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Digital inclusion network development: A case study in Derbyshire

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Executive Summary

The aim of this project was to investigate digital inclusion network building as a mechanism for reducing digital poverty. Analysing the specific case of a successful rural digital inclusion network in the UK, this case study provides essential insights into the experiences of those involved in the network and the steps taken to build a network that delivers digital inclusion across a region. The emphasis of this network is not on technological digital infrastructure networks such as fibre, broadband or mobile, but instead is on a network of organisations that provide social and community support through digital inclusion activities in the county of Derbyshire.

This project set out to:
1) uncover the drivers, benefits and challenges of creating a newly established digital inclusion network in Derbyshire, as an exemplary region with the need to address digital exclusion in both rural and urban areas;
2) reveal the motivations and challenges for organisations and individuals to join and be part of such a network;
3) reveal benefits and challenges involved in mapping digital poverty and digital training provision across the county.

This particular case study was purposefully selected due to a) its relevance to the British Academy policy insight call in relation to technology and inequalities; b) its exemplary nature, and therefore it can be considered as a paradigmatic case (Yin, 2009). Specifically, this case study investigates a local digital inclusion network that engages with the community sector across the rural region of Derbyshire, set up with the intention to reduce the digital divide in the region. What makes this study so noteworthy, and of interest to policy makers at local, regional and national levels, is the timeliness of this study which was undertaken at a time as the network itself was being developed, thus enabling the researchers to capture important insights into the network building activities and experiences of those involved in the network.

Building a digital inclusion network:
Ecosystem
Place
Role
Time

To achieve these insights, this project took a qualitative case study approach, by completing a series of in-depth semi-structured interviews and observations and document analysis. The data collected have been analysed and presented under four core themes: Ecosystem, Place, Roles and Time. This analysis resulted in the development of a 12 Principle Framework for building a local digital inclusion network and a series of recommendations.

A 12 Principle Framework to build and nurture a local digital inclusion network within the broader digital inclusion ecosystem
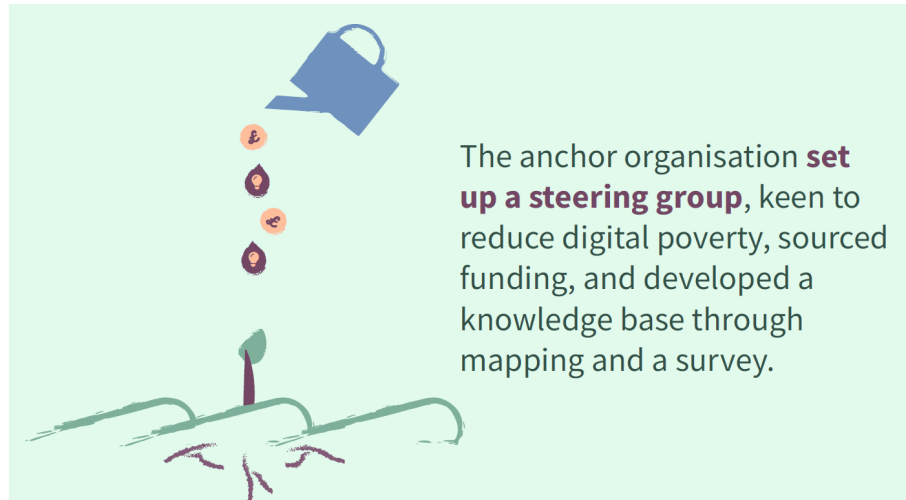
The 12 principles could be viewed as triggers that connect network-building activities, which lead to a network that continues to grow and flourish, and brings benefits to the communities it supports, the organisations themselves that make up and engage with the network, and ultimately the digital inclusion ecosystem as a whole. These principles can be adapted to different local and hyperlocal contexts and applied by organisations seeking to develop a local digital inclusion network. They also provide a framework to understand what building and supporting a local digital inclusion network may imply. We have divided these principles into 'network enabler' and 'network nurturer' activities, and listed them in chronological order.

1. **(Network enabler) Catalyst moment of anchor organisation** - A well-established organisation that operates across a rural region to ensure no-one is unfairly disadvantaged because of where they live, takes the strategic decision to develop a digital inclusion network to help reduce the county's digital poverty.

2. **(Network enabler) Funding** - The anchor organisation is enabled to do this by applying for funding to run a digital inclusion project. Such funding is required to fund staff time, purchase devices to distribute to community organisations (e.g., Food Pantries, community organisations) and to cover costs associated with mapping and network building activities and events.

Networks need **time** to develop and expand, but also time is required so that certain outcomes can be achieved.

3. **(Network enabler) Develop knowledge base through mapping and survey -** To gain a knowledge base of the current situation across the region and working with a partner organisation, the anchor organisation organises a mapping exercise, to map the likelihood of digital poverty and existing digital inclusion delivery across the region. This reveals potential gaps in digital inclusion provision, while also highlighting opportunities to work with communities and other partners to develop and pilot new digital inclusion projects, and join up organisations who can share resources and volunteers.

4. **(Network enabler) Formation of steering group** - By drawing on their engagement with voluntary, community and social enterprise (VCSE) organisations and other services across the county, the anchor organisation sets up a steering group with key organisations across the county, keen to drive forward the formation of a digital inclusion network in an effort to reduce digital poverty. Members of the steering group (both paid and unpaid) undertake a number of roles and are pivotal in the development and maturity of the network.

The anchor organisation **set up a steering group**, keen to reduce digital poverty, sourced funding, and developed a knowledge base through mapping and a survey.

5. **(Network enabler) Taking a place-based and space-based approach** - The network develops **place-based** interventions by working collaboratively with the people who live and work locally, which allows it to gain an understanding of the contextual conditions and needs of the community, but also of the assets, resources and geography of different localities and organisations. Both the network and organisations within it learn and develop a **space-based** approach, putting care in the design of the environment and spaces where both the network and the people they serve meet, which needs to be welcoming and conducive to socialisation, collaboration, and learning.

Developing **place-based interventions** to gain understanding of the needs of the community.
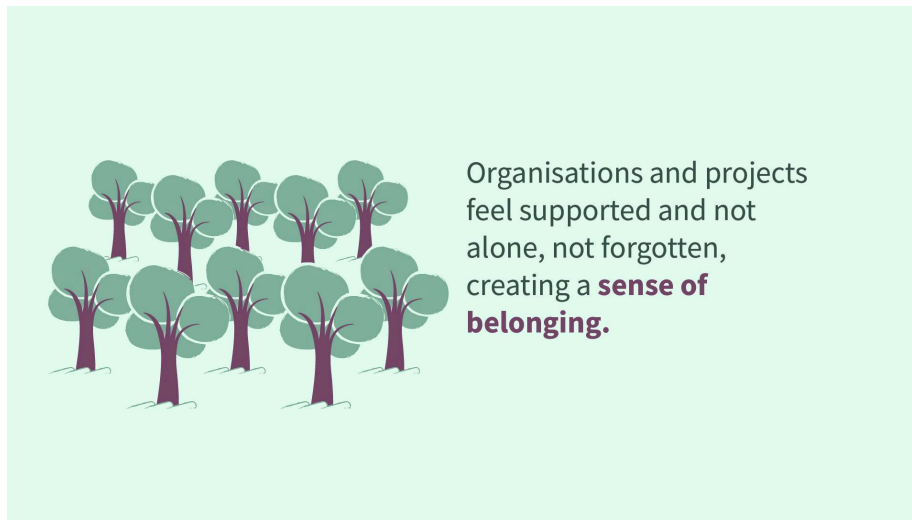
6. **(Network nurturer) Network engagement activities** - To build the network and enable the network to grow, the anchor organisation holds regular online meetings and sends regular email communication to share best practices and resources, to connect existing and developing digital inclusion projects within the network, to enable projects and actors to support one another, and to spot opportunities for collaboration.

7. **(Network nurturer) Cultivating relationships** - The anchor organisation follows up by proposing more engagement activities aimed to create more opportunities for members to meet and know each other. These may include online presentations by guest speakers or leaders in the network, e.g., by individuals delivering or designing digital inclusion activities or researchers and experts in the field. Relationships are also nurtured with key community stakeholders - or "connector catalysts", who are able to forge links and promote participation in a hyperlocal context. Such cultivating activities enable the network to grow and flourish, and strengthen the resilience of the local VCSE sector.

Follow on activities by the anchor organisation cultivated **relationships**. Enabling the network to strengthen the resilience of the local VCSE sector.

8. **(Network nurturer) Capacity building** - The evolution of the network fosters a synergistic environment where interconnected organisations collectively enhance their strength, enhancing their capacity to promote digital inclusion. This is achieved through the collaborative sharing of knowledge and resources, which enables the capture of the plurality of their voices. This also has the potential to enable organisations to access more individual funding, as they share information and know-how on grants and application, and experiences of delivering funded projects.

9. **(Network nurturer) Dynamics of the network** - The evolution of the network also means starting to gain an appreciation that the network is not static and changes over time. Member organisations will come and go as the network grows and shrinks; fragmentation of the network develops as organisations leave, do not feel part of it anymore, or decide not to join it. It is not realistic to think that all projects and organisations delivering digital inclusion in the region will want to associate with the network, as they may feel they have different goals, agenda, not enough time and resources, or that they are not a good fit for the network. External factors such as

competition for funding, cost of living crisis, reaction to post Covid conditions, staffing also impact the membership and dynamics of the network.

10. **(Network nurturer) Capturing the specific characteristics of the organisations within the network** - As the network comprises organisations of differing sizes and models (some staff-led, some volunteer-led, some both), where digital inclusion is either the main goal or, more often, one of many social activities that they provide, it is important that the network develops a good understanding of their specific needs, priorities, strengths, ways of working, and even feelings - as some may participate in the network for different reasons, with differing levels of frequency, and can bring different strengths to it.

Organisations and projects feel supported and not alone, not forgotten, creating a **sense of belonging.**

11. **(Network nurturer) Developing sense of community within the network** - As the network matures, organisations and projects feel supported, not alone and not forgotten. This creates a sense of identity and belonging. At the same time, this helps the network to keep sharing information and help organisations improve access to resources and funding.

12. **(Network nurturer) Being responsive and innovative to the needs of the network -** Being in the network allows organisations to be aware of the latest digital inclusion resources, approaches, methodologies, and ways to evaluate and capture data. It is also a 'conduit' that facilitates connecting needs and resources within the network and with wider networks as well. This may involve linking civil society organisations with organisations that provide sustainable solutions to organisations, such as the provision of donated or refurbished digital devices. Essentially, the network acts as a bridge, fostering collaboration and synergy between different entities at different levels, and linking together organisations that would not have been able to connect otherwise.

Recommendations for policy

We provide a list of recommendations that support effective digital inclusion provision and network development. These recommendations highlight avenues for both local and national governments to invest in, facilitating the achievement of public objectives while mitigating rather than worsening existing inequalities. These recommendations are specifically designed for policy makers at the local, regional and national levels, and in developing them, we have considered aspects of feasibility, need and desirability.

Local-level digital inclusion networks, guided by the 12 Principle Framework we propose, should be viewed as an effective strategy for diminishing digital poverty and digital exclusion.

- These networks have the capability to connect local support and knowledge with larger regional and national networks, as well as with organisations and intra-government agencies working in this domain. The implementation of the principles should be achieved by regional and local governments (Mayoral Combined Authorities, City Councils, etc.), and it necessitates the financial and organisational support from the national government.

Local digital inclusion networks made up of community and civil society organisations can be used to effectively distribute the provision of donated or refurbished digital devices as they understand the local need, have local contacts, and can distribute effectively and at speed.

- This requires local and regional partnerships between 1) industry actors (such as equipment retailers and service providers, to provide equipment, data plans and after care), 2) local authorities and 3) civil society organisations (the last two to identify beneficiaries and distribute devices).

Efforts to reduce digital poverty by digital inclusion networks, and those organisations managing and/or operating within a digital inclusion network, need to be recognised and valued by local, regional, and national policy makers in the digital inclusion realm, and they need to be embedded in future digital inclusion strategies in local, regional and national level policies.

- The initial step should involve consultations aimed at directly involving these stakeholders in the development of digital inclusion initiatives and projects both at the national and the regional levels. In addition, considering the focus of such consultations (digital inclusion, and local nuanced needs), national policy makers can showcase their commitment and their acknowledgment of such local efforts by conducting consultations locally, through in-person visits, rather than centrally (London-based) or online.

Whether a network is successful or not hinges on the longevity of the network and its maturity.

