outwards-facing communities' 'links between urban and rural' ' city regions' 'providing incentives' 'stimulate the market' 'scale up'
Adaptation	Adaptability; Adaptive capacity; diversification	'Sustainable management' 'Innovation' 'social and cultural resistance to change' 'transformation' 'transition' ' greener' 'Facilitating diversification'
Health	Well-being; Quality of life; Mobility	'eHealth' 'self-care' 'independent living' 'Access to health services/Accessibility'

contexts? And: what are the social and policy constructs working together in rural-digital agendas? What are the relative disadvantages of digital disconnection for rural community resilience?

We specifically look to develop three motifs developing in current resilience literature: resilience as multi-scalar; as normatively constructed; and, as an integrated approach. We examine the extent to which the policy context evidences 1) discourse embedded within multiple scales, 2) technology solutions for resilience as normative within digital and rural agendas and 3) as being integrated and place-appropriate. The paper will do this systematically in four sections: 1) *Resilience frameworks* introduces resilience as a framework for analysis of community change and development; 2) *Ruralities* addresses resilience within the rural context through relevant policy-related documents; 3) *Divides* examines the rural-digital policy agenda and its relevance to community resilience. 4) A final discussion section will reintroduce the three resilience motifs at the intersection of digital and rural (community) development, drawing out implications and recommendations as a conclusion.

2. Resilience frameworks

In this section we introduce frameworks for understanding and evaluating resilience. We draw out three central themes that are significant for understanding the role of new digital technologies and broadband Internet for rural resilience. Whilst there might be a desire in policy arenas to identify resilience 'typologies' with related quantifiable indicators (Weichselgartner and Kelman, 2015), this paper focuses on wider motifs arising in resilience literature that also question and critique exactly what resilience means rather than accept it as stable or always necessarily 'good' for everyone. A contribution to these critiques comes from discussions in rural studies about neo-endogenous or 'networked' development, 'the global countryside' (Woods, 2007) and relational rurality (Heley and Jones, 2012), stressing the need to 'blend the local with the extra-local in building resilient places' whereby local resources are developed so that rural communities have the capacity to steer wider processes in a global context (Scott, 2013 p. 603; Wilson, 2012a,b; Shucksmith and Talbot, 2015) and highlighting the non-linearity, processual and messiness of rural places.

2.1. Understanding and evaluating resilience

Resilience is understood as the capacity of individuals and communities to proactively adapt to constant change through processes of building capacity and resources:

Community resilience is the existence, development and engagement of community resources by community members… [who]…intentionally develop personal and collective capacity to respond to and influence change, to sustain and renew the community, and to develop new trajectories for the communities' future (Magis, 2010, p.402).

Whilst deriving from the study of ecological systems and their capacity to bounce-back after disturbance or shock (Folke et al., 2002), resilience research has developed to encompass socio-ecological systems as adaptive to change (Adger, 2000; Norris et al., 2008), acknowledging both that change is on-going (Magis, 2010) and that a system involving humans does not consist of neutral processes but involves active agents and power-relations (Davidson, 2010). Within this framework, communities are heterogeneous, encompassing competing groups, individuals and values (Schouten et al., 2012). Resilience is described, in theoretical literature, as an ideal end goal, acknowledging that no community is fully resilient or fully vulnerable but displays aspects of both, and these are temporally and spatially changeable (Wilson, 2012a,b). Therefore resilience should be thought of not only as an outcome, but also as a process (Wilson, 2012a,b; Magis, 2010). Resilience frameworks vary and are developing through attempts to encompass place-specific and social aspects such as these.

At the community level, resilience is being used as a framework to evaluate the impact of local, community-level initiatives often linked to sustainable development and the transition movement, such as community land ownership (Skerratt, 2013), complementary currencies (Graugaard, 2012), local food initiatives (Franklin et al., 2011) and community gardening (Okvat and Zautra, 2011). Much resilience research has had an empirical focus on rural contexts (Cote and Nightingale, 2011). Rural resilience research explores: appropriate policy for EU rural development (Schouten et al., 2012); innovation and learning in rural SMEs (Glover, 2012); and interaction between farmers and town communities for sustaining rural populations (McManus et al., 2012). This is done using frameworks for evaluating resilience that encompass the social, economic and environmental aspects of place-based communities, capitals models (e.g. cultural capital; see Beel et al., 2015 – this issue; Roberts and Townsend, 2015), community stocks or assets (borrowing from community development literature). The framework necessarily varies according to the topic of conversation, but might include social capital, social memory and peer learning as indicators of social capital; localisation processes, the amount and type of local businesses or access to funding

opportunities as indicators of economic capital; and biodiversity and protection of local environmental areas as indicators of natural capital. These are examined at the interrelated scales of individual, community or regional resilience and utilise different categories in order to make analysis possible.

Community capitals are defined as community resources in much resilience literature (Graugaard, 2012; Wilson, 2012a,b), and link resilience theory into broader discussions of sustainability. Where we are now seeing resilience used in policy, it is often used where previously 'sustainability', 'green' or 'sustainable development' language would have been used (though not always as sustainability is still a separate policy goal, with authors arguing that resilience should be in support of sustainability goals – see Weichselgartner and Kelman, 2015). Sometimes these terms are used interchangeably. As the focus of this paper is on the rural-digital agenda, we are focused more towards a social (and economic) resilience perspective, as environmental aspects are seldom addressed in the policies under analysis in relation to digital technologies. Rural areas are at the centre of economic crises and climate change impacts, and as Scott (2013) notes, rural resilience strategies should be oriented to deal with this dual challenge. In policy terms, however resilience has a longer association with disaster and national security planning, as a response to the risk of external, fast onset disruptions (HM Gov. 2010). Resilience, however, also underlies many principles of community development, and is increasingly deployed in this arena.

There is no one agreed upon usage or framework of resilience, and some argue the concept has been stretched (Shaw, 2012 in Scott, 2013), but some of the key elements or processes encapsulated in various frameworks can be seen in the first column of Table 1, with the focus on social and economic resilience.

Literature on resilience has had little focus on digital engagement, the Internet or even technologies more broadly (although see Baily and Wilson, 2009) despite IT and Internet-enabled technologies having a discourse of democratic, 'social good' from the outset. Rural literature about technologies has a strong agricultural, rather than community, focus. Grace and Sen (2012) research considers the part that increased technology plays in the role of public libraries to contribute to community resilience, though not specifically in rural contexts. Whilst community broadband initiatives have been linked to rural resilience (Plunkett-Carnegie, 2012; Heesen et al., 2013) digital inclusion, and engagement with new digital technologies more broadly, have not. Literature on digital divides and inclusion highlight social and economic (amongst other) benefits of ICTs but tend to focus on one aspect, such as social capital (Chen, 2013; Clayton and Macdonald, 2013). In this paper we seek to bring new insight to this work through exploring the relationship between rural-digital agendas and three key motifs in community resilience literature.

2.2. Three key areas of resilience

This section outlines three central critiques or motifs in resilience literature that are particularly pertinent to thinking about digitally-enabled rural resilience and its related policies. These are: multi-scalar resilience, normative understandings of resilience, and integrated policy conceptions of resilience. Diagram 1 pulls out some of the key concerns for resilience thinking and practice from across these motifs.

