



## Inclusive Digitalization in the Baltic Sea Region

An Instrument for Growth and Development in Declining Rural Areas?

This policy brief examines whether inclusive digitalization is an important instrument for promoting regional growth and development in struggling rural areas in the Baltic Sea region. The brief highlights the potential benefits that digitalization can bring and the challenges faced in implementing an effective digital agenda in rural areas. The brief also provides key recommendations identifying possible initiatives and policies that may help local businesses achieve successful digital transformation. These recommendations are based on learnings and best practices from digitalization initiatives conducted in rural areas around the Baltic Sea region.

Many rural areas in the Baltic Sea region are suffering from economic stagnation and demographic decline. Traditionally dominated by primary industries, rural areas have struggled to make the transition to a modern knowledge-based economy because of ageing, unskilled labour force and an inability to develop knowledge-intensive businesses such as innovative tech startups. The decline of rural areas has been referred to by the European Commission as a process of “inner peripheralization”, characterized by a growing divide and disconnectedness between rural and urban areas<sup>1</sup>. The main drivers of inner peripheralization are primarily considered to be urbanization and outmigration of young people to major cities, poor transport infrastructure links to urban hubs, low levels of education, and an inability to attract skilled workers due to housing shortages and poor access to services of general interest (SGIs)<sup>2</sup>.

In response, inclusive digitalization has been embraced by policy- and decision-makers at the European, national and local levels as a potential antidote to inner peripheralization and as an instrument for promoting sustainable economic, social and environmental development of rural areas in the Baltic Sea region. Inclusive digitalization based on widespread access to high-quality mobile and broadband services is an essential precondition for maximizing rural natural assets and business strengths. Digitalization presents opportunities to promote local businesses at both the regional and national levels while also enhancing international outreach and access to global value chains. Furthermore, digital technologies can aid the development of sustainable local products and services, cultivating new tech startups that create employment opportunities and enhance economic growth. However, digitalization may simultaneously contribute to further urbanization

by exposing local industries and businesses to the competitiveness of the global market, with small local enterprises failing to compete with larger urban and international companies in e-commerce activities.

## THE DIGITALIZATION OF RURAL AREAS: OPPORTUNITIES AND CHALLENGES

Digitalization offers opportunities for rural areas to showcase their vast natural assets and promote niche local business to broader markets. Rural areas in the Baltic Sea region can lead the way in developing key thematic policy areas, including organic food, renewable energy sources and nature tourism. The digitalization agenda has been widely promoted as a solution to the upward trend of urbanization and outmigration from rural areas to larger urban towns and cities. Inclusive digitalization presents opportunities for rural areas to promote economic growth and innovation to increase employment and productivity. More specifically, digitalization offers the potential for the following:

- **Overcoming geographic isolation:** Information and communication technologies can help rural areas forge stronger links with economically developed urban hubs and international markets.
- **Diversifying local industries/businesses:** Local businesses and traditional industries can use online services to diversify and to develop new innovative services.
- **Improving competitiveness of businesses:** Digital technologies provide local businesses with the opportunity to expand into new markets and to compete with other national and global firms.
- **Reduced outmigration:** Young people are more likely to remain in rural areas with access to high-quality mobile and broadband services, which provides them with the tools to develop new knowledge-intensive businesses<sup>4</sup>.

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Given the overall high levels of access to digital technologies in rural areas across the Baltic Sea region, the failure of rural businesses to effectively digitalize their internal processes represents a societal challenge rather than a technological problem. Indeed, despite the efforts of policy- and decision-makers to increase access to mobile and broadband services in rural areas, the rate of adoption of digital practices and business models remains lower than in urban centres. There are several challenges that need to be addressed if the digital transformation of rural areas is to be realized, including:

■ **Individual motivations:** Psychological and socio-cultural barriers affect the rate at which citizens and businesses in rural areas adopt digital practices, as some rural citizens are less open to learning about new technologies and e-business models.

