

Opening up Opportunities for Cross-border Fibre in Rural Areas



Why is Digital Infrastructure Important?

Access to a fast and reliable broadband connection is of crucial importance to the economic and social development of an area. It is key to business competitiveness and social inclusion, providing the opportunity for equal access to a range of emerging technologies linked to business, public sector services, health and education. However across Europe 10% of premises in rural areas still do not have access to a fixed broadband network and only 41% are covered by any Next Generation Access (NGA) technology¹.

Some remote areas of Europe are poorly served by their local broadband infrastructure but lie in close proximity to fibre networks across national borders. Sharing of fibre across borders therefore provides a potential solution for communities in these areas. This policy brief demonstrates how municipalities in rural areas of Sweden and Norway worked together to develop cross border fibre access as part of the Connecting Remote Areas (CORA) project. The project explored how stakeholders and users can work together to improve delivery of broadband infrastructure in remote border regions. Opening up Opportunities for Cross-border Fibre in Rural Areas

Key Messages

- | There are no major legal restrictions preventing broadband expansion across national and EU borders
- | Ensure an understanding of each county's digital strategy to find a common solution
- | Identify the implications of the choice of cross border Internet Service Provider
- | Consider cost saving options for broadband installation



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¹ European Commission (2020). The Digital Economy and Society Index 2020. Available at: <https://digital-strategy.ec.europa.eu/en/policies/desi> (Accessed 21/10/2020).

The Magnitude of the Challenge

In some of Europe's remote and rural areas access to the internet remains poor. With few potential customers, these sparsely populated areas have difficulties attracting investment in broadband infrastructure and both businesses and citizens risk being left behind as the digital divide widens. However, some of these regions lie in close proximity to fibre networks in adjacent countries and sharing this infrastructure may help achieve the vision of a European Gigabit Society where all households have access to networks of at least 100Mbps by 2025 and a Gigabit by 2030². One area which may benefit from this is the border between Sweden and Norway where Swedish citizens often receive faster broadband speeds than their Norwegian neighbours².

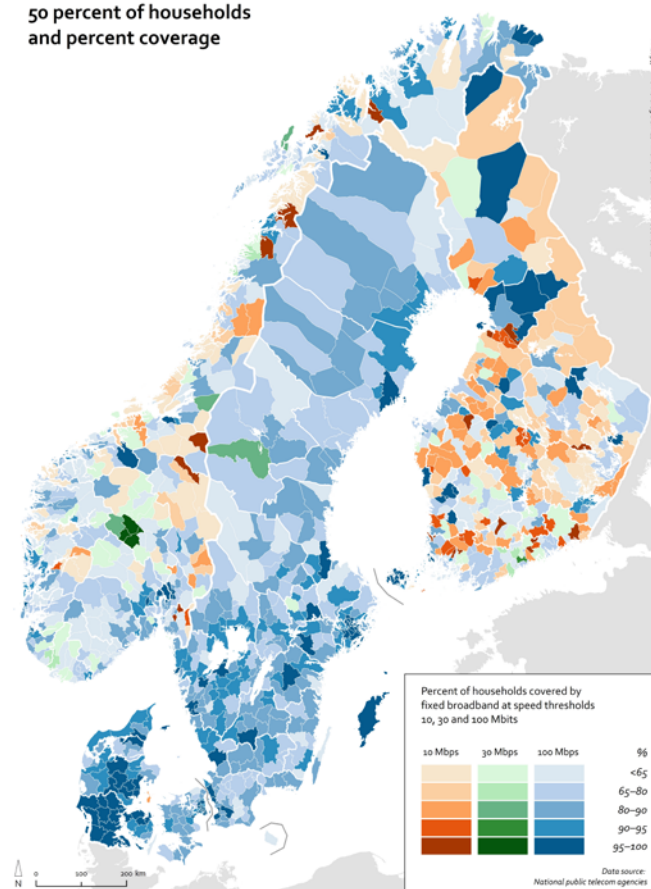
This policy brief provides information on a cross border fibre sharing pilot (BROADEN) carried out in the densely forested region of Torsby Municipality in Norway and Grue Municipality in Sweden. In addition to its rurality this area has high levels of out migration and an ageing population and improving broadband connectivity would help make the region more attractive for both citizens and businesses.

The CORA Key Messages and Solutions

Key Message 1: There are no major legal restrictions preventing broadband expansion across national and EU borders.

The initial phase of the BROADEN pilot investigated any laws and regulations that may have prevented the expansion of a fibre network across the Norway-Sweden border. A number of government propositions and legislative acts regarding broadband deployment and competition from both countries were examined. These, along with information from previous broadband expansions across the Norway-Sweden border led to the conclusion that there were no regulatory barriers. It was identified that a Norwegian broadband network could connect to a Swedish service provider as long as a signed agreement was in place.

Download speed available to at least
50 percent of households
and percent coverage



Broadband speed, availability and coverage in the Nordic Region³

» *There are no formal barriers, but there is a duty of registration for the party building, operating and providing access to electronic communications networks used for the provision of public electronic communications services.*

The Norwegian Communications Authority

² European Commission (2021). 2030 Digital Compass: the European Way for the Digital Decade. Publications Office of the European Union, Brussels.

