



# German strategies for digitising rural areas

Ostwestfalen-Lippe is a rural area in the heart of Germany which is turning itself into a smart rural territory by collaboration between municipalities. This has been achieved by a smart combination of infrastructure development and the EU-funded Smart Countryside Project that is delivering smart services across various fields. Key initiatives have been developed through an intensive resident participation process, including a digital communication platform, creating a “caring village”, a faith platform, a smart village hall and digital education.

In Germany, programmes for the digitisation of rural areas can be divided **into rural broadband rollout** and initiatives targeting **digital change in society**, often by developing digital services.

## National Strategies for Rural Broadband Connection

Gaining access to broadband and 5G infrastructure is a key component of Germany's digital strategy, as the country is lagging behind compared to other countries in Europe. Overall, Germany faces barriers related to its topography, the presence of heterogeneous networks and the lack of broadband capacity and stability.

### THE VALUE OF RURAL BROADBAND AS A LOCATION FACTOR

German policy and investment in broadband and 5G is primarily focusing on having connectivity as a location factor. Location factors are divided into ‘soft’ (e.g. education, culture and recreation offer) and ‘hard’ (e.g. communication infrastructure, transport, energy, environment and job market).

Poor broadband connection can impact on location factors and entail:

- Inefficient infrastructures, hindering economic recovery;
- Lack of skilled employees in the regional workforce;
- Decreasing property value;
- Decreasing regional attractiveness; and
- Lower tax income.

Recent policies aim at leveraging the following opportunities:

- Supporting small and medium-sized businesses, market dynamics, demand, usage scenarios and know-how;
- Upgrading basic infrastructure;
- Overcoming barriers of distance through digital connectivity.

Broadband rollout is coordinated by the Federal Ministry of Transport and Infrastructure (FMTI) with the goal of offering 50 Mbps or faster even in rural areas by 2025. Figure 1, shows that almost 50 % of residents in rural areas in Germany did not have access to 50 Mbps or more in mid-2018. This corresponds to approximately 2.2 million households.

Type	1 Mbps or more	2 Mbps or more	6 Mbps or more	16 Mbps or more	30 Mbps or more	50 Mbps or more
urban	100.0%	100.0%	99.9%	98.3%	95.7%	93.5%
suburban	99.9%	99.8%	98.3%	89.0%	83.2%	76.0%
rural	99.2%	98.9%	97.3%	73.1%	64.3%	50.5%
<b>Total</b>	<b>99.9%</b>	<b>99.9%</b>	<b>99.8%</b>	<b>92.4%</b>	<b>88.1%</b>	<b>82.9%</b>

Figure 1. Broadband accessibility in Germany (TüV Rheinland / BMVI 2018)

The federal funding programme for broadband rollout has a total public budget of €3.4 billion to support investment of €7.3 billion. Funding has already been granted to 669 infrastructure projects and 2200 more consulting services have been approved. This large funding programme aims to achieve the following goals (FMTI, 2018):

- Give Germany world leading status in digital infrastructure
- Achieve nationwide upgrade to gigabit networks.
- If possible change to fiberglass network.
- Leverage the potential for schools, commercial centres, social service providers and hospitals.
- Ease funding requirements.
- Enable better access to funding programmes;

Additionally, a 5G rollout has been promoted and first 5G test areas are already being planned, with an emphasis on the roll out in rural areas especially targeting the smart farming sector.

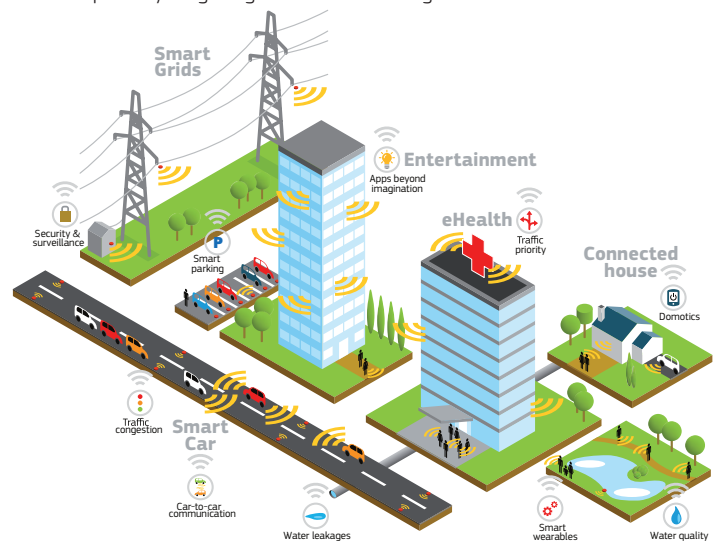


Figure 2. Network of persons, things and processes by 5G infrastructures

## German strategies to promote digital change in rural society

In parallel to the strategies for broadband rollout – led by the FMTI, there are national strategies for promoting digital change in rural society – led by the Ministry of Agriculture (RDP Managing Authority). In addition to supporting superfast broad band these policies also aim to:

- Build digital competencies and education;
- Promote smart digital services.