■ **Further disconnectedness from urban areas:** Information technology may not have a decentralizing effect and only reinforces the dominance of urban centres, as local businesses struggle to adapt to e-commerce activities.

■ **Public and private sector support:** Public and private sectors are currently unwilling to outsource knowledge-based service jobs to rural areas.

■ **Education and training:** Due to an ageing work force and the outmigration of young people to urban centres, many rural businesses do not have the information and communication technology (ICT) skills to exploit the opportunities of the digital economy. As most ICT companies and tech startup digital entrepreneurs are

based in urban areas, there is a lack of talent density in rural regions. Thus, the critical mass of ICT experts required to help businesses with the transition to digital practices has not yet been achieved.

■ **External competition:** Rural businesses are exposed to global markets and cannot compete with larger international companies engaged in e-commerce activities.

■ **Poor access to SGIs:** The impact of digitalization on rural areas is often experienced negatively by citizens because it leads to a decline in access to SGIs, including banks, supermarkets and health care institutions; e.g., many rural citizens indirectly experience health care provision as a distant e-service. Low-level access to SGIs causes outmigration and makes rural areas less-appealing places to live, which contributes to the lack of talent density and the low-level work force diversification required to digitalize businesses effectively.

■ **Broadband costs:** The high price of access to fast broadband services is often enough to deter locals from purchasing the infrastructure necessary to digitalize their businesses effectively<sup>5</sup>.

## DIGITALIZATION IN THE BALTIC SEA REGION: THE CURRENT STATE OF PLAY

The Baltic Sea region is currently a frontrunner in the development of the digital economy. Access to high-quality mobile and broadband technology services is relatively high across the region. The 2016 State of the Digital Region report highlights that the number

of Internet users across all countries is over 60%, with over 90% of people in Nordic countries having access to the Internet. Estonia is not far behind the Nordic countries in terms of Internet usage, but in Poland, Latvia and Lithuania, Internet usage is spreading at a much slower pace (Top of Digital Europe, 2016)<sup>6</sup>. The region is also well stocked with digital businesses and there is a commitment amongst policy- and decision-makers from the ministerial to industry levels to promoting cross-border collaboration in the digital market<sup>7</sup>. This is reflected in the recent creation of the ad hoc Council for Digitalization by the Nordic Council of Ministers, involving Baltic Sea countries as close partners, and the development of the Nordic-Baltic Ministerial Declaration on Digitalization released in April 2017.

The adaptation of Baltic Sea countries to the digital single market can be seen in the high levels of EU cross-border e-commerce activities and extensive take up

by firms of cloud computing services. Furthermore, the use of e-government services has grown steadily across the region (Top of Digital Europe, 2016). The 2016 *State of the Digital Region* report affirms the importance of urban areas in providing fertile ground for innovation and the creation of tech-driven startups. Urban areas are regarded as important innovation hubs for generating new business ideas and exchanging information between firms. Growth and development are based on spontaneous interactions between local entrepreneurs and firms (local buzz) with international businesses (global pipelines). The report emphasizes the vital role of Baltic Sea region city leaders and authorities in cultivating networks between researchers and tech startups through partnership agreements, clustering activities and simplified procurement procedures (Top of Digital Europe, 2016). However, the report fails to reflect on how the digital transformation of urban centres can impact and encourage digitalization in rural areas.

## THE NORDIC-BALTIC MINISTERIAL DECLARATION

The document outlines a commitment to stronger Nordic-Baltic collaboration on digitalization by:

1. Strengthening the digital transformation ability of our (Nordic) governments and societies, especially by creating a common area for cross-border digital services in the public sector
2. Strengthening the competitiveness of our enterprises through digitalization
3. Enhancing the digital single market in the Nordic-Baltic Sea region<sup>8</sup>

## POLICIES AND STRATEGIES FOR DIGITALIZING RURAL AREAS IN THE BALTIC SEA REGION

BSR Stars is a flagship of the EU Strategy for the Baltic Sea Region that aims to strengthen competitiveness and economic growth by linking strong research environments, clusters and Small and Medium Sized Enterprises (SMEs) networks to create globally leading innovation partnerships. As part of the BSR Stars flagship, a seminar was held at the 8th Annual Forum for the EU Strategy for the Baltic Sea Region, which focused on the issue of digital transformation and the development of tech startups in rural areas. The session brought together policymakers and practitioners from the Baltic Sea region with experts from public authorities, research centres, academia and entrepreneurs. The seminar focused on identifying policy measures to encourage rural businesses to diversify and innovate through the adoption of digital business models.

