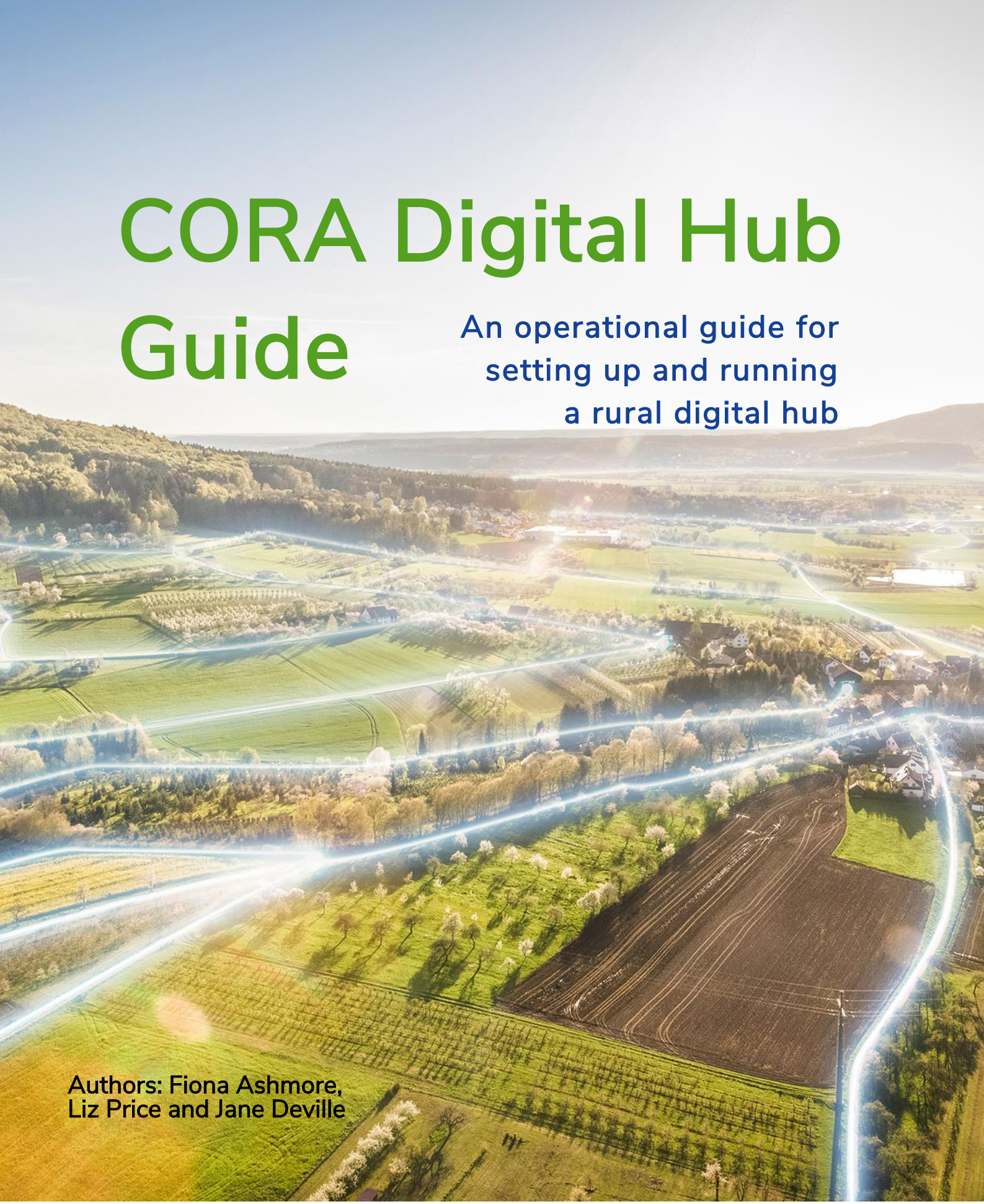
CORA Digital Hub Guide

An operational guide for setting up and running a rural digital hub



Authors: Fiona Ashmore, Liz Price and Jane Deville

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CORA CONNECTING REMOTE AREAS

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For more information, please visit coraproject.eu

Lincoln International Business School
University of Lincoln
Brayford Pool,
Lincoln, Lincolnshire, LN6 7TS
lprice@lincoln.ac.uk
www.lincoln.ac.uk

CORA Project
Project Manager: atene KOM GmbH
Invalidenstraße 91
10115 Berlin
info@atenekom.eu
www.coraproject.eu

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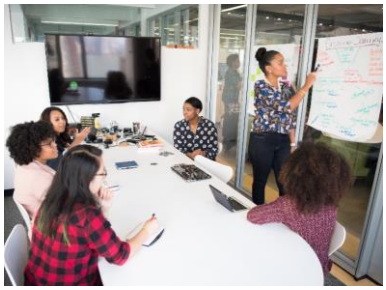
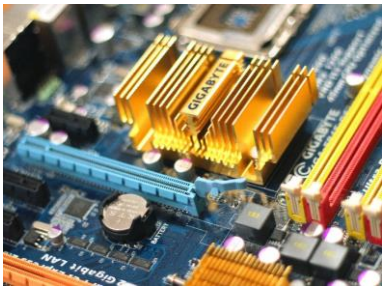
Contents

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 that 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 steps to setting up and running a digital hub. Throughout this Guide we have provided examples of digital hubs that are currently in operation, and we hope that you will also look at those and take inspiration from the range of rural digital hub networks that are running worldwide.

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





2 What is a Digital Hub?

There are many ways to define a digital hub. Literature on hubs in general has shown that it is a rather disparate concept, and tends to be reliant on whether it is a business-focused, community-based, or technology-based piece of research. 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. These seek 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 2018, participants identifed additional theoretical terms that reflect digital hubs including 'spokes', 'central points' or 'connecting points' and then in the digital context, terms could include fablabs, virtual reality centres, clusters and libraries.

Whatever term is used, and our participants at the CORA Annual Conference 2018 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 digital 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 label or term may change, there are different features of 'digital hubs' (the label which we continue to use to represent all these potential names for ease) that can be clustered into types, and providing this typology supports digital hub development planning.

However, that does not mean that neat

boxes exist for each digital 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 digital hub development and we hope that, by using our 'steps' to build a digital hub, you can shape the digital 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 targetted questions about digital hubs. Participants in the surveys were made up of CORA project partners, and also identified known digital 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 digital hubs in a roundtable format, identifying what factors are influential in planning and running successful digital hubs. This formed a part of the larger conference day and acted as a small focus group for this guide. 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 this Digital Hub Guide, along with existing literature on the topic, and they will all be referenced throughout[1].

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 digital 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.

The CORA project 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"

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

This is necessarily broad. A digital 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 digital hub (whereas in urban areas this may be less necessary).

2.2 Types of Digital Hubs

2.2.1 Introduction

In understanding and creating a 'typology' of digital 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 digital hubs to identify what 'type' of digital hub they were, which gave us a picture of the needs of those in rural areas, shown in Figure 1.