- Networks need time to develop, identify synergies, and expand their reach. This temporal dimension is crucial for achieving specific outcomes, as it allows for the development of impactful results over time. In essence, the financial and organisational support extended to these networks should be long-term to allow networks to come to fruition and achieve sustainable benefits. Similarly, local organisations should be enabled to spend for their local needs and with as limited as possible constrictions: funding that is ring-fenced for specific activities, materials, or directed to specific categories of people is often problematic to respond to on the ground long-term needs. Besides funding, other long-term forms of support include opportunities for (continuous) training and for cross fertilisation of ideas and insights, whereby network actors can come together and discuss common challenges and possible solutions, with each other as well as with policy makers, who can extend their support.

Referral mapping exercises need to be promoted as tools to leverage the collective knowledge of networks' members.

- It is paramount to design mapping tools and processes that are sustainable, i.e. tools and processes that have the resources and can be easily and frequently updated, and, thus, reflect the dynamic nature of the network and its resources availability - or needs - in real time, so to avoid them becoming quickly obsolete. This recommendation is more relevant to local authorities and organisations, but we find that often this is easier done when such mapping takes place as part of a partnership between e.g., local authorities, charities and higher education institutions, as a diverse skill set is required.

Place-based interventions need to be developed by working collaboratively with the people who live and work locally and who already have an understanding of both the contextual conditions and needs of the community, and of the assets, resources, and geography of a locality.

- While mapping exercises and big data analyses can be useful, they can only provide a general, macro level overview of the local needs; on the ground, at the micro level, such needs can vary significantly - and often do. We recommend national and regional policy makers to work closer to 'the grounds', and embrace more qualitative, nuanced methodologies for identifying needs and interventions that can address them. This is typically acknowledged by local governments. However, this work is resource-intensive and costly for local authorities. We therefore recommend national policy makers to support such qualitative work with dedicated funding.

For third sector organisations and the voluntary sector, attention and care in designing and organising the place and space where organisations and people gather is an integral part in fostering networks and helping digital inclusion.

- The design of spaces should prioritise being welcoming to people, facilitating interpersonal interactions, and ensuring inclusivity. Funding for such spaces should be facilitated by national and regional governments as part of digital inclusion networks and initiatives. Local governments should prioritise maintaining these dedicated and curated spaces.

For regional and local governments, rather than addressing digital poverty in a vertical, siloed way, we recommend planning across operational and strategic units of local authorities following a 'horizontal' approach.

- This would enable work of separate units to be cross fertilised and tackled using fewer, but better orchestrated, resources. This will reduce the load on volunteers, create synergies and efficiencies, and embed accountability and responsibility.

Network-enabled digital inclusion requires identifying ways to provide long-term support, so that they can build up and sustain digital inclusion in place.

- Digital inclusion champions (paid and unpaid), volunteers, funding, places, spaces and resources need to be available over a longer period of time to accommodate multiple and repeating sessions, to meet the digital needs of citizens that may be changing in different phases of their lives and with the continuous technological advances. The over=reliance on volunteers within digital inclusion activities leads to fragmented efforts, as ultimately there is no one person responsible or accountable for carrying forward initiatives. We recommend more national, regional and local level funding to be dedicated to permanent digital inclusion roles at the local levels.

At a time where organisations delivering digital inclusion activities have had to constantly adapt their practices, as a legacy of the Covid-19 pandemic (Mathers et al., 2020), and in response to the cost-of-living crisis, this research will have significant implications for policy and practice, and contribute to academic research.

1.0 Introduction

The aim of this case study is to provide empirical and theoretical insights into the importance of network building among organisations that provide digital inclusion activities to increase the future resilience and sustainability of digital inclusion provision. To do that, this case study sets out to 1) uncover the drivers, benefits and challenges of creating a newly established digital inclusion network in Derbyshire, 2) the motivations for joining and being part of such a network, and 3) to reveal issues involved in mapping digital poverty and digital training provision across the county. The focus of this case study is a digital inclusion network in Derbyshire. For anonymity purposes, the name of the network has been assigned the pseudonym Dedicated Digital Inclusion Network, from now on referred to as DDIN, and the name of the organisation behind setting up the network has been assigned the pseudonym Rural Business & Community Foundation, from now on referred to as RBCF.

This particular case study was purposefully selected due to a) its relevance to the British Academy policy insight call in relation to technology and inequalities; b) its exemplary nature, and therefore it can be considered as a paradigmatic case (in other words, the chosen case is what is called an intrinsic case study and has been chosen specifically because of its uniqueness rather than prospects of generalisability) (Yin, 2009). Specifically, this case study investigates a local digital inclusion network that engages with the community sector across the rural region of Derbyshire, set up with the intention to reduce the digital divide in the region. What makes this study so noteworthy, and of interest to policy makers at local, regional and national level, is the timeliness of this study which was undertaken at a time as the network itself was being developed, thus enabling the researchers to capture important insights into the network building activities and experiences of those involved in the network.

This case study builds on previous research commissioned by the British Academy on digital poverty (British Academy, 2022), and the call for mapping exercises and knowledge sharing forums to help overcome the lack of joined-up thinking between policy and digital inclusion provision (Mason et al., 2022; Wagg, 2021). Specifically, this case study will contribute to academic literature looking at contextual conditions and socio-economic development, and literature looking at fostering situated capacities and networks (Marais and Vannini, 2021; Choudrie et al., 2021), and provide evidence and clear, practical lessons for policymakers at central, regional and local levels. From a policy perspective, insights gained from this case study will be used to 1) offer recommendations that other UK local-level organisations can adopt to develop digital inclusion networks and mapping exercises that increase the future resilience and sustainability of digital inclusion provision, and 2) provide recommendations for the UK government's Digital Strategy (DCMS, 2022) and the Digital Inclusion Strategy (Cabinet Office, 2014) to help the UK government support and invest in its delivery of public objectives, that alleviate rather than exacerbate inequalities.

The research objectives we aim to address are to:

● Investigate the key drivers, benefits and challenges involved in creating and developing a digital inclusion network.

● Investigate the motivations and challenges for organisations delivering digital inclusion activities choosing to be part of such a digital inclusion network in the context of post-pandemic and the cost of living crisis.

● Explore approaches taken to map digital poverty and digital inclusion needs and activities and the inherent challenges/limitations in this process.

2.0 What we already know about Digital Inclusion and Digital Inclusion Networks

2.1 Some key terms

Before exploring the literature, we have briefly summarised some key terms frequently referred to.

Digital Inclusion
Digital inclusion refers to the efforts and policies aimed at ensuring that all individuals and communities, including those traditionally minoritised or underserved, have access to and are able to effectively use digital technologies. This encompasses access to the internet and digital devices, as well as the skills required to navigate and participate fully and meaningfully in the digital world. The goal of digital inclusion is to reduce the digital divide and ensure that everyone can benefit from the opportunities offered by digital technology.

Digital Exclusion
Digital exclusion refers to the lack of access to, understanding of, or effective use of digital technologies. Individuals or communities experiencing digital exclusion may face barriers such as a lack of access to reliable internet connections, affordability issues, or a lack of digital literacy skills. Digital exclusion can result in limited access to information, education, employment opportunities, and essential services available online.

Digital Poverty
Digital poverty is a concept that highlights the economic and social inequalities associated with inadequate access to digital resources. It usually focuses more on issues such as the affordability of technology devices and their maintenance, the cost of internet services, and the availability of relevant digital content. Digital poverty reflects the idea that being unable to afford or access digital tools and services can lead to social and economic disadvantages in an increasingly digitised society. Addressing digital poverty involves tackling both the physical and financial barriers to digital inclusion.

2.2 Increasing Digital Exclusion in an increasingly digital world

Existing literature and policy reports on digital and digitalisation indicate that there is further need to explore and understand whether and how initiatives within the broad areas of digital

inclusion, local networks and place-based approaches, can address digital inequities (e.g., Smith et al. 2010; Park et al, 2019).

Progressive digital policy agendas, such as digital-by-default have resulted in products and services becoming digitised, and organisations increasingly engaging with their clients through digital. However, despite the increased affordability and the ubiquity of digital technologies in almost every aspect of everyday life, access to and the use of technologies remains unequal and problematic. The root cause for this is quite complex, and may be a combination of things that compound each other. For example, despite the existence of affordable devices (e.g., low-cost smartphones), getting and remaining online can be prohibited by the increased cost of living with utility bills continuously increasing, and being prioritised over broadband bills (Nathanial-Ayodele and McGrath, 2023). Equally, even when such costs are not an issue (e.g., financially better off households), geography plays a crucial role as it may enable or restrict connectivity (e.g., rural and hard to reach areas with little/no broadband infrastructure).

In addition to the above, the Covid-19 pandemic and the implications stemming from it have exposed and accentuated inequalities with digital. During and after the pandemic, one can observe the accelerated adoption of digitally-enabled solutions to deliver services to confront and overcome the pandemic, such as the NHS Covid-19 contact tracing app (Eom and Lee, 2022). Yet, as the evidence shows, while such initiatives allowed for business continuity (Zamani et al., 2022), they have also exacerbated and further deepened digital exclusion, and drew attention to the fact that a lot more people and communities can be digitally excluded compared to past simplistic divisions of 'haves' and have nots' (Zheng and Walsham, 2021).

2.3 Digital Poverty

The multitude of factors which contribute to digital poverty are complex. Zamani and Vannini (2022), for example, posit that digital poverty will be the result of multiple deprivations (education, employment, health etc), access/no access to broadband infrastructure, as well as demographics, which are not restricted to binary approaches (e.g., woman/man, young/old) but rather the confluence of a number of such characteristics and which exists along a spectrum.

Such complexities, and together with the tendency for digital inclusion projects to be funded on a short-term basis, makes the task of implementing workable digital inclusion initiatives challenging for policymakers (Bach et al., 2013) and further reduces the probability of such projects gaining support from local communities (e.g., Madon et al., 2009). Organisational literature also indicates that such short-term interventions often fail because they do not allow nor consider how the community might be empowered by the provision and because the short-term cycle means there is little time to cultivate the required digital culture on the grounds, i.e., scaling is also a crucial factor (Hemerling et al., 2018).

Further to the above, digital poverty is especially challenging in rural communities due to the variability in access to and distribution of technological infrastructure, technological capabilities and human capital, but also issues in terms of both culture and processes (Philip and Williams, 2019; Wagg and Simeonova, 2022), and continues to be a problem in the UK

(Allmann, 2022). To address digital poverty, digital inclusion has been seen as a priority issue by policymakers around the world (Diaz Andrade and Techatassanasoontorn, 2021; Faith, Hernandez and Beecher, 2022). In the UK, this is illustrated through the release of the government's Digital Inclusion strategy (Cabinet Office, 2014), and a growth of digital inclusion initiatives (Mervyn et al., 2014).

2.4 Digital Inclusion Activities

Typically, digital inclusion activities are provided through digital skills training and social support (Damodaran et al., 2018; Asmar et al., 2020), and delivered by a plethora of organisations, such as public libraries, advice centres, service providers, adult education organisations, housing associations and learning centres, and sometimes banks and telecommunication corporations (Al-Muwil et al., 2019; Reisdorf and Rhinesmith, 2020). However, not all digital inclusion initiatives have proven successful (Madon et al., 2009; Helsper and Reisdorf, 2017; Davies et al., 2017), and despite calls for further insights on digital inclusion, extant literature tends to be dominated by research from a 'digital skills deficit' perspective with limited attention on contextual conditions (Vannini et al., 2017; Lythreatis et al., 2022). Indeed, extant policy initiatives are also dominated with this perspective, as for example the 2022 UK Digital Strategy, which perceives digital skills as core to the country's growth and competitiveness, and its long-term prosperity (UK Digital Strategy, 2022). In light, however, of what we currently know in terms of digital poverty, its root causes and far-reaching implications, such a 'deficit' approach raises questions about the current policy discourse of digital inclusion provision and changes required to support communities effectively in reducing inequalities.

2.5 Digital Inclusion Networks

A recent trend that appears to be fostering change within the digital inclusion realm is network building and mapping (Wagg, 2021; Mason et al., 2022). This trend specifically refers to networks of organisations that provide digital inclusion activities through social and community support, opposed to broadband or mobile infrastructure networks. National digital inclusion networks in existence include the National Digital Inclusion Network (formerly the UK Online Centres Network); the Digital Inclusion Network (operated by the National Digital Inclusion Alliance in the US) and the LGA Digital Inclusion Network (convened by the Local Government Association). As well as connecting organisations with a similar agenda, these networks often provide a forum to share information and knowledge on digital inclusion activities and advice on funding and evaluation. Furthermore, national digital inclusion organisations are increasingly encouraging individuals engaged in delivering digital inclusion programmes to collaborate and establish a local or regional community or network of 'intermediary' organisations for the purpose of sharing information and knowledge about digital inclusion activities (Wagg & Simeonova, 2022). Other similar national networks in the UK include Digital Unites Digital Champion Network, which supports organisations and their digital champions by providing them with online training and support. However there appears to be less knowledge and understanding about local-level digital inclusion networks and their associated activities that operate at a local and regional level.