Event participants noted that the central challenges facing rural businesses in adapting to the digital economy include a lack of understanding amongst rural SMEs on how to develop effective strategically targeted e-business models, low numbers of educated young people with experience and knowledge of tech startups in rural areas, the unwillingness of an older work force to adopt modern digital technologies, a lack of support from national and local authorities for building capacity and facilitating networks, and centralized "urban-focused" regulations and policy initiatives. Participants agreed that there was no one-size-fits-all approach to digitalization and that rural contexts need to be carefully considered in the search for solutions, rather than attempting to apply urban digitalization models to rural areas.

# POTENTIAL SOLUTIONS FOR OVERCOMING THE CHALLENGES OF DIGITALIZATION IN RURAL AREAS

The following solutions are suggested by participants of the seminar at the 8th Annual Forum for the EU Strategy for the Baltic Sea Region:

■ **Education, training and capacity building:** Local SMEs require support from ICT digitalization experts to learn how to develop effective e-business models; in particular, ICT businesses need to support traditional industries to help them to identify new potential digital services and to know which elements of their business to digitalize.

■ **Greater national and local level support:** In the Baltic Sea region, the digitalization agenda is a national-level concern with a predominantly urban focus. National-level initiatives, projects and regulations need to consider the rural dimension to a greater extent. Furthermore, it was stated that public authorities across levels of governance need to play a larger role in creating the infrastructure for facilitating

and cultivating networks between rural SMEs with other regional, national and global networks.

■ **Learning from urban hubs:** Rural businesses can learn from urban hubs about connecting rural strengths to global pipelines. One speaker highlighted the need to look outwards to urban and global market trends and how they link to their own areas of local specialization, particularly urban areas that want access to rural assets such as organic foods and nature tourism.

■ **Regional attractiveness:** Effective digitalization is closely linked to regional attractiveness and the ability of rural areas to attract highly qualified and skilled ICT experts to the region by offering quality housing and access to SGIs. Skilled young ICT experts are required to act as digital interpreters and to improve technology capacity building amongst citizens and rural businesses.

## DIGITALIZATION BEST PRACTICES IN THE BALTIC SEA REGION

Across the Baltic Sea region, capacity-building initiatives have been developed with the aim of enhancing digitalization in rural areas by teaching local businesses how to formulate and implement effective e-business models. Some national rural digitalization initiatives from Sweden and Finland that can be learned from or potentially scaled up to the macro-regional level are outlined below.

### Sweden - Developing Global Pipelines and Promoting Incubator-to-Incubator Collaboration

In Sweden, the digitalization agenda focuses on building transnational value chains by connecting local businesses with global pipelines to market their products and services. The head of Startup Sweden, Marcus Liu, notes that building global pipelines is a high priority and should be extended to rural businesses by connecting regional ecosystems with ecosystems of excellence at the national and international levels. Establishing the infrastructure for incubator-to-incubator collaborations between smaller regional

hubs is also considered vitally important in encouraging capacity building and entrepreneurial exchange between SMEs.

#### Swedish SME Bootcamps

To build up the digitalization capacities of Swedish SMEs, Startup-Sweden has introduced a boot camp campaign for the most promising digital startups in the country. The boot camp gives companies, including rural SMEs, the opportunity to develop their networks with other companies, to meet potential public and private investors, and to gain practical advice on how to develop effective e-business models. Skellefteå Science city has highlighted the need to develop an activity-based innovation ecosystem in Sweden to overcome the lack of talent density in rural areas. This could be achieved by connecting rural digitalization testbeds and incubators of complementary types, but of similar size, to facilitate networking among tech startup entrepreneurs, and to provide better tailored entrepreneurial support and joint startup activities, such as boot camps. This could potentially increase the talent density in rural areas through joint capacity-building exercises between incubators based on sharing expertise and peer-group support.