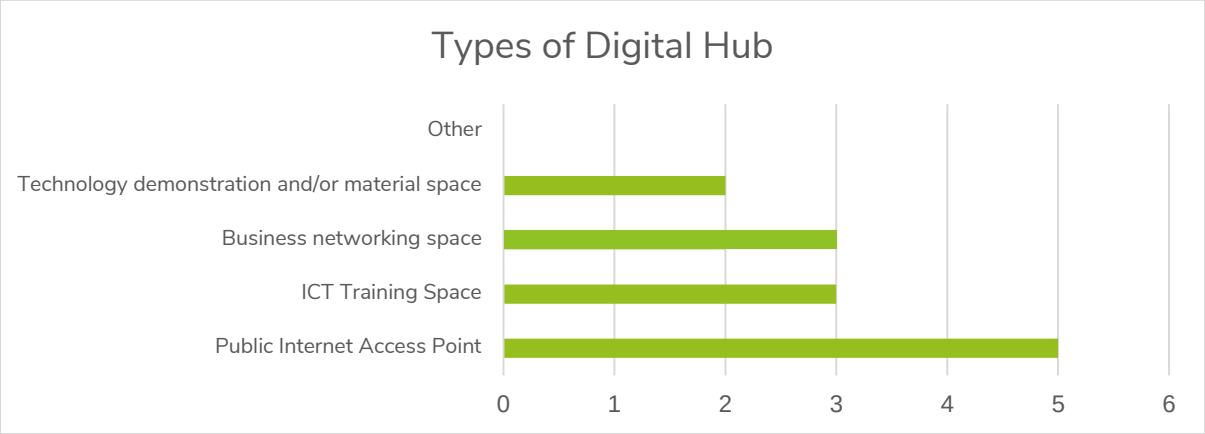


Figure 1 Types of Digital Hub. Data taken from Survey 1: Project Diagnostic Survey.

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 digital hub and consider how they were also being presented in literature.

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

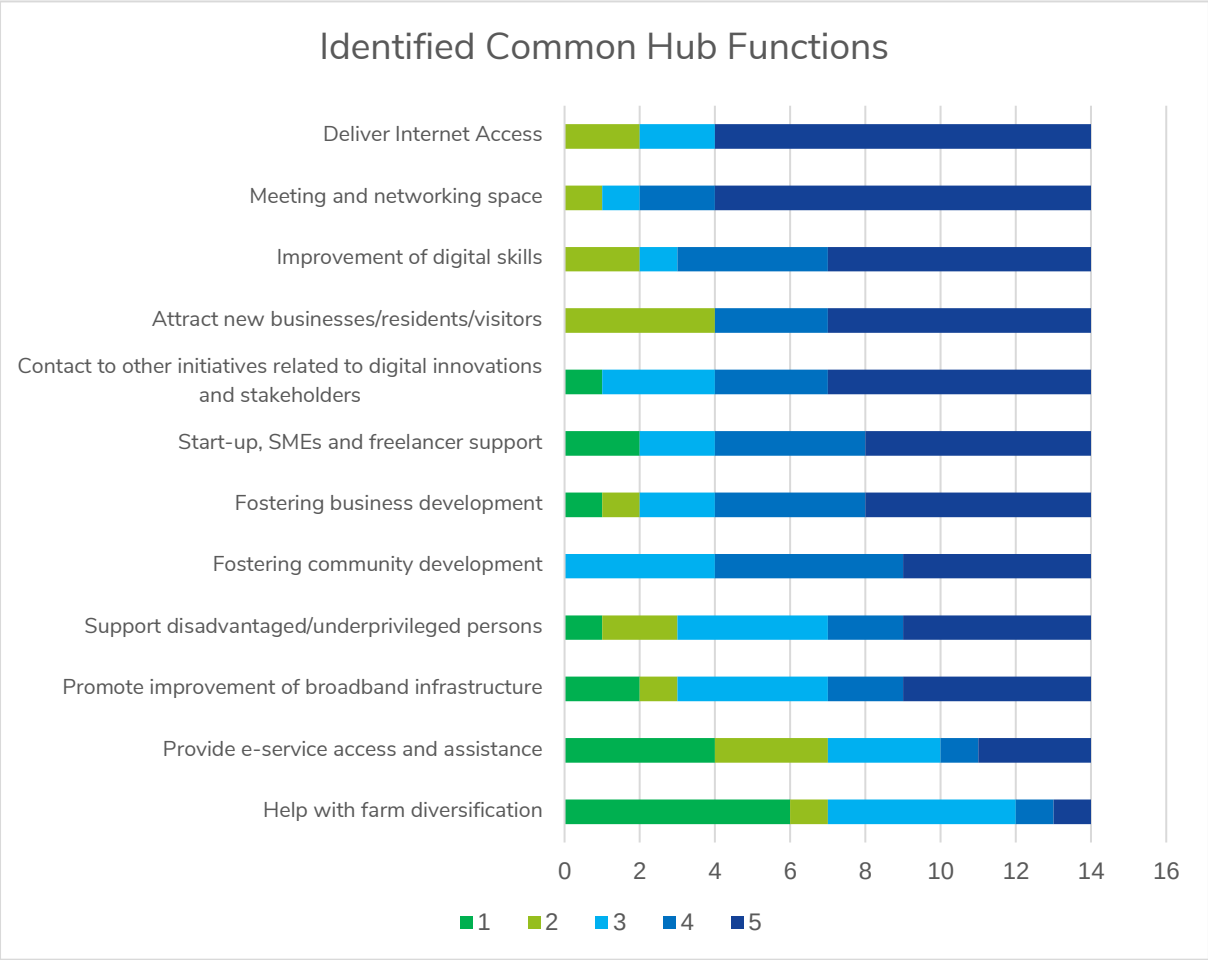


Figure 2 Identified Common Hub Functions, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree. Data taken from Survey 2: Digital Hub Survey

The most common feature that digital 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 digital hub. It underpins all of the services and support that digital hubs can then provide, so it exists across all types. Similarly common was the ability for the digital 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 digital 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 digital 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.

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 digital 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 digital 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 digital 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 digital 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].

2.2.2 Public Internet Access Points

A Public Internet Access Point (or PIAP) is a type of digital 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.

> *"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

As superfast broadband is becoming more ubiquitous, PIAPs no longer exist in isolation – often they are attached to other digital 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 digital hub) but acknowledge its

[2] The examples provided in this section were found through internet searching of digital hubs and were categorised by the authors. The named digital hubs were not involved in the production of this Guide.

relationship to the other digital hub types listed below. Importantly, in the CORA Annual Conference 2018, access to superfast 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. For example, the Digital Venue Toolkit provides support on how a rural community could build a PIAP in a village space, such as a community hall, showing the importance of multi-functional, but also digitally connected, spaces for rural areas (Digital Neighbourhoods Research project, Plymouth University, 2017).

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 digital hub types, an incubator/co-working space provides meeting, networking and collaborating opportunities. Importantly, they offer the opportunity for businesses to work but also exchange knowledge and develop new ideas (CORA Annual Conference 2018 participants). It may include meeting rooms with high speed internet access and/or smart technologies (Gandini, 2016). They are often focused on businesses and other economic ventures, and are often co-shared with an existing business (to provide one or both of the space and service). They can have local government support. They are regional in scale, drawing potential users from a wide geographical area.

EXAMPLE OF INCUBATOR / CO-WORKING SPACE

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'.

2.2.4 Advice, training and support spaces

Advice, training and support 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 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 digital hub were located in spaces such as libraries or city halls (CORA Annual Conference 2018 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 digital hub type 'sector-specific' but they may offer their services to a range of sectors. However, the focus of this digital hub type is to provide 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 digital 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 digital hub types, their scale is regional.