In addition, as part of the drive to understand digital poverty, there is a growing trend in regional mapping exercises to locate where digital inclusion initiative provision is required, specifically in areas with indicators of multiple deprivation, poor digital connectivity, and where there are gaps in training provision. Projects that have undertaken such activities include the LOTI Digital Inclusion Innovation Programme, (LOTI, 2022) and the Greater Manchester Digital Skills map (GMCA, 2023). Similarly, the University of Sheffield carried out a mapping exercise to understand digital poverty in the South Yorkshire region (Zamani & Vannini, 2022). Open-source tools used to support such activities also exist such as the Digital Exclusion Risk Index (DERI).

However, the usefulness of such mapping is short-term: communities' and people's circumstances can and often do change, local digital inclusion provision cannot be always usefully reflected, and most such mapping exercises leverage datasets that only reflect such circumstances solely at a single point in time. Having said that, they can be powerful tools for identifying places of greater need and therefore developing place-based interventions.

2.6 In conclusion

With a specific focus on the DDIN, this case study provides an opportunity to gain a better understanding of developing local digital inclusion networks and the associated activities of mapping digital poverty and local digital inclusion provision. As an under-researched area, this case study intends to build on the literature that looks at contextual conditions and the fostering of situated capacities and networks, and provide policy insights into increasing the future resilience and sustainability of local digital inclusion provision.

3.0 What we learned from our DDIN Case Study

This policy insight study has enabled a greater understanding of network building among organisations that provide digital inclusion activities, and generated insights on digital inclusion network development. To achieve these insights, this project took a qualitative case study approach, by completing a series of in-depth semi-structured interviews and observations and document analysis. This study was particularly interested in looking at a local digital inclusion network with ties to the community and work on the ground. However, it gave us insights also into digital inclusion networks at national levels and how these interconnect, as well as how these can work together and improve, both individually and as a 'collective of networks' - as they are complementary and both are needed.

What follows are insights into the journey of the development and ongoing implementation of a rural digital inclusion network and the experiences of those involved. We started by analysing documents to gain an understanding of the journey of the DDIN prior to our involvement with the project, of the activities undertaken to initiate and develop the network, and of the contextual conditions within which the network is situated.

3.1 Context of DDIN

The headquarters of the DDIN (RBCF) is situated in the county of Derbyshire in the East Midlands of the UK. A largely rural county, it contains many sparsely populated areas

alongside larger built-up urban conurbations. The county covers an area of 2,625 km^2 (1,014 sq mi) and is home to the Peak District National Park. Derbyshire has a total population of 1,053,316 people, which includes an increasingly ageing population with the 85+ population set to double by 2043. The county is also home to many rural businesses, farms and individuals working from home.

3.2 Background of the DDIN

The DDIN was set up by what we call an 'anchor organisation' - an organisation that had the catalyst moment and vision to drive forward the development of a digital inclusion network to help reduce the county's digital poverty. This organisation is a well-established charity organisation (RBCF) that has been operating across Derbyshire for just under 100 years. Operating as a lead partner in the rural county's voluntary sector, the aim of this charity is to ensure that no-one is unfairly disadvantaged because of where they live. Activities the charity is involved with include a village halls and community buildings advisory service, domestic abuse awareness, food bank support, a community oil buying scheme, and a travel scheme. As such, RBCF has built a good understanding of the differing contextual conditions in the region and needs of the community.

With the support of key digital leads from digital inclusion projects across the county, RBCF took the strategic decision to help reduce the county's digital poverty through the development and facilitation of a digital inclusion network. With this support RBCF successfully bid for funding from NHS Charities Together, awarded in April 2022, to run a two year digital inclusion project. The aim of the project was to:

• Map digital inclusion offers across the county
• Establish a digital inclusion network in Derbyshire
• Collaborate with communities and partners to develop digital inclusion pilot projects
• Enable Derbyshire residents to access digital platforms safely and securely
• Support delivery of digital inclusion initiatives that improve the wellbeing of residents
• Increase the number of active digital champions in the county
• Strengthen the digital resilience of the county's VCSE sector

3.3 Developing a knowledge base

Recognising that digital skills training is not a one-size-fits-all approach, RBCF sought to gain a knowledge base of the current digital inclusion situation across the region. RBCF collaborated with a partner organisation, to distribute a digital inclusion survey of the VCSE sector across the county. This survey received over 90 respondents and provided a benchmark for RBCF to gain an understanding of the range of digital inclusion activities happening across the county, the organisations involved and their locations. This partner organisation also undertook a statistical analysis of digital exclusion in Derbyshire, as illustrated below in Figure 1.

Digital Exclusion Stats - Adults in Derbyshire

7.6% Have no internet access at home

39% don't have all essential digital skills for work

14.1% Don't have a smartphone

8.4% Are offline

18.8% Don't have a laptop / PC

Estimates calculated by Citizens Online using population data from Census 2021 and Lloyds Consumer Digital Index, 2019 (for Data about devices and internet access at home); Lloyds Digital Skills Report 2021 (for Digital skills); ONS Internet users 2020 (for people who are offline)

Figure 1: Digital exclusion stats - adults in Derbyshire

3.4 Digital exclusion mapping

A digital exclusion risk mapping exercise was also undertaken using the Digital Exclusion Risk Index (Greater Manchester Office of Data Analytics). This was done by combining data about three risk factors: connectivity, demography, deprivation. Figure 2 shows the risk of digital exclusion (red indicates areas of highest risk of digital exclusion). The combination of the survey and mapping exercise also revealed key priority issues, including overcoming indifference, online safety fears, the need to deliver one-to-one support at home, isolation, and tackling rural digital challenges, and that South Derbyshire requires the most digital support across the county.

The reporting on the mapping exercise concluded that whilst mapping is useful, it does have its limitations due to the complexity of digital exclusion and the need for more granular data. Digital exclusion can be everywhere.
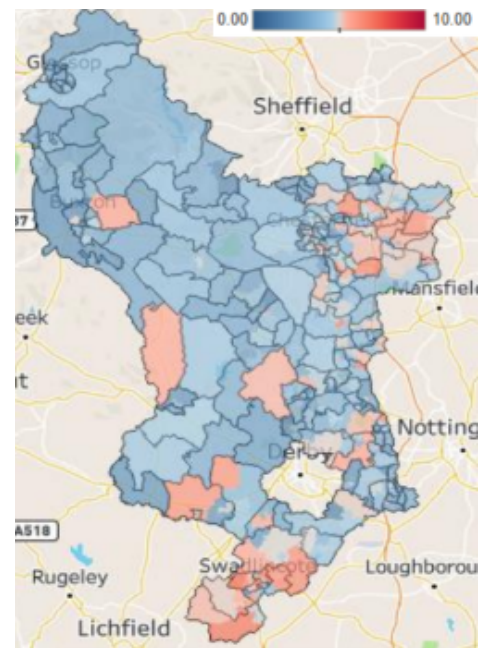

Figure 2: Risk of digital exclusion in Derbyshire

However, the survey and mapping exercise did result in gaining a better understanding of the gaps in digital inclusion provision across the county and the needs of those who are digitally excluded. The survey also revealed that the VCSE sector would like to offer more digital support to its beneficiaries, but were limited due to staff capacity, funding, suitable space and resources, recruitment and retention of volunteers, knowledge and confidence. This led to the co-creation of a Derbyshire digital support referral map to help the community, referral agencies and partners to locate digital inclusion activities across the county and to provide organisations providing digital inclusion support across the county a space in which to provide up-to-date information about their offers.

3.5 Network building activities and communications

By drawing on their engagement with VCSE organisations and other services across the county, RBCF set up a steering group with key organisations across the county, keen to drive forward the formation of a digital inclusion network in an effort to reduce digital poverty. This appears to be a crucial step in the development of the digital inclusion network as organisations came together with shared values and drive to help facilitate the development and building of the network that enables information sharing, signposting and collaboration.

To build the network and to enable the network to grow, RBCF provided regular communications. This was done in the form of network meetings with key digital project leads, VCSE and other partner organisations with an interest in digital inclusion and regular email communication. This involved the development and circulation of a network newsletter to network members that included news of the latest digital inclusion activities and projects across the county.

Communication was also available through dedicated web pages on the RBCF website, that provided network members information on how to access online training opportunities, online safety, project news, funding opportunities, how to access low cost devices and laptop recycling schemes; where to get digital support in Derbyshire; digital project & champion resources; cost of living support and winter pressure support for vulnerable digital clients.

These network building communications were designed to help the community and referral agencies and other network projects to find digital skills support, access affordable devices and data. Follow-on engagement activities enabled the cultivation of relationships within the network. Such activities included online presentations by guest speakers from key organisations within the network, or associated with the network such as individuals delivering and/or designing digital inclusion activities, and academics and researchers sharing their knowledge. Such activities and interactions enable the network to grow and strengthen the resilience of the local VCSE sector within Derbyshire (it's not just the about making connections within the network), to enable organisations to make helpful relationships (where organisations know how they can help one another), and support VCSE to become more digitally mature.

3.6 Capacity building

To build capacity within the DDIN, one of the aims of the network was to increase the number of active digital champions in the county. This was done by digital ambassadors within the network providing digital champion training to paid staff within organisations and to volunteers at partnership organisations. This was supported by the curation of resources to support the training of Digital Champions in projects across the county, and exploring opportunities for collaboration with national digital inclusion organisations, universities, community organisations, statutory bodies, and strategic units to recruit, train and deploy digital champions. RBCF also initiated a digital inclusion awareness raising training package for front line workers across the county. Capacity building was further provided through the

creation of five digital hubs in community food pantries across Derbyshire, who took part in a 'mini digital hub pilot scheme' and were provided with digital devices. Exploring existing networks with the DDIN such as warm hubs, village halls and carers groups, and prioritising specific groups such as rural job seekers, those with a disability or the elderly, provided a mechanism to further extend digital inclusion support across the county.

3.7 Digital inclusion policy

The document analysis revealed how RBCF interacted and promoted activities of the DDIN with policy makers at local, regional and national level. These activities are particularly apparent with the county council, with hopes that the recommendations and learnings from the DDIN would be embedded into a new county council digital strategy and action plan, and inform NHS digital inclusion policy at a local level. More specifically, what is apparent from the document analysis is the importance of advocating and raising awareness of digital inclusion as a priority in general across agencies and service providers and strategic units across the local authority, enabling inter-organisational activities which embed digital inclusion more generally within the county council, rather than one person or one department taking sole responsibility for tackling digital poverty.

4.0 What we learned from Interviews and Observations

The data collected have been analysed and presented under four core themes: Ecosystem, Place, Roles and Time.

4.1 Ecosystem

A core dimension that emerged during data collection and analysis, was that of 'ecosystem' in terms of how the DDIN operates as part of a broader ecosystem of organisations and networks that are involved in the management and implementation of digital inclusion provision. Stakeholders involved in this broader ecosystem vary enormously from policy makers, broadband and mobile network operators, some corporates, national charities and device refurbishers, through to housing associations, local authorities, service providers, libraries and hyper-local VCSEs (voluntary, community & social enterprise) organisations. Using 'ecosystem' as a lens to look at digital inclusion networks, it becomes apparent that stakeholder organisations often find themselves part of a specific network or a number of networks, some more formal than others, meaning the digital inclusion ecosystem could effectively be viewed as a 'network of networks'. In the broader context of the digital inclusion ecosystem, DDIN is one of those networks within the ecosystem, and as highlighted by participants does involve other networks such as libraries, Time Swap, the Citizens Advice Bureau, and other forums. Indeed, the data collection revealed a complex network of organisations that that engaged with the DDIN that operate at a hyper-local level through to national level and the difficulties they have in navigating digital service provision not only across the region and through local authorities but also through national services such as gov.uk and health services such as the NHS.

