

<b>Institution:</b> University of Lincoln		
<b>Unit of Assessment:</b> 17 – Business and Management Studies		
<b>Title of case study:</b> Supporting the Delivery and Take-up of Broadband and Digital Technology in Rural Areas		
<b>Period when the underpinning research was undertaken:</b> 2007 - 2019		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
PRICE Liz	Senior Research Fellow	8 Dec 03 to date
BOSWORTH Gary	Associate Professor	1 Sep 08 – 20 Apr 20
ASHMORE Fiona	Research Fellow	22 Jan 18 – 2 Jun 20
DEVILLE Jane	Research Fellow	8 Sep 14 to date
FULLER Ted	Professor of Strategic Foresight	1 Mar 08 to date
<b>Period when the claimed impact occurred:</b> 2016 - 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)  Rural areas across Europe lag behind urban areas in the speed of broadband connectivity, restricting opportunities for homes and businesses to benefit from digital technology and limiting local economies. Research conducted by the University of Lincoln has explored the delivery and adoption of broadband and digital technology to help bridge this digital divide, demonstrating the importance of connectivity and tailored support to the rural economy. Research findings have enabled the creation of an evidence base, which has been used to enhance understanding of the importance of rural digital connectivity, inform priorities, attract new funding and influence decisions, both in the UK and overseas.</p>		
<p><b>2. Underpinning research</b> (indicative maximum 500 words)  A European Commission study (2016) (see <a href="https://bit.ly/3brZNBN">https://bit.ly/3brZNBN</a>) found that just 47% of rural areas had access to high-speed broadband, compared with 80% of urban areas. Known as the 'rural digital divide', these figures show how rural areas across Europe lag behind urban areas in the speed of broadband connectivity. With digital technologies playing an ever-increasing role in the ways we live and work – and as the Fourth Industrial Revolution offers further opportunities for transformation – ensuring people in rural areas have access to high-speed broadband is a core focus of digital policy, in the UK and across Europe. However, the business case for investing in rural areas remains a challenge for communications providers, not least because of the sparsity and distribution of the population. Limited broadband infrastructure in rural areas has also made it difficult for businesses to access and realise the benefits of broadband-enabled technology, further complicating the case for investment. A team at Lincoln International Business School (LIBS) has been involved in a long-running programme of research to help improve the delivery and adoption of broadband and digital technology to businesses in rural areas.</p> <p>The LIBS team, led by Liz Price and including Fiona Ashmore, Ted Fuller, Jane Deville and Gary Bosworth, has focused on the role that digital can play in the rural economy, looking specifically at the challenges and opportunities associated with rural broadband connectivity and the provision of appropriate business and technical support. Drawing on earlier work that evaluated the business support needs of SMEs, Price was invited in 2007 to undertake original research for a local authority to explore the benefits of broadband supply and stimulation activities on SMEs within a rural area in the UK. Using a mixed methods methodology consisting of 40 qualitative interviews and a quantitative survey of 150 participating SMEs, the research identified a strong relationship between broadband provision and economic growth, with an uplift in both</p>		

employment and turnover brought about by providing SMEs in rural areas with a broadband internet connection [3.1].

These research findings, together with work by Bosworth exploring the implications of limited access to digital technologies for rural communities [3.2] formed the basis for further research within the team. First, the researchers were invited to evaluate a project run by Lincolnshire County Council from 2007 to 2013, called 'An Online Revolution', which focused on improving broadband infrastructure and delivering support to Lincolnshire's SMEs [3.3]. A parallel project, the Online Knowledge Base Collaboration, tested a new business support approach, by pairing SMEs with academics on a 1:1 basis to explore how digital technology could be embedded in their business [3.4]. Using mixed methods for both studies (quantitative surveys, qualitative interviews, and roundtable discussions), the research demonstrated that whilst training events provide entry level support for broadband use, more intensive support such as 1:1 advice and ICT grants led to more significant changes within businesses. Research by Price for the Greater Lincolnshire Local Enterprise Partnership added to this understanding by demonstrating the scale and potential economic value of the digital sector which could be achieved in rural areas with the correct policies and support in place. The research, which used location quotients and growth rates for digital sector enterprises, also highlighted the rapid growth, relative to other sectors, of small digital clusters in rural areas and the importance of these clusters in their role as 'enablers' of innovation and growth in other sectors [3.5].