EXAMPLES OF SECTOR-SPECIFIC SPACES

Leicester Hackspace, England

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

Leicester Hackspace is 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 as unique digital hubs, although we acknowledge that in rural areas Wi-Fi hotspots can be a useful tool to support tourism and community cohesion (Pelet *et al.*, 2019; Espinoza & Reed, 2018), and this was also highlighted by our CORA Annual Conference 2018 participants. The reason we have excluded them is twofold: first, we have specifically focused on physical digital 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.

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Figure 3 Typology of rural digital hubs

Whilst this typology provides a useful distinction between different digital hub types, we acknowledge that digital 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 2018 participants) – again the aim of your digital hub will help dictate which features you may identify and focus on.

2.3 What about the 'rural'?

We now have our understanding of digital hubs, but how do they fit in rural areas? Many official urban-rural classifications are in use across Europe, providing an operational understanding of what 'rural' is – taking into account features such as population density, population size and proximity to larger centres to determine the rural status of a region (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 is a spectrum of attributes, such as functional attributes (i.e. presence of features such as agricultural land use), economic approaches and social representations and understandings (i.e. rural can mean different things to different people or spaces). It is not simply 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 digital hub development and support, these definitions are inherently lacking this non-tangible understanding of 'rural' developed in the academic literature. As Salemink & 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, 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, more theoretical 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. This 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, Sathiaseelan, 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, advertising) as well as creating additional avenues for growth (i.e. operating an online marketplace) 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 rural digital hubs. First, 'rural' can mean a physically, remote place, but we will not discount the spaces that may not seem 'rural' from a purely operational perspective. Second, in terms of digital engagement, we know it can alleviate the challenges of living rurally. Yet, looking specifically at digital hubs, much previous work has focused on the features of a digital hub and its impact, 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).

Whilst useful, an unintended consequence of this is that much of this research looks at the 'urban' digital hub space, leaving 'rural' external to this debate – this could be 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 digital 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. Therefore, our focus is on rural, and the opportunities for rural digital hubs.

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), looking at tech hubs in Africa, identified that, as places for co-working, they can also provide community building advantages. Innovation and entrepreneurship, often a focus of a digital hub that has a business element to it, are considered crucial for poverty alleviation and economic growth, and therefore digital 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 general 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 of 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 digital hub. We will look at the results in the following three sections, giving a detailed understanding of the potential impact of a rural digital hub.

3.1 Social and community impact

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

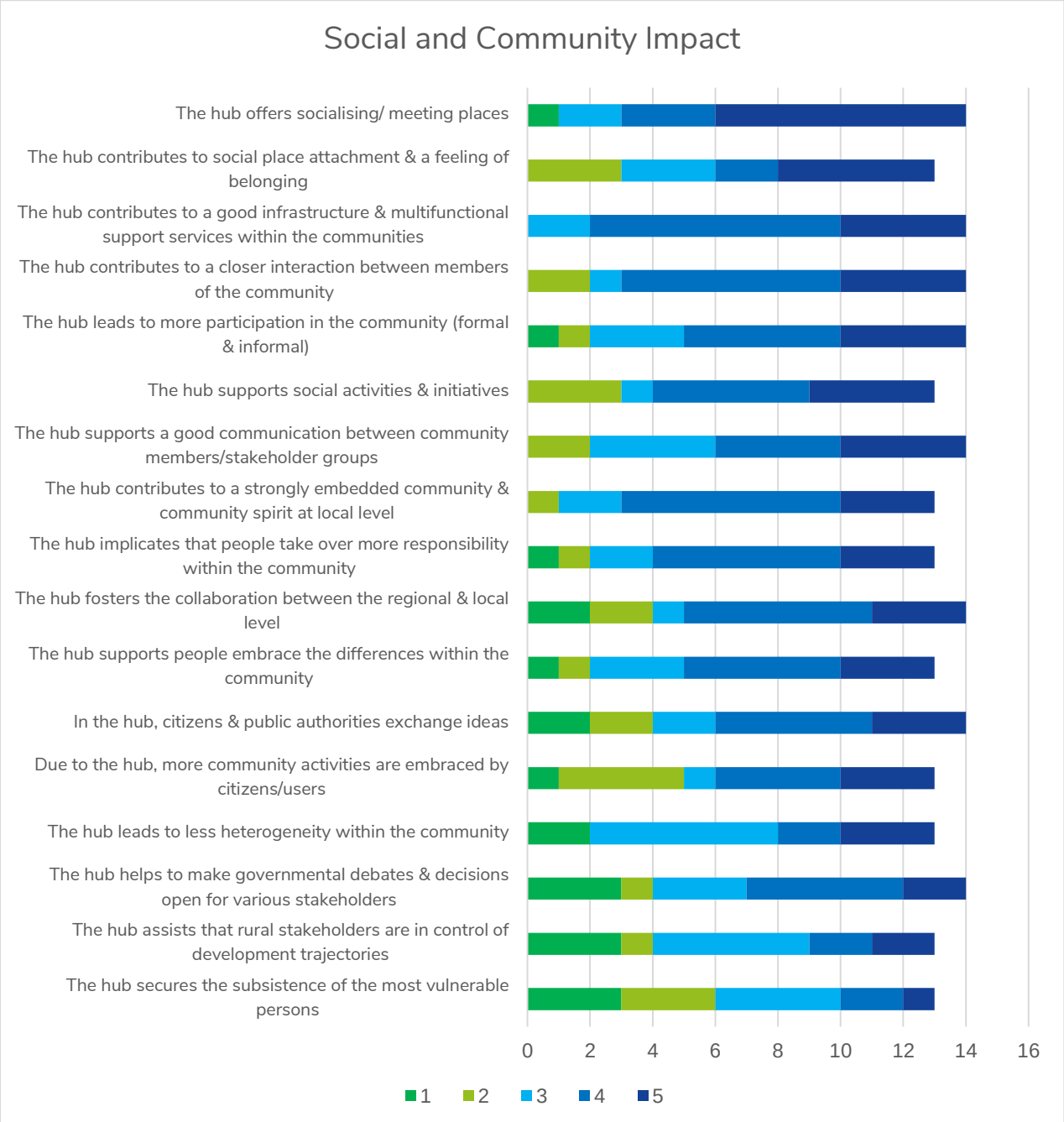


Figure 4 Social and Community Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree. Data taken from Survey 2: Digital Hub Survey, only 13 of the 14 respondents completed each question, with the final respondent providing answers to some questions.

First, given that the majority of digital hub respondents identified that their digital hubs provide meeting space, it is unsurprising that most agreed that the digital hub offers socialising and meeting spaces. This idea of socialising is a part of all the digital hub types, catering to their range of users to interact not only with the experts/equipment in the digital 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 digital 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 digital hubs strengthened the local community (ENRD (European Network for Rural Development), 2017).

A majority of respondents believed the digital 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 through the presence and use of digital hubs (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, and helping others embrace difference.

However, it is less likely that digital hubs contribute to an increase in community activities, improved heterogeneity in the community, help government debates and decision, or 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 by engaging with a digital hub, we did not see this strongly identified in our results. It is also less likely that the digital 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 digital hubs can support and, depending on the focus and aim of the digital 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, shown in Figure 5.