## Finland—Building the Digitalization Capacities of SMEs

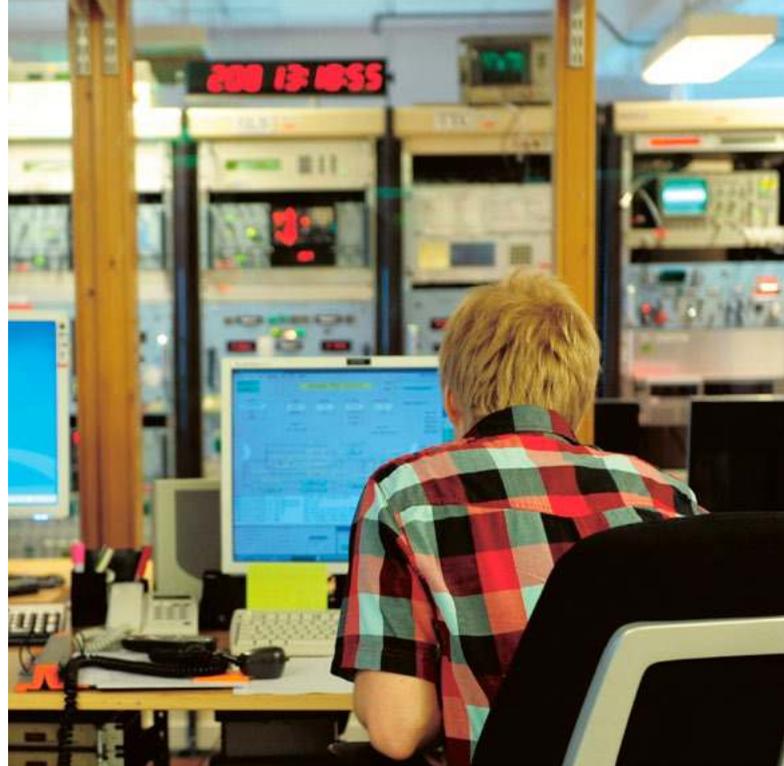
In Finland, digitalization is viewed as crucial for enhancing the standard of services available to residents of rural areas. Digitalization may also strengthen the governing autonomy of rural areas through the capacity to create stronger connections between rural towns and communities and urban areas (Finnish Policy Brief, 2016). However, there is concern regarding the growing urban–rural digital divide in Finland. Low-quality broadband connections are not regarded as the central cause of this divide, but rather a lack of technological competence and unwillingness by local businesses to integrate digital technologies into their business models. Indeed, a large discrepancy exists between Finnish rural businesses in their capacity to utilize digital tools; some companies have no digital marketing channels, whereas others already benefit from the use of big data. In response, there are several bottom-up local and regional digitalization initiatives underway in Finland to help small businesses struggling to adapt to the digital economy, with the emphasis being on improving education and digital capacity building.

### *Entrepreneurial Platform—Kuopio*

In Kuopio, several active entrepreneurs have created a platform for mutual learning and peer support among SMEs and entrepreneurs in the field of digital transformation (Finnish Policy Brief, 2016). Events were organized under the 2015–2016 Paremmän Palvelun Kuopio (“Better Service in Kuopio”) project, administered by the local association for entrepreneurs and co-funded by the European Social Fund and the City of Kuopio. The local association for entrepreneurs organized educational evenings and breakfast meetings to develop local entrepreneurs’ digitalization skills. Some of the events were free of charge, and covered topics such as digitalization in financial management, social media and digital customer service.

