

09.01.2019

CORA Digital Hub Guide

**An operational guide to setting up and running a
Digital Hub**

University of Lincoln
Lincoln International Business School
Brayford Pool, Lincoln
Lincolnshire, United Kingdom
LN6 7TS

Fiona Ashmore and Liz Price
Tel. +44 (0)1522 835626
fashmore@lincoln.ac.uk / lprice@lincoln.ac.uk

Contents

1	Introduction	3
2	What is a Digital Hub?	3
2.1	Creating a definition	4
2.2	Types of Digital Hubs	5
2.2.1	<i>Introduction</i>	5
2.2.2	<i>Public Internet Access Points</i>	8
2.2.3	<i>Incubator / co-working spaces</i>	9
2.2.4	<i>Advice, training and support spaces</i>	10
2.2.5	<i>Sector-specific</i>	10
2.2.6	<i>Exclusions</i>	11
2.2.7	<i>Summary</i>	11
2.3	What about the ‘rural’?	12
3	Why build a Digital Hub?	15
3.1	Social and community impact.....	16
3.2	Economic and business impact.....	17
3.3	Skill development opportunities.....	19
3.4	Summary.....	20
4	From concept to practice: Identifying the building blocks of a Digital Hub	20
4.1	What conditions are necessary?	24
4.1.1	<i>Committed initiators or leaders</i>	25
4.1.2	<i>Financial, technical and human resource</i>	26
4.2	Operations and long-term sustainability	29
5	Impact Analysis of existing hubs	30

5.1	Introduction	30
5.2	Lincolnshire Technology Hubs, United Kingdom	31
5.3	The Ski Locker, France	33
5.4	Digiclare, Ireland	35
6	Summary	36
	References	38
	Appendix 1 Methodology of Digital Hub Surveys.....	41

FIGURES

<i>Figure 1</i>	<i>Types of Digital Hub</i>	<i>6</i>
<i>Figure 2</i>	<i>Identified Common Hub Functions, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree.....</i>	<i>7</i>
<i>Figure 3</i>	<i>Typology of rural digital hubs</i>	<i>12</i>
<i>Figure 4</i>	<i>Social and Community Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree.....</i>	<i>16</i>
<i>Figure 5</i>	<i>Economic and Business Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree</i>	<i>18</i>
<i>Figure 6</i>	<i>Skill Development Opportunities in a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree.....</i>	<i>19</i>
<i>Figure 7</i>	<i>Building blocks of a Digital Hub</i>	<i>21</i>
<i>Figure 8</i>	<i>Identified Common Hub Challenges, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree</i>	<i>23</i>
<i>Figure 9</i>	<i>Hub development stakeholders</i>	<i>26</i>
<i>Figure 10</i>	<i>Financial stakeholders</i>	<i>28</i>
<i>Figure 11</i>	<i>Hub contribution to community resilience.....</i>	<i>30</i>
<i>Figure 12</i>	<i>Types of rural digital hubs (from Section 2).....</i>	<i>31</i>

1 Introduction

The CORA Digital Hub Guide provides an overview of Digital Hubs and their potential place in enhancing the rural digital landscape. We hope by using this Guide you gain a better understanding of what a Digital Hub is, how you may benefit from having one in your area, and the building blocks of setting up and running a hub. Throughout this Guide we have provided examples of hubs that are currently in operation, and we hope that you will also look at those and take inspiration from the range of hub networks that are running worldwide.

The Guide will first review what is a ‘Digital Hub?’: setting out the types of hubs and how we may consider them in the rural context (Section 2). We then outline the benefits of a hub and potential impacts it can have (Section 3), before providing an ‘operational’ section to discuss taking the idea of a hub and turning it into reality (Section 4). Finally, we provide an in-depth look at three different hubs operating in Europe (Section 5), to give you ideas and motivation as you embark on your hub development journey.

2 What is a Digital Hub?

There are many ways to define a digital hub. Literature on hubs has shown that it is a rather disparate concept, and tends to be reliant on whether it is a business-focused piece of research or community-based, or technology-based. The European Commission, for example, has a policy to support the creation and proliferation of an enhanced network of Digital Innovation Hubs (DIHs), specifically designed to support business and industry ventures (Technologies and Systems for Digitising Industry (Unit A.2), 2018). In the UK, ‘catapult centres’ are being pursued, to enhance collaboration between businesses, scientists and engineers on late-stage research and development, providing access to technical capabilities, equipment and other resources – ideally leading to new ideas, new products and services to generate economic growth (Innovate UK, 2018).

Alongside this range of background material and initiatives being pursued, are many popular, but inconsistently applied labels such as “hubs”, “labs”, “makerspaces”, “co-working spaces”, and “networked incubators”, which are used interchangeably, but do not represent meaningful analytical types (Dovey et al., 2016). In discussion at the CORA Annual Conference, participants identified more theoretical terms that reflect hubs including a ‘spoke’, a ‘central point’ or ‘connecting point’ and then in the digital context, could include fablabs, virtual reality centres, clusters and libraries.



Whatever term is used, and our participants at the CORA Annual Conference identified that

the term used matters less than what you aim to do (and the term should suit your area and local language to give as much clarity as possible) we argue (alongside Toivonen and Friederici, 2015) that the creation of a ‘typology’ of hubs is vital for academic research, and necessary for policymakers, investors, and founders to make genuinely informed decisions within this potential area for digital innovation. As Toivonen and Friederici (2015) have stated “It is surely crucial that these groups pick the right organizational instrument as they seek to advance entrepreneurship and innovation for public good” (n.p). So whilst the name may change, there are different features of ‘hubs’ (the term which we continue to use to represent all these potential names for ease) that can be clustered into types, and providing this typology supports hub development planning.

However, that does not mean that neat boxes exist for each hub type, nor that they should be separated with rigid definitions. In fact, many of the examples we will provide throughout this Guide represent a combination of types. This Guide and our research seek to inform strands of hub development and we hope that, by using our ‘building blocks’ of a hub, you can shape the hub that fits your local area and ambitions.

To help us better understand Digital Hubs for the CORA project, we conducted two surveys across the North Sea Region and surrounding countries which asked questions about the digital nature of their rural areas, and also targeted questions about ‘hubs’. Participants in the surveys were made up of CORA project partners, and also identified known hubs across Europe, found through internet searching. We also ran a workshop session as part of the CORA Annual Conference in Kiel, Germany in November 2018 where participants took part in a discussion about hubs in a roundtable format, identifying what factors are influential in planning and running successful hubs. This formed a part of the larger conference day and acted as a small focus group. The participants at the Conference were made up of stakeholders in the telecommunications and digital fields, as well as CORA project partners. We used the summation of these results to inform our Digital Hub Guide, along with existing literature on the topic, and they will all be referenced throughout¹.

2.1 Creating a definition

Logically, it followed that in order for us to discuss rural digital hubs, we required some sort of definition. In the context of the CORA project, we were pursuing physical spaces, and therefore one frame of reference for our definition was that it be a physical space (not virtual), although it may have virtual services that go along with the space.

We then considered the context of rural, as a key focus of the CORA project, and considered existing definitions within the existing hub literature. Our research was also informed by early informal discussions with local digital hubs located in Lincoln, UK. This helped us set the following definition for a rural digital hub.

¹ For a brief methodology of the surveys and the workshop session at the Conference, please see Appendix 1.

Our definition:

“A physical space, which can be fixed or mobile, focused on digital connectivity, digital skills and/or emergent technologies. The space will be available to either the public, businesses, or local authorities (or a combination) with the aim of enhancing the local digital environment”

This is necessarily broad. A Hub can target both improving the level of digital awareness among different local target groups and/or empower stakeholders to tackle digital competency gaps. Having a definition that gives us scope for the largest possible range of types allows us to remain open to new and innovative options. It also acknowledges the need to be broader in terms of rural spaces as the presence of superfast broadband may be limited, and so sometimes simply making a broadband connection available is a current and viable hub (whereas in urban areas, this would be less necessary).



2.2 Types of Digital Hubs

2.2.1 Introduction

In understanding and creating a ‘typology’ of hubs, we reflected on the literature available, and also on the responses to our surveys on the general aims and objectives of rural digital hubs that are running across Europe. Initially, we asked a small range of hubs to identify what ‘type’ of hub they were, which gave us a picture of the needs of those in rural areas, shown in Figure 1.

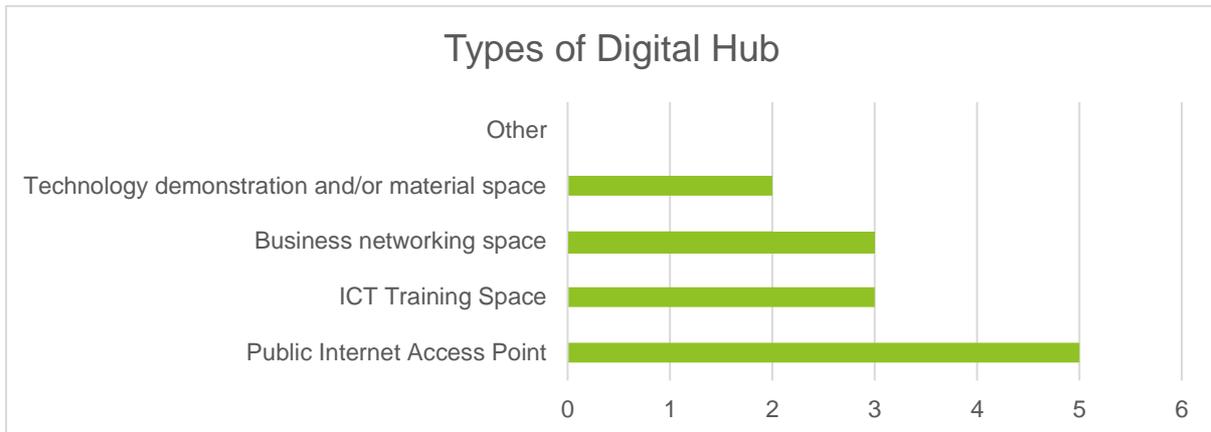


Figure 1 Types of Digital Hub²

Of the small set of participants, providing a public internet access point was most common, followed by both Information and Communications Technology (ICT) training and business networking spaces, with technology demonstration or material production spaces least common. This gave us a starting point to then ask more detailed questions about the functions of the hub and consider how they were also being presented in literature.

Figure 2 demonstrates the wider range of operational functions of digital rural hubs and their commonalities across Europe, taken from our targeted Digital Hub Survey.