As well as establishing the importance of tailored approaches to rural digital connectivity, the LIBS team also examined the role that spaces such as Digital Technology Hubs might play in rural economies. By surveying 52 businesses and carrying out qualitative interviews with 15 delivery partners, the researchers identified that direct access to new technologies in these spaces was particularly important for rural SMEs [3.3]

This work has continued at a European level with Price and Ashmore working with universities, local authorities and SMEs as part of a North Sea Region Interreg Project – COnnecting Remote Areas with Digital Infrastructure and Services (CORA). Overall, the programme has identified and tested approaches to improve digital infrastructure and digital skills in the most rural and remote areas of the North Sea Region, with the researchers at Lincoln focusing on developing a guide to establishing a Digital Technology Hub. Following a methodology comprising an extensive literature review, a survey of 14 municipalities across Europe, and three roundtable discussions, they have been able to develop a typology that identifies different types of Hub and outlines how these can support technology use and skills development among businesses and communities in rural areas [3.6]

### 3. References to the research (indicative maximum of six references)

- 3.1 Price, L., Shutt, J., Atherton, A., and Noke, H. (2008) *An evaluation of the economic impact of broadband in Lincolnshire*: updated final report.  
<https://doi.org/10.1177%2F0269094218791508>
- 3.2 Salemin, Koen and Strijker, Dirk and Bosworth, Gary (2017) Rural development in the digital age: a systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies*, 54. pp. 360-371. ISSN 0743-0167  
<https://doi.org/10.1016/j.jrurstud.2015.09.001>
- 3.3 Price L., Shutt, J. and Sellick, J. (2018) *Supporting Rural Small and Medium-sized Enterprises to take up broadband-enabled technology: what works?* *Local Economy* 33(8)  
<https://doi.org/10.1177/0269094218791508>
- 3.4 Fuller, T., Bosworth, G. and Deville, J. (2015) *Onlincolnshire Knowledge Base Collaboration (OKBC)*.  
<http://eprints.lincoln.ac.uk/id/eprint/22590/1/OKBC%20final%20report.pdf>

- 3.5 Annibal, I. and Price, L. (2017) *Greater Lincolnshire's Digital Landscape Summary Report*, produced for Business Lincolnshire Full report plus glossy summary document [6266 gllep gl digital landscape summary report\\_web\[2\].pdf](#)
- 3.6 Ashmore F, Price L and Deville, J (2020) *CORA Digital Hub Guide*, available on the CORA project website: <https://eprints.lincoln.ac.uk/id/eprint/39850/3/CORA%20Digital%20Hub%20Guide%202014.01.2020.pdf>

#### 4. Details of the impact (indicative maximum 750 words)

The portfolio of research developed by the LIBS team – which has demonstrated the importance to the rural economy of broadband connectivity, tailored support, customised regional approaches and access to digital hubs – and the relationships they have built with partners in the UK and across Europe, has led to the development of an evidence base that has been used to inform priorities, attract funding, support businesses and influence decisions for Lincolnshire County Council and the Greater Lincolnshire Local Enterprise Partnerships. The research has also been used to inform the business case for a new business hub in the Netherlands.

##### **Creating an Evidence Base for Lincolnshire County Council to Attract Funding.**

The LIBS research, particularly the evaluation of existing projects and the identification of challenges and opportunities for Lincolnshire in overcoming the rural digital divide, has created a new evidence base for decision-makers in the region. Lincolnshire County Council used this evidence base to underpin their application to the European Structural and Investment Fund, citing in particular the research findings that demonstrated the need for further and more varied support to help SMEs engage with digital technology. The application was successful, resulting in 2016 in GBP964,000 new funding to provide additional digital business support across the Greater Lincolnshire Area. The Senior Manager at Business Lincolnshire Growth Hub has stated that, as well as evidence for the funding application, “*results from the research were used to develop and shape the types of support being offered during the programme*”. As a result of the funding, 457 SMEs engaged in digital business support in Greater Lincolnshire. [5.1, 5.2].

##### **Creating an Evidence Base for Greater Lincolnshire Local Enterprise Partnership to Build their Understanding of the Importance of the Digital Sector.**

The body of research has also helped the Greater Lincolnshire Local Enterprise Partnership (GLLEP) to understand of the importance of the digital sector to the Lincolnshire economy. The LIBS research on the digital landscape was presented to the GLLEP Governance Board on 24 November 2017, resulting in the digital sector being recognised an ‘enabling sector’ and being included in the GLLEP Strategic Plan. This recognition demonstrates not only the importance of the digital sector to the region but also the role played by the digital technology and workers to underpin innovation across Lincolnshire’s other key sectors. The Chief Executive of GLLEP has stated that this improved understanding of the digital sector has led to closer working with the local digital sector. In particular, this has led to the GLLEP developing a support strategy for Digital Lincoln, a local digital sector meet-up group [5.3, 5.4, 5.5].

