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Policy Brief

Key messages

- The BMEL project on Digital Villages exemplifies how modern IT technologies can help bridge the gap between living standards in rural and urban areas.

- In China, Digital Villages are seen as a vital tool for revitalizing rural areas and preventing rural communities from slipping back into poverty.

- In Germany, progress in rural development is mainly driven by government funding and the active participation of the local population. Yet, in China, the private sector, namely the huge tech companies, is playing a significant role in the development and revitalization of rural areas.

Policy Brief on Digital Villages

By Andreas Hansen, Beijing, February 2022

Introduction

The digitalization of rural areas is increasingly in the focus of national and local policy makers as it is seen as a vital tool to bridge the gap in living standards, household incomes, etc., between urban and rural residents and to counter the still ongoing rural exodus in many countries. Concentrating on village level, so called Digital Villages have been created in many parts of the world.

This policy brief outlines the promotion of Digital Villages in Germany in the context of the Federal Program on Rural Development (BULE). It also compares the Digital Villages concepts of China and Germany.

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1) Digitalization as an Overriding Task for the German Government and its implementation within the Federal Ministry of Food and Agriculture (BMEL)

Digitalization has become mainstream in the government and its line ministries. The German government adopted a Digital Agenda in 2014 to 2017 and has since stepped up its efforts to anchor digitalization as a cross-cutting issue. The current national digitalization strategy was adopted in 2021 and developed by all federal ministries, including the BMEL.

In addition to the national digitalization strategy, almost all federal states have adopted their own digital strategies within the last six years. The federal states of Hesse and Bavaria even set up digital ministries.

Responsibility for providing digital infrastructure in Germany lies with the Ministry of Transport and Digital Infrastructure; in rural areas, the ministry coordinates its work closely with the BMEL. The budget for digital infrastructure amounts to more than EUR 6 billion over the next four years, including EUR 1 billion for increasing mobile coverage in rural areas.

The BMEL does not have a formal, written digital strategy, but it has integrated the topic of digitalization in all its structures and policies. Since 2018, it has established a subdivision with the single topic of digital innovation and appointed a digital officer in each of its eight divisions.

Digitalization has also become an important cross-cutting issue at the Institute of Agricultural Engineering, which is one of the von Thünen research institutes, the BMEL's central research facility.

Current lighthouse projects to support the digital transformation in agriculture are:

- *Digital Experimental Fields:* In 2019, the BMEL launched the "Digital Experimental Fields" to support the digitalization process in German agriculture. The project will run for three years and has a total budget of EUR 50 million. 14 research projects at various locations in Germany have been initiated, dealing with all relevant topics of the agricultural sector. Most of them are carried out on private or public demonstration farms in cooperation with local universities or research institutions.
- *Support of Artificial Intelligence:* Since 2021, the BMEL has been funding 35 research projects on the use of AI technologies in agriculture, food production, healthy nutrition and rural development. The total budget is about EUR 40 million.

Lead by BMEL's Commissioner for Digitalization, the competence network „Digitalization in Agriculture" brings together spokespersons of the digital experimental fields and representatives from research and other associations.

The BMEL has commissioned a feasibility study on digitalization in agriculture. As a result, a new public data platform has been launched recently: **https://www.landwirtschaftsdaten.de/**. Here, all relevant data on agriculture in Germany can be accessed by all stakeholders and the wider public.

To provide digital infrastructure and to bring the latest digital technologies to all rural areas, the BMEL is mobilizing resources from the Common Fund for Coastal Protection and Rural Development. The Common Fund has an annual budget of EUR 1,5 billion; almost EUR 500 million are intended for rural development. A new federal investment program to support farmers investing in digital technologies to achieve sustainability regarding climate change and sustainable environment is providing more than EUR 800 million over the next three years.

Since last year, the BMEL has made special funding of start-up companies available; providing venture capital for promising, young tech companies who are looking for digital solutions on smart farming, electro-chemical weed management and robotic harvester for the fruit and vegetable sector.