³ Nordregio (2020). Broadband speed, availability and coverage. Available at <https://nordregio.org/maps/broadband-speed-availability-and-coverage/> (Accessed 17/6/21)

Key Message 2: Ensure an understanding of each country's digital strategy to find a common solution

Whilst there are no legal restrictions to installing cross border fibre, there are other differences between countries which will require stakeholders to work together to achieve a common solution. Each has its own national broadband strategy, broadband providers and funding mechanisms.

In Sweden, European regional development funding is available and often used, along with national and regional monies, for infrastructure expansion in the most remote areas. In Norway, however such funding is not available, and broadband expansion therefore tends to be restricted to areas with a viable market where the most premises will be reached and rural areas are therefore often overlooked. For cross border projects to succeed it is vital that local stakeholders understand these differences, and can reconcile any regional or national targets to ensure equal commitment from authorities on both sides of the border.

Key Message 3: Identify the implications of the choice of cross-border Internet Service Provider

One important consideration when deploying fibre across borders is which provider should offer internet services following installation. As part of the pilot, the Swedish broadband provider, Telia Company, offered services to premises across the border in Norway. Finnskogstoppen Hotel connected to this new service, which enabled their guests to benefit from a far faster and more robust internet connection with speeds up to 1GBps compared to their previous 3Mbps. However, as the broadband provider and the end-user were located in different countries, the end-user received an IP address from the country of the broadband provider. This initially affected the supply of their TV service, which came from Sweden. This was an unanticipated outcome of cross-border deployment with municipalities learning that the preferred Internet Service Provider, and the implications of this for the end user, should be considered at the planning stage.

Despite this, the pilot has led to infrastructure providers (Telia Norway and Telia Sweden) and municipalities on either side of the border opening up discussions about cross border fibre sharing which weren't previously happening and has created an opportunity to deliver improved broadband services to other nearby rural communities.

» *There should not be an issue for a Norwegian broadband network to connect to a Swedish one as long as an agreement is signed. If the Norwegian company has operations or owns infrastructure in Sweden, they may be required to report according to LEK (Act 2003:389 on electronic communication).*

The Swedish Post and Telecom Authority

Reconciling priorities set out in digital strategies

Digital strategies In both Sweden and Norway include a recognition of the importance of high speed broadband. Both state that all households should have access to at least 100Mbps by 2020. However, the precise targets set out in each strategy are slightly different. In Sweden, the digital strategy states:

» *By 2025 all of Sweden should have access to high-speed broadband. That is 98% of households will have access to a minimum of 1GB⁴*

Whilst in Norway, the digital strategy includes no reference to broadband connection speeds or timescales, but simply states that:

» *The long term goal is that all households shall have access to high-speed broadband⁵*

This results in an imbalance in the political buy-in and impetus to invest in NGA broadband on either side of the border.

⁴ Government Offices of Sweden (2017). A Completely Connected Sweden by 2025—a Broadband Strategy. Available at: <https://www.government.se/information-material/2017/03/a-completely-connected-sweden-by-2025--a-broadband-strategy/> (Accessed 16/6/2021).

⁵ Norwegian Ministry of Local Government and Modernisation (2015/16), Digital Agenda for Norway in Brief. Available at: <https://www.regjeringen.no/en/dokumenter/digital-agenda-for-norway-in-brief/id2499897/?ch=1> (Accessed 16/6/2021)

Key Message 4: Consider cost saving options for broadband installation

Digging trenches for underground cables is costly and requires landowner permission as well as disruptive engineering work. Wireless masts may work well in some rural areas, but in others obtaining a line of sight may be impossible due to physical features and local weather conditions rendering them unreliable. In addition to the cross border learning BROADEN also explored a number of options for the provision of broadband in the region including extending the underground fibre from Sweden into Norway, or using a wireless connection with a mast at the border. However in addition to any technical issues, both proved too costly. The fibre was therefore encased in a waterproof cable and sunk into Lake Rödjen/Røgden from Sweden to the Norwegian border. There, a border cabinet was established from which the cable was sunk again and extended towards the remote area of Norway requiring access. Norwegian municipalities estimated this saved them approximately EUR 100,000 due to the expense of laying fibre in mountainous, rocky terrain.



Underwater cable being laid at Lake Rödjen
© Elisabeth Johansson, Relacom

Connecting Remote Areas (CORA)

The Connecting Remote Areas (CORA) Project is an Interreg funded initiative, which brings together 18 public authorities, universities and private sector organisations to identify common challenges to help improve and empower rural areas through the topics of digital infrastructure, services and skills. The project enables partners to exchange experiences and test innovative solutions to create an advanced digital environment.

This policy briefing was written by Liz Price, Jane Deville and Fiona Ashmore, Lincoln University, UK. For further information see www.coraproject.eu or contact Liz Price on lprice@lincoln.ac.uk.



Further CORA Policy Briefs

- | **Digital Infrastructure:** Policy Brief 2 Boosting the delivery of digital infrastructure in rural areas
- | **Digital Skills:** Policy Brief 3 Enhancing digital skills in rural areas
- | **Digital Services:** Policy Brief 4 Developing and delivering digital services in rural areas



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