2.2.1. Multi-scalar resilience

Community resilience is increasingly understood to be something that cannot just happen but that requires sustained support for the community from various levels, and that the success of resilience-building strategies will be dependent on factors originating at scales beyond the community as well as within. Communities are embedded in 'nested hierarchies of scales, with close scalar interconnections between the community and the regional, national and global levels' (Wilson, 2012a,b, p.2). Despite this, Wilson (2012b) argues it is at the individual and community level that implementation of pathways for resilience find their most direct expression (as the level at which policy outcomes are experienced and behaviours are changed). The scale and rhetoric of community is argued to be 'warmly persuasive,' and a useful emoter for policy-makers (Williams, 1976:76 in Thornham, 2013b). 'Resilience', in policy terms, is being drawn on at a community level as one of the ways communities can organize themselves in response to a number of challenges. Yet the processes that influence a community's capacity to organise or adapt is often operating predominantly at a different scale. For example, MacKinnon and Derickson (2012), suggest the biggest force on communities is the impact of capitalist social relations, via neoliberal agendas, which are global in scale. The language of digital agendas is very much aligned with these processes, and so through operating at national and global scales, defining 'community' in relation to resilience is itself problematic, particularly in terms of Internet- and ICT-related developments.

When thinking about the role of new digital technology in processes for rural community resilience, we must be careful not to assume that the use of the term 'community' is wholly neutral or self-evident. Acknowledged as an 'attitudinal construct,' for the purposes of this paper we follow Wilson (2012a, b) in adopting a definition of community that largely restricts itself to rural communities as geographically defined and having locality-specific services (due to the definitions in the policy we review) but also acknowledge that other types of 'communities' interact and are, indeed, embedded, at this level in multiple ways. These might be communities of practice, as well as online communities of interest and social networks. Therefore communities can be understood as geographically and socio-culturally open systems (Wilson, 2013) and building resilient communities must involve a process of multiple pathways at a range of scales (Skerratt and Steiner, 2013). Wilson reasons that 'striking the right "balance" between communities and their scalar interactions with the global level is key for maximization of community resilience' (2012 p.1218). For rural communities, in particular, this can refer to the difference between large-scale monocultural agricultural practices within a region and smaller regional networks of food production that also serve the local area such as a return to eco-agriculture (Klein, 2015). It might be the difference between funding mechanisms that concentrate on the agricultural sector or funding that offers wider rural community development, capacity building and state support (Shucksmith and Talbot, 2015). It could also mean the extent to which high-skill rural professionals commute to urban centres, or work virtually for a global company (Milbourne and Kitchen, 2014; Roberts and Townsend, 2015). While resilience frameworks and strategies can helpfully monitor the resources or 'assets' within a community, they also need to take into account, in Wilson (2012a, b) model how capitals can scale up and down; or to put it differently, how goods, skills, knowledge and capacities move across unbounded globalized rural communities.

2.2.2. Normative resilience

Processes of resilience take place within culturally and politically situated contexts. Lessons from psychological development literature illustrate that a 'major limitation of the concept of resilience is that it is tied to the normative judgements relating to particular outcomes' (Kaplan, 1999, p.31) as desirable or non-desirable. It is difficult to identify singular causes or outcomes of resilience behaviour, as they are influenced by variables at a

number of scales. These contextual factors mean that what is singled-out as resilience is value-laden. For example, bracketing 'resilience' with 'community' naturalises resilience as a common project (MacKinnon and Derickson, 2012, p.11) because 'community', as a construct, can privilege one group or set of values over another and diverts attention from the other scales of action impacting the resilience of communities. In these terms, 'community resilience' seeks to mobilise a collectivity; yet, in the process, generates a 'discourse of equivalence' that suppresses social inequalities and hierarchies (MacKinnon and Derickson, 2012, p.259) within and between places. Cote and Nightingale stress that there is a need for 'critical engagement with normative questions of social difference and inequality' that asks what governance characteristics promote resilience (2011, p.479). Communities demonstrate co-existing, fluctuating resiliences and vulnerabilities, affecting their capacity to adapt to different changes in different ways; however, those with power can privilege particular resiliences. This means that incorporated within resilience frameworks should be the question of 'resilience of what and for whom?' (Cote and Nightingale, 2011, p.475). Rural communities may find that their resilience and resources are different from urban neighbourhoods and that they need to develop capacity to adapt to different challenges and disruptions. There can be an assumption that rural communities are already cohesive or strong in social capital, based on a romantic or nostalgic construct, yet the dispersed and isolated nature of rural inhabitants can actually increase the necessity for access to connectivity at other scales.

Abstract models that define resilience through certain characteristics have been critiqued as apolitical for masking the types of power relations described above (MacKinnon and Derickson, 2012; Cote and Nightingale, 2011). Community resilience frameworks therefore seek to situate characteristics or indicators of resilience within these geographical, social, cultural and political contexts, providing a 'general heuristic' (Wilson, 2012a,b) that can be applied to different community contexts.

2.2.3. *Integrated approaches to resilience*

Research on community-oriented policy, such as rural community and sustainable development, has been critiqued for a lack of genuinely bottom-up, place-specific approaches (Stratigea, 2011; Cote and Nightingale, 2011; Brennan et al., 2009), leading to a limited understanding of local effects, with instead, a focus on universal, measurable, short-term targets (Franklin et al., 2011). Franklin et al. argue that given contextual and differential factors, there is a need for statements about community resilience to be interrogated in a place specific-manner (2011:775). MacKinnon and Derickson (2012) argue that greater attention should be given to the spatial politics and associated implications of resilience discourse. Resilience does not take place in a vacuum but within 'nested political and social processes,' thus frameworks need to take a holistic approach, embracing complexity and local knowledge (Cote and Nightingale, 2011 pp. 481, 477). Weichselgartner and Kelman (2015) argue:

In particular, geographical differentiation, cultural heterogeneity and social plurality may be named with regard to local practices and knowledge-making traditions. Produced in a specific science-policy setting with particular institutional arrangements, decontextualized top-down knowledge on resilience offers a severely limited guide for operational practice, and may have considerably less purchase in problem solving than pursuing co-designed bottom up knowledge (p.263).

A 'situated' resilience approach incorporates an understanding of cultural values, of the historical context particular to a community and the ethical standpoints of the different actors making and influenced by resilience policies (Cote and Nightingale, 2011, p.480). A community resilience framework has potential to offer an integrated and holistic approach that acknowledges the complexity of, as well as the sometimes non-rational or–causal processes of change (Wilson, 2013). Resilience, then, provides a 'bridging concept' rather than an off-the-shelf rural development model (Davoudi, 2012 in Scott, 2013). By thinking through resilience as a way to re-frame rural development as neo-endogenous or networked, the idea of 'deliberative place-shaping' (Healey, 2004 in Shucksmith and Talbot, 2015) brings a focus to the agential and forward- or outward-looking features of community resilience and the need to develop that 'vision' or 'development path' from a place's sense of history and unique identity. Boschma (2015), though not focusing on specifically rural regions, stresses that regions cannot move away from their history or path dependence altogether, but that it is a factor in how and what new growth paths are possible.

Diagram. 1 Critical motifs in resilience literature.

3. Ruralities

This paper is concerned with the situated, multi-scale resilience of rural communities and the social and policy constructs that constitute rural-digital agendas. We next look more closely at resilience in the rural context and the types of social and community-level goals of rural development that have synergy with community resilience outcomes.

Rural resilience is increasingly used in policy and academic literatures in relation to rural community- and regional-development, and has been described as an optimistic response to notions of rural decline (Glover, 2012; McManus et al., 2012). Current research argues for ruralities to be recognised as dynamic, active and outwards-facing (Bell et al., 2010; Callaghan and Colton, 2007; Brennan et al., 2009). 'The rural' is understood as plural and relational, representing a multiplicity of voices and lived experience (Bell et al., 2010; Stratigea, 2011). Rural areas have returned to academic debates as a necessary focus via other practical and policy-related concerns such as agri-food systems, energy security and climate change (Woods, 2012), becoming increasingly central to future-planning exercises at global and national levels. As a result, resilient communities are an essential part of contemporary

rural landscapes.