² Data taken from Survey 1: Project Diagnostic Survey

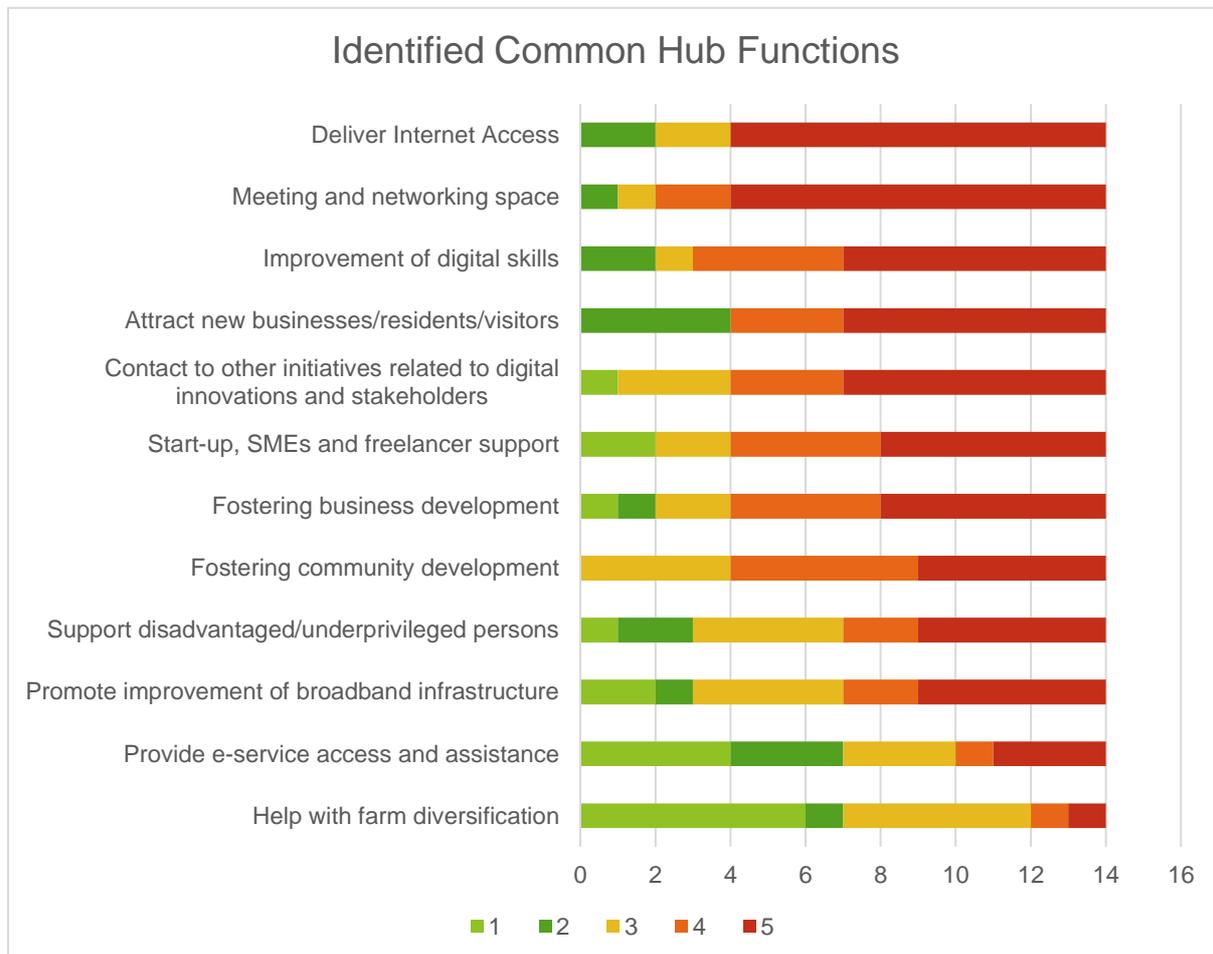


Figure 2 Identified Common Hub Functions, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree.³

The most common feature that hub respondents ‘totally agreed’ with was delivering internet access. We believe this to be an integral feature of all rural digital hubs, rather than a singular type of hub. It underpins all of the services and support that hubs can then provide, so it exists across all types. Similarly, common was the ability for the hub to provide meeting and networking space, where all but 2 respondents mostly agreed (4) or totally agreed (5). This feature demonstrated that a lot of hub ‘types’ include the opportunity to engage with other businesses, like-minded individuals and/or experts that could provide advice or training.

Broadly, the majority of hub respondents mostly or totally agreed that they sought to improve digital skills. The following functions, including attracting new businesses/residents and visitors, start-up, SMEs and freelancer support, fostering business and community development were also similarly positive. Less positively responded to was providing support for disadvantaged/underprivileged persons.

³ Data taken from Survey 2: Digital Hub Survey



Finally, providing e-service access and assistance was even less common, with the majority selecting neither agree nor disagree (3), slightly agree (2) or disagree (1).

When it came to a sector-specific question focusing on the agricultural sector (a common rural feature), we found that just under half did not see the hub as providing help with farm diversification, and of the remaining respondents, the majority remained neutral. Only 2 of the respondents mostly or totally agreed. This demonstrates that, whilst digital hubs are present in rural areas, the hubs are not focusing on the agricultural industry particularly. Instead they retain a ‘broad’ remit and, rather than focusing on one sector, they perform a wider economic and community development function in a rural setting.

Using this information, we can see that having internet and meeting space are integral to almost all hub types. However, things get more varied when it comes to what sort of support and services are provided. From viewing the range of aims set out by the hubs in the survey, along with a review of the literature, we have come up with the following types that broadly describe the range of rural digital hubs: Public Internet Access Points (2.2.2), Incubator/co-working spaces (2.2.3); Advice, training and support spaces (2.2.4) and Sector-specific spaces (2.2.5).

2.2.2 Public Internet Access Points



A Public Internet Access Point (or PIAP) is a type of hub where the principal aim is to make high speed internet access available. However, they could also offer training or workshops on ICT, or perhaps target a specific population of individuals. They are most commonly co-located with other services in public buildings i.e. city halls or a library (Wyatt, Mcquire, & Butt, 2017). Typically, they are municipally-run and managed with a local scale.

As superfast broadband is becoming more ubiquitous, PIAPs no longer exist in isolation – often they are attached to other hub ‘types’ and their principal aim is expanded. Good broadband access is often considered a base requirement for all digital hubs (see Section 2.2.1 and 4.1). However, as rural areas are commonly still ‘left behind’ with regards to superfast broadband access (see Ashmore, Farrington, & Skerratt, 2017; Philip et al., 2017), we consider it relevant to leave PIAPs in as a unique type for rural areas (and it was commonly identified as a key function for the hub) but acknowledge its relationship to the other hub types listed below. Importantly, in the CORA Annual Conference, access to superfast

“With digital hubs in areas without good internet coverage, everybody will be able to access the internet and digital services”

Survey 1: Project Diagnostic
Survey respondent

broadband infrastructure continued to be a challenge for the rural areas that participants represented, and it was believed that this type remains relevant in the rural context.

EXAMPLE OF A PIAP

The Online Centres Network, United Kingdom

Full details available at <https://www.onlinecentresnetwork.org/ournetwork>.

Online Centres are a network of organisations in the UK that work to get people more familiar with digital technology to support inclusion, the access of essential services and to help them take advantage of opportunities made possible through internet access. Each Centre is different, and they can be in libraries, community centres, but also pubs and cafes. The central point is that they provide Internet access. They may also run outreach sessions to engage vulnerable people with Internet technology.

2.2.3 Incubator / co-working spaces



One of the most common hub types, an incubator/co-working space provides spaces for meeting, networking and collaborating. Importantly, they are about offering the opportunity for businesses to work but also exchange knowledge and develop new ideas (CORA Annual Conference participants) It may include meeting rooms with high speed internet access and/or smart technologies (Gandini, 2016). Because of their nature as an incubator/work space, they are often focused

EXAMPLES OF INCUBATORS / CO-WORKING SPACES

Impact Hub Inverness, Scotland

Full details available at <http://inverness.impacthub.net/>

The Impact Hub Inverness is a flexible working space intending to bring together lone workers, combat social isolation and encourage social entrepreneurship. Desks are available to rent (for flexible periods of time) and they also offer networking events. They take their inspiration from the network of 'Impact Hubs' worldwide. They consider themselves 'part innovation lab, part business incubator, and part community centre'.

Co-Creative Lincoln, England

Full details available at <https://www.thecocreative.co.uk/our-story/>

The Co-Creative Lincoln was put together as a co-working environment designed to allow users the chance to work in a social/entrepreneur environment. Desks are available to rent (for flexible periods of time, as with the Impact Hub), and the intention is to create a social, flexible workspace. Superfast broadband is a key feature provided to all users.

on businesses, start-ups and other economic ventures, and are often co-shared with an existing business (to provide either one or both of the space and service) and can have local government support. They are often more regional in scale, drawing potential users from a wider geographical area than a PIAP.

2.2.4 Advice, training and support spaces



Advice, training and support hub spaces are about providing businesses and/or the public or local authorities with digital advice, training and support (Willis, 2015; Wyatt et al., 2017). They tend to focus more on general digital skill development, rather than business incubation or start-up collaboration and emergent technology skills. Typically, they are municipally-run and managed, and are often be run as part of a PIAP, but can also be co-located with business, or another local government support/initiative. Many examples of this sort of hub was located in spaces such as libraries or city halls (CORA Annual Conference participants) Often their scale is wider than a PIAP and draws users more regionally.

EXAMPLE OF AN ADVICE, TRAINING AND SUPPORT SPACE

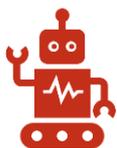
Digital Innovation Hubs, part of the Toronto Public Library System, Canada.

Full details available at <https://www.torontopubliclibrary.ca/using-the-library/computer-services/innovation-spaces/>

The Digital Innovation Hubs are in 8 of the public library branches throughout the city of Toronto and offer a suite of programmes and classes to teach specific software and technology skills to library patrons, such as classes on Adobe Photoshop and other programmes. These are offered as bookable sessions, or as pop-up learning classes.

The Hubs also bring elements of both sector-specific spaces and incubator spaces by providing fabrication equipment to users, and an ‘innovator in residence programme’.

2.2.5 Sector-specific



We call this hub type ‘sector-specific’ but they may offer their services to a range of sectors. However, their focus is on providing access to a specific range of technology that can be experimented with by users in the sector context (i.e. creative industries, which is a common industry that uses the hub format). This could include access to 3D printers or other emergent technology equipment and demonstrations (Seo-Zindy & Heeks, 2017). They are most likely co-shared with business (space/service) and can have local government support depending on their offering. Like other hub types, their scale is regional.

EXAMPLES OF SECTOR-SPECIFIC HUB SPACES

Leicester Hackspace, England

Full details available at <http://leicesterhackspace.org.uk/>

Leicester Hackspace is considered a venue for the makers of digital, electronic, mechanical and other creative projects. This focus on creative industries means they are set up to be a community of workers and provide a space to pursue projects, share techniques and concepts, and learn new skills. Equipment such as computers, 3D printers, 3D miller/scanners and power tools are available. Individuals can access the space for a small monthly fee and they run ‘taster’ sessions each week. They also take on an element of an ‘advice, training and support’ space by running courses and events open to the public.

The FuseBox, Brighton, England

Full details available at <https://www.thefuseboxbrighton.com/>

The Fuse Box is a space for digital entrepreneurs, tech visionaries and creative technologists. They provide space, facilities, opportunities and expertise to support innovators to learn by ‘doing’. They do offer some events and activities that are public, but most users apply to be a resident - you can apply as an individual, a start-up company, and/or those developing new digital products or services as part of an existing business. As a resident you gain access to the whole lab space, desks, meeting rooms and a 5G testbed, amongst other features.

2.2.6 Exclusions

We have purposefully excluded Wi-Fi hot spots, although we acknowledge that in rural areas, Wi-Fi hotspots can be a useful tool to support tourism and community cohesion (Espinoza & Reed, 2018; Pelet JÉ.; Barton M.; Chapuis C., 2019), and this was also highlighted by our CORA Annual Conference participants. The reason we have excluded them is twofold: first, we have specifically focused on physical hub spaces, and wi-fi hotspots do not meet that criteria, and second, they do not *purposefully* create any added value in the community as they focus on ‘transient’ access.

2.2.7 Summary

To summarise: we identify 4 key types of rural digital hubs. Figure 3 outlines the types and their key features.