##### **Creating an Evidence Base for the Development of a New Business-Led Hub in Lincoln.**

The Lincoln research has contributed to the development of a new business-led hub (‘Mosaic’) in Lincoln, the need for which was highlighted in the LIBS work. Mosaic opened in October 2019 and now provides physical office space for digital businesses to co-work and to facilitate networking and growth within the sector. A two-year Digital Hub Director post has also been funded to support further development of the sector. Mosaic currently has five SME businesses located in offices at the hub and a further seven individual businesses with dedicated desks. The Chief Executive of GLLEP has stated that, as a result of the Digital Hub Director role, Lincoln now has “*resource to support the delivery of two clear growth plans; one for the physical hub and the digital hub community and a second one to support the sector itself and how it connects to the broader priority sectors with digitalisation.*” [5.5].

##### **Informing the Business Case for New Business Hubs in the UK and the Netherlands.**

As part of its participation in the CORA project, the team has presented the Digital Hub Guide and accompanying typology to a range of organisations and local authorities across Europe. In the UK, Innovation Nottinghamshire, a not-for-profit company helping to promote innovation, business and career opportunities, have used the guide to help them reflect on, and refine, the development of two innovation hubs based in the East Midlands. In particular it helped them to focus on the strengths that each centre could offer, drawing on the categories presented in the Digital Hub Guide typology to prioritise one becoming an 'incubator/co-working space' and the other a 'sector specific' hub [5.6]. Oldambt municipality in the Netherlands also used both the guide and the typology to help with the development of a new business support centre in the locality. By using the guide, the municipality realised that, rather than an incubator, an 'advice, training and supporting space', as described in the Digital Hub Guide, would be more appropriate for their region. As the Alderman for Economic Affairs in Oldambt has said, the Digital Hub Guide created by the LIBS team has helped them to refine their ideas for the development of the new digital hub [5.7].

#### **Providing Materials to Create New Online Training Resources.**

The Digital Hub Guide has been used by Atene Kom, a German communications agency and lead partner on the CORA project, to developing three online training courses: (i) Digital Hubs: understanding the concept; (ii) Practical development of digital hubs; (iii) Digital Hubs: practical guidance for operations. These training modules have been made publicly available at the CORA project website [5.8]

#### **Providing Expert Advice and Guidance on Rural Digital Challenges.**

Members of the team have been invited to provide their expert advice in different settings. For example, in 2018, Bosworth gave evidence to the Scottish Affairs Committee on digital connectivity in Scotland [5.9]. In 2019, Ashmore was invited to submit evidence on rural broadband to inform the Department for Environment, Food & Rural Affairs statement of priorities on the rural research framework. She was also invited to judge the European Broadband Awards in November 2018. Building on her research on rural community broadband, Fiona joined the judging panel to benchmark a range of entries and identify exemplary solutions, helping to showcase successful approaches for broadband delivery in rural areas [5.10].

#### **5. Sources to corroborate the impact** (indicative maximum of 10 references)

- 5.1 Testimonial from Senior Manager at Greater Lincolnshire Growth Hub.
- 5.2 Extract from Lincolnshire County Council's successful ESIF bid for £964K.
- 5.3 Minutes from Greater Lincolnshire LEP Governance Board, Friday 24 November 2017, at which the Greater Lincolnshire's Digital Landscape report was presented and the Board agreed that the digital tech sector should be identified as an 'enabling sector' in the LEP strategic plan.  
[https://www.greaterlincolnshirelep.co.uk/assets/documents/LEP\\_Board\\_Minutes\\_-\\_24th\\_November\\_2017\\_FINAL.pdf](https://www.greaterlincolnshirelep.co.uk/assets/documents/LEP_Board_Minutes_-_24th_November_2017_FINAL.pdf)
- 5.4 Announcement that Greater Lincolnshire LEP is now supporting Digital Lincoln (15 June 2018): <https://www.digitallincoln.co.uk/news-blog/2018/6/15/announcing-business-lincolnshire-growth-hub-support>
- 5.5 Testimonial from the Chief Executive Officer at Greater Lincolnshire Local Enterprise Partnership.
- 5.6 A testimonial from Innovation Nottinghamshire
- 5.7 A testimonial from the Alderman for Economic Affairs at the Municipality of Oldambt in the Netherlands.

**Impact case study (REF3)**

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| 5.8  | Online training materials available on CORA project website:<br><a href="https://coraproject.eu/training/">https://coraproject.eu/training/</a>  |
| 5.9  | Evidence to Scottish Affairs Committee:<br><a href="https://publications.parliament.uk/pa/cm201719/cmselect/cm��otaf/654/65402.htm">https://publications.parliament.uk/pa/cm201719/cmselect/cm��otaf/654/65402.htm</a> . |
| 5.10 | Testimonial from Atene KOM regarding European Broadband Awards.  |