Rural development, however, has a regional focus, often operating a one-size-fits-all approach (Stratigea, 2011) and is argued to require a greater place-based or local needs-specific agenda to enable community resilience (Woods, 2012; Shucksmith, 2012). Wood and Brown (2011) suggest that current localism agendas have actually had the effect of undermining existing collective capacity in rural areas through disrupting and replacing already well-developed voluntary and community sectors. They recommend that, rather than implementing new strategies and creating competition for limited resources, governments learn from existing rural successes, such as the Rural Community Action Network, also noting that 'traditional sources of financial support for small-scale community led initiatives are disappearing' (2011, p. 115). Lowndes and Pratchett (2012) describe the current UK approach to localism as a zero-sum concept of the relationship between civil society and state, whereby more 'society' involvement equates to less 'state' activity; a 'sink or swim' strategy where not all communities will survive. Others highlight this 'paradox of smaller government' as making rural communities vulnerable (Curry, 2012). Skerratt and Steiner (2013) note that rural community development is episodic, full of false starts, disruptions and is non-linear, with evidence showing that current project-based funding favours the 'project'- or 'committee'- literate, whilst its short-termism does not achieve the longer-term outcomes required. Resilient rural communities, with capacity and resources, are clearly necessary within the current climate of UK localism policies.

Naming resilience or 'resilient communities' as a goal of rural policy is a fairly recent trend, sometimes appearing as a supporting or secondary term for the key goal of empowerment. In the UK, Scotland has used the term most pervasively (as an outcome in its *National Performance Framework*, 2007), with England and Northern Ireland also adopting it in development policy. For example, Northern Ireland's *Rural White Paper Action Plan* (2012) cites increasing resilience as a key aim towards improving rural communities. Resilience is used sporadically across policy, however resilience goals are evident in much rural policy. In our conceptualisation, resilience resonates and encompasses several interconnected policy concepts, which, after localism, are all sought-after goals of local governance. These include quality of life, social inclusion, participation, cohesion, diversity, social capital, capacity and resource-building. These are frequently deployed as goals and outcomes for rural and digital, community-oriented policy (see Table 1).

We found that 'empower' and 'enable/ing' were commonly used as social policy goals, whilst 'capacity' was more likely to be found in documents that related to rural agendas. Scotland's *National Planning Framework 2* (2012) has the goal of empowering people and increasing community capacity to make local areas more responsive to change and stresses the importance of strong, outward-looking rural communities. The *Rural Development Programme for England* and *Wales 2007–2013* attempts to build up rural economies and the capacity of local groups, particularly looking at innovation and adaptability of workforce. Northern Ireland's *Rural Development Programme 2007–2013* attempts to support village renewal and capacity building and its rural strategy (DARD, 2012) seeks to increase community capacity by diversifying rural economies. These examples illustrate that resilience language is used to describe rural political goals as wide ranging as economic adaptability, political participation and general community capacity.

European-level rural policy has a strong economic orientation, revolving around the competitiveness of rural regions and the agricultural sector. Necessarily, its focus is at regional and European (in terms of the single market) scales. For community resilience, we looked for more community-focused and socially-oriented goals within rural policy, with supportive language used such as the resilience terms outlined in Table 1. The *European Rural Development Programme 2007–2013* and *Strategic Guidelines* (2006) discuss rural development mainly in relation to economic development. The 2005 *European Agricultural Fund for Rural Development* recognises the need for diversification of the rural economy and growth of non-agricultural sectors, such as tourism, culture and heritage, and information-based service sectors. Europe 2020 develops this into recognition of the need for the growth of a high-skill service economy in rural regions, as well as promoting innovation and resource efficient technologies to support this, directly linking digital technologies and rural competitiveness (EC, 2010; Rural Development Gateway, 2014–2020). This is primarily through increasing employability and growing a rural workforce, on- and off-farm diversification and helping small to medium size businesses. The view that the survival of rural regions is dependent on this type of economic activity is a vital one in the light that only a small proportion of wealth created by rural regions (agriculture and food systems) stays within the area (Woods, 2012), and that wealth within rural regions is unevenly distributed (Shucksmith, 2012), with the economically disadvantaged being more dispersed and hidden amidst idyllic landscapes (Warren, 2007). Rural development policy has a strong focus on stimulating rural regional economies, but does not have a considerable emphasis on social/community-led resilience.

While European rural policy is predominantly sectoral (i.e. based on agriculture through the Common Agricultural Policy – CAP) rather than emphasising local area schemes (Shucksmith and Talbot, 2015) there are community focused funding mechanisms through Community Led Development initiatives (CLLD). In a report on taking the CAP towards 2020, a commitment to strengthening coherence between rural development and other EU policy is evident, as well as 'balanced territorial development of rural areas throughout the EU by empowering people in local areas, building capacity and improving local conditions and links between rural and urban areas' (EC, 2010). A social/community focus is evident in the community-led development projects of the LEADER programme, in which EU rural development operates at UK level. LEADER initiatives aim to develop the socio-economic life of rural areas (Scottish Government, 2012). It works from the principle that local people are best placed to know the needs of their community, with Local Action Groups consisting of 50% local community members (Plunket Foundation and Carnegie Trust, 2012; EC, 2005). There are a limited number of UK LEADER projects that utilise digital technology as a tool to enhance community life (see 'Getting Smarter in the Howe' project, established 2007, Fife, Scotland). LEADER's Community Initiatives bear evidence of positive results from an integrated approach to rural development (Stratigea, 2011) and offers potential for further bottom-up digital projects. However, the success of projects is dependent on variables such as levels of government support, levels of stakeholder collaboration and communication between Local Action Groups operating within the same area (Scottish HM Government, 2011).

Community level plans (through UK localism initiatives or LEADER Local Action Groups) are increasingly part of rural development and form one way in which resilience may be increased across rural communities as a whole, as this kind of future-oriented, deliberative process is a fundamental aspect of current understandings of community resilience, and through a more interconnected planning of social, economic and environmental goals/needs. England, Wales and Northern Ireland have a commitment to 'rural proofing' throughout all government departments, which means policies should demonstrate proportionality and take into account the unique characteristics of rural areas (DEFRA, 2015; DARD, 2015).

4. Divides

Having described the rural policy programmes on which rural communities' resilience is interdependent, the following section examines current policy in both the digital and rural contexts, examining where the two are interlinked, at a shallow or integrated level. Looking deeper in to these overlapping agendas, alongside how much community-based approaches are embedded or referenced within the two policy fields, provides a clearer sense of the ways in which digital engagement is being constructed as enabling of rural community resilience. In general, resilience is not discussed within digital policy, although community development is viewed as an impact of technology access (DCMS, 2010). Within EU level the proxy terms 'empower' or 'enable' are used to discuss technology as enabling mainly economic activities, although issues such as healthcare/telehealth are also mentioned (EU, 2010). Rural, digital, and development policies reflect a range of approaches to Internet-enabled technologies and their capacity to improve quality of life, social capital and empowerment for communities. Increased connectivity with positive societal implications is dependent on two other policy goals: developing broadband connection for all and providing ICT training and other methods to build ability.