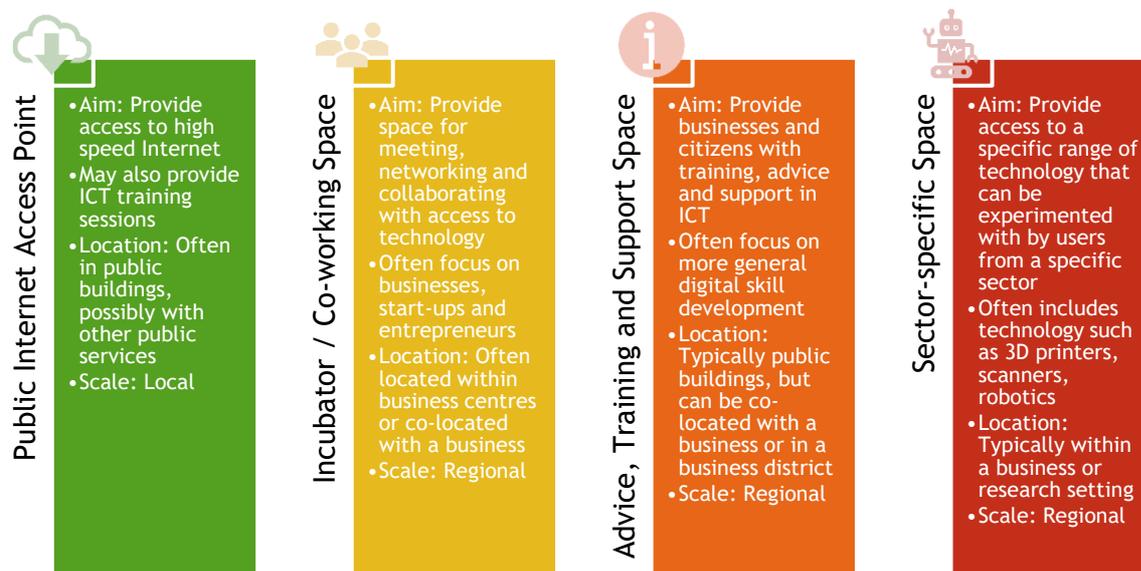


Figure 3 Typology of rural digital hubs

Whilst this provides a useful distinction between different hub types, we acknowledge that hubs do not actually need to exist in isolation from each other, only offering services that align with their main ‘type’. They can encompass aspects of other types if it suits the overall aim, and do not need to separate out businesses from residents (as discussed with CORA Annual Conference participants) – again the aim will help dictate with which features you may identify and focus on.

2.3 What about the ‘rural’?

We now have our understanding of hubs, but how do they fit in the ‘rural’? Many official urban-rural classifications are in use across Europe, providing an operational understanding of what ‘rural’ is – for example taking into account population density, population size and proximity to larger centres (Pateman, 2010). Critically, these rural/urban definitions, or lines on a map, are important as they shape public policy and market intervention, even if the social perceptions of living in such locations differ from the assigned classification.

In many ways, these definitions are a method to operationalise a more theoretical understanding of rural and rurality. In the academic literature, ‘rural’ has been extensively investigated, and as a consequence, is considered a mobile and malleable term (Cloke & Thrift, 1994). It can be broadly conceptualised by drawing on functional attributes, economic approaches and social representations. Initially, rural was clearly identified due to the lack of features or conversely the presence of other features (e.g. agricultural land use) in a space – those functional attributes.



As research progressed, ‘rural change’ was increasingly linked to national and international economy (Cloke & Thrift, 1994). This phase is again linked to the operational definitions, emphasising functional attributes, but brought in concepts around economic development.

Finally, research acknowledged that, in reality, there is

an inability to identify a single, unified ‘rural’ space (Cloke & Thrift, 1994). Rurality should be seen as a social construct, something that can mean different things to different people or spaces (Cloke & Thrift, 1994). ‘Rural’ is therefore now considered a spectrum of a range of attributes, economies and social understandings, rather than existing as a functional dichotomy with urban (Woods, 2005).

While the practical, operational, definitions used by governmental bodies are critical as they inform associated policy measures, a feature which is particularly relevant for technology hub development and support, these definitions are inherently lacking this non-tangible understanding of ‘rural’ developed in the academic literature. As Saleminck & Bosworth (2014) summarise, the rural “is a diverse spatial entity with many different social groups and stakeholders...the diverse set of elements can cohere around a common problem, but are just as easily in conflict...” (p. 6). Within rural development practice, for example, in this case community broadband development, these authors highlight the need for interplay between local, rural actors, and exogenous, external actors and networks, a process that is termed neo-endogenous development. Similarly, in more general rural development research, ‘bottom-up’, place-based development is identified as important, but can be undermined by national or international policies. This again highlights the relevance for both local and extra-local actors and resources for rural development, what has been termed ‘networked’ rural development (Shucksmith, 2012).

With this understanding of rural in place, it is important to then consider the technological implications of living rurally. Rural communities are highly susceptible to socio-economic and environmental shifts due to factors such as low population density, low density or single-industry markets, limited public service provision, and physical distance to markets, governance institutions, information, labour and other resources, all of which weakens the ability for individuals and communities to engage with wider economy and society. Digital connectivity and engagement in general is positioned to ameliorate the friction of distance, allowing such individuals and communities to engage instantaneously online with physically distant services (Townsend, Sathiaselan, Fairhurst, & Wallace, 2013).

In terms of the potential influence on rural individuals or households, digital engagement can contribute to social connections, education and government services accessibility, and provide alternative means of access for ageing populations and remote households, which would otherwise be at a disadvantage. Businesses can connect for ease of everyday activities (i.e. limiting paper transactions, email, ordering supplies, and advertising) as well as creating additional avenues for growth (i.e. operating an online marketplace, creating new products) and generating additional collaborations (Department for Culture, Media and Sport, 2010). This is also thought to result in cost saving for the businesses and/or individuals through activities such as online accounting or being able to source the most affordable supplies or personal goods through online means (Openreach, 2014). At the community level, digital connectivity and engagement can lead to shared activities such as engaging in, or formulating, community-wide protests, or to promote community events/meetings of civic organisation (e.g. for or against wind farms, school closures). Broadband access can also enable dynamic citizenship engagement (such as actively trying to retain public services) (Peronard & Just, 2011). This is not an exhaustive outline of what digital engagement can lead to, but it highlights the potential for both individuals (households and businesses) and communities.



We should bear all this in mind when discussing our rural digital hubs. First, 'rural' can mean a physically, remote place, but we will not discount the spaces that may not seem 'rural' from an operational perspective. Our focus remains simply on the overarching idea of rural digital hubs, although we have drawn on examples from urban spaces to help define and create our typology. In terms of academic literature around digital engagement, we know it can alleviate the challenges of living rurally. Looking specifically at 'hubs', much previous work has focused on the type, rather than place it is located. For example, research has focused on co-working spaces and incubation spaces (Brown, 2017; Gandini, 2016), as innovation spaces in specific economic development contexts (Friederici, 2017; Jiménez & Zheng, 2018), as spaces for emergent technology demonstration (Seo-Zindy & Heeks, 2017) or as public internet access points for broadband (Wyatt et al., 2017).

As an unintended consequence, much of this research therefore looks at the 'urban' digital hub space, leaving 'rural' external to this debate – this could be true for many reasons such as closeness to industry, proximity to a large potential user group, relative ease in finding a suitable space to host a hub. However, that means rural areas, already at a disadvantage digitally due to lack of commercial viability for the newest iteration of broadband and digital services (Simpson, 2010; Sutherland, 2016) are without a clear understanding of this potential support, and therefore our focus is on rural, however complex that concept may be.

3 Why build a Digital Hub?

In addition to the broad benefits of digital engagement for rural areas, outlined in Section 2.3, digital hubs specifically have been thought of as potential drivers for positive change in rural areas. The European Commission identified that ‘around 60% of large industries and more than 90% of SMEs (small and medium-sized enterprises) feel lagging behind in digital innovation’ (Technologies and Systems for Digitising Industry (Unit A.2), 2018).



Recent work looking at rural technology hubs identified that “*The access to both technology and experts at the Technology Hubs...was clearly valued by hub users, who were the most likely out of all beneficiaries...to report increased use of ICT within their business. They hubs therefore demonstrated their value as a space where beneficiaries could be exposed to new technology and new ideas*” (Price, Shutt, & Sellick, 2018, p. 532). Introducing a ‘Digital Hub’ could ensure that companies, from large to small, can maximise digital opportunities. Jiménez & Zheng (2018) looked at tech hubs in Africa, and identified that, as places for co-working, they can also provide community building advantages. Innovation and entrepreneurship, often a focus of a hub that has a business element to it, are considered crucial for poverty alleviation and economic growth, and therefore hubs that support such innovations are drivers for change.

Overall, the reasons for building digital hubs have been summarised well by Toivonen and Friederici (2015), when they identified the following (specifically in relation to hubs that have some focus on economic growth):

- Hubs build collaborative communities with entrepreneurial individuals at the center
- Hubs attract diverse members with heterogeneous knowledge
- Hubs localise global entrepreneurial culture
- Hubs facilitate creativity and collaboration in physical and digital space

As part of the Survey 2: Digital Hub Survey, a range of questions were asked about the impacts in relation to the Digital Hub across society, business and skill development and local civic engagement. The results paint a picture about some of the reasons for building a hub. We will look at the results in the following three sections, giving more detail on the potential impact of building a rural digital hub.

3.1 Social and community impact

We first asked a range of questions about how much the hub fosters a range of social and community impacts. The results are depicted in Figure 4.

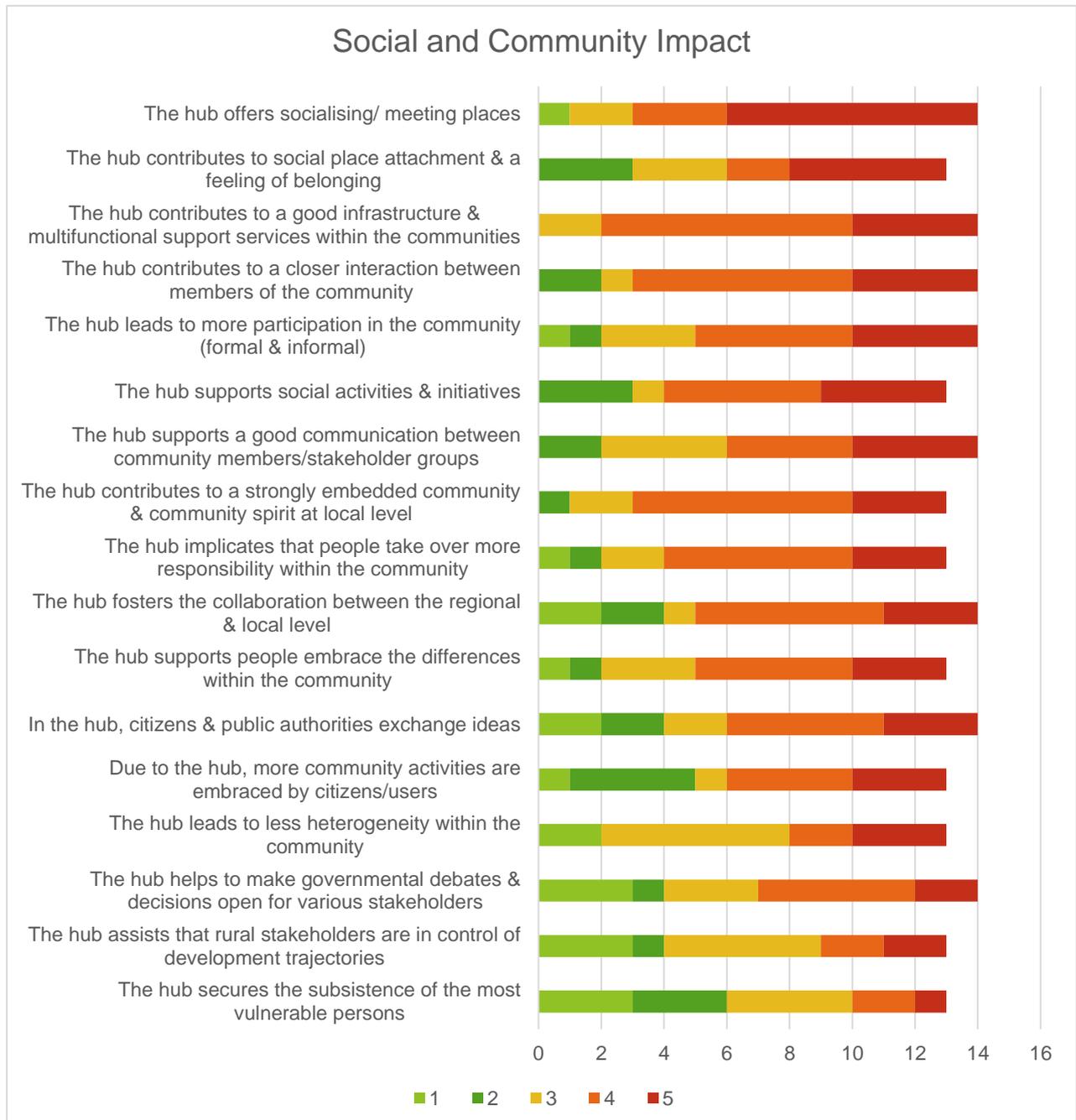


Figure 4 Social and Community Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree⁴

⁴ Data taken from Survey 2: Digital Hub Survey. Only 13 of the 14 respondents completed each question, with the final respondent providing answers to only a small range.