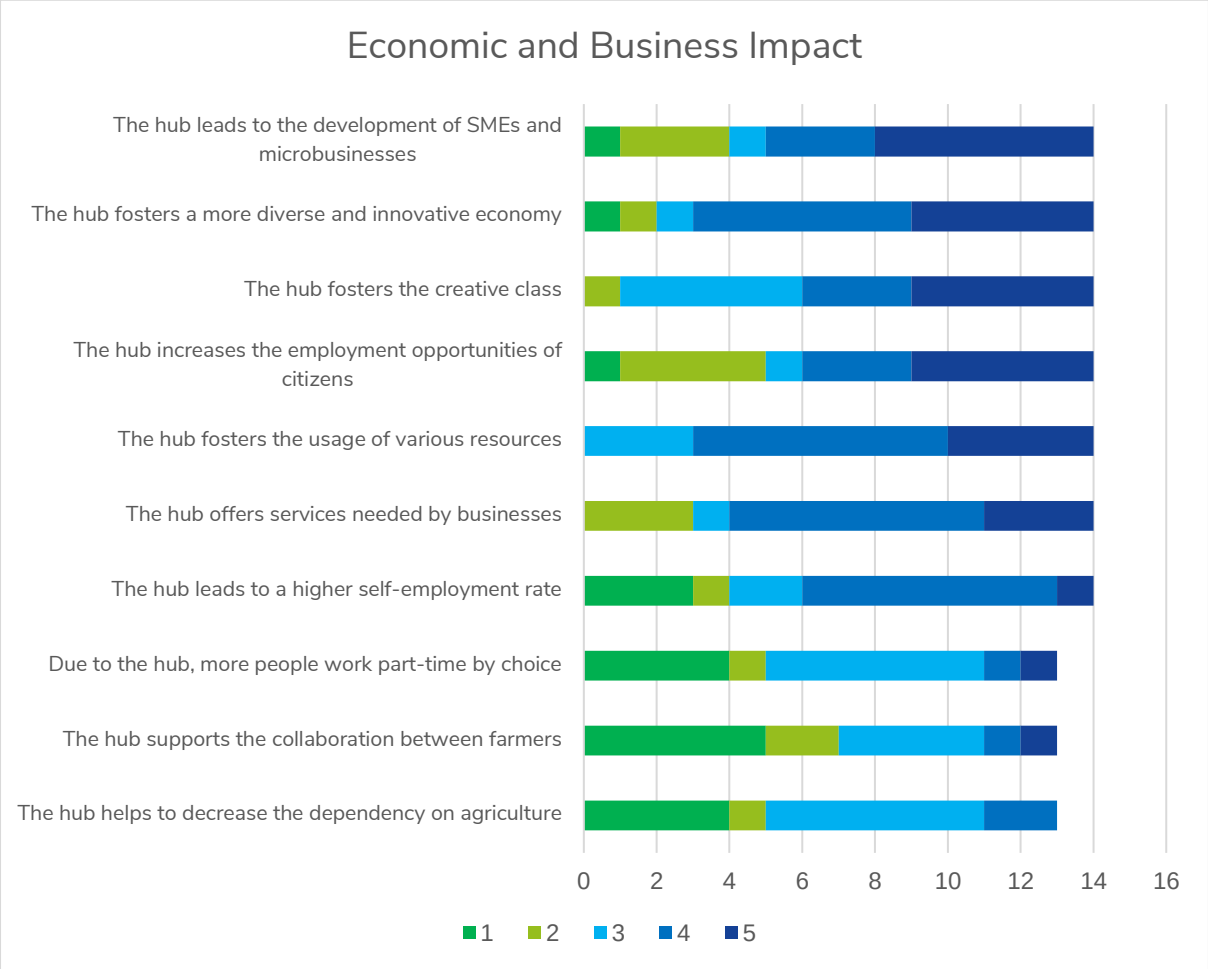


Figure 5 Economic and Business Impacts of a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree. Data taken from Survey 2: Digital Hub Survey, only 13 of the 14 respondents completed each question, with the final respondent providing answers to some questions.

The economic and business themes were varied again in terms of impact, but we did see very positive responses for digital 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 digital hubs could improve digital skills and capacity of rural businesses. However, for each of these benefits, there were some digital hubs that disagreed, and this is where the type of digital hub and overall aim will play a part – not all digital 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.

Digital hubs were also less likely to contribute to increased part-time working. Finally, when

asked specifically about the potential impact on the agricultural sector (again, a common rural feature which is more sector-specific), those digital 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 digital hubs can support economic development, most specifically collaborative opportunies and increasing employment opportunities for users.

3.3 Skill development opportunities

Finally, these first two sections of results are also supplemented by the potential for a digital hub to foster skills, shown in Figure 6.

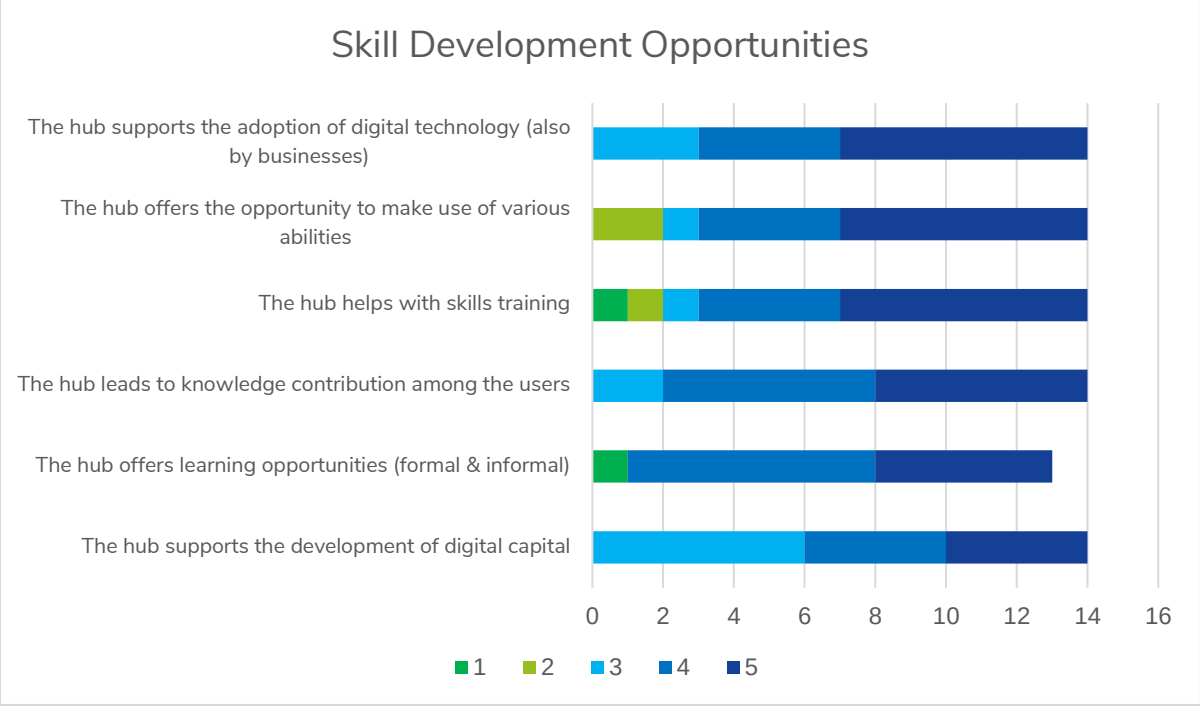


Figure 6 Skill Development Opportunities in a Digital Hub, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree. Data taken from Survey 2: Digital Hub Survey, only 13 of the 14 respondents completed each question, with the final respondent providing answers to some questions.