4.1. ICTs for rural areas

ICTs and Internet access are increasingly considered vital to the resilience of rural communities. ICTs in rural contexts have been framed in academic literature in terms of rural/urban digital divides (Warren, 2007). Geographically, rural populations are more difficult and costly to service with roll-out of fibre optic cable for broadband Internet, which provides faster speeds than existing copper networks, and lack a commercial incentive, and therefore many rural inhabitants still receive a much slower and poorer service (Farrington et al., 2015; Townsend et al., 2013). Questions about broadband Internet diffusion have switched from who has it and who doesn't to 'how good is it? How fast? How fast is fast?' (Vicente & Gil-de-Bernabé, 2010, p.821). Discussions around digital divides have evolved to encompass socio-economic, educational, behavioural, generational or disability factors (Salman, 2012). For Graham (Graham et al., 2012; Wilson and Graham, 2013) there is an implicit bias in the unevenness of digital infrastructure and content, towards the already geographically and socially excluded, which has serious implications for rural communities' resilience as those with existing capacity are better placed to benefit from digital resources more than those without. Looking at the rural-digital agenda from EU to community scales, we find a clearer strategy for economic growth through digital access whilst digital inclusion is premised on social benefits following on from economic benefits and basic access, or revolving around discourses of 'participation'. Since the original drafting of this paper in 2013, UK regions have developed more coherent Digital Inclusion strategies with more nuanced consideration of barriers to access, however, as discussed below rural implementation is not always explicit or clear. Over this same period, an increase in policies about mobile Internet, which can provide an alternative mode of Internet access for rural communities, can also be seen.

4.2. Rural-digital access

Following recognition of the need for diversification of the rural economy (EAFRD, 2005), ICT entered the European agenda in its Strategic Guidelines for Rural Development (2006), which encourages take-up and diffusion of ICT for economic benefit. *The Digital Agenda for Europe* (EC, 2010) is one of seven flagship initiatives for Europe 2020 and prioritises rural areas, with allocated investment from Rural Development Funds. The Digital Agenda is a key component of the Europe 2020 strategy to provide growth and jobs in a sustainable and inclusive manner. Three priorities were identified (EC, 2005): completion of a Single European Information Space to promote an open and competitive internal market for information and media; strengthening innovation and investment in ICT research (job creation); achieving an Inclusive European Information Society that is consistent with sustainable development and prioritises better public services and quality of life (with flagship initiatives tackling these, such as digital libraries). The Agenda is pursued in rural areas through the CAP, utilising smart growth, competitiveness through technological knowledge and innovation, and use of ICT, training and uptake of research (EC, 2010). Economic benefits are the drivers of Internet (technologies-as enablers of growth) for rural communities. There are two rural specific challenges to growth: lower general income and concerns over business growth and development. ICT is referenced as a way of improving employment and conditions for growth. On the whole, European digital strategies can be viewed as top-down, with policy making aligned with open markets.

The digital divide (in terms of rural access) is also a particular concern within UK rural policies. The Commission for Rural Communities argues that variable broadband availability and speeds within and between rural communities has the potential to divide rural communities into connected and unconnected areas, leading to negative consequences for rural businesses and stalling rural social growth in areas such as education, political participation and community capacity building (2009: 20–22). Superfast broadband is viewed specifically as helping to improve the quality of public services and healthcare in rural areas (DCMS, 2010). Both rural and digital UK policies identify an economic imperative to technologies for rural areas. Scotland's rural economic policy prioritises sustainable economic growth with the use of digital infrastructure, seeking to build competitive advantage and make rural areas attractive places to do business through raising awareness of e-commerce and creating initiatives and partnerships to increase Scottish Business internet use and ICT skills (Scottish Gov. 2011a, 2011b). Wales identifies the digital economy as a critical enabler in the rural economy but acknowledges that to build this may require trade-offs between coverage and competition in remote rural areas (Welsh Assembly, 2010). Northern Ireland's policy recognises that modern infrastructure minimises disparities in transport infrastructure for rural areas, allowing business owners to network, expand their customer base and learn new marketing techniques (NIE, 2011; DARD, 2012). UK nations identify economic benefits of broadband access and services as: driving innovation, profitability, R&D and trade; boosting jobs; enabling productivity and diversification, such as creative industries growth (Welsh Assembly, 2010; Scottish Gov. 2011a, 2011b). Policies are oriented to helping rural businesses to adapt, skill up and gain markets.

The aim to enhance accessibility to, and the use and quality of ICT in rural areas forms part of Priority 6 of the European Network for Rural Development (ENRD 2014-20120) to promote social inclusion, poverty reduction and economic development. This is implemented at UK country level through individual rural development programmes (RDPs).

At UK level, broadband infrastructure is one of three areas of funding through the Rural Development Programme for England (RDPE), alongside tourism, and renewable energy. This recognises that 'limited access to superfast broadband remains a challenge for both businesses and households' contributing to low productivity of rural workforces, however, it commits 'limited strategic infrastructure in the final, hardest to reach rural areas' (EC, 2014). Alternative technologies such as satellite and mobile are proposed

as included within ways to reach the final 5% without current access (with a commitment of 19million Euros.) RDPE will focus on improving efficiency and effectiveness of using the 'digital by default' approach (described below) to programme delivery, a new IT system for delivery of CAP schemes, funding to support SMEs and social enterprises to exploit e-commerce opportunities by trading online and use digital technology to increase productivity through roll out of Superfast Broadband.

Within Scotland's RDP, the Superfast Scotland Programme is outlined, with an aim to supply 95% of premises by 2017/2018. Superfast (access) is positioned as leading to enhanced opportunity to widen choice, tackle exclusion, and improve access to vital services, making Scotland's rural communities more resilient (Scottish RDP, 2014). Good broadband connectivity is forwarded as an enabler of economic growth in rural areas. Through the CAP, the latest budget for Broadband is £9million in rural areas.

Northern Ireland frames technology as one pillar that can help support community development, which in turn can build community resilience (DARD, 2012). Broadband Internet is discussed within the wider context of telecommunications, as a necessity for innovation, inclusion and global competitiveness. The Programme focuses instead on mobile 3G networks in rural areas. In the Northern Ireland context, the interdependencies within rural areas of reduced virtual and physical infrastructure are stressed, which limits rural business opportunities to access ICT (DARD, 2014). 'Proximity to services' is considered a Multiple Deprivation Measure (NIMDM) stating 'There is a need to encourage and enable residents of villages and surrounding areas to create a vision and an integrated action plan to ensure the full potential of their areas' (RDPNI).

Superfast Cymru is the main scheme in Wales, with a commitment to fibre roll-out for maximum coverage (RDP Wales, 2014–2020). It identifies the need to improve Internet infrastructure and ICTs in order to keep young people in communities, and to overcome accessibility issues due to unsatisfactory transport links and physical infrastructure. It notes that Wales has the largest amount of potential 'not spots' in the UK and lowest availability of broadband in rural areas. Significantly, the programme notes that rural Internet infrastructure needs to improve, not only to help businesses improve efficiency, but also to integrate environmental and climate change considerations into daily activities, one of scarce direct links between technologies and environment.

In broad terms, rural communities are expected to benefit from being placed at the centre of service design, socially networked and culturally included through digital connectivity (Welsh Assembly, 2010; Scottish Gov. 2011a, 2011b). In digital policy there tends to be a focus on access to Broadband Internet, and latterly, Superfast Broadband and mobile infrastructure. At the time of writing, current goals for access are those stated in the March 2015 deployment plan (updated in December 2015) and aim to supply 95% of the UK with Superfast broadband by 2017 and all of the UK with a minimum of 2 mbps by end of 2015. In Britain's Superfast Broadband Future (2010), which outlined the UK government's approach to next generation technologies, a key goal was to minimise the digital divide, with a chapter titled 'Building Broadband for rural areas; How we can build a network from the ground up in the Big Society'. Written in 2010, this document imbued government localism discourse and placed a responsibility on the UK's rural regions and local communities to stimulate demand, provide funding, create community hubs to extend networks to the community or take responsibility for the actual civil engineering of the network. The report directs public authorities to work closely with lower authorities at neighbourhood level, who are invited to prepare plans for broadband infrastructure upgrades to be funded in waves through Broadband Delivery UK. As a result of a prioritisation of rural areas in this report, Broadband UK (BDUK) was set up by the Broadband Delivery Programme 2011. BDUK fundamentally aims to expand broadband connectivity in the UK by stimulating private sector investment in rural areas.