First, given that the majority of hub respondents identified that their hubs provide meeting space, it is unsurprising that most agreed that the hub offers socialising and meeting spaces. This idea of socialising is a part of all the hub types, catering to their range of users to interact not only with the experts/equipment in the hub, but with each other, to create a network and share ideas and techniques. From there, half of the respondents mostly or total agreed that the hub contributed to social place attachment and a feeling of belonging. This finding has also been identified in other European contexts, where they identified that hubs strengthened the local community (ENRD (European Network for Rural Development), 2017).

A majority of respondents believed the hub contributed to the infrastructure and multifunctional support services within their communities and increased the interaction between members of the community. Again, this is similar to other findings that showed improved partnerships (ENRD (European Network for Rural Development), 2017). The results remain mostly positive in terms of social and community benefits, including leading to more participation, supporting social activities, supporting good communication, embedding a community spirit, leading to collaboration and an increase in responsibility, helping others embrace difference.

However, it is less likely that hubs contribute to increase in community activities, improved heterogeneity in the community, help government debates and decision, development trajectories. Whilst ENRD (European Network for Rural Development), 2017 identified 'improving the image and identity and contribute to wider rural development/strategic vision' of the rural area, we did not see this strongly identified in our results. It is also less likely that the hub secures the subsistence of the most vulnerable persons in the community.

In sum, there are a lot of features of social and community enhancement that hubs can support and, depending on the focus and aim of a hub, it could support some more than others.

3.2 Economic and business impact

Secondly, we looked specifically at the impact attributed to economic or business-related themes.

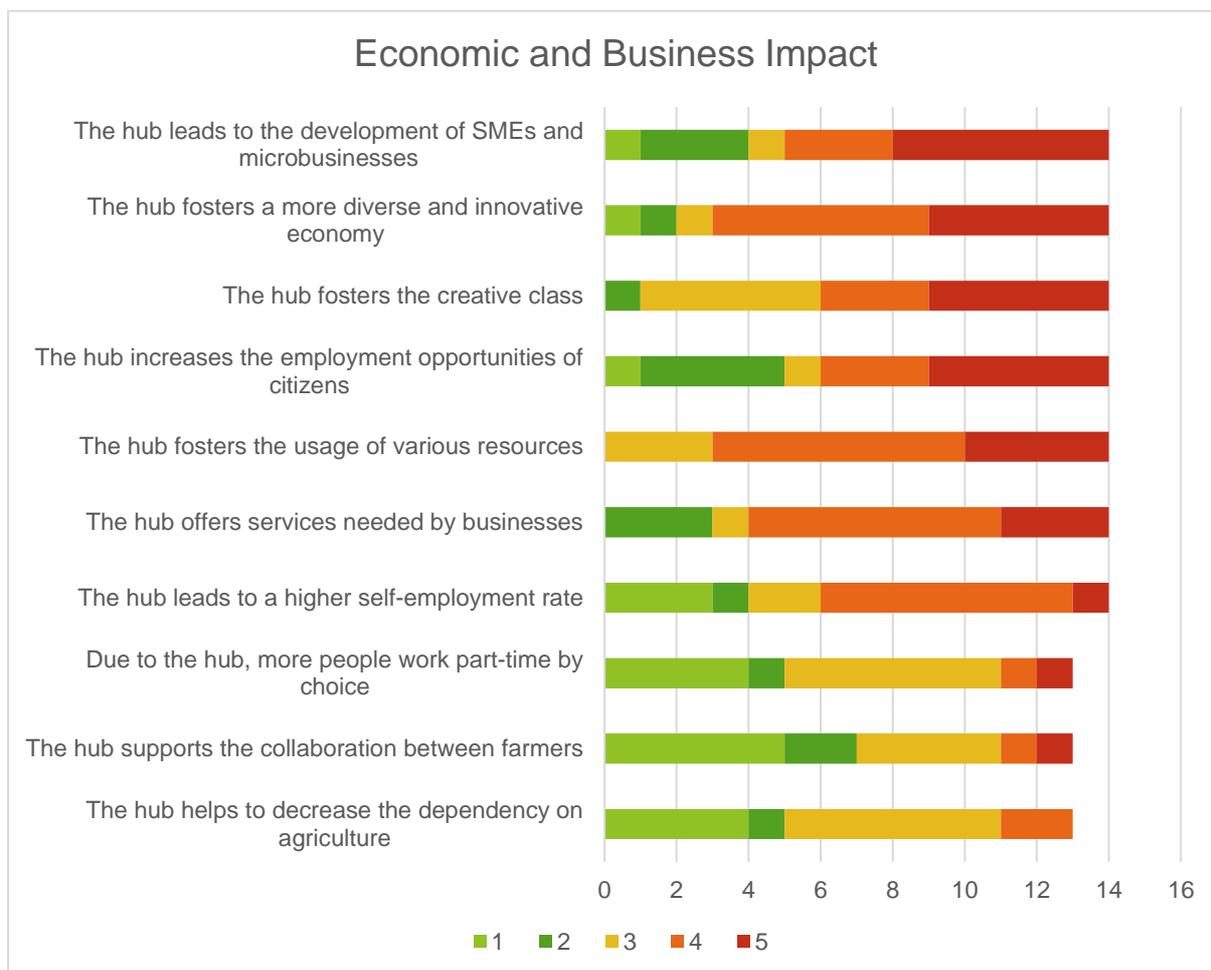


Figure 5 Economic and Business Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree ⁵

The economic and business themes were varied again in terms of impact, but we did see very positive responses for hubs supporting the development of SMEs and microbusinesses, fostering a more diverse and innovative economy, fostering the creative class (which is more sector specific in nature), increasing the employment opportunities of users, fostering better usage of resources, offering business services that are needed in the rural setting, and leading to a higher unemployment rate. Similarly, ENRD (European Network for Rural Development), 2017 also found that hubs could improve digital skills and capacity of rural businesses. However, for each of these benefits, there were some hubs that disagreed, and this is where the type of hub and overall aim will play a part – not all hubs are trying to foster the creative class for example. Some may be trying to do so, others may have identified it as an unintended impact, and others are not focusing on it at all.

Hubs were also less likely to contribute to increased part-time working. Finally, when asked

⁵ Data taken from Survey 2: Digital Hub survey. Only 13 of the 14 respondents completed each question, with the final respondent providing answers to only a small range.

specifically about the potential impact on the agricultural sector (again, a common rural feature), those hubs surveyed did not believe they provided much support for farmers to collaborate, or to decrease the dependency on agriculture as a sector. Again, this is a snapshot of a specific, commonly rural sector, but does not mean that there is not economic diversification happening elsewhere.

In summary, the results are varied, but hubs can support economic development, most specifically collaborative opportunities and increasing employment opportunities for users.

3.3 Skill development opportunities

Finally, these first two sections of results can then be supplemented by the potential for a digital hub to foster skills:

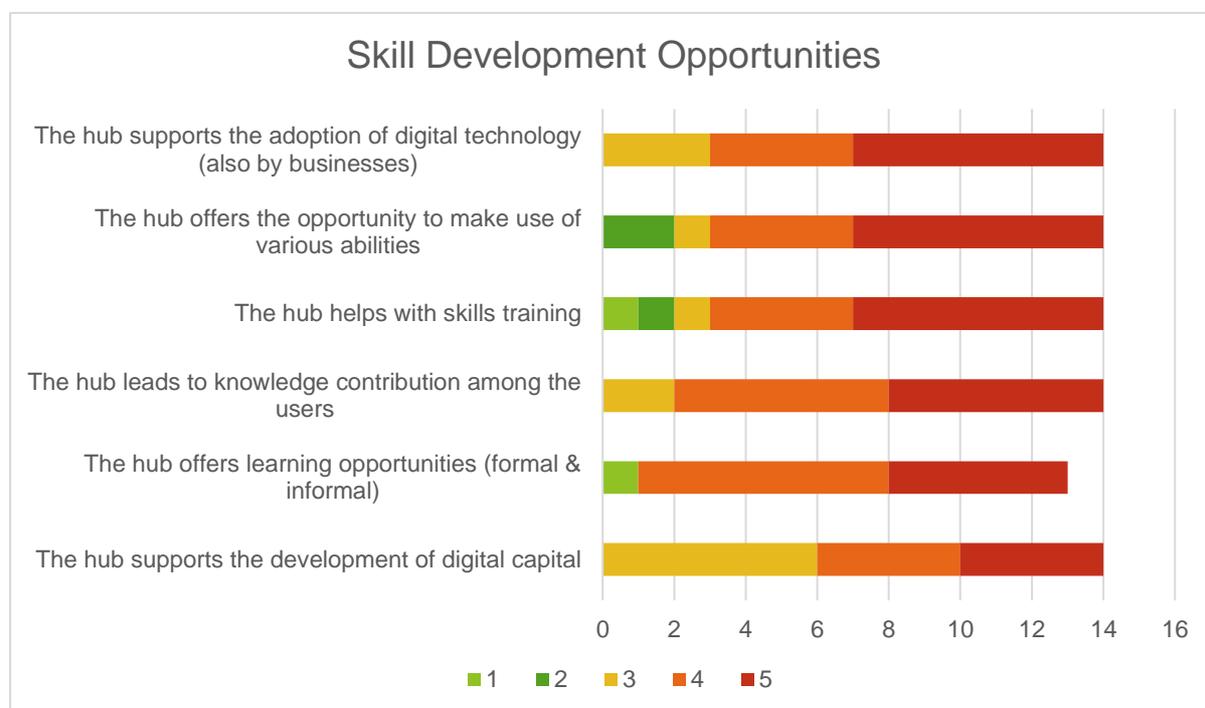


Figure 6 Skill Development Opportunities in a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree⁶

These results are the most positive, showing a clear link between the hub and the fostering of digital skills. In all cases, the majority of respondents agreed with the statements, showing hubs to effectively foster adoption of digital technology, make use of various abilities, help with skills training, knowledge contribution and collaboration, offer learning opportunities and support the development of digital capital. We also saw similar results in other projects, where ENRD (European Network for Rural Development), 2017 identified that hubs lead to improved digital skills and literacy of the wider community.

⁶ Data taken from Survey 2: Digital Hub Survey. Only 13 of the 14 respondents completed each question, with the final respondent providing answers to only a small range.

In sum, these results show that, at least anecdotally, there is evidence that hubs can be transformative, both within communities and for the local economy/local businesses.

3.4 Summary

To summarise: why should we build rural digital hubs and how can such hubs alter the local digital environment?

Hubs are spaces that can provide both social and economic transformation. Importantly, their impacts are often more long-term, rather than demonstrating short term gains in the regions they target (CORA Annual Conference participants). If we look back to the summary provided by Toivonen and Friederici (2015), we can actually broaden the potential benefits of a rural digital hub outside of just business-focused statements to the following based on our findings:

- Hubs can build collaborative communities that foster both social connectivity and economic change (at the individual and collective level)
- Hubs can attract diverse members with heterogeneous knowledge which can collaborate and exchange knowledge
- Hubs can localise global entrepreneurial culture, supporting the diversification of rural economies
- Hubs can facilitate creativity and collaboration in physical and digital space, giving individuals and businesses/entrepreneurs the chance to both learn and engage with digital technology for a range of skill levels



These first sections of the Guide have given us a holistic approach to a rural digital hub. We know what we mean by our hub (our definition), the potential 'types' that exist (with examples), how these fit into the rural context and the reasons for choosing a hub as an approach to support digitisation. The next sections of this Guide will look at turning this concept into practice.

4 From concept to practice: Identifying the building blocks of a Digital Hub

A critical starting point to considering a digital hub in practice is by breaking it down to its constituent parts and considering the many different strands of hub development and what features play a role. We have done this based on the literature around hubs, and also by looking at hubs in reality.