The Federal Programme for Rural Development (FPRD) takes responsibility for the funding and evaluation of innovative approaches to maintain the attractiveness of rural areas. Currently € 55 m are invested yearly to support exemplary approaches in rural areas which build on three pillars.

### THE 3 DIGITISATION PILLARS OF THE FEDERAL PROGRAMME FOR RURAL DEVELOPMENT

1. Land.digital: funding 68 bottom-up projects (like those in Lippe/Höxter described below) with a total amount of € 11 m.
2. Rural areas in the age of digitisation: projects that target the change of socio-economic and spatial structure as result of the digital change.
3. Smart Regions (Smarte LandRegionen): Development and exploration of regional digital services based on a joint technical platform.

## Ostwestfalen-Lippe Broadband Connection

Ostwestfalen-Lippe is a rural area stretching over several provinces of the region of North Rhine-Westphalia, including Lippe and Höxter. Their experience demonstrates the need to deal with digitisation at the local level and to adapt federal strategies to a smaller scale.

In recent years more than 250 km of fibre wire have been built from scratch in the county of Höxter; and, 93 villages more have now superfast broadband with more than 30 Mbps. The state of North Rhine-Westphalia co-funded this initiative with € 11 m and over 13 400 properties will have access to more than 50 Mbps.

Additionally, the state and the federal government have funded broadband expansion for industrial and commercial areas with € 3 m, so that 19 areas have broadband access for upload and download with more than 100 Mbps.

## Masterplan on Digitisation of the Region Ostwestfalen-Lippe

One of the key instruments for driving the digitisation of this rural area is the Masterplan for the Digitisation of the Ostwestfalen-Lippe area, developed in 2015. By the end of 2018, the plan aims to:

- Inform 3 000 representatives of small and medium local enterprises about the challenges and potentials of digital transformation and allow them to start their own activities.
- Develop 150 solutions for the digital transformation of small and medium enterprises and run 120 pilot projects.
- Develop and realise 50 business plans supporting start-ups.
- Develop 40 future solutions for better work and living.
- Plan 10 living labs and competence centres to strengthen the research and development infrastructure.
- Develop 40 programs for basic education and further education.
- To show the potential of digital transformation in different areas to the residents through 15 “shop windows”.
- To adopt results and achievements throughout the region.

Various projects have started based on the masterplan, including “Smart Countryside”, described below.

“*Digitisation comes with profound change in private life as well as in our habits of consumption and communication as well as in industry, commerce and work environment. To stay competitive in Ostwestfalen-Lippe the challenge is accepted, and we want to leverage the potential of higher productivity and quality of life.*”

Ostwestfalen-Lippe Website

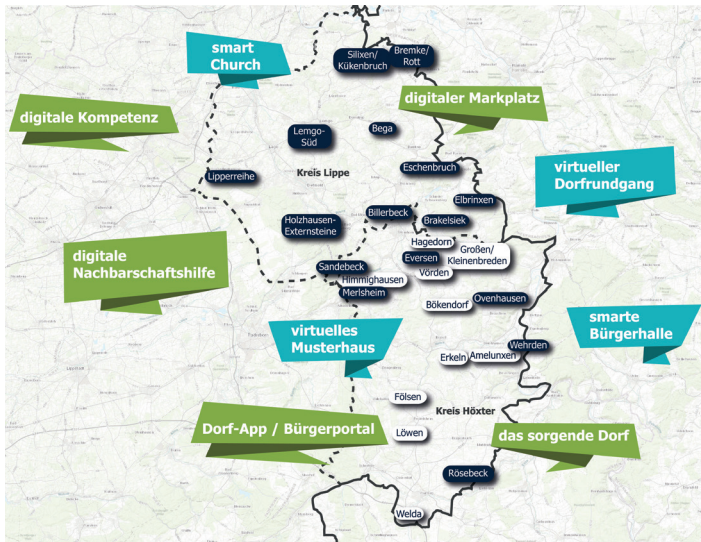
## Smart Countryside Lippe/Höxter

Through the Smart Countryside Lippe/Höxter project, 16 villages are developing need-focused digital applications and 26 villages are gaining digital education. The project is led by a joint venture of the province of Lippe and the province of Höxter and is funded jointly by the European Union (EFRE program) and the state of North Rhine-Westphalia. Smart Countryside is exploring new ways of bringing people together, supporting new ways of thinking and delivering social innovation by using digital tools. The result is a blueprint that can be used also in other areas in Europe. Figure 3 shows the villages involved.

“*Smart Countryside has leveraged a large process of residents' participation that looks at needs, worries and wishes of our residents and is now working with the residents together on solutions. That is what I call collaboration on equal terms.*”

County Commissioner Dr. Axel Lehmann

The uniqueness of the project is its extensive bottom-up approach, where the residents are also the decision-makers. Digitisation in this case is a means to strengthen the caring society in the villages.