There have been general criticisms of BDUK's original £530m programme for rural broadband initiatives. When bidding for rural projects began, only two large telecom companies bid, with BT ultimately winning all contracts. This led to criticism of BTs monopoly, whereby smaller providers have been outbid, creating an anti-competitive environment and negating the opportunity for flexible and rural-friendly technologies (BBC News; Guardian Online, 2013). Recent criticism of this monopoly has led to controversial calls for Open reach (who deal with the infrastructure) to be separated from BT (BBC, 2013). BDUK has worked successfully with some rural community broadband projects (see Fibre GarDen, which has been applauded for bringing FTTH to the Garsdale/Dentdale areas), but these were controversial with only five projects ultimately being funded within the lifespan of the Rural Community Broadband Fund scheme (2007–2013) with 17 others being promised funding through extensions to existing Local Authority projects (DEFRA, 2014; Guardian Online, 2013).

Rural areas are still struggling to get the same coverage as better-populated areas with fibre networks, although recent government discourse reflects a shift towards a technology neutral approach, meaning any technologies can be used to deliver solutions, especially in rural areas, such as wireless and satellite. In mid-2014, the government awarded eight projects in its innovation fund to explore ways to take superfast broadband to the most remote and hardest to reach places in the UK (the final 5%). These projects reflect a mixture of satellite technologies, fixed wireless, social investment financial models and an operating model aggregating small rural networks (DCMS, 2016). As part of BDUK, a Broadband Connection Voucher Scheme ran from December 2013 until October 2015 providing subsidies to SMEs and VCSEs to access high-speed internet connections, however the scheme is now closed. The schemes reflect an enhanced commitment to providing coverage in rural areas beyond the market-led approach to fibre infrastructure. Small-scale investments for broadband will also be explored through LEADER initiatives. Within rural development policy at UK country level, enhanced Internet access through fibre, mobile and alternative technologies is seen as crucial to rural growth, particularly through increasing productivity, employability and trade in small to medium enterprises. Benefits in terms of accessibility to services and choice, decreased isolation or exclusion are also noted. UK nations propose 'on the ground delivery through community based approaches' to broadband access, and discuss 'community' in terms of education (community learning and schools) and, occasionally, community groups and centres, community intranets and hyperlocal media (CRC, 2009; Scottish Gov. 2011a, 2011b; Welsh Assembly, 2010). These community-based approaches are next explored through digital inclusion strategies.

4.3. Rural digital inclusion

Alongside Superfast and BDUK rollouts is the recognition at policy level that access to Internet and ICTs does not equate simply with use (Salman, 2012). Within the DAE, the Gdansk Roadmap for Digital Inclusion was developed in 2011. Significantly it identified that funding instruments for digital inclusion need to be based on shared objectives, and integrated and co-ordinated governance (2011 p.1). It proposed knowledge sharing and development of common tools to make the task of training mostly by volunteers and third sector via private-public-third sector partnerships easier (Helsper, 2014). Key priorities in the DAE include pillar 6 (Enhancing digital literacy, skills, and inclusion) and 7 (ICT enabled benefits for EU Society) alongside Pillar 5 for Fast and Ultra-fast

Internet Access (Helsper, 2014). In a discussion paper that reviews the Digital Inclusion policies of several member states within the EU, Helsper (2014) defines Digital Inclusion as 'an individual's effective and sustainable engagement with ICTs in ways that allow full participation in society in terms of economic, social, cultural, civic and personal well-being.' (p.1). The paper discusses aspects of inclusion in terms of: Access (quality, ubiquity, mobility), Skills (technical, social, critical and creative elements), Motivation and Awareness (determined by social and individual circumstances), and Engagement (driven by everyday life needs through relevant content making ICT engagement effective and sustainable), which loosely maps on to UK policy definitions. Inclusion can take the form of formal training at schools and libraries, in community technology hubs or through more informal peer networks using digital champions, or via online learning such as Citizens Online. It requires volunteers carrying out digital inclusion initiatives to be able to create long-lasting, meaningful use of ICT for participants rather than short term access provision and decontextualised skills training (for example the European Computer Driving Licence is generic rather than job or context specific). The extent to which this is possible might be exacerbated in rural contexts with issues of accessibility, dispersed populations and low employment.

While the Digital Inclusion strategy highlights rural areas in terms of their exclusion through lack of access, attention is not given to the particular social disadvantage that might be experienced (differently) in rural settings and ways to target rural socially excluded groups, other than through providing access to eHealth (as opposed to a more embedded approach incorporating support with using it). For example, a recent report stated that 'whether people live in a rural or urban area appears to make little difference to their Internet use. Age, socio-economic group and disability do affect Internet use' (Cabinet Office, 2013). A Citizens Online report on rural digital inclusion gave examples of context-based approaches: initiatives that focus on mi-fi technology; training that is focused around working with existing organisations that support rural communities; making use of contact points like mobile units that are already well-used; working with trusted networks like churches and informal peer groups; and through helping to create workplace digital ambassadors and learning (nd). Rural communities are less engaged with digital technologies but those who do use it (high skilled workers) are more reliant on it than urban counterparts, so there are opportunities to foster learning and skills (Citizens Online nd; Roberts and Townsend, 2015). Helsper advises, based on a cross-European review that 'policy and implementation need to refocus from access and pure skills to meaningful engagement and tangible, social outcomes of ICT use by embedding digital inclusion into…the wider European policy landscape that deals with social challenges. She also raises concerns about clarity in certain areas: who exactly is responsible for ensuring implementation? How can we compare or measure use, digital literacy, and skills when they are defined differently? How can we really understand what users' needs are within vulnerable groups? This is supported by Kilpelainen and Seppanen's (2014) assertion that it is difficult to build strategies that rely on ICT as a solution to service accessibility in remote villages because we have insufficient knowledge about how people use these, and on how the Internet influences people's lives in general.

Digital inclusion is implemented at UK country level. UK policy identified that 'digital disengagement is a complex compound problem involving cultural, social and attitudinal factors and in some cases informed "digital choice"' (C&LG, 2008, p.10). The UK government produced a report and action plan in 2008 with recommendations for digital inclusion. Early implementation was patchy and volunteer-based. This later developed into a more coherent Digital Inclusion Strategy in 2014 (Cabinet Office and GDS, 2014), following a public consultation. It outlines a 9-point scale for measuring national progress on inclusion, which will be used to establish what users of government digital services require to help them go online and use the services. The government restates its commitment through the UK Digital Inclusion Charter, a partnership between private, public and third sector organisations. It has a dedicated Digital Inclusion team to coordinate activities. The strategy identifies four barriers to people going online: access; skills; motivation; and trust. The partnership aims to reduce the number of people that are offline by 25% in 2016 and by the same amount every two years. This will be delivered through organisations like Go On UK (a digital skills charity) carrying out training in community hubs and through online courses. The strategy draws on research conducted by the BBC which found that 21% of Britain's population lack sufficient skills to benefit from going online, whilst a third of SMEs do not have a website. These kinds of figures stress the importance of digital inclusion strategies alongside increasing access. The UK strategy includes no rural specific initiatives for reducing barriers of skills, motivation or trust, but focuses on what it is doing to improve access (see BDUK schemes above).