However, while 'ecosystem' is an important dimension to help us understand how the DDIN network is situated within a broader ecosystem of organisations, it is also important to understand how this ecosystem and the DDIN is understood in terms of 'scale'. For example, the scale in which organisations or specific networks operate, whether it's a hyper-local community organisation or a national organisation that has offices around the country, and the implications scale has on digital inclusion delivery and operational practices. For example, in some instances it is beneficial to operate at a small scale in settings that are unique to that community and in places and venues that are trusted by individuals and relatively easy to maintain on a small budget. Such organisations have reach in local communities meaning they are able to engage with harder to reach individuals. In comparison, larger organisations or networks are able to have a broader, more influential reach and carry out beneficial activities at scale as described by this participant:

> *"The other benefit of having our network that is able to operate at scale across the UK, is that we can also work with, for example, the mobile providers. So they have all donated data into the National Data Bank, whereas if you didn't have us doing that at a national scale, it would happen quite piecemeal"* (Interview 2, L5, paid)

Operating at scale as part of a network also has benefits for distributing refurbished devices:

> *"We have a trusted partner who will refurbish devices, wipe them, and then through the network, we can redistribute them to people who can't afford a device. And again, that has us working at scale, whereas of course, there are local device refurbishment and redistribution schemes, but again, it's a bit piecemeal, and I think the volumes are quite small, whereas the need is huge"* (Interview 2, L5, paid)

However the scale of the DDIN is not straightforward. Although it has a remit of supporting individuals and communities across Derbyshire, a rural county and region, the network engages with partners and organisations that reach beyond the boundaries of Derbyshire. This could be in the form of national charities, but also service providers whose jurisdiction goes into neighbouring counties and districts, as described:

> *"High Peak is on the border and actually has moved counties on previous occasions, or parts of it……some of the hospitals that [individuals] and their loved ones may access are in Manchester, Stockport, and then they need community services in Derbyshire, and navigating that cross border can be tricky"* (Interview 7, L3)

Scale was also referred to in terms of the development of the digital inclusion referral map, developed for DDIN, designed to capture digital inclusion activities across the region of Derbyshire. Participants made comments about the map, such as *"great idea", "useful"* and *"this will help me"*. While there were many comments about the usefulness of having such a map, several of the participants interviewed said that they had not actually engaged with the map or knew about it. This may be due to the fact that the map at the time of interviewing had only recently been released, and so will no doubt need time to be discovered and embedded as part of a benefit of the network. Comments were also made on how to keep the map up to date:

"the map is live, we shared it in one of the network meetings and encouraged everybody to go and check it. Let us know if there's any of their information that's incorrect, or any projects that are missing. Obviously it's a live map because projects stop getting funding and new projects start. Or they change what their support offer is. So, [research partner] is now going to – probably quarterly going to keep updating it and just checking that the information is correct" (Interview 1, L1, Paid)

However this then raises questions about what happens to maintaining and keeping the referral map accurate and up-to-date once the funding for the project runs out.

Participants described benefits of developing or being part of the DDIN network:

"So we're really here to encourage networking, strengthen the digital community, if you like, that's providing these services and highlight any problems or issues that are coming up that are maybe common to quite a few organisations and to help with sustainability within those organisations in terms of providing some sort of digital support" (Interview 1, L1, Paid)

An essential ingredient to the growth of the network is the willingness of knowledge sharing among members of the network who devote time feeding back to the network and supporting the work of others:

"What struck me is that there's a massive amount of goodwill amongst all the projects [in the network] and a willingness to share and work together, and, obviously, some are quite restricted in terms of time and resources. But the other thing that struck me is the amount of knowledge and expertise that is within the network when you look across the different projects and what they're all doing" (Interview 2, L1, Paid)

Such knowledge sharing activities helped the network grow and flourish, as knowledge is shared within the network but also between networks and other organisations from other regions. Funding plays a critical role in the sustainability of organisations and projects operating in the digital inclusion ecosystem:

"A significant proportion of our network is the local community sector, voluntary sector, and what they're telling us at the moment is that they are feeling quite insecure around funding to continue doing their digital inclusion support" (Interview 3, L5, paid)

However, multiple participants aired their frustration that the efforts of voluntary organisations and charities are in general overlooked by policy makers, noting some local authorities and county councils were more forward thinking than others in terms of embedding digital inclusion in their services, some seeing digital inclusion as the responsibility of one department, while others recognising it sits across multiple agencies.

4.2 Place

The places we visited, where organisations and volunteers organise their digital inclusion initiatives, are quite heterogeneous. Of course, the network and organisations within it would need to take into account the place in which they set up their activities from a geographical point of view. As mentioned by Interviewee 2 (L1, Paid), *one of the main things would be transport*, especially in rural areas, as *the very nature of them, they're spread out*. Likewise, they'll have to consider connectivity, but as indicated here this is not always limited to rural areas:

> *"Is there a decent Wi-Fi connection? Which… It's very dependent on where people are, but more likely, I would have thought, in rural areas to be an issue, although we do have a digital pantry in an Urban Town and they have no internet, so they're running it all with dongles. They're very resourceful."* (Interviewee 2, L1, Paid)

Organisations in the network provide a wide range of services and **access** to technologies themselves. Some provide devices for people to use, others do not, but provide wi-fi for people to use with their own devices, and finally others offered sessions with explanations and a space for discussion for attendees who had both their own devices and data. Also, some organisations operated within the community from a central meeting place that functioned as the living heart for the community; others rented rooms in community centres that were accessible by the people they were trying to reach; others operated from their own operation spaces, where digital inclusions initiatives are an add-on to the main services they want to offer to the community; others operated from different community spaces belonging to other organisations that make them available to them (e.g. the library or the village hall).

The offer of initiatives found is also very diverse, and it ranges from organisations that are able to design and fund longer-term plans of digital inclusion in dedicated welcoming spaces, all the way to organisations that have to 'make do' to find spaces to bring their activities forward, finally to organisations that are adding some digital inclusion-connected services (e.g. a wi-fi connection) to other services that they offer, e.g., offering access to tablets and wi-fi connection at a food pantry. However, irrespective of the organisation or the specific initiative, the place where people are met plays an important role in creating community, facilitating learning, and promoting digital inclusion.

Level 3 interviewees underline the importance of **socialisation** as a big part of what they do and offer to their communities. Offering a space to meet and connect with people is not only part of the strategies to attract people, but seems to be connected to a positive uptake of technology as well. This seems to be especially true for older people:

> *"A lot of the older ones like to have a chat, as well, about what they're doing and what their grandkids are doing."* (Interviewee 9, L3, Volunteer)

> *"The whole intention was to make this programme as accessible as possible to people who might find computers a barrier to accessing it. And so we are doing it in person in a social environment with technology provided, with tech experts on hand, with mentors from the peer leadership programme available to guide you through the content."* (Interviewee 7, L3, Paid)

Likewise, signposting other social activities is part of what L3 organisations felt is their role, so they could facilitate opportunities for attendees, foster networks, and be a centre of activities that is important for the community:

> *"Now, what's great is that we also have Poverty Prevention running a stall at the information roadshow and I have just agreed mutual signposting with that organisation."* (Interviewee 7, L3, Paid)

Organisations that seem most successful at regularly recruiting and offering digital inclusion services seem to intentionally put a lot of care in the choice, set up, and design of the **spaces** where people can meet. For example, some volunteers hold training sessions in the local village hall, where a cafe serves quality coffee and freshly made food to participants. Another organisation has a well attended 'digital café' in the community room of a new, modern facility that is used for sport and community activities. The building was built with the funding raised by the coordinator. On entering, a large room with floor to ceiling windows on one wall, views of hills and the playing fields, and French doors open out onto a large patio welcomes attendees. The facility where the digital café is happening buzzes with activities:

> *"There is a group doing yoga on a Monday morning [...] And then Tuesday, we've got a number of district council health and wellbeing sessions and also the facility is the start and end point for a community walk. So they'll walk around the grounds and through the park and back to the Recreation Building and then have tea, coffee, etc., at the Recreation Building. Wednesday, that's another fairly full day because we've got more health and wellbeing sessions and Tai Chi. And then Thursday, Digital Café, which is a community helpline for anyone who has computer or mobile phone problems. And then Friday morning is a parent and toddlers group."* (Interviewee 6, L3, Paid)

The success of the digital café spurred the opening of an offshoot service at the town library.

> *"Well, I mean, this has been running now for probably 12 months, and in the last three months, I think it is, the library has identified that this is something … They've got space and so they're putting on a similar session on a Friday. I don't know how successful that is, but it certainly suggests that the need's there within the town for this sort of help."* (Interviewee 6, L3, Paid)

Some organisations, however, did experience **barriers** to creating welcoming spaces and places, which, in turn, may be limiting for their digital inclusion work. For example, not all organisations and volunteers are able to secure funds to rent ideal spaces. Having the possibility to use spaces for free is vital for some of these organisations that are run by volunteers, oftentimes retired.

> *"We are limited by the space we have got and everything. We are lucky in that the council let us use that for free, the library and where you went, the Community House. [...] It is free, I mean that is the thing, the whole thing is free to people because we don't get charged for the space people can come along without any cost. And I guess not everywhere has got access to that sort of facility, so it would be more*

difficult I think if you were asking people to pay to come along, maybe." (Interviewee 10, L3, Volunteer)

"In terms of the venues, they sort that out. We don't charge for our time or our expertise, we're all teched up in there so we can put together presentations. The office will run photocopying for us now that you're not working any longer. And I bung charitable donations – and they don't charge us officially for the photocopying, but I throw a donation into the local animal rescue charity which we support, because I don't think I'd like them to do it for nothing, and I don't care spending that. We get tea and coffee. And that's it." (Interviewee 16, L3, Volunteer)

Some volunteers advocate for more use of libraries as a response and in coordination with other organisations' work. Libraries are perceived as spaces that are historically used to welcome people and provide support to their individual needs, as well as spaces for information access and guidance-seeking purposes:

"I'd like to see many more hubs with open access, and the trouble is libraries are closing down, but I thought if you had libraries with a room where you could have all the equipment, and the computers, and the monitors, and people could go and use them during the day, as in the old days they went to read books, well if they could go and sit in a computer room with volunteers – that's what I originally thought I'd be finding. And you'd be there to respond to people's individual needs, and libraries tend to be – have always been within communities regardless of wealth or whatever because they were state funded." (Interviewee 16, L3, Volunteer)

"I prefer the library myself. When I first started they got a side room where there were refreshments, 20p – which is not bad, is it? So, about halfway through, everybody get together and get away from the screens and have a good old chat and social. Cake crumbs and sweeping up and that. It was nice but since this pandemic, the room has been shut off and now there's a fee of £14 to hire it. You've got to hire it, so I think that's the reason [we do not meet there anymore], I'm not sure, but it was really popular. People used to come with loads and loads of people, used to do what they'd got to do on the computer and then go for the [social] and then go back to the computer afterwards, yes." (Interviewee 1, L3, Volunteer)

The set-up of the technological infrastructure within the spaces and throughout the projects reflects the peculiarity of places, as well as the way spaces are designed and services are set up. For example, the users of the Digital Café we described above usually bring their own devices. Still, the programme has purchased 6 iPads they make available for long-term loan. Discussions with research partners on priorities inform the way these are distributed. Other programmes - whose first priority is not digital inclusion, but who, however, recognise its need and importance, may think about technology in a less central way. Once again, the network acknowledges this diversity:

"So you might have one that has people coming in to use the pantry and they've got a little laptop at the side because they don't have much space, and they just help them in the corner, to another one that's got an awful lot of space and it's maybe a

little bit more formal in terms of the help that they provide. So there's a huge range of projects." (Interviewee 2, L1, Paid)

All projects underline how technology that is available has to be in good working conditions, updated, and not too old, or it would cause more problems to people who are learning:

> *"You need the best stuff for people who are learning. It's no good saying, "We've got a second-hand laptop here for people who are learning." I says, "Well, no, you need better than that because that second-hand stuff is going to create more problems. It will slow them down and make them – put them off. They want something that's right up there and now.""* (Interviewee 1, L3, Volunteer)

Likewise, volunteers should be enabled to perform at their best. As the following quote shows, volunteers in these organisations are often also people who have been digitally excluded in the past, who participated in the services that are now re-offered from the same organisations, and decide to 'give back' and 'pass on' what they have learned. These volunteers cannot be expected to be able to afford regular access to the latest technology or to the internet. Organisations, when planning their use of technology, have to take into consideration also the needs of these volunteers:

> *"That's not my tablet, by the way. That's a loan tablet so it's got another email address on it. Like I say, the Wi-Fi was funded as well but since then, I bring it out and use the Wi-Fi here or in somewhere else. I can't get any emails while I'm at home [so] It was [the organisation] who paid for my tablet and my – it's not a dongle, is it? Mobile, Wi-Fi. A little mobile phone with that, like a hotspot thingy, so that's what I got. But like I say, it's quite expensive. I think it starts about £25."* (Interviewee 1, L3, Volunteer)

All projects also underline how the technology should not be there for performative reasons. Rather, it should be there for people and with people who can help who is in need all along the way:

> *"The end result would be for the equipment to be there for their use, not to be stuck away because they're frightened of it. But also in helping them along the way. If we see problems which could occur that they're not aware of, we would encourage them to take certain actions to minimise falling into the scams and things like that that we hear a lot of at the moment."* (Interviewee 13, L3, Volunteer)

Finally, it is worth mentioning that, after the pandemic, some organisations and volunteers explored the possibility to help people 'from home', as a possible consequence of the digitisation happening during the pandemic and people being more and more used to Zoom and other digital collaborative tools. However, this soon appeared not to be feasible. People's and communities' digital exclusion did not change substantially because of the pandemic, as well as their need to learn socially and in person:

> *"Let's see if we can carry on with people working from home – because more and more people were getting their own laptops and computers – by using Zoom. So during the pandemic, we've been in contact people via the Zoom. Unfortunately, not*

everybody has got a computer at home or a laptop or even if they've got that, they haven't got wi-fi." (Interviewee 15, L3, Volunteer)

4.3 Roles

4.3.1 Introduction: Participant roles

A core dimension that emerged during data collection and analysis, was that of 'roles'. This is in relation to the roles performed by actors involved in the network; the motivations and enablers of those actors performing those roles, the barriers faced by those actors; and the emotions of those actors undertaking such roles. The participants of this study were involved in a wide range of organisations and were occupying an equally wide range of roles; these correspond with the levels of stakeholders outlined earlier in this report, which we briefly reiterate here:

Level 1 (L1) Key stakeholders managing the development of the DDIN; examples of roles at the is level include project coordinators and facilitators.