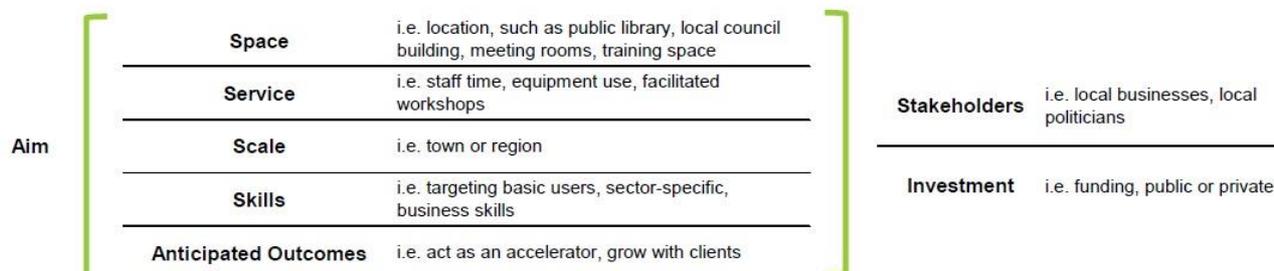


Figure 7 Building blocks of a Digital Hub

Broadly, you can start with an Aim. Is the hub for a specific audience or target area? For example, is it targeting deprived areas to encourage economic growth and stability, or those that have populations that are less digitally engaged? Is it to do something in particular with regards to technology, such as increase access to superfast internet in a region? Or is it to encourage business innovation through the introduction of technology services? You should become familiar with the needs and demands of your area to identify an effective approach and what the aim should be – this could take the form of a feasibility study. Consider also undertaking market research in this early stage to identify potential hubs that already exist that you could look to replicate in your area if they have similar aims (also identified by the CORA Annual Conference participants). Undertaking market research in the area you hope to reach was also identified as a key part of hub development through the CORA Annual Conference workshop. Participants identified the following statements as necessary when considering building a hub, which underpins the importance of conducting some form of market research initially:

- *“Get the perspective of the people you want to reach – learn and know your society”*
- *“Bring the people what they want and provide that – otherwise you will just be trying to shove something down their throats and they will choke”*
- *“Spend time learning what is wanted”*

Options such as running workshops, community events, leading information campaigns and getting key figures involved to get as much feedback as possible were identified as good methods to get this information and this will help identify your aim, and the further blocks described below. Additionally, the CORA Annual Conference participants, following on from this, identified that whilst we must speak with our regions before fully settling on an approach, it is important to *show* the opportunities and benefits of digital, to expand the knowledge of the area, and also to push a little to get people to consider new opportunities that simply were not thought of before.

Settling on the Aim will lead into the 5 blocks that help shape your hub:

- Space – As part of Survey 1: Project Diagnostic Survey, we found that the hubs were located in a range of spaces, including local libraries, City Hall buildings, local schools/higher education institutions, local businesses and office communities. Consider what location would best service your area/target audience? Is it to be public, have a mixture of room sizes, or just one room? Our CORA Annual Conference participants highlighted this block, stating, “*Find the right place where you can reach people*”.
- Service – what will you provide in your space to achieve your aim? Do you need advisers? Technical support staff or volunteers? Will you offer group sessions such as workshops?
- Scale – How big do you need to go to achieve your aim? Given that we are focusing on rural areas, how many potential users exist within a reasonable distance to your ideal location? What is your potential demand?
- Skills – are you targeting all users, some users? A specific group, which will mean you need to have certain advisers on staff? Again, being based in a rural area can change this depending on your potential user base.
- Anticipated outcomes – do you intend to remain static as a hub, offering the same service over time? Or will you evaluate at specific points and ‘grow’ with your clients/users? This has not been addressed in existing studies in detail but knowing the growth path of the hub itself can help further streamline your ideas and ambitions.

“We try to spread our work to attract all people, let people know what we do and what can we do in order to help them”

Survey 2: Digital Hub Survey respondent

Once you have this picture you should be able to identify your most relevant stakeholders to bring into the project and what sort of investment you need to achieve your goals.

Importantly, this is an **iterative** process. “...this process is the key to unlocking the lessons that hubs have to offer” (Dovey et al., 2016, p. 9). You may have to re-address your Aim half-way through based on what the other ‘blocks’ look like. For example, should it become clear that the most appropriate space is not available to you, you may be required to adjust your target audience or focus. Or, it might lead you to identify that your first investment priority is to achieve enough funding to create your ideal space. Similarly, if investment is difficult to source, you may go back and adjust your space or service that you will provide. Although we call these ‘building blocks’, they are not fixed, and can be viewed at any stage in the process to suit the reality of a future hub. Importantly, sometimes ‘soft’ infrastructure, such as the people involved can help overcome ‘hard infrastructure’ barriers, like the lack of appropriate space (Dovey et al., 2016).

It is also relevant to consider challenges to hubs and what, once operating, could become a challenge. We asked existing rural digital hubs what the most common challenges are, and this is what they said:

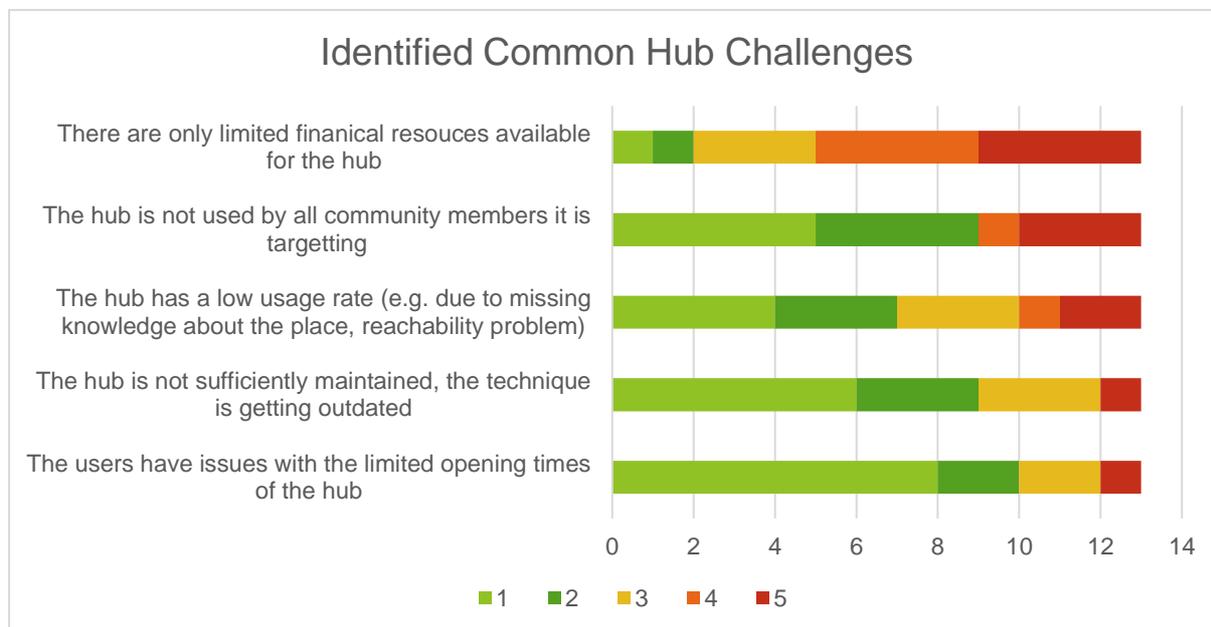


Figure 8 Identified Common Hub Challenges, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree⁷

Most significantly, hubs identified that limited financial resources were the most relevant challenge, followed by the hub not being used by all community members it is targeting. Key actions such as marketing using various methods were important to get the hub used by more people and diversifying the scope of activities offered were identified as potential solutions to such challenges. The CORA Annual Conference participants continued with this theme and identified that funding is a critical issue, with local politicians often not engaging because hubs have long-term outcomes with no short-term political gains that they can maximise.

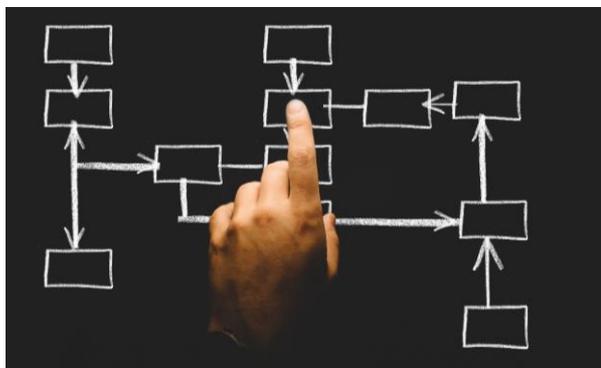
There was little concern with regard to the hub or the hub equipment begin maintained or issues to do with opening times, although those remained present in some cases.

⁷ Data taken from Survey 2: Digital Hub Survey. Only 13 of the 14 survey respondents completed this question.

4.1 What conditions are necessary?

Beyond the conceptual 'blocks' that you use to design your digital hub, there are some additional clear conditions that are necessary to build a hub:

- A stable Internet connection that suits the aim of the hub is required. As we are talking about digital hubs where there is some element of technology being used or fabricated, we assume this to be at least superfast broadband.



This is explicitly clear when we surveyed rural hubs, with 'Internet Access' identified as one of the most common functions (see Section 2.2.1). Similarly, in other research, improved access to broadband is a common condition required to set up a rural digital hub (ENRD (European Network for Rural Development), 2017). Our CORA Annual Conference participants strongly identified broadband infrastructure as a key limiter to hub engagement – with the pace of technology change and the relative 'lagging behind' of rural areas in terms of broadband access (discussed in Section 2), the aim of the hub could be limited because of the broadband access available. It remains important to consider how the currently available infrastructure could limit the opportunities for your hub, and/or if you must reconsider the services you provide based on the broadband available.

- A building/physical space. In the context of the CORA project, we are examining digital hubs that are physical spaces, rather than virtual. That does not mean they must be fixed; they can be mobile (again, what is your aim? That will help you decide whether a mobile hub is suitable). Other research has also shown that having the appropriate space from the outset is best (ENRD (European Network for Rural Development), 2017). It should be thought of not just in terms of its space inside (i.e. number of rooms, layout, but also the access to the building, closeness to transport links or roads and so on. Carrying on from this, ENRD (European Network for Rural Development), 2017 identified that the space should be in an attractive location an good geographical position. Again, this is to ensure it is attractive to users, but remember, you know your region best! It could be that local residents commonly use certain roads to bypass traffic, perhaps you could locate yourself off one of those. Or perhaps there is a specific part of your region that is attractive for recreation, is there space there to locate the hub? Think about how your users will get to you, and what works in your area. Our CORA Annual Conference participants said it best when the highlighted that any new hubs should be "integrated into a structure that feels natural to the area/people". A hub does not need to be a new 'alien' presence in the rural landscape – if can be a part of the community before it even starts if you are able to select a place that fits in naturally to the environment.

- Clear target audience. One clear challenge to the success of a hub is having an unclear target audience. In the case of Lincolnshire Technology Hubs, it was noted that they were initially broadly underutilised due, in part, to a lack of awareness. The hubs perhaps would do better to directly link to relevant sectors, effectively identifying a more target audience (Price et al., 2018). Dovey et al. (2016) similarly identified that the management and operation of a hub (in this context, one for creative industries) was reliant on the selection of users and what they call the ‘animation’ of the interaction between the actors and activities based on a clear understanding of the values of a hub. It is important to think about how the hub is marketing itself and to whom, an unclear audience can result in no one engaging with the service, or a mismatch between users and activities, even if the hub is trying to achieve a broad aim. By conducting feasibility studies and market research during the initial planning phase, you should be able to rectify this common pitfall.

We have also identified the following additional elements that have shown to be integral to creating a successful rural digital hub.