In UK countries, Digital Communities Wales succeeds the Welsh Communities 2.0 strategy. It is integrated into Digital Wales, Wales' main digital policy document, as well as other government initiatives such as improving basic literacy, which is carried out by the Department for Education and Skills, and poverty reduction schemes (the percentage of Welsh adults not regularly using the Internet in June 2015 was 19% – Welsh Gov, 2015). As part of the digital inclusion strategy an extensive programme of support is planned to help farmers with the roll out of the Rural Payments Wales Online, including making sure everyone has the appropriate access and skills to enable them to process their applications online via the Single Application Form (SAF). This scheme within the agriculture sector is the only rural specific initiative outlined. In Northern Ireland, the Get It Together scheme has been launched in 15, predominantly rural, locations, to promote digital inclusions amongst disadvantaged communities through a 3-year development process. The partnership includes BT and Citizens Online. The scheme aims to: raise awareness of the benefits of digital technology; support rural communities and address isolation; establish training venues and secure Internet access and ICTs; Develop a local network of volunteers as local 'digital champions'. Scotland's strategy aims to 'foster active and responsible digital citizens with the skills and confidence to grasp new opportunities to communicated widely, express opinions and engage in our democratic processes in an ethically and socially responsible way' (Scottish Government, 2014), resonating with its broader resilience discourse. Its Digital Participation Charter and programme includes the Lets Get On campaign, Digital Scotland branded hubs offering access and training in local communities. Rural communities form part of this strategy through the commitment to delivering eHealth services to difficult to reach areas.

At UK level, digital inclusion forms part of a wider Digital Participation plan (2010) alongside policies for Next Generation Access and its 'Transformation' (of government websites) and 'Digital by default' (move to e-services) agendas (discussed further below).

The plan suggests participation can increase civic and democratic engagement activities, foster cultural understanding and social capital, and increase formal and informal learning opportunities, gesturing towards enhanced resilience through Internet-enabled ICTs. The participation plan has a rural-specific strategy, which takes into consideration that participation in rural areas has the dual challenge of an elderly and dispersed population (further away from services). As part of the wider 'rural proofing' agenda, it named several schemes to tackle rural digital exclusion, including

'Get Digital' which targeted 81 of its 195 sheltered housing schemes in rural areas, as well as local authority-specific schemes.

The commitment to Digital by Default of government services delivery seeks to create a 'virtuous cycle of digital take-up' (HM Gov. 2011) by encouraging people to use the Internet through undertaking everyday tasks such as council tax claims and booking a driving test online. To ensure that those who do not have Internet access are not disadvantaged by digital by default policies an 'Assisted Digital' strategy is proposed via partnerships with third sector organisations and businesses such as Age UK and the Post Office to ensure eServices are also still provided by frontline staff, and digital intermediaries. This creates a double penalty in rural areas where services are being reduced.

The Digital Agenda has become more interconnected in terms of access and inclusion strategies, although both are a concern for rural areas. Rural strategies focus on one-off or showcase projects, utilising vague terms like digital intermediaries, rather than long term, strategic plans, and still slip back into an assumption that provision of access will equate with use (e.g. eHealth).

5. Digitally-enabled community resilience

Having outlined the current rural and digital agendas from EU to UK country level, we now turn to discuss these in relation to the resilience conceptualisations we outlined in section 2 on *Resiliences*: Multi-scale resilience; normative assumptions; and integrated approaches.

5.1. Multiscalar resilience and 'digital by default' rural technology use

Previously, we outlined the ways in which communities' resilience is dependent on actors and power relations operating within a number of scales. Rural communities do not act in isolation and do not always have the necessary capacity and resources to maintain or build resilience from within but operate and require various types of support, at multiple scales (Wilson, 2012a,b; Cote and Nightingale, 2011), as demonstrated in neo-endogenous or networked rural development (Scott, 2013; Wilson, 2012a,b; Shucksmith and Talbot, 2015). The capacity of rural communities to develop resilience through digital resources is also determined at a number of scales. A combination of top-down and bottom-up approaches for providing broadband access to rural areas is evident, through private and governmental intervention strategies. BDUK recommends bottom-up, community-partnerships for 'building a network from the ground up' (2010 p.22). EU and UK initiatives for developing rural-digital projects have had mixed success, as described in the BDUK (and LEADER) projects above. Even so, achieving access to broadband infrastructure increasingly becomes a task for rural communities themselves. There is some evidence to suggest community broadband initiatives help identify community resources and build capacity; however, the current model is criticised for assuming communities will have in-depth knowledge of broadband technology, as well as the range of support and specialisms necessary to complete community broadband projects (Plunkett-Carnegie, 2012). The Rural Community Broadband Fund, which ceased in 2014, has been critiqued for overly complicated regulations, a lack of transparency over intentions and costs by BT, and a lack of clarity over areas covered by BDUK or available for EU state aid (i.e. assisting community initiatives) (House of Commons, (2013); Guardian Online, 2013). This means that communities not covered by BDUK and associated BT projects have been hindered from developing their own networks.

The scalar processes of digitally-enabled resilience are also evident in the community-level focus of digital policy through the discourse of 'participation'. Digital participation joins inclusion as a policy term to overcome issues of digital exclusion, literacy and education. Skerratt and Steiner (2013: 323) claim that there is a normative assumption that to 'participate' (in policy terms) is '*the* indicator of "healthy, vibrant" community with high levels of empowerment' and we find that this translates into the digital agenda context. Digital rollout and 'by default' strategies espouse digital participation/inclusion is an inherently good end-goal without any unpicking of what this means across different contexts. Grace and Sen (2012) drawing from Castells (1996: 412-123), argue that this assumption is based on 'the logic of a wider "field of power" that operates at the level of the 'space of flows' rather than the level of community resilience which has a focus on the 'space of places,' prioritising the local. The 'space of flows' refers to 'the space where dominant, managerial elites organise and from which they exert dominance' (Castells, 1996: 415 in Grace and Sen, 2012:527). This would suggest that digitising of local community services can be anything but empowering.

Resilience is a useful way to re-think these notions of 'participation' and 'empowerment' that often appear uncritically, envisaged as 'spontaneous, self-regulating, inclusive and organic' (Skerratt and Steiner, 2013) because it requires us to think about the processes necessary at various scales to achieve this. Digital participation is not necessarily an 'opt-in' activity but increasingly a requirement. For example, Thornham argues, online payments for the Coalition government's universal credit system 'will not make the digitally excluded suddenly digitally included, it will exacerbate the digital divide and turn it into a class divide, a geographical divide, an age divide and a gender divide' (2013 np). Reforms such as these are made at the national scale, and according to Thornham (2013a), are based on oversimplified claims about digital literacy and remove both responsibility and accountability from the state to the individual when something goes wrong, contributing to an individual and communities' vulnerability. A rural example is the Integrated Administration and Control System (IACS) that farmers are now required to complete online.

In rural areas specifically there is the risk that as the Internet becomes the default communication medium, a minority become progressively disadvantaged. Some of the most vulnerable groups in rural areas are non-technology users who will become increasingly disenfranchised as they struggle to catch up with technological developments (Warren, 2007). Rural disadvantaged groups without broadband access will suffer significant lags in their ICT adoption, which at first might result in relative dis-benefit, followed by absolute disadvantage when offline services are reduced or removed as a result of increasing Internet dependency (Warren, 2007, p.375) making 'digital by default' a prohibitive factor in community resilience. The socially disadvantaged, thus, accumulate disadvantage and become more reliant of informal channels, requiring high levels of social capital and community-level resources (Chen, 2013). As Warren (2007) put it, the 'virtuous digital cycle' becomes a 'vicious digital cycle'.

Most social benefits from technology are assumed as an implicit follow-on or only mentioned as additional 'side-benefits' of the larger economic aims, which misses an opportunity to promote digitally-enable community resilience. This is evident in statements about economic and 'spillover' or 'wider community' benefits such as social cohesion and social inclusion, or in terms of 'social returns' on investment in infrastructure (DCMS, 2010; Scottish Gov. 2011a, 2011b; UNESCO, 2010, p.24). Policies largely reflect that Next Generation Access is market driven and does not reflect 'social arguments' (CRC, p.6). It is clear that social benefits that can contribute to community resilience are evident across digital policy but until recently they have been largely unconnected to inclusion/participation strategies. Digital strategies reflect the uneven spatial

politics of rural community resiliences, creating both opportunities and vulnerabilities.