These results are the most positive, showing a clear link between the digital hub and the fostering of digital skills. In all cases, the majority of respondents agreed with the statements, showing digital 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

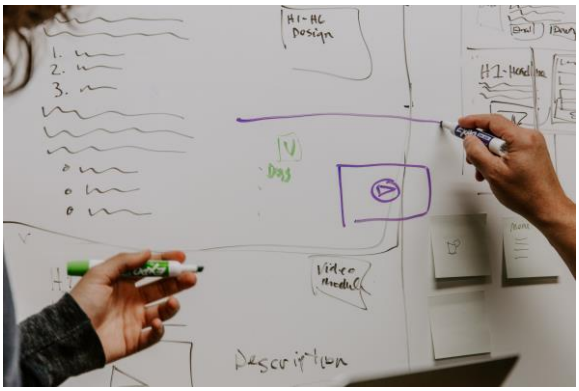
other projects, such as ENRD (European Network for Rural Development), 2017, who identified that digital hubs lead to improved digital skills and literacy of the wider community.

In sum, these results show that, at least anecdotally, there is evidence that digital 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 digital hubs alter the local digital environment?

Digital 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 2018 participants). If we look back to the summary provided by Toivonen and Friederici (2015), we can broaden the potential benefits of a rural digital hub outside of just business-focused statements to the following based on our findings:



- Digital hubs can build collaborative communities that foster both social connectivity and economic change (at the individual and collective level)
- Digital hubs can attract diverse members with heterogeneous knowledge which can collaborate and exchange knowledge
- Digital hubs can localise global entrepreneurial culture, supporting the diversification of rural economies
- Digital 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 a digital hub (our definition), the potential 'types' that exist (with examples), how these fit into the rural context and the reasons for choosing a digital 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 framework 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 digital hub development and what features play a role. We have done this based on the literature around digital hubs, and also by looking at digital hubs in reality, depicted in Figure 7.

Figure 7 Framework for a Digital Hub

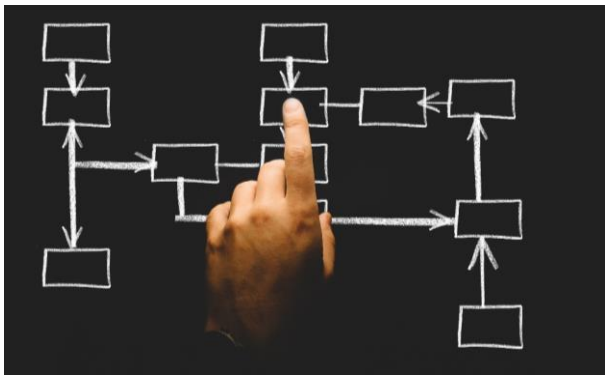
Broadly, the first step is to develop an understanding of your local digital environment. This involves assessing the broadband infrastructure, rates of broadband adoption and the digital skills within your region. The skills and development needs of the local community and/or businesses should also be considered. Ask yourself the following questions to determine what the digital needs of your area are:

- What is broadband coverage like across your region? Are all areas covered by super-fast broadband? Are there any 'not spots'?
- Where superfast broadband is available, is the service taken up by local residents and businesses?
- What digital support to rural businesses and communities already exists in your region?
- Are there any groups within the community who are less digitally engaged, or business sectors that show a lower propensity to adopt digital technology?
- What are the dominant or emerging sectors in your region? Are businesses in these sectors able to access the latest digital technology?
- Is your region a good location for digital businesses? Would a digital hub provide the opportunity to foster collaboration or facilitate co-location of the local digital sector?

Consider undertaking market research in this early stage to identify potential digital 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 2018 participants). Undertaking market research in the area you hope to reach was also identified as a key part of digital hub development through the CORA Annual Conference 2018 workshop. Participants identified the following statements as necessary when considering building a digital hub, which underpins the importance of conducting some form of market research and/or feasibility studies 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 how a digital hub could suit your local region. Additionally, the CORA Annual Conference 2018 participants identified that whilst you must speak with your region(s) before fully settling on an approach, it is important to *show* the opportunities and benefits of digital, to expand the knowledge of the population, and also to push a little to get people to consider new opportunities that simply were not thought of before.



By first developing a strong understanding of your local digital environment, you will be able to identify what the digital needs of your area are and if a digital hub will help address them.

If you have then decided to build a digital hub, we have identified a range of guiding questions, clustered around 10 themes, or steps, covering the main factors that you will need to consider in order to make your digital hub a reality.

4.1 10 steps to build a digital hub

The following steps provide information and guiding questions around 10 themes which will support you to develop a framework for building and operating your future digital hub. These can be viewed in any order and at any stage in the process.

1. Source of funding

- Where will your initial funding come from? E.g. private investment, regional development funds, national and/or local public funding, membership fees
- Do you have sufficient funding to cover start-up and running costs including:
    - Office lease or purchase costs for space
    - Staff time to set up, design the services and purchase relevant equipment
    - Branding and marketing to raise awareness of the digital hub and attract users
    - General overheads, maintenance and staff
- Will you implement a fee-based system to fund or subsidise the cost of running the digital hub? Is this a feasible approach for your target audience?
- If you have public grants to support the digital hub, is this available only for a limited period? Have you considered a sustainability strategy to ensure that the digital hub can continue to operate after the funding ends?

2. Strong leadership

Involvement from the local community, be it individuals or larger groups, is key at the early stages of digital hub development, and has been shown to be crucial throughout past research (ENRD (European Network for Rural Development), 2017). General dialogue concerning community participation and leadership, particularly within the rural setting, has been extensively studied and reviewed (Beer, 2014; Dinh *et al.*, 2014; Torgerson & Edwards, 2012; Skerratt, 2011; Simmons & Birchall, 2005). The presence of local leadership is important for any type

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Interreg North Sea Region CORA European Regional Development Fund
EUROPEAN UNION

of formal organisation and is widely considered to contribute to growth of places (Beer, 2014). Ask yourself the following questions:

- Do you have committed initiators or leaders from organisations such as local government, businesses, citizens groups, or from interested individuals to push the idea forward and see it through to completion?
- Can these committed leaders engage with the target audience to explore demand, and support market research during the set-up of the digital hub?

Strong leadership in C4DI, Hull, UK

A strong leader or facilitator is an important element of any digital hub. John Connolly, the Managing Director of C4DI, an incubator and co-working space in Hull, states that "facilitation is probably the most important role of the hub". While some digital businesses are good at networking, others benefit from being brought together with others to create more meaningful relationships. These can lead to the development of new ideas, mergers between businesses, and collaboration on potential contracts and other project opportunities.

- Can the digital hub initiator or leader provide a facilitation role to promote the digital hub, and ensure ongoing engagement with target users and sectors?

3. 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. 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. ENRD (European Network for Rural Development) 2017 identified that the space should be in an attractive location and good geographical position. Our CORA Annual Conference 2018 participants said it best when the highlighted that any new digital hubs should be "*integrated into a structure that feels natural to the area/people*". A digital hub does not need to be a new 'alien' presence in the rural landscape – it 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. Ask yourself the following questions:

- Is there a space already available within the community you are serving? E.g. local library, city hall, school or higher education institution, local business, office community
- What additional spin off benefits could co-location provide? E.g. shared staff, increased footfall to local businesses or other community services

- Is the building easy to access for your target audience? Is it close to transport links?
- What type of space would service your target audience? How attractive is it to them?
- Does it need to be a fixed space? If your digital hub is serving a dispersed rural population, could it be mobile?