4.1.1 *Committed initiators or leaders*

Involvement from the local community, be it individuals or larger groups, is key at the early stages of hub development. General dialogue concerning community participation and leadership, particularly within the rural setting, has been extensively studied and reviewed (Beer, 2014; Dinh et al., 2014; Simmons, Richard; Birchall, 2005; Skerratt, 2011; Torgerson & Edwards, 2012). The presence of local leadership is important for any type of formal organisation and is widely considered to contribute to growth of places (Beer, 2014). The critical need for leadership, or digital champions, within digital hubs has been shown to be crucial throughout past research (ENRD (European Network for Rural Development), 2017). It is well known that new initiatives such as a digital hub require committed initiators or leaders to push the idea forward and see it through to completion. This could include local government, businesses or citizens groups.

When we asked our initial sample about who ‘led’ on the digital hub development, the stakeholders varied, although the focus was very much on local actors, from local government to businesses and citizens.

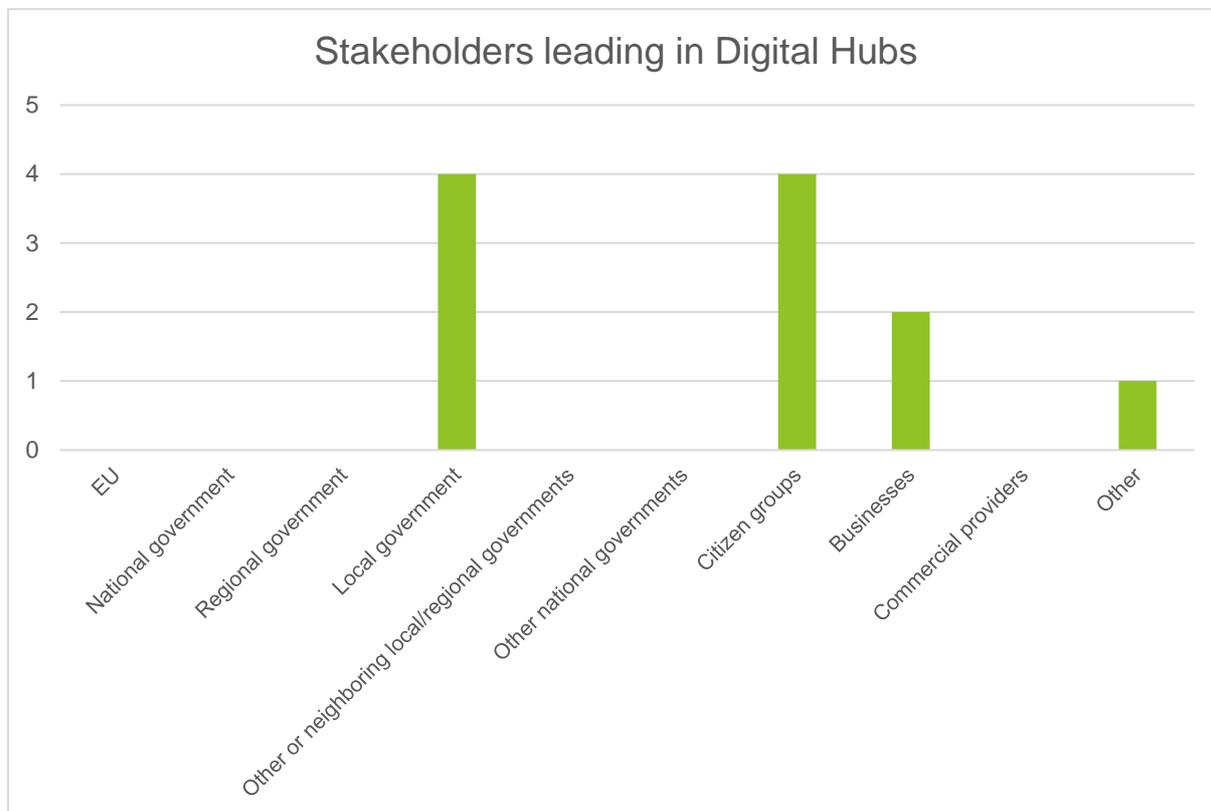


Figure 9 Hub development stakeholders⁸

These committed initiators are individuals or groups that seek to promote the digital hub, may support conducting market research and awareness campaigns to get people aware of hubs or the potential for a hub in the region (as identified by CORA Annual Conference participants). Ultimately, they can play a key role in ensuring the hubs success. It should always be considered how these leaders are engaged and how their engagement may change in the future.

4.1.2 Financial, technical and human resource

It is well known that any initiative must consider the appropriate level of financial, technical and human resource required to make it sustainable. Whilst these attributes can change over the lifetime of a hub (for example, more financial capital may be required at the beginning if there are high start-up costs), they are always a part of hub management.

Let’s break it down into the three types of resources identified here:

⁸ Data taken from Survey 1: Project Diagnostic Survey.

- Financial:* This includes funding to cover start-up and running costs. Setting up a hub can include rental or purchase costs for a space, staff time to set up and decide the services and purchase relevant equipment, funding to cover marketing and information sessions to attract new users. Running costs of course include general overheads, maintenance and staff, and could be covered by user fees, or, should the service/hub be free, would need to be met elsewhere. In Figure 8, we showed common challenges for hubs as identified in Survey 2: Digital Hub survey, with over half of the respondents mostly or totally agreed with the statement “*There are limited financial resources available for the hub*”. Financial resource requirements can vary widely depending on the size and location of the hub, and prospective equipment that needs to be purchased (ENRD (European Network for Rural Development), 2017). When our initial survey respondents were asked about funding mechanisms (depicted in Figure 10), we found that there was a large range of public grants being used to support hub development from the supranational to local level, which can lead to a precarious operational position if the funding is time limited (i.e. only for three years).

“Constantly apply for grant funding but no member has enough time to learn the techniques required for successful application”

Survey 2: Digital Hub Survey respondent

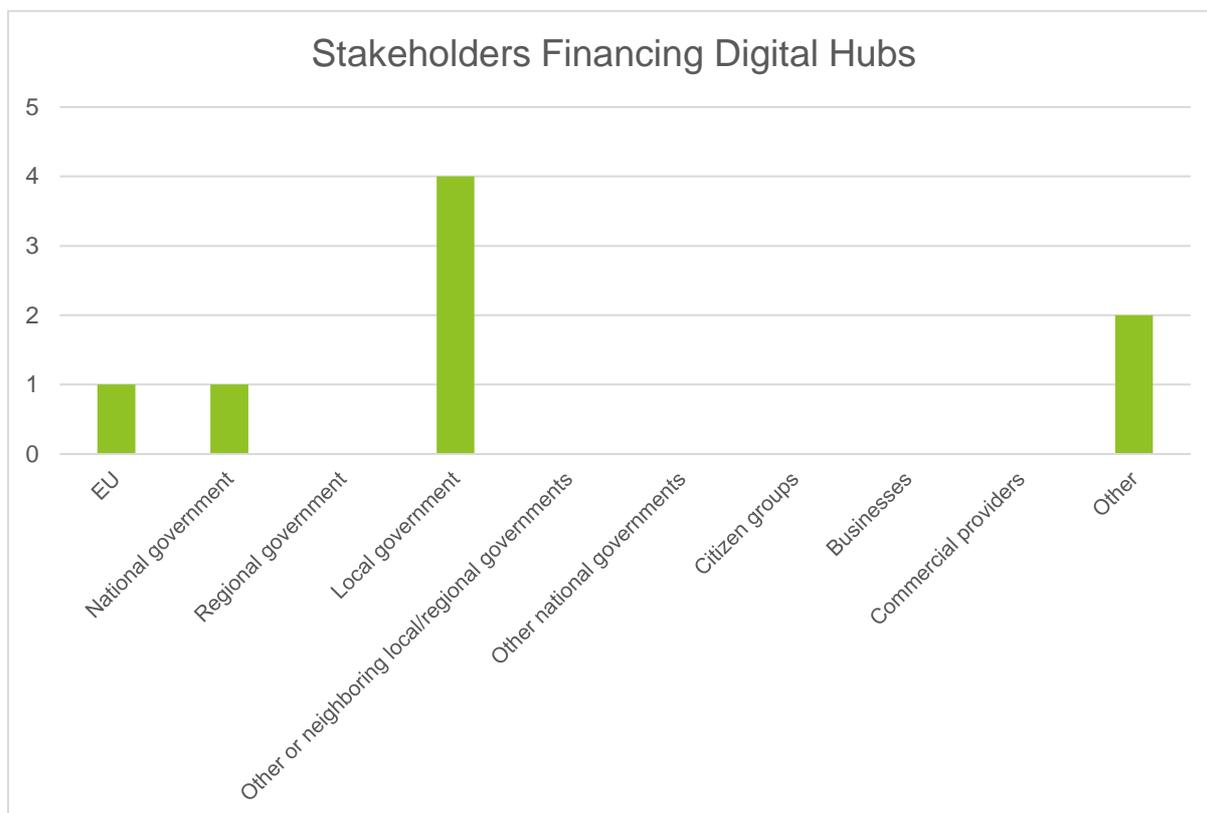


Figure 10 Financial stakeholders⁹

We will not endeavour to provide sample budgets in this Guide as they can be contingent on local circumstances, although there is available information from other hubs available online (see, for example, ENRD (European Network for Rural Development), 2017).

- Technical:* This includes the understanding of technology to determine the best hub approach, the best equipment to offer, and of course, maintaining and replacing that equipment over time. Whilst this was not identified as a mainstream challenge (although a limited number of respondents did select it), the literature in this field has demonstrated its importance.
- Human:* This includes the passion and commitment from individuals/organisations to build and open a hub, and of course, staff and run it. This will become increasingly important as you enter in the operations and long-term sustainability for the hub (see Section 4.2), but also for the initial setting up of the hub, discussed in Section 4.1.2 as those committed initiators or leaders.

“Making sure that the staff is a team that’s working together to improve our community”

Survey 2: Digital Hub Survey respondent

⁹ Data taken from Survey 1: Project Diagnostic Survey.

4.2 Operations and long-term sustainability

This carries on from the section above, but the set-up of a hub is only one element – the operations and long-term sustainability of a hub must be considered and reconsidered over the lifetime of the project. This includes continually addressing those issues around financial, technical and human resources.

Financial resources are often a continual challenge for a hub, as we have already seen in the sections above. Funding is often more critical at start up stage (as demonstrated by ENRD (European Network for Rural Development), 2017), but may also be time limited (in particular if relying on grants) impacting your longer term operations. Consider how the hub will be funded during its operation. What does it rely on? Does it rely on grants? Free space provided by a public building? How will you mitigate the risk around future financing?

In terms of technical and human resources, are you relying on volunteerism? A specific organisation in the community? What happens if those organisations or individuals falter? We know from other rural initiatives that relying on volunteerism can be a burden and potentially negatively impact the initiative. Well-developed research on volunteerism shows that it can reflect both long-term and short-term, or episodic, engagement, with the latter often leading to fluctuating and conditional participation patterns (Cavaye, 2001; Rochester, 2006).

Evidence collected by ENRD (European Network for Rural Development), 2017, highlights these issues in the context of digital hubs, and states that based on their review of hubs across Scotland, Ireland and France, a hub typically required 1 to 2 full-time staff to set up the project, but also should have staff to run the hub once operational (they may be the same people, or may be different). These staff could have expertise on communication and networking, event management, technical skills for training events and so on.

5 Impact Analysis of existing hubs

5.1 Introduction

As part of this Guide, we examine examples of the range of hub ‘types’ to identify how impactful they have been in their rural contexts. We have seen from our surveys that there is a belief that hubs do contribute to the communities, and to the resilience of that community as well shown in Figure 11. Community resilience was defined as the ability of communities to deal with changes and/or disruptive events. This can either mean that a community tries to preserve a specific condition, or that it actively thrives towards a change of the original condition. No respondent identified with ‘None at all’, and the majority identified that the digital hub either substantially or very much contributed to community resilience.