5.2. Normative resilience and techno-fixes

Normative claims about resilience require us to ask 'resilience of what and for whom?' (Cote and Nightingale, 2011). Resilience is determined within social and political contexts and sought by actors with competing values and motivation, which means one type of resilience may be privileged above others (Wilson, 2012a,b). What then are the normative assumptions involved in digital policies for increasing rural resilience?

Most pertinent to this discussion is the technologically deterministic rhetoric of technocratic solutions for rural communities. 'Technological determinism' entails the idea that there is an inherent logic within technology that dictates its development and places technology as synonymous with progress and expertise (Feenburg, 1999). Technocratic approaches position rural communities as needing this outside force and lacking capacity from within. They entail assumed transformative affordances to change communities for the better. This rhetoric of 'potential' can absorb the politics and dynamics of actual change (Thornham, 2013b). Much policy discussion of potential impacts of Internet and digital technology use focuses on the technologies, whereas in technologically mediated lived experience, the technology itself is invisible or abstracted through the way it is embedded in social contexts (Thornham, 2013b). Technology, therefore, is not something that has an inherent value in itself but is dependent on its context of use (Clayton and Macdonald, 2013) and should be understood as an enabler or shaper, rather than a 'magic bullet' (Warschauer, 2003 in Clayton and Macdonald, 2013).

The normative associations of technocratic solutions are deeply embedded in neoliberal agendas and discourses of globalising processes and chime with much existing rural research relating to climate change and food security that offer technocratic solutions (Woods, 2012). In policy terms, climate change, natural disasters and national security threats are framed as problems to which communities must become resilient. The psychological development literature on resilience highlights the evaluative component (the social judgement) involved in defining the seriousness of the disruption or change (Kaplan, 1999). Technological change is viewed as something that can contribute to adaptive capacity—a resource to be drawn upon—rather than a disruption or change that resilient communities need to be prepared for, but may better be understood as both. This subtle difference in positioning means that new digital technology and the divides between those who can and cannot draw on it as a resource are often invisible in discourses about the potential benefits of ICTs. As Cote and Nightingale put it 'resilience thinking is a power-laden framing that creates certain windows of visibility on the processes of change, while obscuring others' (2011, p.485).

5.3. Integrated, place-based approaches for digitally-enabled resilience

Commentators on rural development argue for a more place-based and integrated policy approach that takes into consideration the contextual and differential factors influencing the resilience of rural communities (Stratigea, 2011; Franklin et al., 2011). Resilience itself is critiqued for adopting a one-size-fits-all model from ecological systems, which does not translate to communities with different priorities, vulnerabilities and socio-demographics (Davidson, 2010; Sherrieb et al., 2010). This is particularly pertinent for the current policy approach taken to the provision of rural access to broadband, ICTs and eServices, which often fail to adequately take into account how technology might be embedded within rural communities or how uptake depends on a number of social and cultural factors (Badasyan et al., 2011). Warren (2007) suggests the ideal scenario would be the planning of rural telecommunications as a complete socio-technical system, but notes that in reality most initiatives focus on specific dimensions (of the digital divide). These can also be short-lived within policy and funding lifespans. He reports an evident lack of feasible and short-term solutions to accommodate large numbers of the rural population for which technocentric solutions are not appropriate, suggesting it should not be a case of waiting to close a temporal gap, using the same broadband delivery mechanisms. He notes few 'credible alternatives beyond fuzzy statements such as "social programmes must intervene" (Future Foundation, 2004, pp.3–4)' (Warren, 2007). Our more recent review finds more comprehensive inclusion and participation strategies, but these don't have a dedicated rural remit, seeming to showcase piecemeal rural initiatives from disparate parts of the UK or sectoral initiatives. They are predominantly based on voluntary commitments, requiring organisations to sign up to a charter. Whilst Chen (2013) points to the need for community-based initiatives that address local needs, currently UK communities seeking to develop their own Internet infrastructure are scattered, although formal rural broadband networks do exist (e.g. Community Broadband Scotland). Skerratt and Steiner argue that current short term funding that favours the committee- or project-literate can contribute to a 'rich get richer' problematic (Skerratt and Steiner, 2013). We surmise a similar situation with digital access funding streams, especially in terms of the relationships between digital inclusion (or participation) and social inclusion (Helsper, 2012; Warren, 2007).

In a paper outlining the potential benefits and barriers of ICT for rural development, Stratigea (2011) cites ICT as crucial to the shift from agriculture based rural development to a multi-sectoral approach that identifies a range of amenities and resources evident in rural areas. McDonough (2013) meanwhile suggests that policy makers have high expectations on non-farm rural communities but are less aware of the need to stimulate alternative rural economies, such as those requiring high-speed Internet connections. Rural residents may even need an integrated approach that helps them find the usefulness of such technologies for their individual purposes (Warren, 2007). The development of technologically-dependent agricultural processes has been offered as one such imperative (Stratigea, 2011). Appropriate technology and content is a recurring theme in the literature on rural ICTs and digital inclusion strategies (Chen, 2013; Stratigea, 2011). Utilising participatory processes to develop locally relevant content that has cultural pertinence is another recommendation (Warren, 2007). Grace and Sen (2012) forward an argument for 'convivial' technology as essential to (the role of public libraries for) community resilience. Drawing from Illich (1973) they describe convivial institutions as using 'democratic technics, tools that can be easily used, by anybody' and that 'can be used "as often or seldom as desired"' (Illich, 1973: 22 in Grace and Sen, 2012: 535). The gov.uk website represents an attempt to create a convivial, democratic tool; however, specific technologies are 'balanced on an inverted pyramid of technology that increases in complexity and in the need for specialization' (Grace and Sen, 2012: 526) and increasing levels of bandwidth and digital literacy are needed to access such online tools. Thus, future-proofing is another important factor in rural community resilience.

6. Conclusion

The major contribution of this article lies in its fine-tuned analysis of resilience for rural communities and the policy

contexts through which this is promoted. Resilience frameworks can help us reflect more critically on the relationship between digital connectivity, capacity-building and community/societal participation. The community resilience framework supports increasing recognition that the social, cultural and institutional barriers to digital inclusion influence, and remain after, digital access, and that an approach that views these as interconnected is necessary. An integrated rural-digital policy approach with resilient communities at its core would ensure rural communities were supported to develop the necessary resources to enable them to fully use Internet-enabled technologies in the empowering way hoped for by governments.

Bringing together these distinct but overlapping literature and policy areas has provided an original critique of the rural-digital agenda. We used this context to develop three specific motifs recurring in current resilience literature: 1) We found claims that resilience of rural communities is dependent on interactions, dependencies, actors and resources at a number of scales to be true for the context of developing digital capacity, and that bottom-up community approaches offered some successes in increased resilience but also might favour those with existing resilience and increase the vulnerability of others; 2) Normatively constructed resilience is a key part of digital policy, which offers technocratic solutions through 'potential benefits' to communities in social, economic and political terms, but the delivery mechanisms for accessing benefits through inclusion are unclear, often voluntary, and there is the expectation that this happens at the community level using existing funding. It uses discourses of digital inclusion, including the community-level rhetoric of 'participation', 'empowerment', 'enabling' and 'digital virtuous cycles' as justification for this; 3) Digital policy was argued as needing to be incorporated into integrated, multi-sectoral approaches to rural development and community resilience; however, digital policy also acknowledged that rural areas need differential and appropriate strategies to digital diffusion and inclusion.