2)   Digital Villages in Germany and the EU

The *Digital Villages (Digitale Dörfer)* project is part of the wide-reaching Federal Program for Rural Development (BULE). Overarching goal is to provide equal living standards across the whole country. In recent years, this goal has come under increasing pressure as it has become almost impossible to achieve in many regions of Germany, especially in the remote areas of eastern Germany. Therefore, the concept has been replaced by the promise to ensure a minimum of public services in all regions of Germany. To enable rural inhabitants to participate in modern digital technologies, the ministry established additional projects with the common aim to develop digitalization in rural areas.

The Digital Villages project has been initiated seven years ago in three rural communities in the federal state Rhineland-Palatinate. Including over 30 villages, the initial goal was to improve the availability of goods and services through the development of several apps into a community platform. This platform allowed citizens to buy goods directly from local producers or encouraged interaction between villagers to deliver goods themselves. The focus was on strengthening the local economy and the active participation of the population, especially through voluntary services. In the following years, the project was extended to several hundred villages across several federal states of Germany (https://www.digitale-doerfer.de/die-digitalen-doerfer/).

The Fraunhofer Institute for Experimental Software Engineering (IESE) has supported most of the villages in setting up their own website where all the developed apps and services can be used by the local population. The developed digital ecosystems are now covering all aspects of local commerce including tourism and leisure events, as well as mobility and communication. It has also improved the provision of local government services.

The pilot project *Smarte.Land.Regionen (Smart.Rural.Areas)* has been implemented by the IESE and launched in seven rural districts across Germany. Each of them has a budget of EUR 1 million for four years. One of the main goals is to develop, research and test a digital infrastructure that enables rural districts to effectively implement its services for the public. Digitalization can also increase the attractiveness of rural areas as home office work is on the rise. To combine technical and social innovations is essential to achieve this goal.

The project relies on the active participation of villagers and is defined by the smart interaction of public administrations as well as local businesses and citizens. It is part of the National Action Plan on "Open Government Partnership", a transnational initiative that is based on the idea that an open government is more accessible, more responsive and more accountable to citizens. Improving the relationship between the people and their government will have a positive long-term impact for everyone involved.

With the *Land.Digital (Digital Countryside)* project, the BMEL supports digital change in rural regions and promotes exemplary, practical concepts nationwide. The use of modern digital information and communication technologies opens up new opportunities for rural areas. From 237 submitted projects outlines, 61 innovative projects were selected to receive funding commitments of up to EUR 200,000. All projects will be completed by March 2022. Project participants are in particular companies, associations, universities, colleges, municipalities and districts. The fields of application cover the seven subject areas "economy and work", "volunteering and participation", "mobility", "education and qualification", "health and care", "local supply" and "information and communication (ICT) platforms". Main goal is to promote innovative projects that can be replicated in other regions to use the opportunities of digitalization in rural areas.

Smart Villages EU

The EU within its European Network for Rural Development has defined a Smart Village concept and established a comprehensive smart village platform where all information regarding policy, approaches, toolkits and current projects are listed. Smart Villages are communities in rural areas that use innovative solutions to improve their resilience, building on local strengths and opportunities. They rely on a participatory approach to develop and implement their strategy to improve their economic, social and environmental conditions, in particular by mobilizing solutions offered by digital technologies. Smart Villages benefit from cooperation and alliances with other communities and actors in rural and urban areas. (Definition from ENRD, 12)

There is no separate budget for the small villages concept, but there are many budget lines available that fit into the topic of smart villages. Similar to the situation in Germany, the EU is financing smart or digital solutions from its rural development programs and has allocated almost EUR 100 billion from the EU budget for a total of 118 programs from 2014 to 2020.

3) Comparison between German and Chinese Digital Villages concepts – commonalities and differences in approach and objectives

Commonalities

The overall objectives to engage in digital villages are similar in both countries. It is seen as a useful measure to bridge the gap in living standards between rural and urban areas, to increase the attractiveness of rural areas and to keep or attract young talents to the rural areas.