Level 2 (L2) Key stakeholders involved in the mapping exercise of digital poverty and digital inclusion activities in Derbyshire; research and strategy development are examples of roles at this level.

Level 3 (L3) Organisations who have joined the DDIN; participation at this level was high and is reflected by the variety of roles including digital champions, engagement officers, chairpersons, coordinators, and consultation workers.

Level 4 (L4) Organisations that collaborate with the DDIN but are not members; web developer and social media officer for a local authority is an example of a role at this level.

Level 5 (L5) Individuals from organisations that have been involved in digital inclusion networks and mapping digital poverty/inclusion activities in other locations in the UK; roles at this level included a head of community engagement and experience and a development officer.

With particular regards to L3 participants, this research found there to be a strong reliance on volunteer labour to build and maintain the digital inclusion activities of the network. Those coordinating the DDIN believed that regardless of whether individual digital inclusion projects are volunteer-led or overseen by a parent organisation, they all involve volunteer labour in some capacity, a factor which has the potential to have a significant impact on the sustainability and resilience of the network:

> *"Some are volunteer-led and some are staff underneath the umbrella of a larger organisation. But usually I would say from what I've gleaned, the common thing is they all involve volunteers in one way or another."* (Interviewee 2, L1, Paid)

Another factor to consider in the use of volunteer labour, is the effect of the pandemic, one participant noted that many organisations have found recruitment of volunteers more difficult post-pandemic:

"We're seeing organisations who are finding it harder to recruit volunteers. And I think it's not just us. If you look at some of the data from infrastructure organisations, they're finding that volunteering is something that's been hit by the pandemic." (Interviewee 25, L5, Paid).

4.3.2 Motivations and Enablers

The existence of the DDIN was enabled by funding to specifically tackle digital exclusion in the county (Interview 3, L1, Paid) and for those weaving the network, the witnessing of connections being made, best practice being shared, and provision being improved is a key motivator:

"The benefits of a person who works as a facilitator of a network where you start to see how the sharing of information and the getting that sense of the bigger picture is really, really valuable." (Interviewee 3, L1, Paid)

This feeds into the role of positive reinforcement in maintaining momentum within the DDIN; the sharing of success stories between network members is not only valuable in terms of skills and knowledge sharing but reminds members of the impact their work has on people's lives. Interviewee 2 recalls the following anecdote from a DDIN meeting:

"So, there's one that's really, I think, quite significant. It was a gentleman, only an individual, but somebody who was profoundly deaf, and the service that's providing him with support has been able to make such a difference for him." (Interviewee 2, L1, Paid)

"It is that knock-on effect that is so inspiring, not just for me but for the people who have done it. And I think the news that I had last week from Community Charity that they had helped 405 individual people to understand computers – that is a fantastic achievement." (Interviewee 8, L3, Paid)

Participants involved in the delivery of digital inclusion interventions spoke of their desire to help people, with many pinpointing the fear of technology as a significant obstacle to minimising digital exclusion. In one case a participant referred to their own experiences of witnessing the impact digital exclusion can have in a society where 'digital-by-default' is making it increasingly difficult to maintain quality of life, coupled with their confidence in using ICTs as a key motivator for their volunteer work:

"I've got some spare time at the moment, I've got a lot of experience of computers, phones, etc., so it's really an opportunity to give something back. And also, I see from relatives the exclusion that people are experiencing. Often, they're being forced into it because of modern life." (Interviewee 9, L3, Volunteer)

Participant responses suggest that the individual character of those involved in delivering digital inclusion activities is an important consideration. There has to be a level of compassion towards users that experience technophobia and an understanding that skills that are perhaps intuitive to some are a steep learning curve for others:

"I wouldn't like to think people were frightened of something which is relatively easy to understand. I don't mind. I spent 6 hours trying to teach a lady how to use a mouse, so I've got the patience." (Interviewee 14, L3, Volunteer)

The time volunteers are willing to devote to the users of their digital inclusion activities is mirrored by the time DDIN members are willing to devote to feeding back to the network and supporting the work of others:

"What struck me is the amount of goodwill there is amongst projects and organisations to communicate with each other and help each other out when they can. For instance, the surveys that we've been doing with our network, it's totally on their goodwill; we're not providing them with funding, or anything. We've had some really comprehensive answers and people have taken a lot of time, and some of the case studies that they've provided have given us such a personal insight into the difference that it makes." (Interviewee 2, L1, Paid)

Just as user participation in digital inclusion activities was found to have social drivers, this research also found that those delivering services were motivated by the relationships that are built through providing support to others:

"I mean, it's another reason I like doing it, actually, because you get to chat to some of the older residents of the Town and find out what the town was like and what the railway was like when it was running, and all sorts of things like that." (Interviewee 9, L3, Volunteer)

4.3.3 Barriers

Considering the high proportion of volunteers involved in the provision of digital inclusion activities it is unsurprising that one of the key challenges is time:

"They're often very busy. And with paid staff and with volunteers, they're often doing multiple things and multitasking, and so time is very valuable." (Interviewee 2, L1, Paid)

Linked with the barrier of time is the need to prioritise the distribution of resources to the most impactful activities, and this comes at a cost. One participant volunteering in the delivery of digital inclusion activities acknowledged that services need to be publicised better to increase their impact, but their organisation does not have the capacity to dedicate time to outreach:

"It is more a matter of getting more publicity. I'm not at the moment – and I don't think Bill or anybody else is either – in a position to do an awful lot." (Interviewee 12, L3, Volunteer)

Directing an organisation's resources to the running of digital inclusion sessions only makes sense when those sessions are well publicised and therefore well attended. Multiple participants, especially those who volunteer their time to deliver the sessions, acknowledged a general feeling of frustration with the poor attendance:

"If we go and there is nobody there needing help you feel what am I doing here, it is a bit of a waste of time… If you haven't got anybody to deal with it gets a bit boring sometimes." (Interviewee 10, L3, Volunteer)

"I know that some of the other tutors – particularly in the afternoon at the Education Centre – are a little bit frustrated at the lack of people coming in for help." (Interviewee 12, L3, Volunteer)

Priorities can also be dictated by the terms stated by funding bodies, and it is in the organisations best interest to adhere to the stipulations of the funding contract if they are to be successful in future bids:

"People are time poor and resource poor, and they're always having to prioritise whatever they're being funded to deliver, whoever they've got a contract with or a grant with, they will prioritise delivering against those contracts." (Interviewee 25, L5, Paid)

4.3.4 Emotions

This research found that, whilst the scale of the DDIN and the enthusiasm of its members to share best practice is a triumph, some participants involved in the development and coordination of DDIN found the experience overwhelmingly demanding:

"It's been exhausting at times. It has been challenging because… it's taken me right out of my comfort zone at times because there's so many different themes where digital overlaps and they're not necessarily where you have any expertise in or any standing. Whereas everyone seems to be an expert in their own particular field so it's quite hard." (Interviewee 3, L1, Paid)

In addition to feeling overstretched and sometimes under-qualified, multiple participants aired their frustration that the efforts of voluntary organisations and charities within the network are overlooked by local governments. The DDIN was established to fill gaps in digital inclusion provision across the county, a service which some participants argue should be within the remit of the local government. For them, digital inclusion would be a statutory service, eliminating the need for a network and the organisations and charities it contains, the fact that this is not the reality has led Interviewee 11 to believe that the importance of this work is not recognised:

"I would like to see a bit more acknowledgement of what they have done from the district council and certainly the county council because when we first set this up I called a meeting… and we had a senior county councillor come and there was a retort if you like, 'Stop trying to reinvent the wheel'. And what I would like to say to him now, 'I am not reinventing the wheel, I have added a few more spokes'." (Interviewee 8, L3, Paid)

"You would think that this is something that should actually sit with a statutory service really, something like a digital inclusion officer at the council. That should be where something like this sits, eventually. Because it does need to be considered a

statutory thing, I think. It needs to be considered that important and I think at the moment it is not considered that important." (Interviewee 11, L3, Paid)

Fortunately, there is no shortage of recognition within the network itself, the coordinators of the DDIN were forthcoming in their gratitude towards their members and praise of the vital work they do:

"We're just here to facilitate it. They're the people that are making it happen and making it work, really. They're the important ones." (Interviewee 2, L1, Paid)

L1 participants downplayed their value as 'guardians' and 'facilitators' of the DDIN, building and maintaining the network at a macro level (Marais & Vannini, 2021). However, in line with network weaving theory (Holley, 2013; Marais & Vannini, 2021), Interviewee 8 - who acts as a connector catalyst, forging links and promoting participation in a hyperlocal context - was clear that it is the interplay of different but equally important roles within the network that are key to its positive impact in the area:

"All I am doing is joining the dots, but I think joining the dots is as important as being part of a service." (Interviewee 8, L3, Paid)

4.4 Time

One of the core dimensions that emerged during data collection and analysis, was that of 'time' and 'temporality', whereby the temporal dimension plays a significant role in understanding the nature of the DDIN and assessing the impacts and contributions of DDIN within each region. While time is an important construct in the way we understand impacts and effects in the short, medium and longer term, our analysis is rather focused on the way the temporal dimension of activities and events at DDIN relate to its success in addressing digital exclusion, increasing citizen engagement and supporting local resilience. Specifically, our analysis indicates that there are two core elements of the way time relates to DDIN, and namely: frequency, i.e., the frequency of contact and events is crucial for the sustainability and the value of the network; and duration, indicating diversity in terms of support needs and capacity to meet such needs. These are discussed next in more detail. To clearly explain and contextualise what frequency and duration might mean for the success of digital inclusion networks, we begin the presentation of our findings by discussing what the needs on the grounds might be and how these relate to the temporal dimension.

4.4.1 Troubleshooting: different needs - different duration

Across the empirical material, we observed that the needs that the examined initiatives and projects satisfy differ considerably among places, members and in terms of the time required to address them. In short, as Interview 10 (L3, Volunteer) indicated, *"it is just a needs-based approach".* However, depending on what these needs might be, troubleshooting them necessitates considerably different time investment. For example, some of the things they provide support with, relate to *strategies* for supporting patients unable to speak on the phone, and booking GP appointments, which can be difficult for those with caring responsibilities and strict medication regimens. Understandably, these are not needs that can be covered swiftly nor once and for all, but rather they necessitate offering troubleshooting continuously and over the longer term. Yet, in other cases, needs might be

far more generic and basic, and can possibly be met quickly, during one or very few sessions:

> *"Literally everything. So it could be, "How do I make a phone call on my mobile phone?" "How do I use WhatsApp?" "How do I look at contacts, etc?" right through ... We've looked at people wanting to buy a phone or a tablet and helped them with what might be the right thing for them to go for, then help them set up the phone, learn how to use the things that are important to them to use and then say, "Don't worry about the rest of it. Just use that." But we also get techie stuff, so, "My email's stopped working," "My phone and iPad have stopped synchronising photos. Can you sort it out for me?" "This laptop won't work.""* (Interview 9, L3, Volunteer)

Meeting such needs (e.g., explaining how to find a contact on one's address book) can be quite easy to achieve. Yet, what such quotes further suggest is that the needs that exist on the ground can also be very basic in the sense that people might not be able to complete mundane and simple tasks. Within the broader context of digitalisation, it is important to highlight these needs, as on the one hand, they pose significant challenges for digital inclusion, and on the other hand, although simple, require significant capacity and time.