In this comprehensive review we have identified where Internet-enabled technologies are being used in policy to make claims for economic and social resilience and community/rural development. We examined the extent to which technology approaches are present and embedded in rural development policies and considered the ways Internet-enabled technologies might empower and disempower rural communities in different ways, creating resiliences and vulnerabilities. We provided a holistic picture of the rural-digital agenda, highlighting gaps that exist in implementation and understanding digital divides and inclusion. We found an assumptive causal link between economic resilience and social resilience at rural community-level through up-take of digital technology. Further research examining this relationship would fill a gap in both rural-digital and resilience literatures. We also note the oblique nature of the scales of power at work in implementation of digital access and inclusion/participation strategies. Research examining the funding streams and regulations from EU to community level would further contribute to research on the multi-scale nature of digitally-enabled community resilience. This paper provides significant evidence of the UK context for further European or International comparative studies.

Appendix. The Rural Digital Agenda – Policy Related Documents – EU to UK country level

	Rural/Community development	Digital
EU	EUROPEAN COMMISSION (2010) 2020 final COMMUNICATION FROM THE COMMISSION EUROPE 2020 A strategy for smart, sustainable and inclusive growth	https://ec.europa.eu/dgs/connect/en/what-we-do
	EUROPEAN COMMISSION (2010) The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future	EUROPEAN COMMISSION (2005) i2010- A European Information Society for Growth and Employment http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0229:EN:HTML
	Rural Development Gateway 2014–2020: http://enrd.ec.europa.eu/enrd-static/policy-in-action/cap-towards-2020/rdp-programming-2014-2020/policy-overview/en/policy-overview_en.html	EUROPEAN COMMISSION (2009) A strategy for research on future and emerging technologies in Europe http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0184:FIN:EN:PDF
	EUROPEAN COMMISSION Regulation in support of Rural Development Programme: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1305&from=en	EUROPEAN COMMISSION (2010) A Digital Agenda for Europe http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0245R(01):EN:NOT
	EUROPEAN COMMISSION (2005) European Agricultural Fund for Rural Development (EAFRD) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:l60032	EUROPEAN COMMISSION (2011) Digital Agenda for Europe: Annual Progress Report
	EUROPEAN COMMISSION (2008) Rural Development policy 2007–2013 http://ec.europa.eu/agriculture/rurdev/index_en.htm	EUROPEAN COMMISSION (2010) Final Report: Study on the Social Impact of ICT http://ec.europa.eu/information_society/eeurope/i2010/docs/eda/social_impact_of_ict_exec_sum.pdf
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	European Commission (2012) The EU approach to resilience: Learning from Food Security Crises http://ec.europa.eu/echo/files/policies/resilience/com_2012_586_resilience_en.pdf	
UK England	European Commission: Factsheet on 2014–2020 Rural Development Programme of England (United Kingdom): http://ec.europa.eu/agriculture/rural-development-2014-2020/country-files/uk/factsheet-england_en.pdf	UK Government, Cabinet Office and Government Digital Service (Updated, 2014) Government Digital Inclusion Strategy https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy
	Commission for Rural Communities (2009) Mind the Gap- Digital England- A rural perspective https://www.samknows.com/broadband/uploads/CRC.pdf	UK Government Dept. of Communities and local government (2008) Delivering Digital Inclusion: An Action Plan for Consultation http://www.communities.gov.uk/documents/communities/pdf/1001077.pdf
	UK Government, Dept. Communities and Local Government (2006) Strong and prosperous communities, The Local Government White Paper http://www.oldhampartnership.org.uk/strong_and_prosperous_communities_-_local_govt_white_paper_summary.pdf	UK Government, Cabinet Office and Government Digital Service (2013) Government Approach to Assisted Digital https://www.gov.uk/government/publications/government-approach-to-assisted-digital/government-approach-to-assisted-digital Published 4 December 2013
	UK Parliament (2012) Bill Stages- Localism Act 2010–2012 http://services.parliament.uk/bills/2010-12/localism/stages.html	UK Government (2013) The Information Economy https://www.gov.uk/transformation

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	Rural/Community development	Digital
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Scotland	United Kingdom – Rural Development Programme (Regional) – Scotland (http://www.gov.scot/Resource/0047/00477381.pdf) The New Common Agricultural Policy in Scotland: The Scottish Rural Development Guide http://www.gov.scot/Resource/0045/00459550.pdf Scottish HM Government (2011) Our Rural Future: The Scottish Government's response to the Speak Up for Rural Scotland consultation http://www.gov.scot/Resource/Doc/344246/0114504.pdf European Network for Rural Development (2012) Scotland–United Kingdom Progress Report http://enrd.ec.europa.eu/app_templates/enrd_assets/pdf/RDP-information-sheets/D_Infosheet_UK_SCOTLAND.pdf Scottish Government (2012) LEADER- Links Between Activities Developing the Rural Economy http://www.scotland.gov.uk/Topics/farmingrural/SRDP/LEADER Scottish Government (2012) National Performance Framework 2: Monitoring Report http://www.scotland.gov.uk/Publications/2012/03/3099 Scottish Government (2007) Strategic Objectives http://www.scotland.gov.uk/About/Performance/scotPerforms/objectives	Scottish HM Government (2011) Scotland's Digital Future: A Strategy for Scotland http://www.scotland.gov.uk/Resource/Doc/981/0114237.pdf http://www.gov.scot/Topics/Economy/digital/Digital-Participation http://www.digitalscotland.org/about-digital-scotland/ Scotland's Digital Participation Charter http://digital.scvo.org.uk/charter/ Digital Participation: A National Framework for Local Action [PDF, 1511.6 kb: 23 Apr 2014] http://www.gov.scot/Publications/2014/04/6821/downloads" "Title: Digital Scotland 2020: Achieving World-Class digital infrastructure: a final report to the Scottish Government [PDF, 3340.0 kb: 21 Feb 2013] http://www.gov.scot/Publications/2013/02/9054/downloads" Ofcom (2012) Communications Market Report: Scotland Scottish Government (2012) Scotland's Digital Future: Infrastructure Action Plan
Northern Ireland	"United Kingdom – Rural Development Programme (Regional) – Northern Ireland https://www.dardni.gov.uk/sites/default/files/publications/dard/2014-2020-rdp-version-1.2.pdf" DARD (2007) Northern Ireland Rural Development Programme 2007–2013 http://www.dardni.gov.uk/index/publications/pubs-dard-rural-development/nirdp_2007_-_2013_-_summary_of_measures_in_the_programme.htm DARD (2012) Rural White Paper Action Plan http://www.dardni.gov.uk/rural_white_paper_action_plan.pdf European Network for Rural Development (2012) Northern Ireland–United Kingdom Progress Report http://enrd.ec.europa.eu/app_templates/enrd_assets/pdf/RDP-information-sheets/D_Infosheet_UK_NORTHERN_IRELAND.pdf	http://nibroadband.com/the-big-build http://www.broadbandni.com/ http://www.broadbandni.com/increased-broadband-rural-areas/ http://www.ispreview.co.uk/index.php/2015/03/northern-ireland-secures-another-gbp17m-to-expand-fibre-broadband.html http://www.agendani.com/ni-direct-a-digital-transformation-journey/ "Northern-Ireland-Annual-Report-2012-13_External.pdf CITIZENS ONLINE Get IT Together Mid Programme Report for Northern Ireland Anita Kelly July 2013 http://www.cih.org/news-article/display/vpathDCR/templatedata/cih/news-article/data/NI/Top_tips_for_digital_inclusion_in_Northern_Ireland Ofcom (2012) Communications Market Report: Northern Ireland Northern Ireland Executive (2011) A Telecommunications Action Plan for Northern Ireland 2011–2015 http://www.detini.gov.uk/tpu_action_plan_2011-2015_-_branded_consultation_document_-_final.pdf
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