> "*Find the right place where you can reach people*".
>
> CORA Annual Conference 2018 participants

4. SERVICE USERS

One clear challenge to the success of a digital 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 digital 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 digital hub (in this context 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 digital hub. It is important to think about how the digital 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 digital 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. Ask yourself the following questions:

- Who is your target audience? Have you engaged them in the design of the digital hub, and sought their views on potential services?
- Have you conducted market research or feasibility studies to explore the broader demand for services provided by the digital hub?
- Have you ensured that your users match the activities you are providing?
- How will you market the digital hub to service users? What are the key benefits for them and are there any success stories that you can use?

5. SCALE

- What is the size of the area or region that will be served by the digital hub?
- How big does your digital hub need to be to meet the digital needs of the users in this area?
- In your rural area how many potential users exist within a reasonable distance?
- What is your potential demand?

6. STAKEHOLDERS

Stakeholders are individuals or groups that seek to create and promote the digital hub. They may support conducting market research and/or campaigns to get people aware of digital hubs or the potential for a digital hub in the region (as identified by CORA Annual Conference 2018 participants). When we asked our initial survey respondents about who 'led' on the digital hub development, the stakeholders varied, although the focus was very much on local actors, such as local government, businesses and citizens (Survey 1: Project Diagnostic Survey.) Ultimately, stakeholders play a key role in ensuring the digital hubs success. It should also always be considered how stakeholders are engaged and how their engagement may change in the future. Ask yourself the following questions:

- Who are your relevant stakeholders locally, regionally or nationally?
- How will you engage them and ensure there is strategic leadership?
- What are the benefits of the digital hub to them? E.g. tackling digital competency gaps

7. STAFF

Evidence collected by ENRD (European Network for Rural Development) 2017, highlighted that a digital hub typically requires 1 to 2 full-time staff to set up, and staff to run the digital hub once operational (they may be the same, or different, people). These staff could have expertise in communication and networking, event management, technical skills and so on. Volunteers may also fill these roles. Well-developed research on volunteerism shows that relying on volunteerism can be a burden and potentially negatively impact the initiative; it can reflect short-term, or episodic, engagement, often leading to fluctuating and conditional participation patterns (Cavaye, 2001; Rochester, 2006). Ask yourself the following questions:

'Hubbits' at Horncastle Technology Hub, Lincolnshire, UK

The Horncastle Technology Hub operates within a business, Mortons Media, in the market town of Horncastle in rural Lincolnshire. The hub provides access to digitally-enabled technology, such as 3D scanners, printers and CNC milling machines that can be used by the local manufacturing sector. A distinctive element of the Horncastle Hub is the presence of volunteers – known as "Hubbits" – to staff the hub and provide technical advice to hub users. They are made up of interns from the local university and students participating in the Prince's Trust Scheme. The hubbits gain valuable work experience by volunteering, while the hub is able to offer a technical advice service for the local business community that does not incur expensive staff costs for its host business.

- How many staff do you need? Will staff be paid or volunteers?
    - What will happen if you can't find enough volunteers?
- What kind of staff roles will you need in the digital hub? E.g. technical support, trainers, business advisors, facilitators
- Do your staff have the passion and commitment required to open a digital hub and ensure its sustainability?

8. Skills

- Is there a skills gap in the rural area you are serving and how could the digital hub help address that?
- Do you staff have the relevant skills to support the digital hub or will they need training?

9. Services

First, in order to provide adequate digital services, a stable internet connection that suits the aim of the digital 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 was explicitly clear when we surveyed rural digital hubs as well, with 'Internet Access' identified as one of the most common functions (see Section 2.2.1). Secondly, our CORA Annual Conference 2018 participants strongly identified broadband infrastructure as a key *limiter* to digital 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 services provided by the digital hub could be limited because of the broadband access available. Therefore, it remains important to consider how the currently available infrastructure could limit the services provided and/or if you must reconsider the services you provide based on the broadband available. Ask yourself the following questions:

- What services and events will your digital hub offer? E.g. workshops or 1:1 training
- What technology will you need to provide to achieve your aims?
- Do you already have any physical assets that could be used within your digital hub?
- Are there any local services that could be co-located in the digital hub?
- What type of internet connection do you need?
- How will the current infrastructure limit opportunities for your digital hub?

> "*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

10. Sustainability

Operations and long-term sustainability of a hub must be considered and reconsidered over the lifetime of the project. This includes continually addressing features such as financial, technical and human resources. 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. Long-term technical support includes the understanding of technology to determine the best digital hub approach, the best equipment to offer, and of course, maintaining and replacing that equipment over

time. Human resources includes the passion and commitment from individuals/organisations to build and open a digital hub, and of course, staff and run it. Ask yourself the following questions:

- How will your digital hub be funded in the future? E.g. Public grants, private investment or fee paying users
    - How will you mitigate risks around future funding?
- Do you have a marketing strategy to encourage people to continue to use the digital hub?
- How can your digital hub attract new residents or businesses to the area?
- Have you considered future diversification? Do you intend to continue to offer the same services, or will your digital hub change and develop to fit with changing technology and the needs of your users?
- Do your staff have sufficient understanding of the technology and equipment to enable them to maintain and replace it over time?

> "*Making sure that the staff is a team that's working together to improve our community*"
>
> Survey 2: Digital Hub Survey respondent

SUMMARY

Importantly, reflecting and building these 'steps' for your digital hub is an **iterative** process. "...this *process* is the key to unlocking the lessons that hubs have to offer" (Dovey *et al.*, 2016, p. 9, emphasis added). For example, you may start with a strong idea about your intended services. However, should it become clear that the most appropriate space is not available, you may be required to adjust. Or, it might lead you to identify that your first investment priority is to achieve enough funding to create your ideal space. Similarly, if funding is difficult to source, you may go back and adjust your space or service that you will provide. Although we call these 'steps', they are not fixed, and can be viewed at any stage in the process to suit the reality of your future digital 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).

4.2 What are the main challenges of building and running a digital hub?

It is also relevant to consider challenges to digital hubs and what, once operating, could become a challenge. We asked existing rural digital hubs what the most common challenges are, and Figure 8 represents the response.