4.4.2 Frequency

Frequency is a typical temporal dimension or concept that characterises time and time-based events. In our analysis, frequency of meetings, initiatives and availability was often discussed, particularly among those who were members of the DDIN on a voluntary basis. Interview 15 (L3, Volunteer) for example mentioned that they hold weekly meetings (e.g., every Monday) using an available computer room for drop-ins:

> *"Now, when we started (...) I was offered the computer room either a Monday or a Wednesday. (...) So it's a drop-in and (...) and people come when they want to come, it's not a set course."* (Interview 15, L3, Volunteer)

What is important with the concept of frequency is that it provides a recurring 'touch point' and a rhythm with the organisation, which in turn encourages participation. For example, in one of our observations, we noted that 10 individuals attended a two-hour drop-in session. They were supported by five staff/volunteers who were either sitting with the individuals, or walking around between them. It was clear that many of the attendees were regular users; they had developed relationships with the staff and brought notepads with questions to each session. Importantly therefore these regular 'touch points' provide individuals with a place to return to and remain engaged:

> *"But then they also run online support groups so that once people are digitally – have their initial digital skills, they also have a reason to keep using it. They can attend the weekly support group. That helps them with social engagement and then that keeps them in touch with the organisation."* (Interview 4, L2, Paid)

In other words, having frequent meetings and activities in the sense that these are recurrent, helps participating organisations maintain a relationship between them and their members, and between volunteers and the people they support.

4.4.3 Duration

Long-term versus short/medium-term support emerged as an important dimension in two different ways: first, in terms of the support 'end users' need, and second in terms of maintaining and sustaining the network over the longer term, in relation to how this might be achieved and what needs network members might have.

In terms of citizens, the theme that emerged more strongly in the data was that users quite often require long-term support rather than help at one distinct point in time:

> *"Others, particularly the ones who've got a new device or want to learn something new, then they will keep coming back because it's repetition that embeds it and it's just doing it ... And sometimes it takes months and eventually they suddenly get it."*
> (Interview 9, L3, Volunteer)

This means that network-enabled digital inclusion requires identifying ways to provide such long term support, so that they can build up and sustain digital inclusion in place. In practical terms this means that volunteers, funding, places, spaces and resources need to be available over a longer period of time, to accommodate multiple and repeating sessions, to meet the digital needs of citizens.

There is a direct link between the long-term support provided to citizens and the ways in which a digital inclusion support network evolves over time. Very often, whether a network is successful or not has to do with the longevity of the network and its maturity, whereby networks need time to develop and expand, but also time is required so that certain outcomes can be achieved, whereby time can also lead to more impactful outcomes:

> *"I think that the outcomes that we are getting are very, very powerful and I think that is something as well that we all struggle a little bit with in the sector – getting across the power of individual outcomes and how important that is and how much work goes into getting individual outcomes. And yes you are not going to get necessarily always huge outcomes in a short space of time, but give it that time, give that project the capacity to build and grow and it will deliver an awful lot more on a larger scale."*
> (Interview 11, L3, Paid)

What the above entails, however, is that such initiatives and projects need to be supported over the longer term rather than for short periods of time. The reality however is that more often than not, support (especially in terms of funding) is short lived, and needs for some of the crucial activities of such networks (e.g., information sessions) are covered by volunteers.

5.0 Lessons learned from the DDIN Case Study

5.1 What we learned about the Development of Digital Inclusion Networks

This case study reveals the experiences of those involved in the network, the transformative journey of a digital inclusion network, and the efforts made by key stakeholders to reduce

digital exclusion. As emphasised at the beginning of this study, networks are understudied, and as this study reveals, they are complicated and not static, and have far reaching benefits. As indicated in the findings, digital inclusion networks have the ability to bring together organisations that deliver digital inclusion provision at different levels of capacity. For many of these organisations, digital inclusion is one of the many activities that they provide, delivered by paid and unpaid staff. Despite these differences, all these organisations work for a common cause, and are relevant to the embedded, day-to-day, digital needs of communities. They are, as such, all valuable parts of the networks.

Looking at digital inclusion through a network lens has enabled us to reveal the challenges of navigating digital service provision across a region, in terms of how organisations are responding to the 'digital-by-default' culture in how they support digital inclusion, but also in terms of how they operationalise such activities at a local level. Through this study, we were able to capture the importance of the varying roles played by individuals delivering digital inclusion within the community, but also those behind setting up, building and mapping the newly formed network. The importance of 'place' was also emphasised in terms of the importance of place-based solutions, recognition of the peculiarities of place and contextual conditions, but also the need for care in designing spaces, and how spaces are used and needed for digital inclusion and community activities. Learning how place-based and space-based solutions recognise and appreciate how differences in contextual conditions can impact how digital inclusion activities are experienced and delivered is a refreshing stance, opposed to the usual 'digital skills deficit' stance often cited in policy and extant literature.

This study has also revealed the benefits of being part of a network, in how it can support activities in terms of knowledge sharing and the sharing of resources, but also in providing overall support and a sense of belonging and identity, something which such community organisations need as they struggle with funding and staffing. Importantly, the network was able to draw on the knowledge of its members to develop a digital support referral map to help the community, referral agencies and partners to locate digital inclusion activities across the county, and to provide support to organisations providing digital inclusion across the county: the map was used as a tool in which to ask and find up-to-date information about offers and needs.

Furthermore, another important point to emphasise is the power of the network in generating greater reach and impact - for its members and on communities, by its ability to connect with external networks and organisations, beyond the region of Derbyshire, at other local and national levels. As such, the network was able to have a louder voice in expressing and advocating the importance of their digital inclusion efforts in reducing inequalities, as well as to create more opportunities for the organisations operating in its region. *De facto*, this wider reach enabled a local digital inclusion network to have a reach at national level and policy level.

However, when looking at the challenges of the network, points were raised in terms of the uncertainty of how to join the network, the benefits of being part of a network, and a lack of engagement with the referral map, although most thought its existence to be useful. Indeed, as indicated in the findings, not every organisation is going to want to join the network, or a few may join and then leave, effectively fragmenting the network. This highlights the

dynamics and evolving nature of the network, but also the need to nurture the network with regular and targeted engagement activities. Therefore, key challenges to overcome are in how to maintain the network membership, activities and engagement, how to ensure the discoverability of the referral map and network information websites, and how to reach organisations that may feel historically excluded or not considered.

This study evidences how the network brought people together (both paid staff and volunteers). However, this study also revealed what could be argued as an over reliance on volunteers. Such reliance makes the sustainability of digital inclusion activities fragile, as the availability of volunteers changes, particularly during a cost of living crisis, where they may no longer be able to afford to volunteer. A significant barrier revealed by both paid staff and volunteers was the lack of recognition by national and local policy makers of the digital inclusion work being provided. Such views align with previous research which highlights the disconnect between digital inclusion policy and practice.

Finally, funding was seen as both an enabler and a barrier in terms of sustaining the network and organisations within it. Funding is a crucial mechanism for digital inclusion network building and was a key enabler for the DDIN. The network can also be seen as an enabler to funding for organisations within the network as resources and knowledge are shared in how to go about applying for funding and raising awareness of specific funding opportunities. On the other hand, scarcity of funding may be seen as putting organisations in competition with one another when not appropriately addressed within the network, and a lack of funding is one of the main issues significantly limiting digital inclusion activities, including the ability to keep referral maps up to date.

5.2 Principles of Digital Inclusion Network Building

From these insights we have identified 12 principles that were used to enable and nurture the DDIN network within a broader digital inclusion ecosystem. These principles could be viewed as triggers that connect the network building activities and which ultimately lead to a network that continues to grow and flourish and brings benefits to the communities it supports, the organisations themselves that make up and engage with the network, and ultimately the digital inclusion ecosystem as a whole. These principles can be adapted to different local and hyperlocal contexts and applied by organisations seeking to develop a local digital inclusion network. They also provide a framework to understand what building and supporting a local digital inclusion network may imply. We have divided these principles into 'network enabler' and 'network nurturer' activities, and listed them in chronological order below:

5.3 12 Principle Framework to build and nurture a local digital inclusion network within the broader digital inclusion ecosystem

1) **(Network enabler) Catalyst moment of anchor organisation** - A well-established organisation that operates across a rural region to ensure no-one is unfairly disadvantaged because of where they live, takes the strategic decision to develop a digital inclusion network to help reduce the county's digital poverty.

2) **(Network enabler) Funding** - The anchor organisation is enabled to do this by applying for funding to run a digital inclusion project. Such funding is required to fund staff time, purchase devices to distribute to community organisations (e.g., Food Pantries, community organisations) and to cover costs associated with mapping and network building activities and events.

3) **(Network enabler) Develop knowledge base through mapping and survey -** To gain a knowledge base of the current situation across the region and working with a partner organisation, the anchor organisation organises a mapping exercise, to map the likelihood of digital poverty and existing digital inclusion delivery across the region. This reveals potential gaps in digital inclusion provision, while also highlighting opportunities to work with communities and other partners to develop and pilot new digital inclusion projects, and join up organisations who can share resources and volunteers.

4) **(Network enabler) Formation of steering group** - By drawing on their engagement with VCSE organisations and other services across the county, the anchor organisation sets up a steering group with key organisations across the county, keen to drive forward the formation of a digital inclusion network in an effort to reduce digital poverty. Members of the steering group (both paid and unpaid) undertake a number of roles and are pivotal in the development and maturity of the network.

5) **(Network enabler) Taking a place-based and space-based approach** - The network develops **place-based** interventions by working collaboratively with the people who live and work locally, which allows it to gain an understanding of the contextual conditions and needs of the community, but also of the assets, resources and geography of different localities and organisations. Both the network and organisations within it learn and develop a **space-based** approach, putting care in the design of the environment and spaces where both the network and the people they serve meet, which needs to be welcoming and conducive to socialisation, collaboration, and learning.

6) **(Network nurturer) Network engagement activities** - To build the network and enable the network to grow, the anchor organisation holds regular online meetings and sends regular email communication to share best practices and resources, to connect existing and developing digital inclusion projects within the network, to enable projects and actors to support one another, and to spot opportunities for collaboration.

7) **(Network nurturer) Cultivating relationships** - The anchor organisation follows up by proposing more engagement activities aimed to create more opportunities for members to meet and know each other. These may include online presentations by guest speakers or leaders in the network, e.g., by individuals delivering or designing digital inclusion activities or researchers and experts in the field. Relationships are also nurtured with key community stakeholders - or "connector catalysts", who are able to forge links and promote participation in a hyperlocal context. Such cultivating activities enable the network to grow and flourish, and strengthen the resilience of the local VCSE sector.

8) **(Network nurturer) Capacity building** - The evolution of the network fosters a synergistic environment where interconnected organisations collectively enhance their

strength, enhancing their capacity to promote digital inclusion. This is achieved through the collaborative sharing of knowledge and resources, which enables the capture of the plurality of their voices. This also has the potential to enable organisations to access more individual funding, as they share information and know-how on grants and application, and experiences of delivering funded projects.

9) **(Network nurturer) Dynamics of the network** - The evolution of the network also means gaining an appreciation that the network is not static and changes over time. Member organisations will come and go as the network grows and shrinks; fragmentation of the network develops as organisations leave, do not feel part of it anymore, or decide not to join it. It is not realistic to think that all projects and organisations delivering digital inclusion in the region will want to associate with the network, as they may feel they have different goals, agenda, not enough time and resources, or that they are not a good fit for the network. External factors such as competition for funding, cost of living crisis, reaction to post Covid conditions, staffing also impact the membership and dynamics of the network.

10) **(Network nurturer) Capturing the specific characteristics of the organisations within the network** - As the network comprises organisations of differing sizes, differing models (some staff led, some volunteer led, some both), where digital inclusion is either the main goal or, more often, one of many social activities that they provide, it is important that the network develops a good understanding of their specific needs, priorities, strengths, ways of working, and even feelings - as some may participate in the network for different reasons, with differing levels of frequency, and can bring different strengths to it.

11) **(Network nurturer) Developing sense of community within the network** - As the network matures, organisations and projects feel supported, not alone and not forgotten. This creates a sense of identity and belonging. At the same time, this helps the network to keep sharing information and help organisations improve access to resources and funding.

12) **(Network nurturer) Being responsive and innovative to the needs of the network -** Being in the network allows organisations to be aware of the latest digital inclusion resources, approaches, methodologies, and ways to evaluate and capture data. It is also a 'conduit' that facilitates connecting needs and resources within the network and with wider networks as well. This may involve linking civil society organisations with organisations that provide sustainable solutions to organisations, such as the provision of donated or refurbished digital devices. Essentially, the network acts as a bridge, fostering collaboration and synergy between different entities at different levels, and linking together organisations that would not have been able to connect otherwise.

This 12 Principle Framework has been embedded into a storyboard and developed into an animation with the help of the Print and Creative Services Team at the University of Sheffield. Examples of stills from the storyboard can be seen in Appendix E.