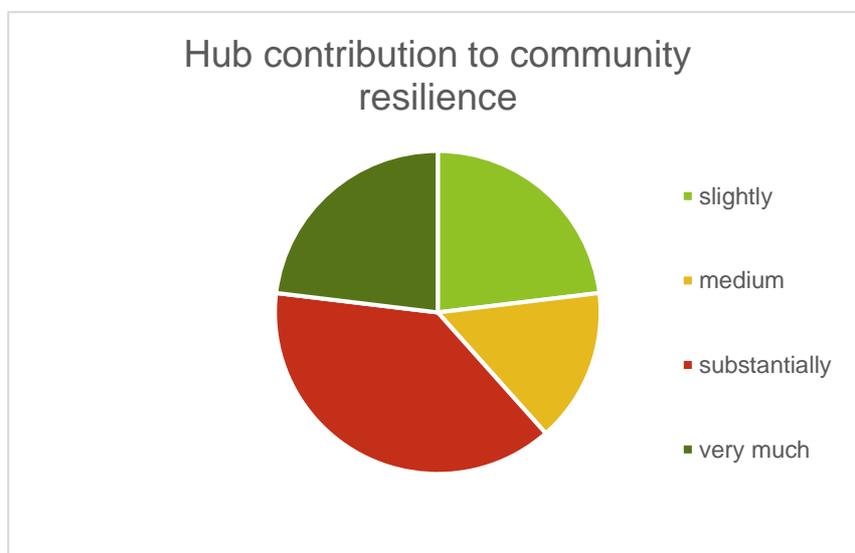


Figure 11 Hub contribution to community resilience¹⁰

To give readers a more in-depth view into the impact of hubs, we present three brief case studies. For each case, we first identified which type (or types) of hub it represented. To remind our readers, we identify 4 main hub types, shown in Figure 12.

¹⁰ Data taken from Survey 2: Digital Hub Survey

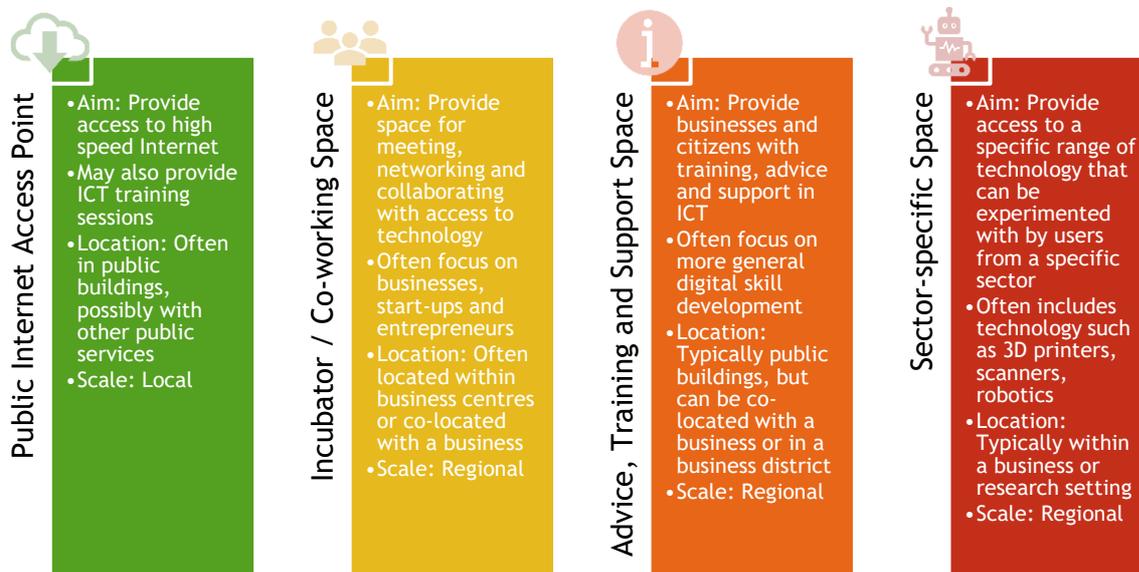


Figure 12 Types of rural digital hubs (from Section 2)

We then outlined its features using our ‘building blocks’ as the structure. Finally, we considered questions about impact and contribution to their respective communities. This information was largely informed by the second survey, online presence of each of the hubs, as well as information previously collected by the University of Lincoln (for the Lincolnshire Technology Hubs study).

5.2 Lincolnshire Technology Hubs, United Kingdom

The suite of Lincolnshire Technology Hubs¹¹ (encompassing three interconnected but distinct hub settings) represent two hub types: Advice, Training and Support, as well as Sector-specific.



¹¹ Lincolnshire Technology Hubs were a respondent to Survey 1: Project Diagnostic Survey as well as Survey 2: Digital Hub Survey. Further information was also taken from their public website(s): <https://www.designblok.co.uk/>; <https://www.businesslincolnshire.com/explore/funding/search/lincolnshire-technology-hubs/>.

Lincolnshire Technology Hubs building blocks:

Aim: To be a place where eligible businesses can receive business support and borrow equipment. The space may be used for education to encourage learning about technology, creation and innovation.



- *Space:* The three hubs are co-located in different spaces. The first, the Horncastle Hub, is located in a private company called Mortons Media Group Ltd and has one large room. The second, the MoCap Hub is located at the University of Lincoln in the Sports Science School. The third, DesignBlok, is located at the University of Lincoln in the Architecture building.
- *Service:* All the hubs provide ICT training for businesses; meeting places; events; technology demonstrations; hardware; utilities; financial advice if wanted; general assistance; general place for other usages.
 - Horncastle Hub, Morton's Media Group, Horncastle, Lincolnshire, provides technical support and equipment for prototyping. There is no dedicated staff, uses a system of interns called 'hubbits'. General users are mixed, historically craft-based businesses
 - Designblok Hub, University of Lincoln, Lincoln, provides technical support for design and fabrication/prototyping, includes multiple members of staff through the University, with new equipment being purchased. Their user groups are mixed and primarily from manufacturing, furniture development, architecture and heritage
 - MoCap Hub, University of Lincoln, Lincoln, provides professional movement analytics and filming, with 1 dedicated member of staff, new equipment being purchased. Their user group is mixed, but targets sports companies primarily.
- *Scale:* All three hubs target businesses in the Greater Lincolnshire area, although their equipment and expertise mean they have slightly different interests. They provide free access to the equipment to businesses in that region, as well as a specific number of hours of business support.
- *Skills:* There is no skills targeting at any of the hubs.
- *Anticipated outcomes:* The hubs have evolved since their inception and became more tailored over time to represent the three units presented above. However, their remit is broadly the same, to provide tailored business support and digital equipment.

Stakeholders: The hubs began through conversations between Lincolnshire County Council and local businesses and were ultimately led by the County Council. Whilst County staff were presenting on benefits of superfast broadband, it became clear that businesses still struggled to visualise what technology could do, such as 3D printers. Demonstrations were vital to ensure the businesses could understand the benefits. The University of Lincoln also acted as a stakeholder and a host for two of the hubs.

Investment: The hubs were co-funded by the European Regional Development Fund (ERDF) and the Local council.

Lincolnshire Technology Hubs’ impact on users and the community:

Previous impact analysis on the Lincolnshire Technology Hubs identified that, whilst the user group was small, for those users the impact was high, with users being most likely to report increased use of ICT within their businesses compared to other digital programmes being run by the local authority in a similar timeframe. The hubs were also seen to have demonstrated their value in terms of a space where users could be exposed to new technology and new ideas (Price et al., 2018).

However, the users initially represented a small group, and the hubs have since tried to expand their marketing to draw in other users. For example, the Horncastle Hub is working to expand their technology offering and include computer electronic component assembly areas and run open days to encourage business uptake.

5.3 The Ski Locker, France

The Ski Locker located in Chamonix, France¹², represents an Incubator/co-working space type, and has been running since 2014, with an expanded facility opening in 2016. They are officially part of the Mountain Coworking Alliance, which combines many coworking spaces located in mountainous regions together as a network of independent spaces.



¹² The Ski Locker were a respondent to Survey 2: Digital Hub Survey. Further information was taken from their public website: <http://www.theskilocker.com/chamonix>

The Ski Locker building blocks:

Aim: Provide a community and co-working space for remote workers to connect and have fast internet to work.



- *Space:* Located in a private building in the centre of the town centre, with three rooms (one big, one small and a basement)
- *Service:* Offices for rent; meeting places; events; utilities for users (such as printers, desks)
- *Scale:* Targeting businesses in the Chamonix area including startups; self-employed persons; teleworkers/remote workers
- *Skills:* No targeting in terms of digital skills but provides utilities and fast internet access.
- *Anticipated outcomes:* Same service to be provided over time, to the range of entrepreneurs, freelance and remote workers who wish to have “a life in the mountains, whilst pursuing...professional careers” (The Ski Locker, 2018). From the initial set up, they expanded their operation as demand was high, and began to accept companies up to 5 employees, more meeting room and desk space, and additional social spaces.

Stakeholders: Entrepreneurs that came together to set up the Ski Locker to provide a more effective workspace, but still allow them to access the outdoor recreation of Chamonix. No external parties evident.

Investment: Private investment. The Ski Locker represents a co-working space (with elements of incubation and networking) that runs on a completely private basis, with users paying for access and services with a wide range of price points.

The Ski Locker’s impact on users and the community:

The Ski Locker’s ambition to provide a community for remote workers who wish to access the recreation lifestyle available in Chamonix means it is a unique co-working space, but one that could be replicated elsewhere, in settings that similarly engage with a specific lifestyle choice. The Ski Locker’s principle functions that they identify include providing meeting and networking space, delivering fast internet access, fostering community development, fostering business development and attracting new businesses/residents/visitors to the area. For users, the location and ability to work in Chamonix “offers an instant sense that something much bigger and better is around us. The freedom to access nature on such a huge scale is an experience that can put even the biggest conflict or problem into perspective” (O’Hagan, 2016). This demonstrates that there is a clear link between users of the hub, and individuals that engage with the wider Chamonix area, often through recreation.

Reviews by users written in public online forums continue to support the efforts of the Ski Locker team, highlighting the staff as being ‘welcoming’, a ‘great community’, ‘great space’, with multiple individuals emphasising the ‘superfast internet connection’ as a key feature of the hub, which is hard to find elsewhere in Chamonix (Various, 2018).

5.4 Digiclare, Ireland

A County Clare Council initiative, called Digiclare, Ireland¹³, represents two types of hubs: a public internet access point and a co-working space. They officially opened in March 2018, making them a young initiative.



Digiclare’s building blocks:

Aim: Provide access to broadband connectivity with the complementing facilities and set up for use to residents and businesses in the County Clare area.



- **Space:** Digiclare has three locations, Kilrush, Miltown Malbay and Feakle. Kilrush is located in the Town Hall and provides hot desks, co-working facilities and a conference room. Miltown Malbay provides hot desks and co-working facilities. Feakle provides hot desks, co-working facilities and a conference room.
- **Service:** Offices to rent; meeting places; events; general places for meetings and conferences.
- **Scale:** They target both businesses (self-employed persons; teleworkers/remote workers; established businesses) and community members in the catchment areas around the towns and villages where broadband is not readily available.

¹³ Digiclare were a respondent to Survey 2: Digital Hub Survey. Further information was taken from their public website: <https://www.digiclare.ie/index.html>

- *Skills*: No targeting in terms of digital skills but provides utilities and fast internet access.
- *Anticipated outcomes*: Same service to be provided over time, engage new individuals to increase user uptake.

Stakeholders: This hub was both led by and operated by the Local Authority (local government), Clare County Council.

Investment: Local Authority investment. Users must pay for access (like The Ski Locker).

Digiclare's impact on users and community:

Their identified functions include meeting and networking space, improvement of digital skills for users, to deliver internet access, fostering business development, support start-ups, SMEs and freelancers, provide contact to other initiatives related to digital innovations and stakeholders, promote improvement of broadband infrastructure and attract new businesses/residents/visitors. The hubs identify that broadband and digital technology is a key enabler of rural development, and so they intend to support social enterprises and the wider community by facilitating e-working, small-scale training and conferencing. The hub represents part of the wider Clare Rural Development Strategy, which will ideally see the hub concept grow, and create a new Broadband Hub in another location as well (Digiclare.ie, 2018).

As these are relatively new hubs, there are no existing user stories to consider, but its placement within the wider development strategy demonstrates potential connections to business development and community growth.