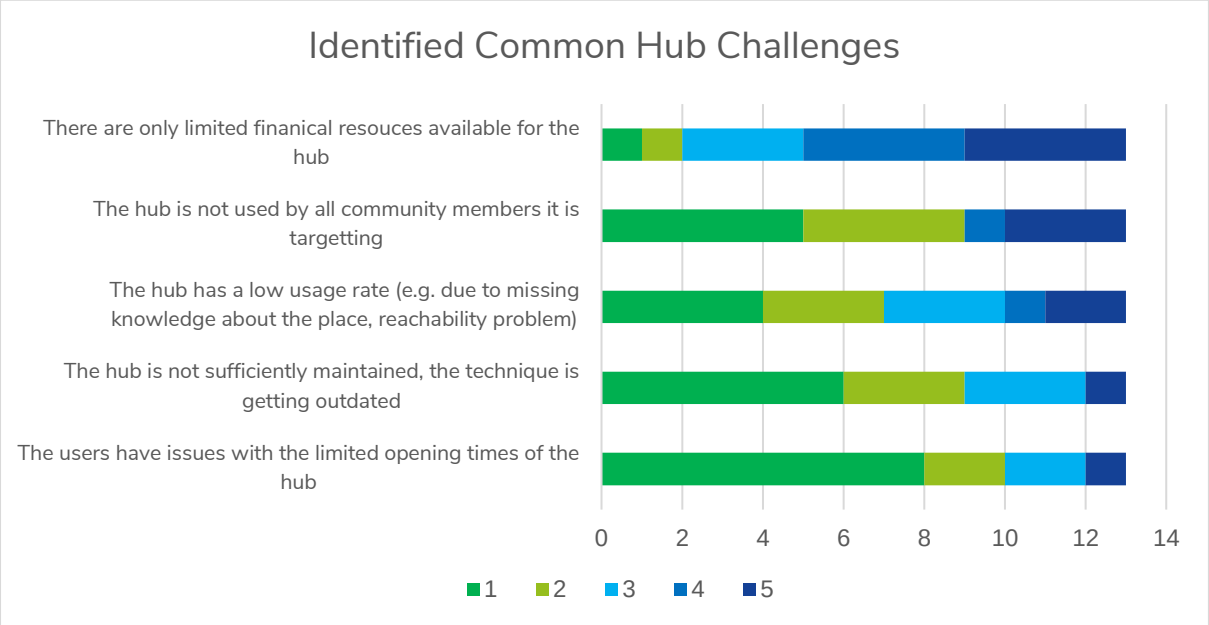

Figure 8 Identified Common Hub Challenges, on a scale of 1 to 5, where 1 is Disagree and 5 is Totally Agree. Data taken from Survey 2: Digital Hub Survey, only 13 of the 14 survey respondents completed this question.

Most significantly, digital hubs identified that limited financial resources were the most relevant challenge, followed by the digital hub not being used by all community members it is targeting. Key actions such as marketing were important to get the digital hub used by more people and diversifying the scope of activities offered were identified as potential solutions to such challenges. The CORA Annual Conference 2018 participants also identified funding as a critical issue, with local politicians often not engaging because digital hubs have long-term outcomes with no short-term political gains that they can maximise.

Financial resource requirements can vary widely depending on the size and location of the digital 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 9), we found that there was a large range of public grants being used to support

> "*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

digital 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).

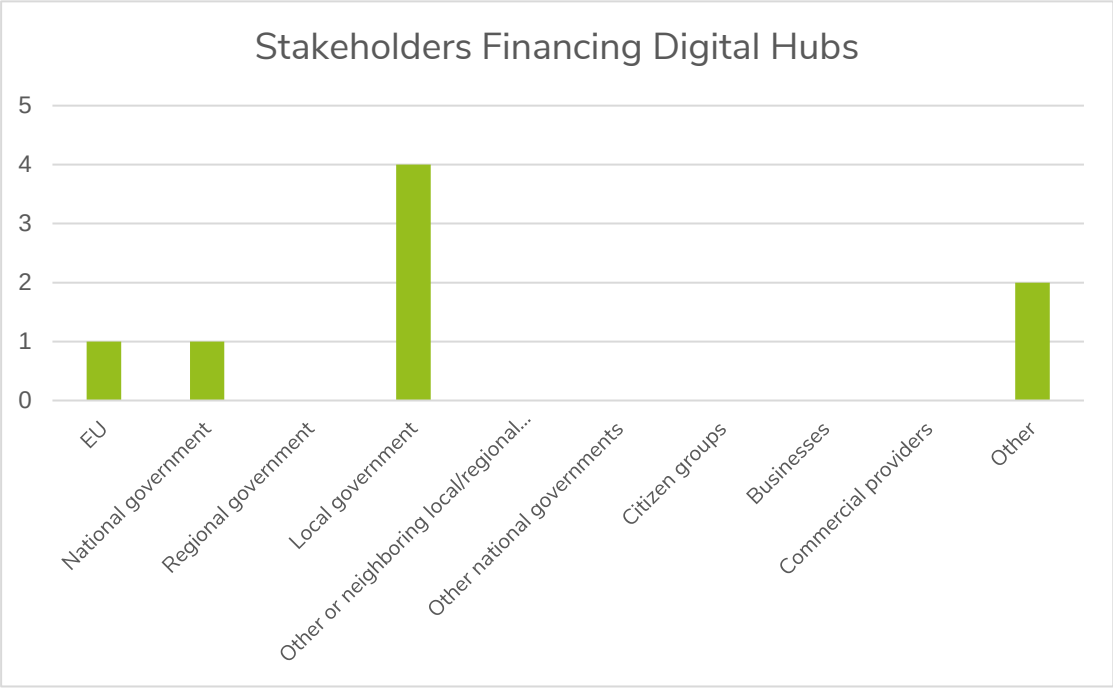

Figure 9 Financial stakeholders. Data taken from Survey 1: Project Diagnostic Survey.

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

Whilst these attributes can change over the lifetime of a digital 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 digital hub management and a key place for challenges to arise.

5 Impact Analysis of existing Digital Hubs

5.1 Introduction

As part of this Guide, we examine examples of the range of digital 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 digital hubs do contribute to the communities, and to the resilience of that community, shown in Figure 10. 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.

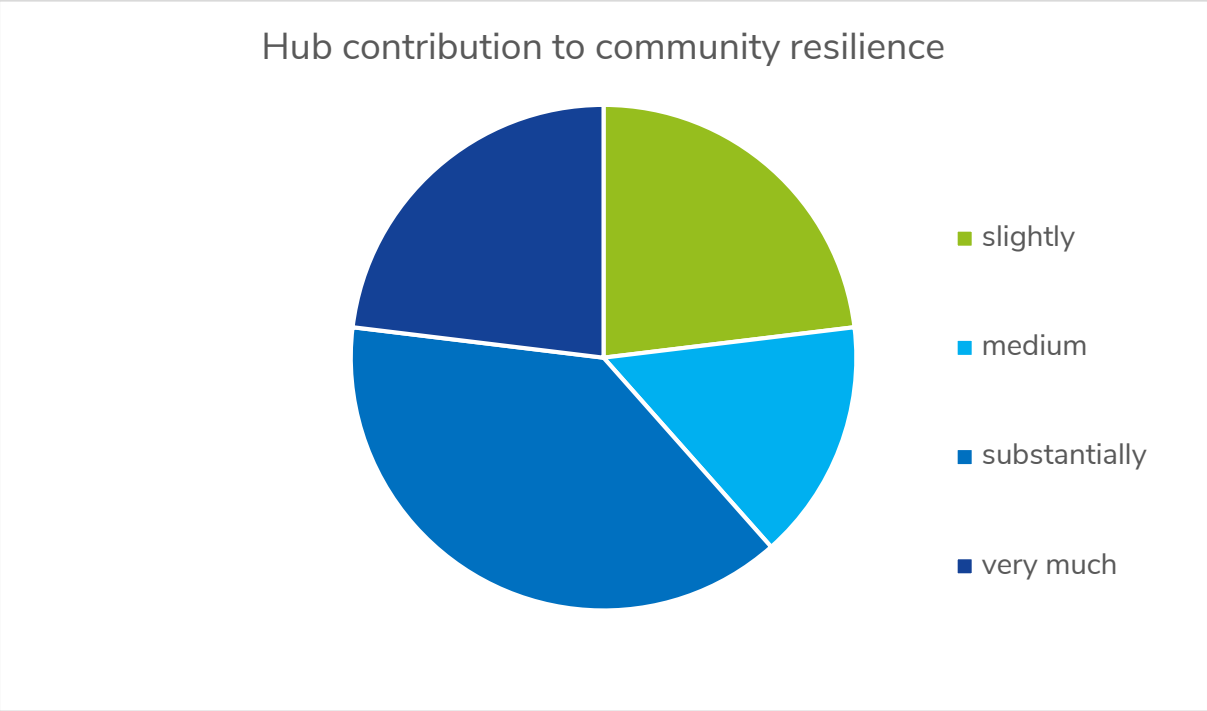

Figure 10 Hub contribution to community resilience. Data taken from Survey 2: Digital Hub Survey

To give readers a more in-depth view into the impact of digital hubs, we present three brief case studies[3]. For each case, we first identified which type (or types) of digital hub it represents. To remind our readers, we identified 4 main digital hub types, shown in Figure 11.