6.0 Recommendations for policy makers

We provide a list of recommendations that support effective digital inclusion provision and network development. These recommendations highlight avenues for both local and national governments to invest in, facilitating the achievement of public objectives while mitigating rather than worsening existing inequalities. These recommendations are specifically designed for policy makers at the local, regional and national levels, and in developing them, we have considered aspects of feasibility, need and desirability.

Local-level digital inclusion networks, guided by the 12 Principle Framework we propose, should be viewed as an effective strategy for diminishing digital poverty and digital exclusion.

- These networks have the capability to connect local support and knowledge with larger regional and national networks, as well as with organisations and intra-government agencies working in this domain. The implementation of the principles should be achieved by regional and local governments (Mayoral Combined Authorities, City Councils, etc.), and it necessitates the financial and organisational support from the national government.

Local digital inclusion networks made up of community and civil society organisations can be used to effectively distribute the provision of donated or refurbished digital devices as they understand the local need, have local contacts, and can distribute effectively and at speed.

- This requires local and regional partnerships between 1) industry actors (such as equipment retailers and service providers, to provide equipment, data plans and after care), 2) local authorities and 3) civil society organisations (the last two to identify beneficiaries and distribute devices).

Efforts to reduce digital poverty by digital inclusion networks, and those organisations managing and/or operating within a digital inclusion network, need to be recognised and valued by local, regional, and national policy makers in the digital inclusion realm, and they need to be embedded in future digital inclusion strategies in local, regional and national level policies.

- The initial step should involve consultations aimed at directly involving these stakeholders in the development of digital inclusion initiatives and projects both at the national and the regional levels. In addition, considering the focus of such consultations (digital inclusion, and local nuanced needs), national policy makers can showcase their commitment and their acknowledgment of such local efforts by conducting consultations locally, through in-person visits, rather than centrally (London-based) or online.

Whether a network is successful or not hinges on the longevity of the network and its maturity.

- Networks need time to develop, identify synergies, and expand their reach. This temporal dimension is crucial for achieving specific outcomes, as it allows for the development of impactful results over time. In essence, the financial and organisational support extended to these networks should be long-term to allow networks to come to fruition and achieve sustainable benefits. Similarly, local organisations should be enabled to spend for their local needs and with as limited as possible constrictions: funding that is ring-fenced for specific activities, materials, or directed to specific categories of people is often problematic to respond to on the ground long-term needs. Besides funding, other long term forms of support include opportunities for (continuous) training and for cross fertilisation of ideas and insights, whereby network actors can come together and discuss common challenges and possible solutions, with each other as well as with policy makers, who can extend their support.

Referral mapping exercises need to be promoted as tools to leverage the collective knowledge of networks' members.

- It is paramount to design mapping tools and processes that are sustainable, i.e. tools and processes that have the resources and can be easily and frequently updated, and, thus, reflect the dynamic nature of the network and its resources availability - or needs - in real time, so to avoid them becoming quickly obsolete. This recommendation is more relevant to local authorities and organisations, but we find that often this is easier done when such mapping takes place as part of a partnership between e.g., local authorities, charities and higher education institutions, as a diverse skill set is required.

Place-based interventions need to be developed by working collaboratively with the people who live and work locally and who already have an understanding of both the contextual conditions and needs of the community, and of the assets, resources, and geography of a locality.

While mapping exercises and big data analyses can be useful, they can only provide a general, macro level overview of the local needs; on the ground, at the micro level, such needs can vary significantly - and often do. We recommend national and regional policy makers to work closer to 'the grounds', and embrace more qualitative, nuanced methodologies for identifying needs and interventions that can address them. This is typically acknowledged by local governments. However, this work is resource-intensive and costly for local authorities. We therefore recommend national policy makers to support such qualitative work with dedicated funding.

For third sector organisations and the voluntary sector, attention and care in designing and organising the place and space where organisations and people gather is an integral part in fostering networks and helping digital inclusion.

- The design of spaces should prioritise being welcoming to people, facilitating

interpersonal interactions, and ensuring inclusivity. Funding for such spaces should be facilitated by national and regional governments as part of digital inclusion networks and initiatives. Local governments should prioritise maintaining these dedicated and curated spaces.

For regional and local governments, rather than addressing digital poverty in a vertical, siloed way, we recommend planning across operational and strategic units of local authorities following a 'horizontal' approach.
- This would enable work of separate units to be cross fertilised and tackled using fewer, but better orchestrated, resources. This will reduce the load on volunteers, create synergies and efficiencies, and embed accountability and responsibility.

Network-enabled digital inclusion requires identifying ways to provide long-term support, so that they can build up and sustain digital inclusion in place.
- Digital inclusion champions (paid and unpaid), volunteers, funding, places, spaces and resources need to be available over a longer period of time to accommodate multiple and repeating sessions, to meet the digital needs of citizens that may be changing in different phases of their lives and with the continuous technological advances. The over reliance on volunteers within digital inclusion activities leads to fragmented efforts, as ultimately there is no one person responsible or accountable for carrying forward initiatives. We recommend more national, regional and local level funding to be dedicated to permanent digital inclusion roles at the local levels.

7.0 Conclusion

The aim of this project was to investigate digital inclusion network building as a mechanism for reducing digital poverty. Analysing the specific case of a successful rural digital inclusion network in the UK, this case study provides essential insights into the experiences of those involved or engaged with the network and steps taken to build a network that delivers digital inclusion across a region.

Specifically this project set out to: 1) uncover the drivers, benefits and challenges of creating a newly established digital inclusion network in Derbyshire, as an exemplary region with the need to address digital exclusion in both rural and urban areas; 2) reveal the motivations and challenges for joining and being part of such a network; and 3) reveal issues involved in mapping digital poverty and digital training provision across the county.

While the focus of this study was on a local digital inclusion network, what became quickly apparent throughout the study was how this network had the ability to not only join up and connect with organisations and networks across the region of Derbyshire, but also networks and organisations beyond the region and national level. As such the DDIN has become an exemplar for gathering knowledge and information on good practices, and also gaining an overview of the needs of communities across the county, but also gaps in digital provision.

While our research identified the benefits and challenges of a digital inclusion network, it also provided an opportunity to gather more nuanced insights into the relationships developed between organisations within and beyond the network and the intricacies required to build and nurture such a network. As such this study was able to develop a 12 Principle Framework for developing a local digital inclusion network that can be adopted as a guide in other local contexts.

This study also revealed that while the mapping of digital inclusion provision and digital poverty is useful, such a resource needs to be maintained and frequently updated, otherwise it will become a static object and quickly obsolete.

This study closes with a list of recommendations, including the need for long-term funding and strategic horizontal approaches to digital inclusion across local authorities and service providers rather than organisations working in silos; and how the development of local-level digital inclusion networks, guided by the 12 Principle Framework is an effective strategy for diminishing digital poverty and digital exclusion.

This study focused on an individual case, which could be viewed as a limitation. However, this specific case study was chosen due to its success in terms of the number of activities developed, the organisations supported, and the diversity of the populations it reached. As an atypical case study, it can teach us principles that, even if not generalisable, can be learned from, adapted and used in other cases.

This also highlights an opportunity for further research. It would be useful to gain further insights from other local-level digital inclusion networks operating in the UK (if any others indeed exist) and internationally to make comparisons of digital inclusion network building activities. Dilemmas with digital exclusion have been raised equally in the international domain, emphasised during the Covid-19 pandemic and lockdown and as such provides an opportunity for this study to be scaled for a global investigation of digital inclusion network building.

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Appendix A: Methodology

This section provides the methodological considerations that were in place when conducting the research. As a preface to describing the used methods, it is important to note that the names of the network and participating organisations were changed for anonymity purposes. The name of the network has been assigned the pseudonym Dedicated Digital Inclusion Network, from now on referred to as DDIN, and the name of the organisation behind setting up the network has been assigned the pseudonym Rural Business & Community Foundation, from now on referred to as RBCF.

It is important to also note that the project was designed as an intrinsic qualitative case study (Yin, 2009). This means the particular case described below has been chosen on the basis of its own merits and its uniqueness. This was a purposeful choice because of the nature of the British Academy call that aimed at developing place-based understandings to inform policy makers. An instrumental case study (typical), in our opinion, would not facilitate this, because similar initiatives either fail to take off or have already a stage of maturity: in both cases, they cannot lend themselves to exploring the mechanisms of setting up and sustaining such an initiative during the initial period, which has been shown to be critical. In other words, a typical case would allow theorising around 'what does not work', whereas we were interested in 'what works'. Within this context, what was therefore required was identifying the atypical (often termed 'deviant') case instead (Crowe et al, 2011).

This qualitative case study set out to answer the following research questions:

RO1: What are the key drivers, benefits and challenges involved in creating and developing a digital inclusion network?

RO2: What are the motivations and challenges for organisations delivering digital inclusion activities choosing to be part of such a digital inclusion network in the context of post-pandemic and the cost of living crisis?

RO3: What approaches are taken to map digital poverty and digital inclusion needs and activities and the inherent challenges/limitations in this process.

In order to address the set research questions we engaged with stakeholders of the DDIN at five specific levels which were:

Level 1 (L1) Key stakeholders managing the development of the DDIN network;

Level 2 (L2) Key stakeholders involved in the mapping exercise of digital poverty and digital inclusion activities in Derbyshire;

Level 3 (L3) Organisations who have joined the network;

Level 4 (L4) Organisations that collaborate with the network but are not members;

Level 5 (L5) Individuals from organisations that have been involved in digital inclusion networks and mapping digital poverty/ inclusion activities in other locations in the UK.

The data collection commenced after receiving an ethical approval from the Information School Ethics Approval Board. The recruitment of participants was conducted through a combination of snowball sampling with the support of RBCF and purposeful sampling. Once the potential participants expressed their interests in the project via email further information was provided and consent forms were sent to them for their consideration. The participants who expressed their interests in the project were asked if they were willing to invest their time for both interviews and observations. They were also informed that their names will be anonymised and that they may withdraw from the study at any point if they wish to do so. After making sure that the participants understood the information sheet and signed the consent forms they were invited for interviews and/or observations which were arranged in accordance with their schedules. The data collection period was from May until the end of September 2023 and there were three steps involved which were document analysis, interviews and observations. The following section starts by explaining the document analysis which is then followed by interviews and observations.

A.1 Documents Analysis

The first step in our data collection process consisted of document analysis. Document analysis provides "valuable information in helping researchers to understand a central phenomenon in qualitative studies" (Creswell, 2012, p. 210). By using this method, researchers have the opportunity to assess and review the existing documents (Bowen, 2009). In the case of this research, the data coming from interviews and observations were supported by the examination of documents created as part of the development of the DDIN. A variety of documents were selected for analysis, including reports, online resources, and surveys conducted by the DDIN. These documents were all obtained from online sources and were publicly available. When selecting the documents we made sure to follow Flick's (2018) four factors for document selection: authenticity, credibility, representativeness, and meaning. A skimming was performed on selected documents, followed by reading and interpreting them. We then analysed the documents thematically, identifying emerging themes as categories.

A.2 Semi-structured Interviews

In this research, we adopted a semi-structured type of interview as it allows us to both follow the interview protocol and at the same time ask follow-up questions (Rubin & Rubin, 2005). The interview questions were developed keeping in mind that the potential participants would be engaging with the DDIN at a variety of different levels. Therefore we identified five specific levels where the set of questions in each level was tailored to each of the potential participants' background. But the focus of the questions was the same at all levels and the questions explored such common aspects as the participants' motivation to join the network, the benefits of participating in the network, challenges that derived from this participation, and lastly their thoughts on the mapping exercise. Both information sheets and consent forms were developed in advance and were provided to the participants prior to the

interview. Each interview lasted between 30 and 50 minutes and voice recordings were made upon obtaining the participants' consent. The transcriptions of the voice recordings were carried out and then the recordings themselves were immediately removed.

The interviews were carried out by the research team. The interviews were arranged in accordance with the participants' schedules and were conducted either online or face-to-face. Overall there were twenty-four interviews conducted with the participants who were involved with DDIN at multiple levels, specifically at Levels 1, 2, 3 and 5. Throughout the study we tried to involve the stakeholders from each of the levels, however it was sometimes unclear to ascertain which level the organisation operated at. For example, it was not clear in some instances if an organisation participating, was part of the network (Level 3) or just collaborating with the network (Level 4), which illustrates some blurring between the two levels. After the conduction of the interviews, the participants were asked if they were interested in taking part in observations and the procedure of which is discussed further.

A.3 Observations

Apart from semi-structured interviews with stakeholders of the DDIN this research project also adopted observations as another type of data collection instrument. Observation is an empirical research method that involves "collecting data using one's senses, especially looking and listening in a systematic and meaningful way" (McKechnie, 2008, p. 573). In other words, it is a "systematic recording of observable phenomena or behaviour in a natural setting" (Gorman & Clayton, 2005, p. 40). This type of data collection method allows not only to collect rich data by observing people but it also helps to understand what people do in their natural contexts (Sirris et al., 2022). Thus, in this research, we carried out observations of stakeholders in order to better understand their duties and also capture the sense of their workplace.