**Figure 3.** Smart Countryside is covering 26 villages in the counties of Lippe and Höxter

Figure 4 shows the three phases of the project's process. Emphasis is put on working with the residents, establishing new digital structures at a pace that is not overwhelming for the residents and aiming at including as many people as possible.

2016: Phase 1	2017: Phase 2	2018/2019: Phase 3
(Kick-Off, research, local networking)	(Selection of villages, competition, national networking)	(Implementation, cooperation, evaluation, blueprint)
<ul style="list-style-type: none"> <li>Establishment of team and working structures in the villages</li> <li>Addressing the masterplan of the region</li> <li>Kick-off events</li> <li>Agreement on milestones</li> </ul>	<ul style="list-style-type: none"> <li>Selection of villages in the counties</li> <li>Village conferences</li> <li>Decision on Smart Countryside services</li> <li>Education on digital competencies</li> </ul>	<ul style="list-style-type: none"> <li>Development of Smart Countryside services</li> <li>Education on digital competencies</li> <li>Monitoring, optimization and evaluation</li> <li>Blueprint and Sustainability</li> </ul>

**Figure 4.** Core Phases of Smart Countryside

The rural communities involved agreed on five topics for focusing on the implementation phase, to be supported by digital tools:

- Digital Village Platform (digital marketplace, news, events, search & find, real-time-chat);
- The Caring Village (for everybody that is offering or looking for help in their daily life);
- The Faith Platform (online church service, appointments, pilgrim routes);
- The Living Platform (building owners, Property owners, smart homes); and
- Digital Education (training and other events, excursions, establishment of education and media corners in village halls).

*“Already in 2017, the rural communities have confirmed the ideas. Since then, numerous voluntary 'digital-village-experts' are preparing for the implementation phase so that they can support other residents in terms of digital education.”*

*Michael Stolte, Project Manager Smart Countryside*

## Digital Village Platform

The Digital Village Platform is realized in cooperation with the digital villages platform (ENRD, Case Study: Digital Villages Germany, 2018). It is focusing on communication among residents, but it provides also a direct communication channel between residents and village government.

*“By using the Digital Village Platform, we want to enable new ways of communication, information and local networking to prepare our village for the digital connected future.”*

*Hans-Werner Gorzolka, Digital-Village-Expert in Overhausen*

## The Caring Village

Within the Caring Village, residents are creating new forms of solidarity to help each other face the challenges of daily life. Self-organised teams performed door to door surveys to get map who is willing to offer support and who needed it. This allowed a connection between the analogue and digital community, people with special talents, knowledge and resources; it also enhanced social competencies.

### Impact of the Caring Village:

The villages educated 12 'Digital-Village-Experts' that are collaborating with 130 interested residents to improve their digital competencies.

## The Faith Platform

The faith platform provides streaming of church services and related ceremonies, that are made accessible online. It is developed involving local schools and youth and is particularly relevant for elderly people.



*New ways to faith and pastoring ▲*

## The Smart Village Hall

One major project of the living platform is the establishment of a smart village hall. The residents have developed the concept for the infrastructure and a business model. The hall is full of smart home and building automation which makes the whole village attractive as a model to other villages.



## Digital Education

Local residents are getting ready for the digital future with a 'training the trainer' concept. Approximately 150 Digital Village Experts of all ages volunteer to teach digital topics to residents, using education and media corners established on purpose in village halls. Classes always focus on a practical topic and include site visits. Certain topics, including data security, digital farming, education 4.0, E-commerce, voluntary work, media and IT-law, are regularly addressed through larger events.



Figure 6: Digital education session in a rural village hall ▲

## Lessons learned – How can we enable digitisation of rural areas?

German policy is focusing on delivering digital access and a nation-wide broadband connection through large investments in broadband and 5G infrastructure. Providing access, however, is only a prerequisite for the actual digitisation of rural areas, that requires complementary strategies at the national, state, county and village level.

National strategies can set the frame to ensure optimal support to infrastructure and broadband connection. State funding should be made available to support this.

Regions should develop global strategies for their territories, especially covering the industry and local service providers (see the pioneering experience of Ostwestfalen-Lippe).

A bottom-up approach like the one by the Smart Countryside project can lead to promising ideas and solutions. The following lessons were learned:

- Residents know the importance of the digital change and want to use it actively.
- In every village there are 'first movers' – residents who already have digital skills and are willing to share their knowledge.
- Infrastructure and broadband connection are prerequisites to use digital services in rural areas.
- Villages in rural areas have a strong culture of participation and sharing.
- Residents are mainly concerned with overcoming basic challenges in rural services, social care, voluntary work, and participation in rural networks. They see digitisation as a tool for achieving improvements. Local strategies need to take these concerns into account.

The lessons learned show that social innovation is a very interesting topic for rural villages. Regions have the duty to ensure that the digital services they plan to apply – either existing solutions or promising prototypes – fit exactly the local needs.

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