6 Summary

Rural digital hubs represent one method of engaging a specific area or group of people with digital technology and improving their digital skill competencies, feeding into economic and social enhancement for those users.

The building blocks laid out in this guide provide a diagnostic (rather than prescriptive) framework to ensure that a hub's potential is maximised. Importantly, when building and running a hub the process is iterative. Continuous evaluation of hub practice is general good management and can help to overcome existing or future, and as yet unknown, challenges. This does not seem to be done regularly in those hubs that provided information to our surveys.

Again, as we established in Section 3, there are many benefits and reasons to build a hub:

- Hubs can build collaborative communities that foster both social connectivity and economic change (at the individual and collective level)
- Hubs can attract diverse members with heterogeneous knowledge which can collaborate and exchange knowledge

- Hubs can localise global entrepreneurial culture, supporting diversifying rural economies
- Hubs can facilitate creativity and collaboration in physical and digital space, giving individuals and businesses/entrepreneurs the chance to both learn and engage with digital technology for a range of skill levels

However, it is important to remember that hubs are not a panacea for rural development or digital transformation. They may not be the most suitable approach depending on the rural region and ambitions of project. This is how the ‘building blocks’ of this Guide can assist – by walking through each block, and thinking about those challenges and conditions, you can gain clarity to support you on your hub development journey.

References

- Ashmore, F. H., Farrington, J. H., & Skerratt, S. (2017). Community-led broadband in rural digital infrastructure development: Implications for resilience. *Journal of Rural Studies*, 54. <https://doi.org/10.1016/j.jrurstud.2016.09.004>
- Beer, A. (2014). Leadership and the governance of rural communities. *Journal of Rural Studies*, 34, 254–262. <https://doi.org/10.1016/j.jrurstud.2014.01.007>
- Brown, J. (2017). Curating the “Third Place”? Coworking and the mediation of creativity. *Geoforum*, 82(April), 112–126. <https://doi.org/10.1016/j.geoforum.2017.04.006>
- Cavaye, J. (2001). Rural Community Development – New Challenges and Enduring Dilemmas.
- Cloke, P., & Thrift, N. (1994). Introduction: Refiguring the ‘rural.’ In P. Cloke, M. Doel, D. Matless, M. Phillips, & N. Thrift (Eds.), *Writing the rural: Five cultural geographies* (pp. 1–5). London: Paul Chapman Publishing Ltd.
- Department for Culture, M. and S. (DCMS). (2010). Britain’s Superfast Broadband Future. Retrieved December 9, 2014, from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31576/consultation_20on_20proposals_20for_20a_20next_20generation_20fund.pdf
- Digiclarie.ie. (2018). Digiclarie: Connecting Communities. Retrieved October 26, 2018, from <http://www.digiclarie.ie/about.html>
- Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium : Current theoretical trends and changing perspectives. *The Leadership Quarterly*, 25(1), 36–62. <https://doi.org/10.1016/j.leaqua.2013.11.005>
- Dovey, J., Pratt, A., Moreton, S., Virani, T., Merkel, J., & Landsdowne, J. (2016). *Creative Hubs : Understanding the New Economy*. British Council. London. Retrieved from <https://creativeeconomy.britishcouncil.org/media/uploads/files/HubsReport.pdf>
- ENRD (European Network for Rural Development). (2017). Case Study : Rural Digital Hubs Working Document Revitalising rural areas through digitisation The experience of three rural digital hubs.
- Espinoza, D., & Reed, D. (2018). Wireless technologies and policies for connecting rural areas in emerging countries: A case study in rural Peru. *Digital Policy, Regulation and Governance*, 20(5), 479–511.
- Friederici, N. (2017). Innovation Hubs in Africa : an Entrepreneurial Perspective, (May), 1–18.
- Gandini, A. (2016). Coworking: The Freelance Mode of Organisation? In *The Reputation Economy: Understanding Knowledge Work in Digital Society* (pp. 97–105). London: Palgrave Macmillan UK. Retrieved from http://link.springer.com/chapter/10.1057/978-1-137-56107-7_7
- Innovate UK. (2018). About Catapult. Retrieved October 26, 2018, from <https://catapult.org.uk/about-us/about-catapult/>
- Jiménez, A., & Zheng, Y. (2018). Information Technology for Development Tech hubs , innovation and development. *Information Technology for Development*, 24(1), 95–118. <https://doi.org/10.1080/02681102.2017.1335282>

- O'Hagan, N. (2016, July). The Mountains. They're Calling... *The Ski Locker*. Retrieved from <http://www.theskilocker.com/blog/the-mountains-they-re-calling>
- Openreach. (2014). Fibre broadband: Helping your business cut costs and become more efficient. Retrieved December 22, 2014, from http://www.superfast-openreach.co.uk/download/FactSheet_Helping_your_business_cut_costs_and_become_more_efficient.pdf
- Pateman, T. (2010). *Rural and urban areas: comparing lives using rural/urban classifications*. London.
- Pelet JÉ.; Barton M.; Chapuis C. (2019). Towards the Implementation of Digital Through Wifi and IoT in Wine Tourism: Perspectives from Professionals of Wine and Tourism. In M. . Sigala & R. Robinson (Eds.), *Management and Marketing of Wine Tourism Business*. Palgrave Macmillan.
- Peronard, J., & Just, F. (2011). User motivation for broadband : A rural Danish study. *Telecommunications Policy*, 35(8), 691–701. <https://doi.org/10.1016/j.telpol.2011.06.008>
- Philip, L., Cottrill, C., Farrington, J., Williams, F., & Ashmore, F. (2017). The digital divide: Patterns, policy and scenarios for connecting the 'final few' in rural communities across Great Britain. *Journal of Rural Studies*, 54, 386–398. <https://doi.org/10.1016/J.JRURSTUD.2016.12.002>
- Price, L., Shutt, J., & Sellick, J. (2018). Supporting rural Small and Medium-sized Enterprises to take up broadband-enabled technology : What works ? <https://doi.org/10.1177/0269094218791508>
- Rochester, C. (2006). *Making sense of volunteering*.
- Salemink, K., & Bosworth, G. (2014). Investigating community-led broadband initiatives as a model for neo-endogenous development. In *12th Rural Entrepreneurship Conference*. Harper Adams University, UK.
- Seo-Zindy, R., & Heeks, R. (2017). Researching the emergence of 3D printing, makerspaces, hackerspaces and fablabs in the global south: A scoping review and research agenda on digital innovation and fabrication networks. *Electronic Journal of Information Systems in Developing Countries*, 80(1), 1–24. <https://doi.org/10.1002/j.1681-4835.2017.tb00589.x>
- Shucksmith, M. (2012). *Future directions in rural development?* Retrieved from <http://www.carnegieuktrust.org.uk/CMSPages/GetFile.aspx?guid=545a7523-4da8-4ff7-95e6-dd912abc6373>
- Simmons, Richard; Birchall, J. (2005). A Joined-up Approach to User Participation in Public Services: Strengthening the "Participation Chain." *Social Policy & Administration*, 39(3), 260–283.
- Simpson, S. (2010). Governing information infrastructures and services in telecommunications Governing information infrastructures and services in telecommunications.
- Skerratt, S. (2011). A critical analysis of rural community leadership: Towards systematised understanding and dialogue across leadership domains. *Journal of Contemporary Issues in Business and Government, The*, 17(1), 87–107.
- Sutherland, E. (2016). Broadband and Telecommunications Markets — Policy , Regulation and Oversight, (June 2015), 387–408.

- Technologies and Systems for Digitising Industry (Unit A.2). (2018). Pan-European network of Digital Innovation Hubs (DIHs). Retrieved October 24, 2018, from <https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs>
- The Ski Locker. (2018). A coworking community in Chamonix. Retrieved October 26, 2018, from <http://www.theskilocker.com/chamonix>
- Toivonen, Tuukka; Friederici, N. (2015, April). Time to Define What a “Hub” Really Is. *Stanford Social Innovation Review*. Retrieved from https://ssir.org/articles/entry/time_to_define_what_a_hub_really_is
- Torgerson, M., & Edwards, M. E. (2012). Demographic Determinants of Perceived Barriers to Community Involvement : Examining Rural / Urban Differences. <https://doi.org/10.1177/0899764012440181>
- Townsend, L., Sathiaseelan, A., Fairhurst, G., & Wallace, C. (2013). Enhanced broadband access as a solution to the social and economic problems of the rural digital divide. *Local Economy*, 28(6), 580–595. <https://doi.org/10.1177/0269094213496974>
- Various. (2018). The Ski Locker Reviews. Retrieved October 26, 2018, from https://www.facebook.com/pg/theskilocker/reviews/?referrer=page_recommendations_see_all&ref=page_internal
- Willis, K. (2015). A ‘ Place ’ for Digital Inclusion : Digital Village Halls in Rural Communi ; es.
- Woods, M. (2005). *Rural*. London: Routledge.
- Wyatt, D., Mcquire, S., & Butt, D. (2017). Libraries as redistributive technology: From capacity to culture in Queensland’s public library network. *New Media & Society*, 146144481773823. <https://doi.org/10.1177/1461444817738235>

Appendix 1 Methodology of Digital Hub Surveys

The data presented in this report was gained from four sources: First, two surveys were conducted as part of the CORA project. Survey design, distribution and collection of results was led by the University of Groningen project partners, with question design support provided by the University of Lincoln project team. Analysis of survey responses as presented in this Guide was conducted by the University of Lincoln team, with Groningen sending the raw data to Lincoln. The University of Lincoln project team also conducted a small workshop session as part of the CORA Annual Conference in November 2018 to identify further ideas about what makes a successful digital hub. Finally, we supplement and compliment these data with an extensive, and as yet not completed in past research, literature review of the rural digital landscape and the role of digital hubs as well giving consideration to current examples from across the UK and, where possible, worldwide, to give readers the most holistic approach to rural digital hub development.

We use all of these data in sum to inform potential development of digital hubs as mechanisms for improving the digital landscape in rural areas.

Survey 1: Project Diagnostic Survey

This survey was designed to set a 'baseline' for the partner regions in the CORA project, and had a small section of questions dedicated to rural digital hubs. This survey was targeted for the set sample of CORA project partners that were contributing to a 'baseline' for the project.

The survey consisted of two parts: in the first part, the pilot regions provided us with information on digital infrastructure issues. The second part concentrated on digital skills and services. Again, within these sections there was a small range of questions to do with rural digital hubs. There were 10 respondent partners.

The survey was distributed on 19 March 2018 and all the answers were received by 1 May 2018. Further questions arose in some cases when analysing the survey results, based on the responses provided by the regions. Three additional interviews were thus conducted directly after the analysis. One was conducted over the telephone, one was face-to-face and the third via Skype. Some minor questions were asked and answered by email.

Survey 2: Digital Hub Survey

Respondents were invited from the initial CORA project members (a known sample of 10 partners), as well as through internet searching of potential 'digital hubs' in the North Sea Region and across Europe over the summer months of 2018. As responses from 'cold call' surveys can be low, the largest possible sample was identified. This search resulted in an additional 163 contacts in addition to the CORA partners. The survey was distributed on 20 June 2018 and remained open until October 2018 to ensure the maximum possible responses.

Of this total 173 potential responses, only 14 responded to this survey. This was a response rate of 8.1% representing a very small sample. As this is such a small number of responses,

we do not take these data to be generalisable, but rather a snapshot of contemporary examples of hubs.

CORA Annual Conference:

“Interactive session: Identify the main factors for establishing, running and networking successful local and regional hubs” 13 November 2018, Kiel, Germany

Forming part of the larger Conference day, this was an interactive 1.5-hour session where participants discussed the topic in 30-minute increments, leading to three groups that contributed to the overall theme. A table presenter (Liz Price of the University of Lincoln) led the discussion, giving a brief overview of digital hubs, some examples of challenges and solutions. Participants then discussed the essential factors to creating successful hubs and identified guiding measures and training topics for local and regional authorities. A rapporteur role (Fiona Ashmore also of the University of Lincoln), aggregated these results during the session, and presented them back to the group. Images of the session findings are below.