Specifically, we were interested in getting a sense of the rurality, community and ambience of the settings as well as to understand what digital activities were in place within the organisation and/or workplace. The observation method that was used in this research adopted a non-participatory type of observation meaning that there was no level of involvement with the observed people. We as researchers observed the participants in a non-intrusive way by taking a fly-on-the-wall position where we listened and took notes but did not participate in any of the activities being observed (Creswell, 2014). The observation was "overt" and the participants were informed and were aware of the fact that they were being observed. This was ensured by providing the information sheets and consent forms to the participants who agreed to take part in the observations. Before observations took place, information sheets and consent forms were provided to the participants that explained the aims and nature of the observation, as well as their rights to withdraw from it.

During the observations, the researchers took photos upon receiving the participants' consents. It is important to note that the photos of the participants were not taken. The criteria for the photos included only the observed site, the setup, technological infrastructure, digital devices and equipment.

Besides the photos, the researchers also filled in the observational protocol (See Appendix A) which was a semi-structured type of protocol that contained a structure but also gave the researchers the freedom to note down any unexpected actions or activities. When developing the observational protocol we took into account Creswell's (2013) and Mack et al. (2015) insights and recommendations for creating an observational protocol. As a result the developed observational protocol included taking both descriptive and reflexive notes. For descriptive notes we as a team of researchers noted down the following information during our observations: description of the location/rurality of the workplace; local infrastructure - (transport, power supplies, digital connectivity kit); layout, and people carrying out their duties; capturing a sense of their workplace; description of digital inclusion activities in the workplace; description of each stakeholder's activity/duty during the observation. For reflexive notes we included additional information or reflection on the observed activity. The observations were carried out by RA1 and RA2 as well as the PI and one of the CO-Is. The observations were arranged in accordance with the participants' schedules and were conducted either online or face-to-face. Overall there were five observations conducted with the participants who were involved with DDIN at multiple levels. The following Table 1 presents a detailed information of the conducted observations:

Table 1:   Observation description

Observation 1	Face to face workplace observation
Observation 2	Face to face digital training session observation in a community building
Observation 3	Face to face digital training session observation in a community building
Observation 4	Face to face digital training session observation in a community building
Observation 5	Online steering group meeting observation

A.4 Analysis

The data coming from semi-structured interviews were coupled with observations in order to explore the participants' views regarding digital inclusion networks and the digital inclusion activities they undertake in their practices. As a first step for thematic analysis (Braun & Clarke, 2006), we decided to familiarise ourselves with the data by reading both interview transcripts and observation transcripts multiple times. This step allowed us to identify whether the collected data contained points that were relevant to the purpose of the study. Next, one of the team members uploaded the transcripts on a qualitative data analysis software called Dedoose which was specifically chosen for its features that allow collaboration and coordination among the researchers. In other words, Dedoose provides the researchers with an opportunity for simultaneous coding and enables each member of the team to see all coding activities done by co-researchers.

The coding strategy employed in this study was an abductive type of coding which is known as "a middle ground between inductive and deductive methods" (Thompson, 2022, p. 1411).

This method is not fully data-driven or based on theory, it rather undertakes an equal engagement with both the data and theoretical underpinnings (Hurley et al., 2021). Following the principles of abductive coding, we first created a codebook deductively which was based on the theoretical frameworks and existing theories. As we continued the coding process we also created new codes inductively but this time based on our interpretation of the data (See Appendix B for coding extract). By bringing together the codes that were generated deductively and inductively we then coded the entire data corpus in an in-depth manner using the abductive codebooks (See Appendix C for abductive codebook). The codes that clearly fitted together were collated into themes. Other codes were organised together into broader themes. The following findings section brings together the themes and presents them with the relevant quotes.

A.5 A caveat on the methodology

The selected case study is an atypical case rather than a typical one. The aim for its selection, as per this methodology, is not the one to generalise directly from it. The case has been chosen specifically because of its uniqueness, as a successful case of a successful local network.

This said, atypical case studies can teach us principles that, even if not generalisable, can be learned from, adapted and used in other cases. The insights reveal how the DDIN works and informs policy makers at local, regional and national levels. The principles and learning outlined can be reapplied in other cases as long as the hyperlocal context is considered and used to adapt said principles.

As this specific case study was chosen due to its success in terms of the number of activities developed, the organisations supported, and the diversity of the populations it reached, the claimed benefits from the activities of the network are verified intrinsically and by definition by the very methodology employed. The qualitative methodology employed is not meant to be measuring success according to preimposed, preconceived categories and principles, but to explain it.

Appendix B: Observational protocol

Observer Name:
Place of observation:
Time of observation (start/end):
Length of observation:
The number of observed people:
Use pseudonyms from the beginning!

Descriptive notes (in chronological order describe the location/rurality of the workplace; local infrastructure - [transport, power supplies, digital connectivity kit etc]; layout, and people carrying out their duties; capture a sense of their workplace; describe digital inclusion activities in the workplace; describe each stakeholder's activity/duty during the observation)	**Reflective notes** (notes for yourself, your reflection on the observed activity, extra comments that are relevant to the observed activity)

Appendix C: Coding extract
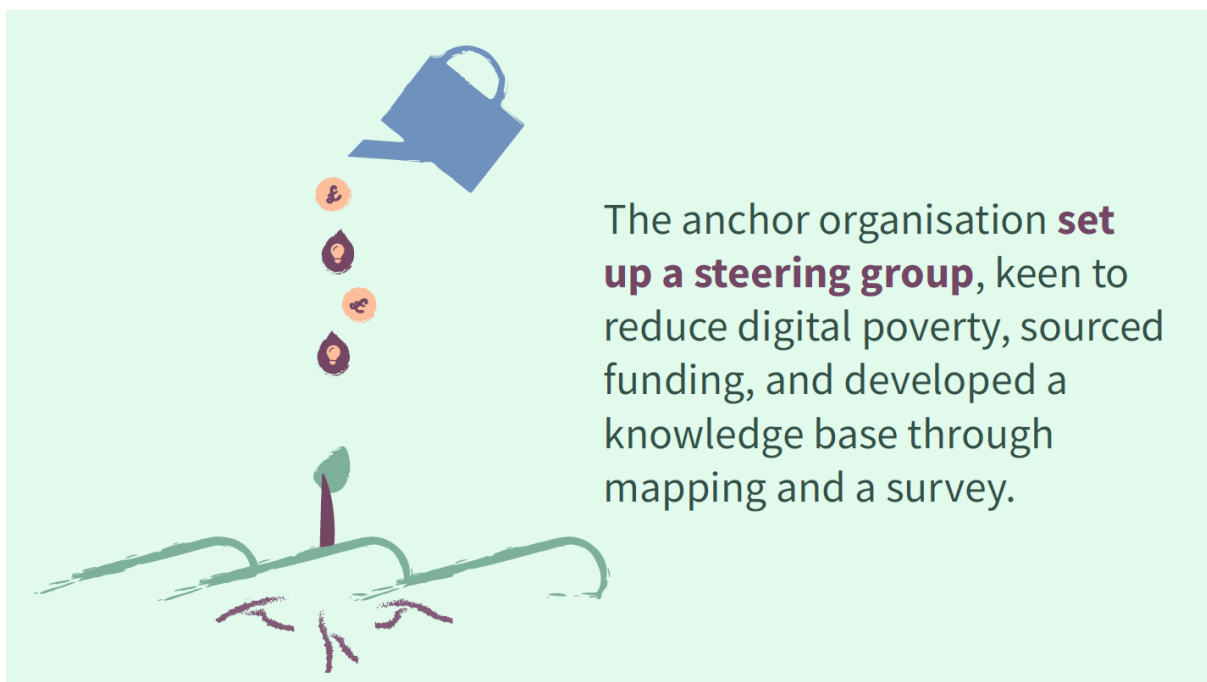
Coding extract examples

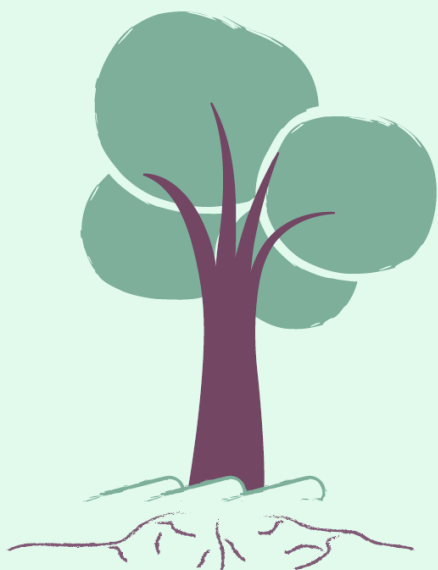| Interview extract	Codes
Literally everything. So it could be, "How do I make a phone call on my mobile phone?" "How do I use WhatsApp?" "How do I look at contacts, etc?" right through ... We've looked at people wanting to buy a phone or a tablet and helped them with what might be the right thing for them to go for, then help them set up the phone, learn how to use the things that are important to them to use and then say, "Don't worry about the rest of it. Just use that." But we also get techie stuff, so, "My email's stopped working," "My phone and iPad have stopped synchronising photos. Can you sort it out for me?" "This laptop won't work."	Troubleshooting Time
Really, I've got some spare time at the moment, I've got a lot of experience of computers, phones, etc., so it's really an opportunity to give something back. And also I see from relatives the exclusion that people are experiencing. Often they're being forced into it because of modern life. And so they need to know enough to do what they're doing, but not necessarily everything.	Motivation Roles
Basic digital skills set to be UK's largest skills gap 2030.	IT Knowledge
Older people don't have smartphones therefore no access to QR codes & apps	Technical infrastructure
Need strategies for supporting patients unable to speak on the phone Appointment system for GP surgeries to call by 8am – difficult for those with caring responsibilities & strict medication regimens	Troubleshooting Time
Resistance as a society – why should we do everything online?	Emotional response/attitudes
Complex system barriers make voluntary sector support challenging One size does not fit all	Troubleshooting

Appendix D: Abductive codebook

Adductive codebook examples

Theme	Theme description	Code	Coding Extract
Ecosystem	Networks within networks, how joined up/fragmented they are, systems that can influence it (e.g. belonging to different jurisdictions), opportunities for knowledge sharing	Pros being in a network Funding Cons of being in a network - or challenges Mapping	*I don't know. I don't know him or anything about what's going on with it. I think there was something set up at TOWN but I don't – I've got – I don't get involved in things. I'm just basically here, you know?*
Place	Rural, urban, buildings, environment, welcoming or not, conditions/aspects, access(ibility), types of sessions/delivery happening (also as related to what building allows or limits) but also connectivity	Social aspect Barriers related to place Benefits of place Technological infrastructure	*It is free, I mean that is the thing, the whole thing is free to people because we don't get charged for the space people can come along without any cost. And I guess not everywhere has got access to that sort of facility, so it would be more difficult I think if you were asking people to pay to come along, maybe.*

Appendix E: Storyboard examples

Building a digital inclusion network:
Ecosystem
Place
Role
Time

The anchor organisation **set up a steering group**, keen to reduce digital poverty, sourced funding, and developed a knowledge base through mapping and a survey.

The establishment of the network helped **sharing of resources**, and connected existing projects, which enabled the network to build knowledge and innovate.

Organisations in the network become stronger together and **build capacity** to deliver digital inclusion as they share resources and knowledge.

Organisations and projects feel supported and not alone, not forgotten, creating a **sense of belonging.**
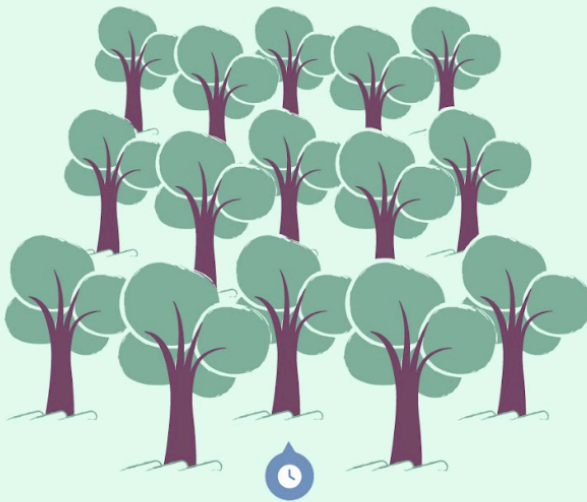
Networks need **time** to develop and expand, but also time is required so that certain outcomes can be achieved.

The network is part of larger collection of organisations and other networks that form an **ecosystem** across the country.