### *The Digital Factory—South Ostrobothnia*

Seinäjäki University of Applied Sciences has developed the Digital Factory initiative in a collaboration with Tampere University of Technology, Siemens Finland and Siemens PLM Software partner IDEAL PLM to create business opportunities through digitalization for manufacturing SMEs in South Ostrobothnia. Industry, research and academia have come together to assist and encourage manufacturing SMEs to apply new technologies and provide companies with graduates to facilitate digital manufacturing. The project is centred around an industrial Internet laboratory where businesses can test, pilot and learn about digitalization practices. For example, Pesmel Oy in Kauhajoki is a logistics, storage and packing company for metal, paper and converting industries



*Photo: Johannes Jansson/norden.org*

that uses several digital tools for product design and simulation tools in marketing. Digital Factory has co-developed Pesmel products by linking a warehouse management system to a digital twin with high storage capacity. Hydroll Oy, Lapua, is a company that works with high-quality piston accumulators and uses several digital tools for product design and production data handling. The Digital Factory has co-developed Hydroll production by designing and simulating robot cells and through the operations of a subcontractor network.

### *Digital Rural Region Project—Suupohjan*

Raising awareness of digitalization has been difficult in rural areas, as app developers and ICT startups are found in the larger cities, whereas most rural SMEs have a background in traditional industries. The Digital Rural Region project in Suupohja, a subregion in South Ostrobothnia, is a bottom-up project aiming to improve the awareness of rural SMEs of digitalization and to lower the thresholds to adopt digital solutions in rural regions. The project is administered by the joint municipal authority for regional business development (Suupohjan elinkeinokuntayhtymä SEK), and funded by SEK, EU’s LEADER programme, and a regional (fibre-optic) network operator (Suupohjan seutuverkko Oy SUNET). Launched in May 2016, the project involves the organization of seminars and lectures on the integration of digital business solutions. In open and free-of-charge DIGILOIKKA (“Digital Leap”) sessions, participants were familiarized with social media, e-marketing, digitalization and management.

# CONCLUSIONS AND RECOMMENDATIONS

## EFFECTIVELY DIGITALIZING RURAL AREAS IN THE BALTIC SEA REGION

Inclusive digitalization is a vital precondition for helping rural regions adapt to the modern knowledge-based economy and for promoting regional development and growth. Digitalization offers rural firms the opportunity to diversify into new innovative business areas and opens up local products and services to new value chains at the national and global levels. Furthermore, digitalization can help reduce the levels of outmigration and brain drain to urban hubs and make rural areas a viable alternative for educated young people to live and work. Despite these opportunities, digitalization remains the preserve of urban centres and rural areas have largely been neglected by policy- and decision-makers. The central challenges in digitalizing rural areas are no longer issues of connectivity to high-quality mobile and broadband services, but rather the need to promote capacity building and knowledge exchange to encourage rural firms to integrate digital models into their business plans. The BSR Stars flagship has contributed to the debate over the challenges faced in implementing the digital agenda. The following recommendations for achieving a successful digital transformation in rural areas are outlined:

- Public authorities and agencies need to create and invest in infrastructure to increase collaborations between tech start-up incubators to help facilitate knowledge exchange between SMEs and entrepreneurs.
- Public authorities and agencies should promote capacity building and foster activity-driven innovation between ICT experts and SMEs/entrepreneurs to improve talent density in rural areas.
- Cross-border digitalization collaborations in the Baltic Sea Region should be promoted to help SMEs and start-ups to grow and expand into new markets.
- Hold regular networking events to foster stronger links between rural SMEs and urban ecosystems.
- Best practices from successful urban ecosystems should be used as the basis for capacity building for rural SMEs and entrepreneurs to enhance their knowledge and understanding of integrating e-business models.
- National-level policymakers need to consider the rural dimension more in the development of digitalization projects/initiatives and regulations.
- An institute should be created outside of traditional universities that speaks the language of SMEs and can communicate what companies need to do to integrate digital business models.
- The development of rural digitalization regulations, projects/initiatives should be decentralized to local public authorities who understand the rural context.
- Where possible, public authorities should support the promotion of local digitalized businesses by opening testbeds for place-based business opportunities.
- Rural industries and businesses should identify local digitalization possibilities based on an analysis of global market trends and urban demands in areas where a place-based comparative advantage can be identified, such as in organic food or nature tourism.
- Public authorities should work with rural industries and business to develop the digital agenda in regional smart specialization strategies.
- Rural tech startups should be provided with more support to market and advertise their businesses.
- Regional attractiveness should emphasize the quality of digital technologies to encourage ICT professionals with networks that they can utilize to transform digitally and scale up existing business in rural regions to move to rural areas, or to start new companies based on areas of competitive rural advantage.