Differences

A closer look reveals some differences: In Germany, the focus mainly is on strengthening communities and the cooperation between citizens, municipalities and business in rural areas. In China, the digital villages initiative shall contribute to food security in the whole country and to revitalizing rural areas.

Approaches and Objectives

"Digital Villages" in China is a policy instrument of the central government, guided by several official policy documents which will be implemented across the whole country and fine-tuned to local conditions. In Germany, the Digital Village project is only one sub-project out of several programs which provide support for the rural areas in Germany, led by the Federal Office for Agriculture (BLA) under the scheme "Federal Program for the Development of Rural Areas" (BULE).

Chinese policy is characterized by a rather top-down approach whereas in Germany, the government is seeking the active participation of villagers to shape the details of any proposed measure.

The Chinese approach is more holistic as it integrates measures for infrastructure, village development, e- commerce, education for farmers and local administration.

Data Security and Data Privacy

Data security and data privacy are very important in Germany, not only for the digital villages, but also for the wider public, and it is of great concern for most citizens. Apart from topics like preventing loss and theft of data, the focus is more and more on who is entitled to access and utilize data from whom and who owns what data.

To protect data privacy of its citizens and to ensure the implementation of the Freedom of Information Act, the German government has appointed a data protection commissioner who is presiding over an

independent federal office. The commissioner is nominated by the government and elected by the members of parliament. Furthermore, data protection officers have been appointed in all federal ministries, including the BMEL, as well as on all administrative levels and in most private corporations as well.

Farmers at village level are aware of the benefits and opportunities of digitalization, but also fear that insufficient data protection could lead to data monopolies by large companies, e.g. agricultural machinery manufacturers, which would put farmers at a disadvantage and threaten the loss of free entreprise. For farmers, it is not only ownership of private data is important, but also machine data and data related to their business that should be theirs alone.

It would appear that the whole issue of data protection is not yet a major concern in China.

Involvement of the private sector

One of the most striking differences in promoting digital villages in China and Germany is the substantial involvement of large private companies in China whereas in Germany, this is limited to few food retailing companies engaged in some form of cooperation with local farmers.

Some of the largest tech companies in China dominate e-commerce not only for general goods and services, but also for food retail, and have established distribution channels throughout the country. Four companies dominate food retailing in Germany: Aldi, Schwarz Group (Lidl, Kaufland), Edeka and Rewe. They are all active in food e-commerce, but their share of total food retail sales is rather marginal at around 2%. Delivery services are concentrated in urban areas, and direct cooperation with farmers or farmer associations is very limited.

In Germany, the focus of activities within the Digital Villages is on connecting local villagers with each other, connecting villages within one region, initiating new business models, new models for public transport and rehabilitating or creating public multifunctional places which will help the coherence within the communities.

Recommendations:

- The private sector in Germany should take more initiatives to explore the opportunities of modern IT technologies in rural areas. The case of Chinese tech companies and their strong involvement in the farming community in China could serve as an example.
- To fully utilize available IT technologies and to access the range of existing funding opportunities, it is necessary to strengthen local administration at district and community level with regard to personnel and/or funding.

– The lack of high-**speed Internet** in many rural areas is still limiting the utilization of many IT tools and hindering to close the gap between urban and rural living standards. A rapid expansion of IT infrastructure in rural areas should be prioritized.

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Disclaimer:

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About the author

Andreas Hansen is an Agronomist and works in the DCZ as the advisor for the Agricultural Policy Dialogue.

About the project

The Sino-German Agricultural Centre is a joint initiative of the German Federal Ministry of Food and Agriculture (BMEL) and the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA). It was established in March 2015 as a central contact and information point and for coordinating bilateral cooperation between Germany and China in the agricultural and food sector. The DCZ brings together stakeholders from the public and private sector and the scientific community. It creates forums in which agricultural issues of common interest are addressed. The spectrum of Sino-German cooperation in the agricultural sector is reflected in the three components of the DCZ: Agricultural Policy Dialogue, Agri-Food Business Dialogue and Scientific Dialogue.

Further information can be found on the project website: https://dcz-china.org/en/the-project.html