[3] The examples provided in this section were found through internet searching of digital hubs and were categorised by the authors. The named hubs were not involved in the production of this Guide.

Figure 11 Types of rural digital hubs

We then outlined the digital hubs' features using our 10 steps as the structure. Finally, we considered questions about impact and contribution to their respective communities. This information was informed by the online presence of each of the digital hubs as well as publicly available news and online sources for each digital hub.

5.2 Lincolnshire Technology Hubs, United Kingdom

The suite of Lincolnshire Technology Hubs[4] (encompassing three interconnected but distinct digital hub settings) represent two digital hub types: Advice, Training and Support, as well as Sector-specific.

Horncastle Hub

Designblok Hub

MoCap Hub

designblok

MORTONS MEDIA GROUP LTD

BusinessLincolnshire
The place to go for business growth

European Union
European Regional Development Fund

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Aim of the digital hub(s): To be a place where eligible businesses can receive business support and both use and borrow state-of-the-art equipment. The space may be used for education to encourage learning about technology, creation and innovation.

- *Source of funding:* The digital hubs were co-funded by the European Regional Development Fund (ERDF) and the local council.
- *Strong leadership:* Each digital hub has a dedicated contact person, and the County Council provides direct administrative support.
- *Service users:* All digital hubs target small and medium-sized enterprises.
- *Stakeholders:* The digital hubs began through conversations between Lincolnshire County Council and local businesses and were ultimately led by the County Council as part of the Onlincolnshire Programme (Price *et al.*, 2018). 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. Demon-

[4] Information about the Lincolnshire Technology Hubs was taken from their public website(s): https://www.designblok.co.uk/; https://www.businesslincolnshire.com/explore/funding/search/lincolnshire-technology-hubs/.

strations were vital to ensure the businesses could understand the benefits. The University of Lincoln also acts as a stakeholder and a host for two of the digital hubs.

- *Scale:* All three digital hubs target businesses in the Greater Lincolnshire area, although their varying 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 (as long as the business meets all eligibility criteria).
- *Space:* The three digital 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.
- *Services:* All the digital 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 to see how it could benefit the user's business. 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.
- *Skills:* No clear targeting in terms of digital skills in any of the three digital hubs.
- *Staff:* The digital hubs have a range of staffing models, with the two based in the University benefitting from University employees to provide support, and the Horncastle hub relies on volunteers, with the key contact being a staff member of the host business, Mortons Media.
- *Sustainability:* The digital 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. Funding still includes public grants.

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 digital 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 digital 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, France[5], represents an Incubator/co-working space, and has been running since 2014, with an expanded facility opening in 2016. They are officially part of the Mountain Coworking Alliance[6], which combines many co-working spaces located in mountainous regions together as a network of independent spaces.

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

[5] Information about The Ski Locker was taken from their public website: http://www.theskilocker.com/chamonix
[6] See http://mca-community.strikingly.com/ for details.

- *Source of funding:* 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.
- *Strong leadership*: The Ski Locker, Chamonix was led by local entrepreneurs and home workers that had a vested interest to develop and use a co-working space in the region.
- *Service users*: The digital hub targets businesses and businesspeople including startups; self-employed persons; teleworkers/remote workers, as well as visitors to the area that may need to make use of a working space. Mostly creative and tech industries.
- *Stakeholders*: Entrepreneurs of the local region 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.
- *Scale:* Targeting businesses and remote workers in the Chamonix area.
- *Space:* Located in a private building in the centre of Chamonix, just 100m from the main ski lift, with office space as well as a bookable meeting room
- *Services:* Offices for rent; meeting places; events; utilities for users (such as printers, desks)
- *Skills:* No clear targeting in terms of digital skills but provides utilities and fast internet access.
- *Staff:* The Ski Locker has several key contact persons (approx. 4), but also relies on the service users to support and maintain the space (I.e. report broken items, clean kitchen area, turn lights off if last person leaving etc.)
- *Sustainability:* 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.

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 digital 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 digital hub, which is hard to find elsewhere in Chamonix (Various, 2018).

5.4 Digiclare, Ireland

A Country Clare Council initiative, called Digiclare, Ireland[7], represents two types of digital hubs: a public internet access point and a co-working space. They officially opened in March 2018.

Aim of the digital hub: Provide access to broadband connectivity and digital technology to support rural social enterprises and the wider community by facilitating e-working, small-scale training and conferencing in the County Clare area.

- *Source of funding:* Local Authority investment. Users must pay for access (like The Ski Locker).
- *Strong leadership:* Digiclare is led by the Local Authority and has strong political support through the Clare Rural Development Strategy and a future Digital Strategy. This

[7] Information about Digiclare was taken from their public website: https://www.digiclare.ie/index.html

local political support appears to be critical to maintain and expand their digital hub network.

- *Service users:* 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, and; visitors would require office space and internet connectivity.
- *Stakeholders:* This digital hub was both led by and operated by the Local Authority (local government), Clare County Council as part of its Rural Development Strategy.
- *Scale:* The local region around each digital hub; County Clare (four locations)
- *Space:* Digiclare has four locations, Ennistymon, Kilrush, Miltown Malbay and Feakle. Ennistymon is located just off the high street in a purpose built premise, providing hot deks, co-working facilities, conference rooms and training rooms. 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 in a high street location Feakle provides hot desks, co-working facilities and a conference room.
- *Services:* Offices to rent; meeting places; events; general places for meetings and conferences.
- *Skills:* No clear targeting in terms of digital skills but provides utilities and fast internet access.
- *Staff*: Unclear, local council staff involvement likely.
- *Sustainability:* Same service to be provided over time, engage new individuals to increase user uptake.

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 digital 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 digital hub initiative represents part of the wider Clare Rural Development Strategy, which will ideally see the digital hub concept grow, and create new Broadband Hubs in other locations as well (Digiclare.ie, 2018).

As these are relatively new digital 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 region or group of people with digital technology and improving their digital skill competencies and networking opportunities, feeding into economic and social enhancement for those users.

The steps laid out in this Guide provide a diagnostic (rather than prescriptive) framework to ensure that a digital hub's potential is maximised. Importantly, when building and running a digital hub the process is iterative. Continuous evaluation of digital 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 digital hubs that provided information to our surveys.

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

- Digital hubs can build collaborative communities that foster both social connectivity and economic change (at individual and collective levels)
- Digital hubs can attract diverse members with heterogeneous knowledge which can collaborate and exchange knowledge
- Digital hubs can localise global entrepreneurial culture, supporting diversifying rural economies
- Digital 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 digital 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 framework of this Guide can assist – by walking through each step, and thinking about those challenges and conditions, you can gain clarity to support you on your digital hub development journey.

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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, and results are available on the CORA website, www.coraproject.eu.

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 digital hubs.

CORA Annual Conference 2018:

"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 digital 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.