## References:

<sup>1</sup>European Commission (2011), Territorial Agenda of the European Union: Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions, Hungary, 19th May. Accessed at: [http://www.nweurope.eu/media/1216/territorial\\_agenda\\_2020.pdf](http://www.nweurope.eu/media/1216/territorial_agenda_2020.pdf)

<sup>2</sup>ESPO (2017), ESPON Prophecy Project Draft Final Report—Inner Peripheries: National Territories Facing Challenges of Access to Basic Services of General Interest, December 2017. Accessed at: <https://www.espon.eu/inner-peripheries>

<sup>3</sup>European Commission (2014), The Digital Agenda Tool Box, JRC Seville 2014; European Commission (2015), A Digital Single Market Strategy, COM (2015) 192 final. Accessed at: <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC88896/ipts%20jrc%2088896%20%28print%29%20final.pdf>

<sup>4</sup>Correa, T. & Pavez, I. (2016), Digital Inclusion in Rural Areas: A Qualitative Exploration of Challenges Faced by People in Isolated Communities, Journal of Computer Mediated Communication, 21, 3, pp. 247–263.

<sup>5</sup>Grimes, S. (2003), The Digital Economy Challenge Facing Peripheral Regions, Progress in Human Geography, 27, 2, pp. 174–193.

<sup>6</sup>Top of Digital Europe (2016), State of the Digital Region Report 2016 "Cities connecting the Digital Economy in the Baltic Sea Region". Top of Digital Europe, Baltic Development Forum and Microsoft. Accessed at: [https://www.bdforum.org/wp-content/uploads/2016/11/2016\\_StateOfDigital.pdf](https://www.bdforum.org/wp-content/uploads/2016/11/2016_StateOfDigital.pdf)

<sup>7</sup>Interreg Baltic Sea Region (2017), The Baltic Sea Region: A Global Digital Test Hub – Test and Demonstration Facilities Across Borders, September 2017. Accessed at: [http://www.bdforum.org/wp-content/uploads/2017/09/The-Baltic-Sea-Region-A-World-Class-Digital-Hub\\_web.pdf](http://www.bdforum.org/wp-content/uploads/2017/09/The-Baltic-Sea-Region-A-World-Class-Digital-Hub_web.pdf)

<sup>8</sup>Norwegian Ministry of Local Government and Modernization (2017), Ministerial Declaration, April 2017. Accessed at: <https://www.regjeringen.no/contentassets/5ed83530b83c4e4ba85338c29eb50c63/ministerial-declaration.pdf>

# ABOUT THIS POLICY BRIEF

This policy brief is a part of **BSR Stars S3** (Smart specialization in bio-, circular and digital economy in the Baltic Sea Region) project which seeks to enhance growth opportunities in the Baltic Sea Region, focusing on the bio-/circular and digital economy fields.

**Read more:** [www.bsr-stars.eu/bsr-stars-s3](http://www.bsr-stars.eu/bsr-stars-s3)



## Research contacts

John Moodie  
Senior Research Fellow  
Phone: +46 8 463 54 48  
[john.moodie@nordregio.se](mailto:john.moodie@nordregio.se)

Jukka Teräs  
Senior Research Fellow  
Phone: + 46 8 463 5458  
[jukka.teras@nordregio.se](mailto:jukka.teras@nordregio.se)

Tuulia Rinne  
Research Intern

## Photos:

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realisbeautiful.it

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